

**ADDENDUM NO. 3**

**DATED: November 11/16/2020**

**TO THE DRAWINGS AND PROJECT MANUAL FOR:**

**PROJECT: Morningside Tennis Court Lighting**  
**PROJECT NO. 19-0035-PR**

|                     |                                                                                                                                                                  |                                                                                                                     |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>PREPARED BY:</b> | <b>PARKS AND RECREATION DEPARTMENT</b><br><b>100 S. MYRTLE AVE.</b><br><b>CLEARWATER, FLORIDA 3375</b><br><b>PHONE: 727-562-4856</b><br><b>FAX: 727-562-4825</b> | <b>ADVANCE ENGINEERING &amp; DESIGN</b><br><b>3931 68<sup>TH</sup> NORTH</b><br><b>PINELLAS PARK, FLORIDA 33781</b> |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|

**THIS ADDENDUM NO. 2 ISSUED TO CLARIFY **SUBSTITUTION OF TRULY GREEN SOSUTIONS (TGS SPORTS LIGHTING) FOR MUSCO SPORT LIGHTING** TO BIDDING DOCUMENTS FOR MORNINGSIDE TENNIS COURT LIGHTING - PROJECT NO. 19-0035-PR OF THE CONTRACT DOCUMENTS FOR THIS WORK, THIS ADDENDUM CONSTITUTES A PART OF THE CONTRACT DOCUMENTS. ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE PROPOSAL FORM.**

**A. Request to review TGS Sport Lighting as a substitution for MUSCO see attachment submitted.**

**Morningside Tennis Performance Spec. 2020**

**SPORTS LIGHTING**

**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 TLC LED light source 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.

**Answer:** Required submittal information for all manufactures (not pre-approved) 10 days prior to bid – Bid date is November 18, 2020, missed cut off date 10 days prior to bid date is November 8, 2020. Missed date line date to submit request- TGS Sport Lighting not approved substitution for MUSCO Sport Lighting.

**End of Addendum No. 3**

## SPORTS LIGHTING

### 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 Morningside Tennis Courts 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. 4 Tennis courts side by side
- E. The primary goals of this sports lighting project are:
  - 1. Guaranteed I.E.S. class IV Tennis 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 as described in section 1.3
  - 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.
- F. Design and Permitting
  - 1. Contractor shall be responsible for securing necessary permits.

#### 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 |
|------------------|------------------------------------|-------------------------------------|-------------|--------------|
| Tennis           | 30fc                               | 2.0:1                               | 60          | 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 Venues       | 550                | 13,750              |

- C. Color: The lighting system shall have a minimum color temperature of 5700K and a CRI of 65+
- D. DLC: The lighting system shall meet DLC Efficacy guidelines of 105 lumens per watt for outdoor luminaires
- E. 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.

| Field  | Pole Designation | Pole Height |
|--------|------------------|-------------|
| Tennis | T1-T6            | 50'         |

### 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. 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.

#### C. Upper Beam Definition

Fixtures shall not exceed the candlepower at the specified degrees above the center of the beam in the vertical plane as specified in the following table.

| NEMA Classification of Vertical Beam | Candela | Degrees Above the Center of the Beam in the Vertical Plane |
|--------------------------------------|---------|------------------------------------------------------------|
| 4                                    | 10,000  | 15.00 degrees                                              |

This mounting height increase will be calculated by referencing the fixture photometric report and determining the angle above vertical that the fixture achieves a candela reading less than or equal to 10,000 candela. Pole heights will be increased 3.33' for every one degree above 15.0 degrees needed to achieve a candela reading of 10,000. For example: If 10,000 candela is achieved at 19.5 degrees above vertical, a minimum mounting height of 85' (4.5 degrees x 3.33') would be required for the poles.

## 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. Fixtures are to be labeled individually for ease of installation and identification for warranty purposes
- C. 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.

D. System Description: Lighting system shall consist of the following:

1. Galvanized steel poles and cross-arm assembly. Alternate: Concrete pole with a minimum of 8,000 psi and installed with concrete backfill will be an acceptable alternative provided building code, wind speed and foundation designs per specifications are adhered to.
2. Non-approved pole technology:
  - a. Square static cast concrete poles will not be accepted.
  - b. 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. Pre-stressed concrete base embedded in concrete backfill allowed to cure for 12-24 hours before pole stress is applied. Alternate may be an anchor bolt foundation designed such that the steel pole and any exposed steel portion of the foundation is located a minimum of 18 inches above final grade. The concrete for anchor bolt foundations shall be allowed to cure for a minimum of 28 days before the pole stress is applied unless shorter cure time approved by structural engineer of record.
4. Manufacturer will remote all drivers and supporting electrical equipment in aluminum enclosures mounted approximately 10 feet above grade. 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. Integral driver fixtures will not be accepted.
5. Manufacturer shall provide surge protection at the pole equal to or greater than 40kA 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. Control cabinet to provide remote on-off control and monitoring of the lighting system. Cabinet shall be constructed of aluminum and be rated NEMA Type 4. Communication method shall be provided by manufacturer. Cabinet shall contain custom configured contactor modules for 30, 60, and 100 amps, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.
9. Lightning Protection: Manufacturer shall provide integrated lightning grounding via concrete encased electrode grounding system as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A. 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.
10. Enhanced corrosion protection package: Due to the potentially corrosive environment for this project, manufacturers must provide documentation that their products meet the following enhanced requirements in addition to the standard durability protection specified above:
  - a) Exposed carbon steel horizontal surfaces on the crossarm assembly shall be galvanized to no less than a five (5) mil average thickness.
  - b) Exposed die cast aluminum components shall be Type II anodized per MIL-STD-8625 and coated with high performance polyester.
  - c) Exposed extruded aluminum components shall be Type II anodized per MIL-STD-8625 and coated with high performance polyester.

- E. 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: 480 Volt, 3 Phase
  - 2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed five (5) percent of the rated voltage.
- B. Energy Consumption: The average kW consumption for the field lighting system shall be 28kW. The max kW consumption for the field lighting system shall be 28kW.

## **2.3 STRUCTURAL PARAMETERS**

- A. Wind Loads: Wind loads shall be based on the 2014 Florida Building Code. Wind loads to be calculated using ASCE 7-10, an ultimate design wind speed of 150 and exposure category C

## **2.1 CONTROL**

- A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.
- B. 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.

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.
- C. 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).
- D. 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.
- E. Communication Costs: Manufacturer shall include communication costs for operating the controls and monitoring system for a period of 25 years.

## **PART 3 – EXECUTION**

### **3.1 DELIVERY TIMING**

Delivery Timing Equipment On-Site: The equipment must be on-site 7 Weeks from receipt of approved submittals and receipt of complete order information.

### **3.2 FIELD QUALITY CONTROL**

- A. Laser aiming is required - This can be accomplished two ways
  - 1) If the fixtures are factory aimed, the crossarm assembly as one unit

- 2) Fixtures that are not factory aimed must be individually laser aimed for quality control.
- B. 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.
- C. 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.
- D. 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.
- 1) Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term.
  - 2) Manufacturer must have employees/technicians to service the equipment located within a 60 mile radius. This is in addition to a network of contractors used to service the system.
  - 3) If the control system is not provided by the manufacturer of the lighting system, the manufacturer of the Control System must have employees/technicians to service the equipment located within a 60 mile radius. This is in addition to a network of contractors used to service the system.
- 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. Individual luminaire 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 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 TLC LED light source 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.

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- 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.

## **PART 5 – DESIGN APPROVAL**

### **5.0 POST BID SUBMITTAL**

- A. In the event that a manufacturer provides a submittal that is deemed to be incomplete, that manufacturer has 2 weeks maximum to provide all requested information. If the manufacturer does not comply with this timeline, they will be deemed non-compliant and the submittals 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/<br>No | Tab | Item                                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------|-----|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            | A   | Letter/<br>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<br>Layout                      | Drawing(s) showing field layouts with pole locations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|            | C   | On Field<br>Lighting<br>Design           | Lighting design drawing(s) showing: <ol style="list-style-type: none"> <li>Field Name, date, file number, prepared by</li> <li>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>Pole height, number of fixtures per pole, horizontal and vertical aiming angles, as well as luminaire information including wattage, lumens and optics</li> <li>Height of light test meter above field surface.</li> <li>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 variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaries, total kilowatts, average tilt factor; light loss factor.</li> </ol> |
|            | D   | Environmental<br>Light Control<br>Design | Environmental glare impact scans must be submitted showing the maximum candela from the field edge on a map of the surrounding area                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|            | F   | Photometric<br>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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|            | G   | Performance<br>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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|            | H   | Structural<br>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 FL, if required by owner. (May be supplied upon award).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|            | I   | Control &<br>Monitoring<br>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 10 references of customers currently using proposed system in the state of FL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|            | J   | Electrical<br>Distribution<br>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 FL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|            | K   | Warranty                                 | Provide written warranty information including all terms and conditions. Provide 10 references of customers currently under specified warranty in the state of FL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|            | L   | Project<br>References                    | Manufacturer to provide a list of 10 projects where the technology and specific fixture proposed for this project has been installed in the state of FL. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|            | M   | Product<br>Information                   | Complete bill of material and current brochures/cut sheets for all product being provided.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|            | N   | Delivery                                 | Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|            | O   | Non-<br>Compliance                       | Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

The information supplied herein shall be used for the purpose of complying with the specifications for FFF Boggy Creek. 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: \_\_\_\_/\_\_\_\_/\_\_\_\_



PROPOSAL  
Morningside Tennis Court Lighting  
City of Clearwater, Florida

**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/<br>No | Tab      | Item                                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------|----------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            | <b>A</b> | Letter/<br>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>B</b> | Equipment<br>Layout                      | Drawing(s) showing field layouts with pole locations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|            | <b>C</b> | On Field<br>Lighting<br>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 variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaires, total kilowatts, average tilt factor; light loss factor.</li> </ul> |
|            | <b>D</b> | Environmental<br>Light Control<br>Design | Environmental glare impact scans must be submitted showing the maximum candela from the field edge on a map of the surrounding area                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|            | <b>E</b> | Photometric<br>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>F</b> | Performance<br>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>G</b> | Structural<br>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 FL, if required by owner. (May be supplied upon award).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|            | <b>H</b> | Control &<br>Monitoring<br>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 10 references of customers currently using proposed system in the state of FL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|            | <b>I</b> | Electrical<br>Distribution<br>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 FL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|            | <b>J</b> | Warranty                                 | Provide written warranty information including all terms and conditions. Provide 10 references of customers currently under specified warranty in the state of FL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|            | <b>K</b> | Project<br>References                    | Manufacturer to provide a list of 10 projects where the technology and specific fixture proposed for this project has been installed in the state of FL. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|            | <b>L</b> | Product<br>Information                   | Complete bill of material and current brochures/cut sheets for all product being provided.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|            | <b>M</b> | Delivery                                 | Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|            | <b>N</b> | Non-<br>Compliance                       | Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

The information supplied herein shall be used for the purpose of complying with the specifications for FFF Boggy Creek. 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: \_\_\_\_/\_\_\_\_/\_\_\_\_

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PROPOSAL LAYOUT  
Morningside Tennis Court Lighting  
City of Clearwater, Florida

# PROJECT SUMMARY

Project: Morningside Tennis Court

Quote No.:

Drawn By: Hal

Date Created: 11-2-2020

Sales Agent: SESCO Lighting



☐ Triton™ G2  
300W/400W/500W  
Weight: 33 lbs.  
EPA: 1.42 ft<sup>2</sup>



☐ Triton™ G2  
750W/1250W  
Weight: 62 lbs.  
EPA: 2.08 ft<sup>2</sup>



☒ Nova™ G2  
400W/500W/600W  
Weight: 39 lbs.  
EPA: 2.57 ft<sup>2</sup>



☐ Nova™ G2  
800W/1000W/1200W  
Weight: 66 lbs.  
EPA: 3.48 ft<sup>2</sup>

## Luminaire Summary

Color/CRI/NEMA: 5700K – 70CRI – NEMA 4

Luminaire Output: 76761~76957 Lumens

Total Load: 9.81 kW

No. of Luminaire: 16

LED Lifetime: L70>100,000 hours

Electrical Load: Refer to Amperage Draw Chart in product spec sheet.

Aiming/Installation: Results ± 3% nominal voltage at line side of driver & structures located within 3ft of layout locations.

Measurement: Illuminance (FC) are measured at a 1m (3ft) elevation within PPA (Primary Playing Area).

Illumination Performance: LLF is 0.95 includes the dirt depreciation factor, illumination level guaranteed minimum 10 years & up to 25 years based on usage. \*Refer to Warranty Letter.

## Illumination Calculation Summary

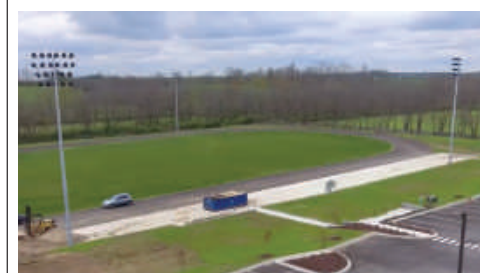
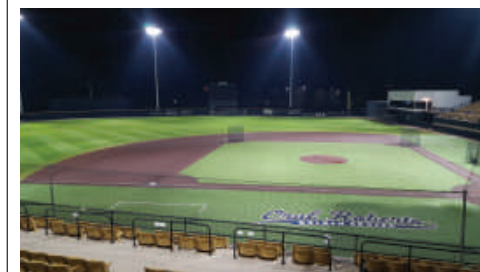
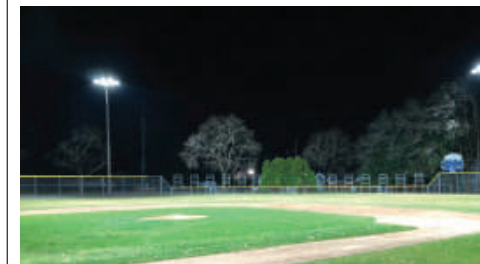
| Symbol | Qty | Label              | Arrangement | Total Lamp Lumens | LLF   | Description       | LLD   | LDD   | BF    | Lum. Watts | Total Watts |
|--------|-----|--------------------|-------------|-------------------|-------|-------------------|-------|-------|-------|------------|-------------|
| ■      | 8   | NOVA2-600-57-U-D-4 | SINGLE      | 76957             | 0.950 | 600W 5700K NEMA 4 | 1.000 | 1.000 | 1.000 | 613.267    | 4906.136    |
| ■      | 8   | NOVA2-600-57-U-D-6 | SINGLE      | 76761             | 0.950 | 600W 5700K NEMA 6 | 1.000 | 1.000 | 1.000 | 612.674    | 4901.392    |

## Calculation Summary

| Label    | CalcType    | Units | Avg   | Max  | Min  | Avg/Min | Max/Min | # Pts | CV   | UG   | PtSpLr | PtSpTb | Grid Z |
|----------|-------------|-------|-------|------|------|---------|---------|-------|------|------|--------|--------|--------|
| Tennis 1 | Illuminance | Fc    | 32.03 | 44.3 | 22.8 | 1.40    | 1.94    | 15    | 0.24 | 1.80 | 20     | 20     | 3      |
| Tennis 2 | Illuminance | Fc    | 35.44 | 44.8 | 28.0 | 1.27    | 1.60    | 15    | 0.14 | 1.48 | 20     | 20     | 3      |
| Tennis 3 | Illuminance | Fc    | 35.06 | 45.4 | 22.8 | 1.54    | 1.99    | 15    | 0.16 | 1.99 | 20     | 20     | 3      |
| Tennis 4 | Illuminance | Fc    | 34.11 | 47.5 | 23.2 | 1.47    | 2.05    | 15    | 0.28 | 1.99 | 20     | 20     | 3      |

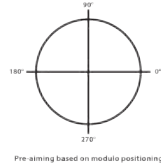


Recreation Areas to Professional Locals



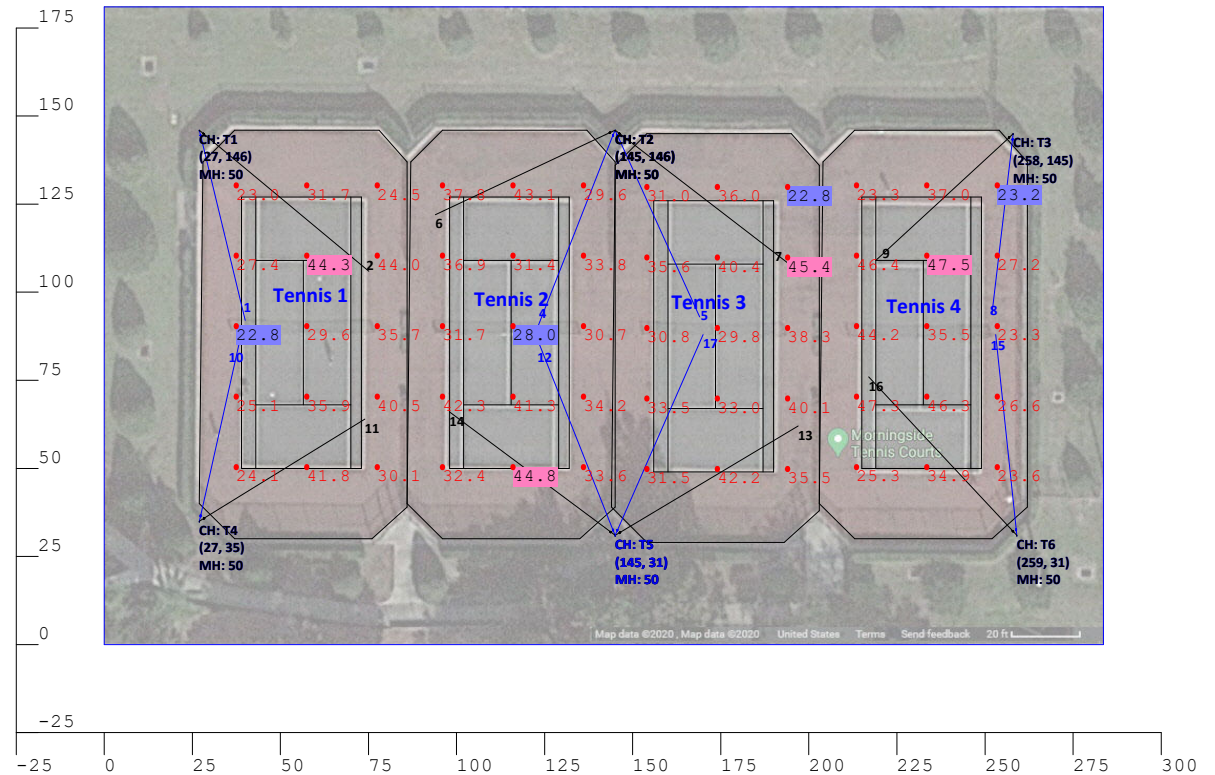
## Pole/Luminaires Summary

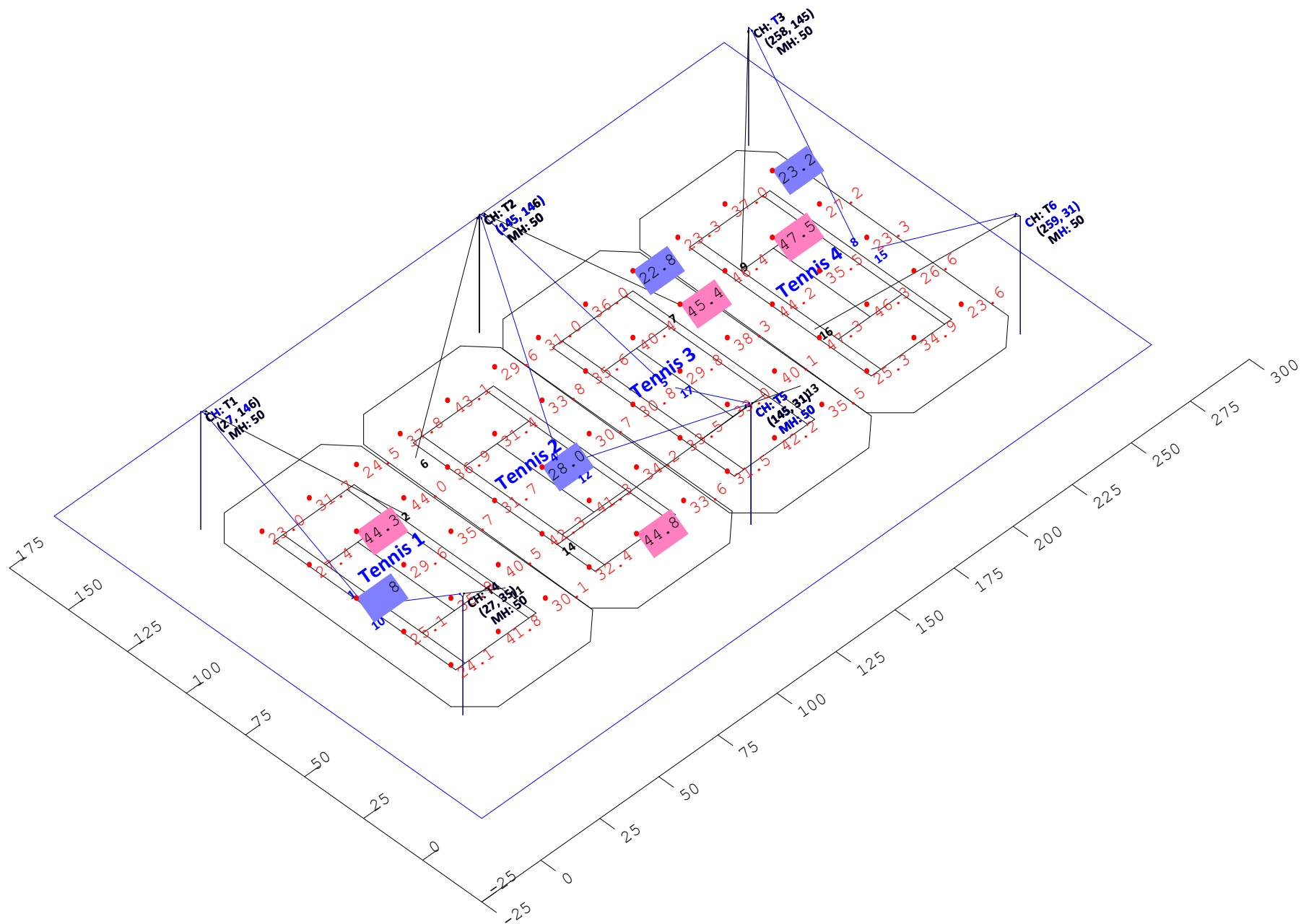
| Pole | # Lums |
|------|--------|
| T1   | 2      |
| T2   | 4      |
| T3   | 2      |
| T4   | 2      |
| T5   | 4      |
| T6   | 2      |

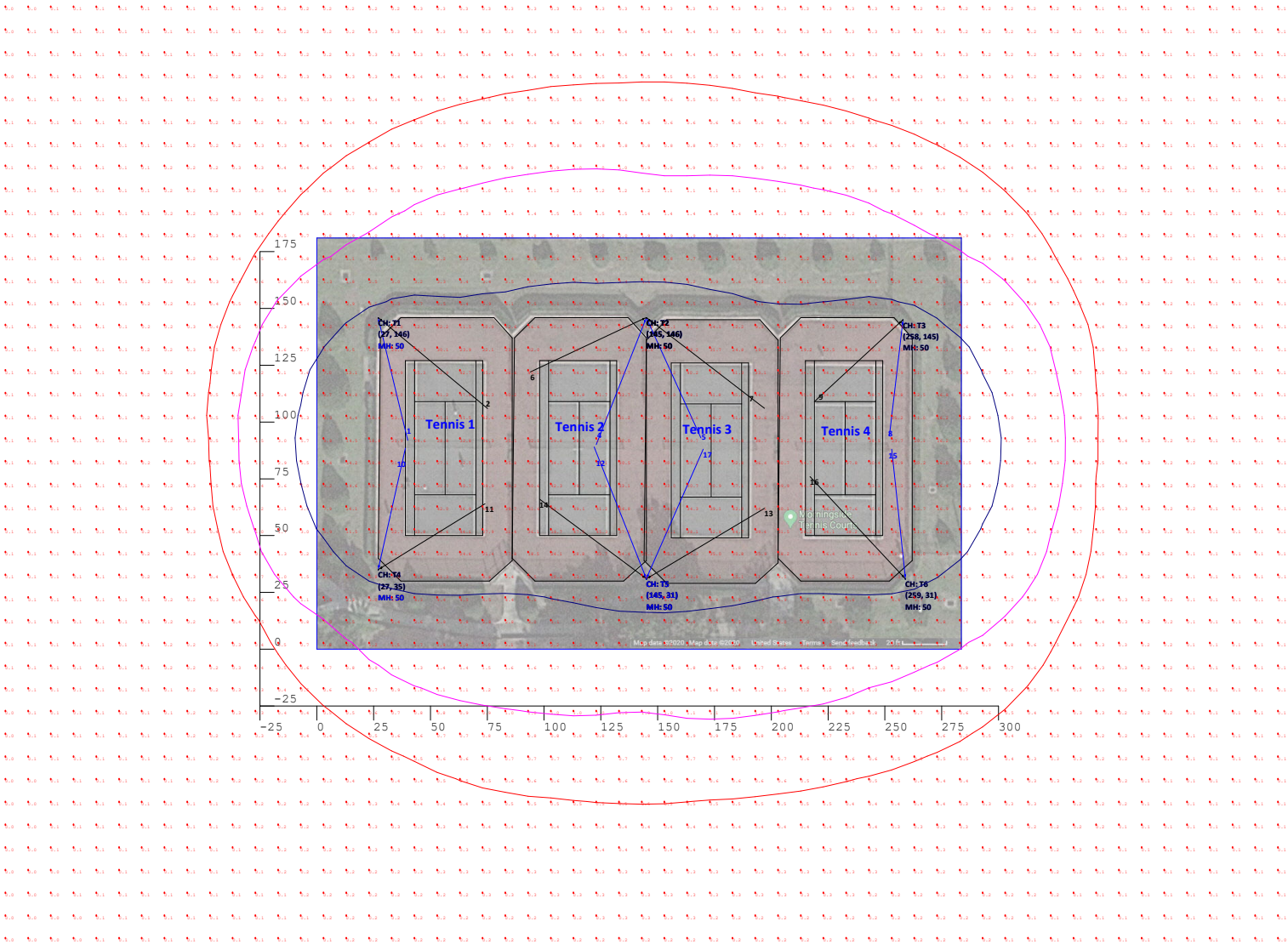


## Luminaire Location Summary

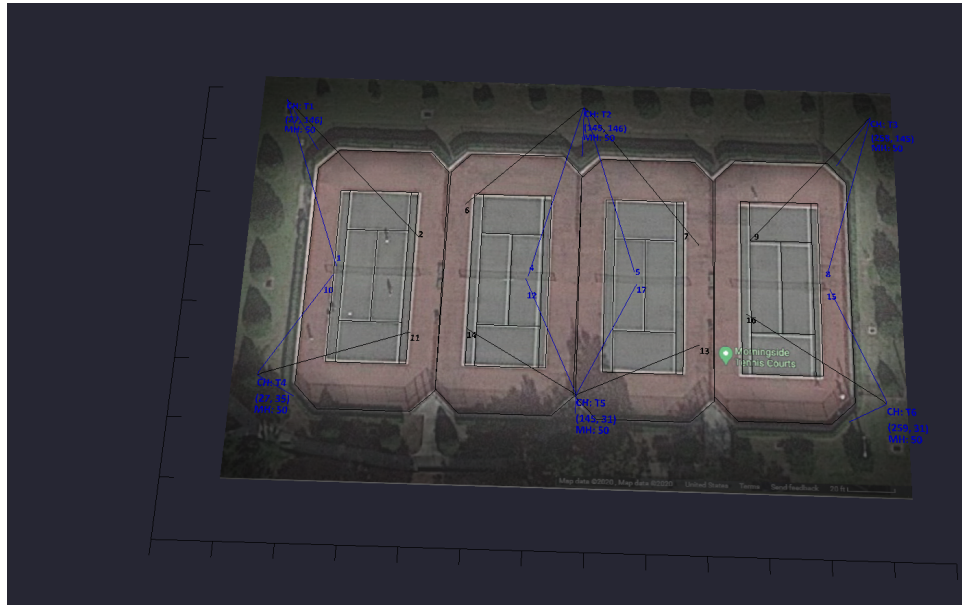
| LumNo | Label              | Orient  | Tilt   |
|-------|--------------------|---------|--------|
| 1     | NOVA2-600-57-U-D-6 | 283.536 | 47.225 |
| 2     | NOVA2-600-57-U-D-4 | 320.262 | 50.696 |
| 4     | NOVA2-600-57-U-D-6 | 248.552 | 49.56  |
| 5     | NOVA2-600-57-U-D-6 | 294.362 | 48.583 |
| 6     | NOVA2-600-57-U-D-4 | 205.201 | 47.656 |
| 7     | NOVA2-600-57-U-D-4 | 322.431 | 52.047 |
| 8     | NOVA2-600-57-U-D-6 | 263.29  | 44.915 |
| 9     | NOVA2-600-57-U-D-4 | 222.709 | 45.889 |
| 10    | NOVA2-600-57-U-D-6 | 77.358  | 46.845 |
| 11    | NOVA2-600-57-U-D-4 | 31.675  | 47.058 |
| 12    | NOVA2-600-57-U-D-6 | 111.631 | 50.611 |
| 13    | NOVA2-600-57-U-D-4 | 30.801  | 49.739 |
| 14    | NOVA2-600-57-U-D-4 | 143.326 | 48.793 |
| 15    | NOVA2-600-57-U-D-6 | 96.009  | 48.145 |
| 16    | NOVA2-600-57-U-D-4 | 133.025 | 50.22  |
| 17    | NOVA2-600-57-U-D-6 | 66.318  | 50.54  |



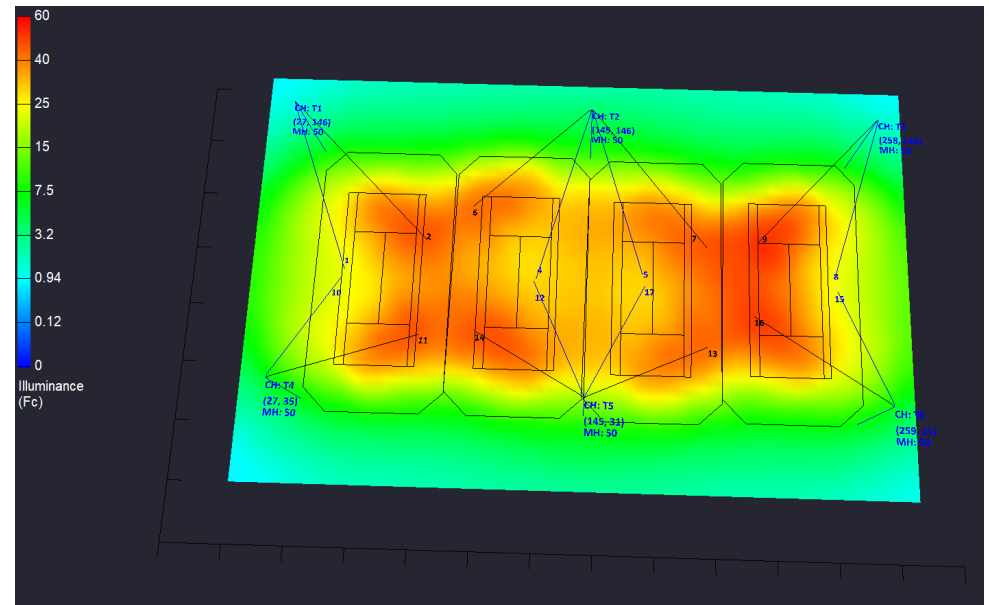




## 3D Rendering



## Color Rendering



## CONTROL & MONITORING SYSTEM

# **RADIANT™** Powered by WIRELESS CONTROL SYSTEM **synapse®**

- WiFi Mesh Receiver Nodes
- Communication range is up to 1 mile line of sight.
- Control dimming and on/off
- Secure, over-the-air software upgrades



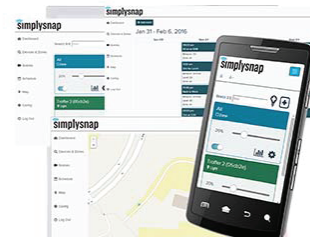
- Manual access to Nodes
- Control up to 1000 Nodes
- Weather protected
- Pre-configured 5-button switch to allow for control of all lighting within the facility



Central Control Base Station



WiFi or LAN Network with  
browser base control interface



Optional Cloud Control  
With Verizon 4G LTG

## Product Overview

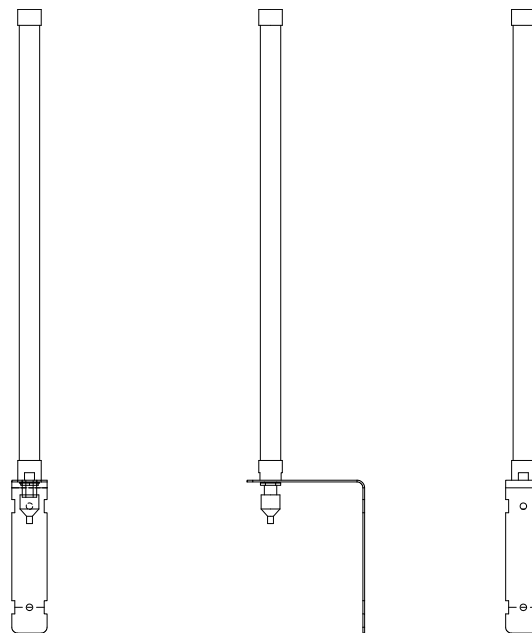
When installing a SimplySNAP gateway, it is essential to consider how the RF signal will connect to other devices in the SNAP mesh network. The Outdoor Antenna Kit helps ensure that the SimplySNAP gateway signal is amplified and propagated to other devices. This is important on large sites or sites with large physical obstructions between the SimplySNAP gateway and lighting controls. (Add something about how this improves/completes the mesh.)

The antenna can be bought by itself (a male-to-male RPSMA cable will still be needed), or as part of the outdoor antenna kit that comes with a 20-foot cable.

### Kit Includes:

- Remote site-controller SNAP antenna, outdoor, straight with **built in mounting bracket**
  - » Pulse RO2048NM8dBi Gain
  - » Radome Omnidirectional CoLinear Antenna
  - » FCC Certified with Module in SS420/450
  - » UV Protection/IP-67 Protection
  - » 85C/185F
  - » Antenna Mast is 20"
  - » Bracket is 6.5" H x 5" L x 1.5" W (165.1 x 127 x 38.1 mm)
  - » Structural Loading to withstand 150 mph winds
  - » VSWR of 2:1
- 20, 30, or 50 foot cable options, RF Low Loss Cable, Male to Male RPSMA
- RP-SMA Female-to-Female Connector
- 50 Ohm Terminator
- Install Guide

## Outdoor Antenna For Large Outdoor Installations



### Increase Range of SimplySNAP Gateway

| Order #      | Description                            |
|--------------|----------------------------------------|
| KIT-ANT420SM | Outdoor Antenna Kit with 20 foot cable |
| KIT-ANT360   | Outdoor Antenna Kit with 30 foot cable |
| KIT-ANT600   | Outdoor Antenna Kit with 50 foot cable |

## Product Overview

The DIM10-087-06-A embedded wireless controller opens up an exciting integration path for LED fixtures. Its smaller size and lower cost point makes this DC-powered wireless controller versatile enough to be embedded in nearly any medium to high wattage LED fixture. Pairing the DIM10-087-06-A with a SimplySNAP Site Controller makes it easy for your customer to comply with ASHRAE, Title 24, and other energy requirements today and in the future.

## Features

- Simplified DC Design — mates with LED Drivers
- Small footprint allows for easier integration
- Less Labor, Less Wires, Quicker Time-to-Market
- More Reliable — No Mechanical Relay
- DALI-2 Compatible Bus- Power Monitoring and Dimming via Bus
- Power Monitoring (DALI-2 Only)
- DIM to OFF Compatible with 0-10V Dimming (No Power Monitoring)
- Powered via Aux LED Driver Power
- Self-healing 2.4GHz SNAP Mesh Networking
- Seamless SimplySNAP Integration
- Secure, over-the-air software upgrades
- 2 Sensor Inputs: DC motion Sensors and 0-10V Photocells
- DLC Certification for both Indoor and Outdoor
- Secure AES128 Encryption
- RP-SMA Bulkhead with 18" RF Cable
- Rugged metal enclosure

# DIM10-087-06-A

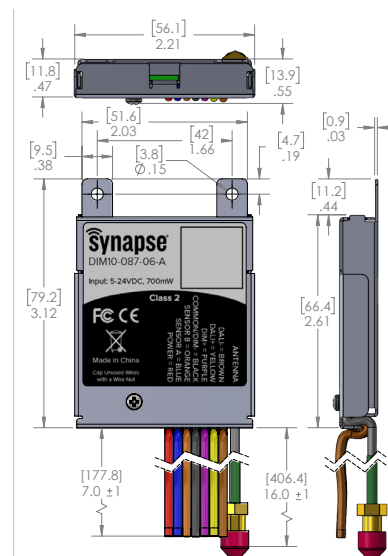
## DALI-2/ DIM to OFF Wireless Lighting Controller



Powered by the LED Driver

## Future DALI-2 Enhancements

- Fixture Run Time in Hours
- Fixture Model Data
- LED Driver Model Data
- Surge Detection
- Over Temperature
- Over Current
- DALI-2 Sensors
- White Color Tuning



## Product Overview

The **Central Base Station (CBS)** is a SimplySNAP SS450 site controller installed in a NEMA 4X enclosure with local programmable push buttons to manually activate up to 25 Scenes (5 per button) across specific Zones or over the entire lighting installation.

The Central Base Station is easy for certified electricians to install in both indoor and outdoor applications. This solution includes programmable push-button controls in addition to the SimplySNAP browser based interface.

Common applications include parking lots, garages, municipal ballparks, hockey arenas, basketball facilities, and other multi-use complexes.

## Features

- Network connectivity through ethernet, Wi-Fi, or cellular
- Enclosure latches support customer supplied external lock for security
- Outdoor rated power supply and enclosure
- Weather protected (when latched) - perfect for both indoor and outdoor applications
- Pre-configured 5-button switch to allow for control of all lighting within the facility
- External Ethernet port for connecting to IT network
- Includes internal surge protection

# Central Base Station



## Enclosed Site Controller with 5-button switch

| Product #     | Description                          |
|---------------|--------------------------------------|
| CBSSW-450-002 | SS450-based Model w/ 5-button switch |

|                              |                                                                            |
|------------------------------|----------------------------------------------------------------------------|
| <b>Dimensions</b>            | 12.6" x 10.6" x 7.6"<br>(320 x 270 x 193 mm)                               |
| <b>Input Power</b>           | Outdoor rated power supply<br>110-277VAC;<br>11W max, 6kV surge protection |
| <b>Operating Environment</b> | Outdoor rated at -40°C to +54°C,<br>IP65 (when latched)                    |
| <b>Cellular</b>              | Verizon 4G LTE                                                             |
| <b>Wi-Fi</b>                 | 802.11 b/g/n                                                               |
| <b>Radio</b>                 | SNAP 2.4GHz 802.15.4<br>Wi-Fi 2.4Ghz 802.11 b/g/n                          |
| <b>Certifications</b>        | FCC/IC<br>UL 60730-1<br>CSA E60730-1<br>RoHS 3:2011/65/EU(2015/863)        |
| <b>Warranty*</b>             | 5 Years                                                                    |



## Individual Portal Login

Default Login

Username: snap

Password: mckinleylamartine-92

Username:

snap

Password:

.....

☐ Show Password

LOGIN

LANDING PAGE / DEFAULT ADMIN USERNAME AND  
PASSWORD

## Main Page

simplysnap

snap Admin

Devices

- Lights and Sensors
- Wireless Switches
- Census

Scenes

Schedule

Map

Config

Audit Log

Help

Alarms

+ Add Sensor

Export Lights

Import Lights

ADD ZONE

Status: No Motion, sensor last updated 6 minutes ago

50% Blink

EDIT ZONE NAME DELETE ZONE

Release Notes License Agreement

## Schedule

SimplySNAP Site Controller / Add Scheduled Scene Alarms

Scene: 4.0 All lights 100%

Name: Home Game

When does this scheduled scene start?

☒ Specific Time  
"Starts at 6:15am"

☐ Solar Time  
"Starts 5 minutes after sunrise"

Start Time: 02:00 PM

Start Date: August 12, 2020

☐ Recurs

**SCHEDULE SCENE** CANCEL

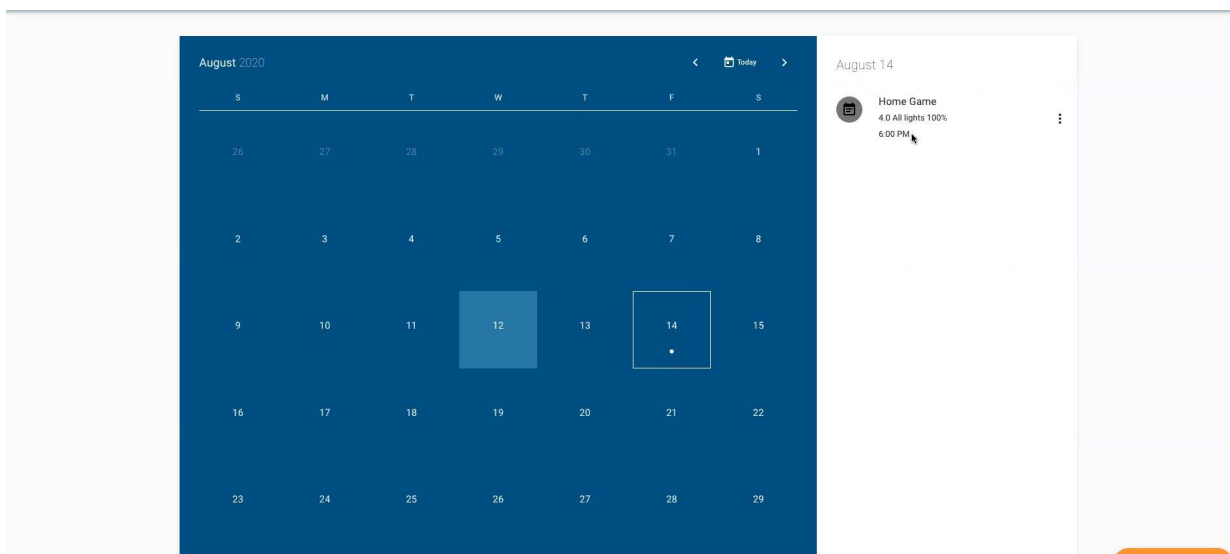
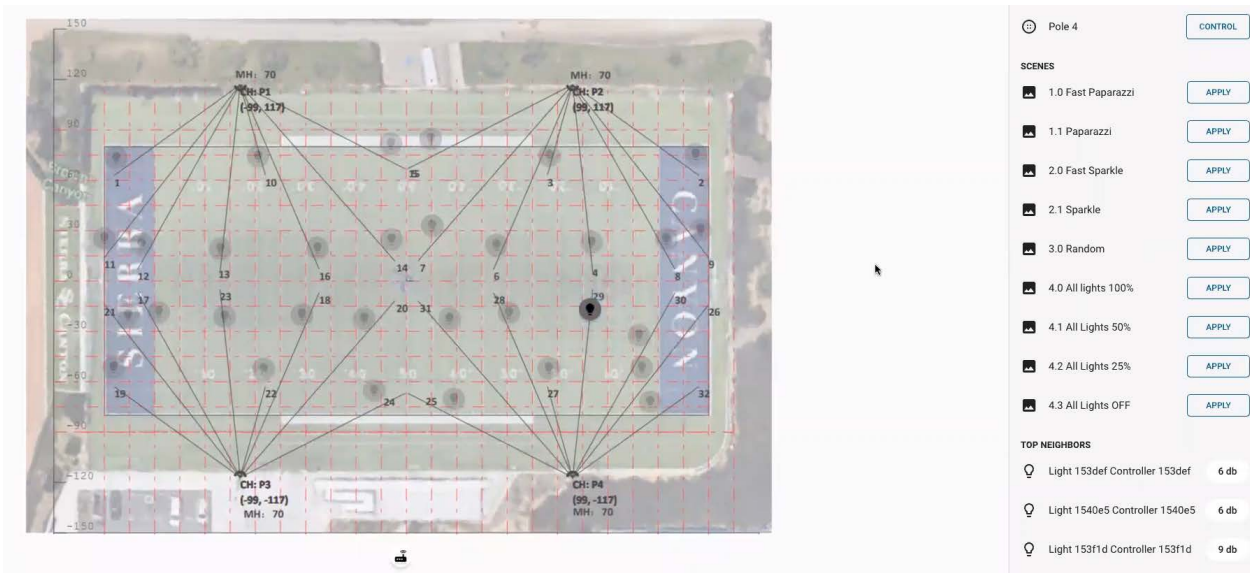
## Adding Scene

SimplySNAP Site Controller / Scenes Alarms

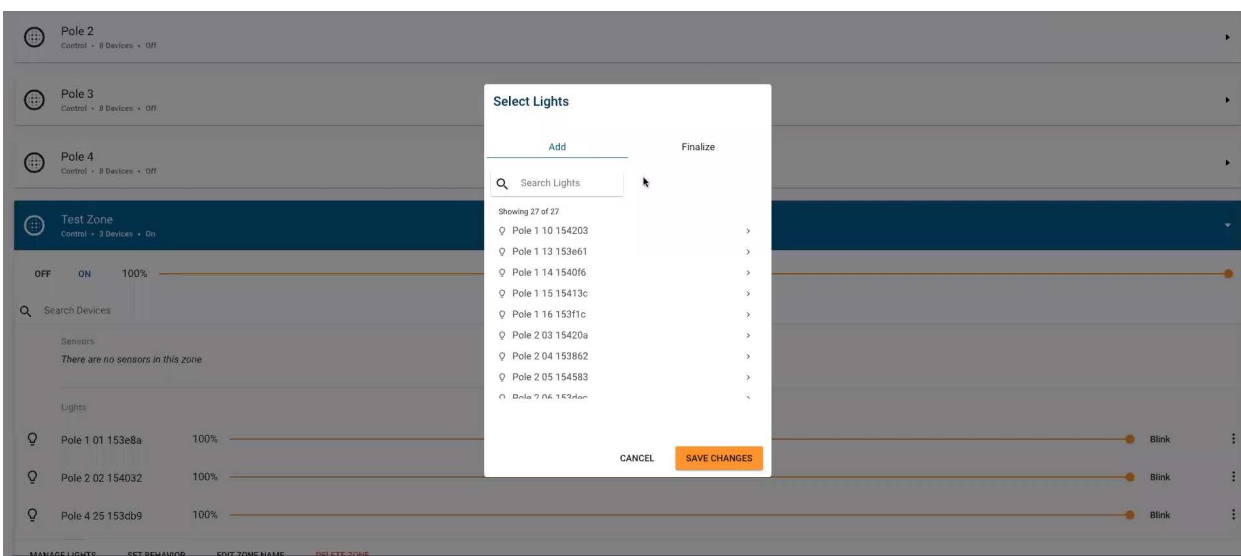
**+ ADD SCENE** Search Scenes

|                     |       |   |
|---------------------|-------|---|
| 1.0 Fast Paparazzi  | APPLY | ⋮ |
| 1.1 Paparazzi       | APPLY | ⋮ |
| 2.0 Fast Sparkle    | APPLY | ⋮ |
| 2.1 Sparkle         | APPLY | ⋮ |
| 3.0 Random          | APPLY | ⋮ |
| 4.0 All lights 100% | APPLY | ⋮ |
| 4.1 All Lights 50%  | APPLY | ⋮ |
| 4.2 All Lights 25%  | APPLY | ⋮ |
| 4.3 All Lights OFF  | APPLY | ⋮ |

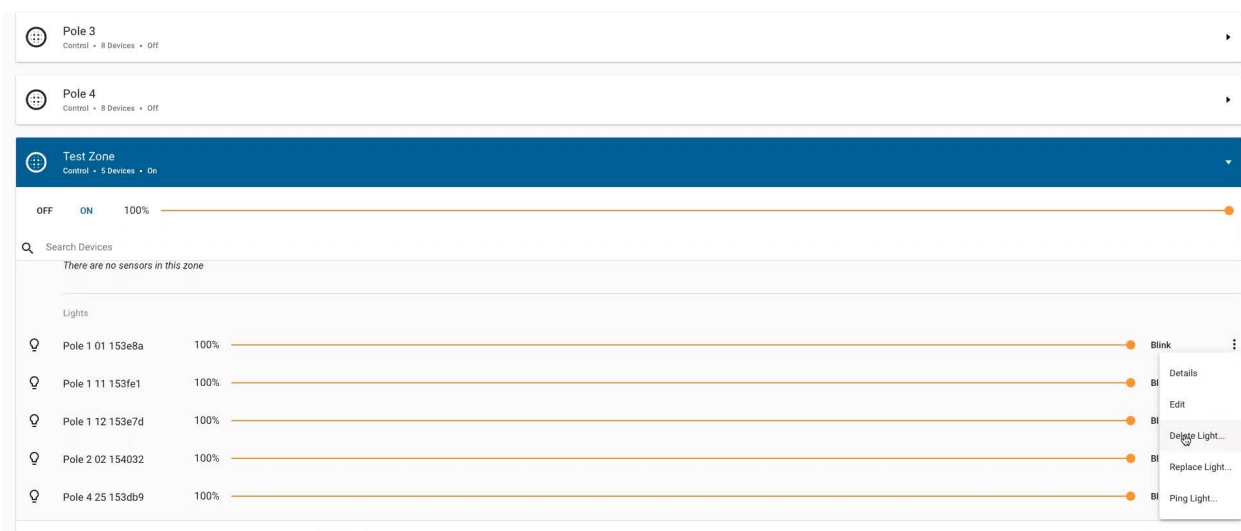
## Map



## Adding Lights to Poles



## Deleting Lights From Poles





# PROJECT REFERENCES



| No | Project                                      | Contact Name   | Phone number | Email Address                                                                      |
|----|----------------------------------------------|----------------|--------------|------------------------------------------------------------------------------------|
| 1. | Tacoma Rainier's Stadium, Tacoma, WA         | Dean Pitsch Jr | 253-891-7802 | <a href="mailto:dean@puie.com">dean@puie.com</a>                                   |
| 2. | Sierra Canyon Football Field, Chatsworth, CA | Jay Miller     | 818-534-3164 | <a href="mailto:jmiller@sierracanyonschool.org">jmiller@sierracanyonschool.org</a> |
| 6. | Grandview High School Tennis                 | Andrew Hunt    | 509-727-1118 | <a href="mailto:andy@cheyenne-electric.com">andy@cheyenne-electric.com</a>         |

## WARRANTY

## TGS SPORTS 25 YEAR PARTS & LABOR LIMITED WARRANTY

### I. What the Warranty Covers

TGS SPORTS, a TGS company warrants to the end user of the original installation location ("You" or "User") that new TGS SPORTS fixtures with RADIANT™ Wireless Control System purchased from TGS SPORTS or an authorized distributor ("Products") shall, for a period of limited twenty five (25) years from the date of original purchase (the "Warranty Period"), be free from defects in material and workmanship. During the Warranty Period, TGS' sole obligation, and User's sole remedy, shall be, at TGS SPORTS' sole discretion, to repair or replace Products found to be defective as defined herein. All fixtures and or components, provided by TGS SPORTS, are covered under this warranty for the 25 years or until maximum hours of coverage have accumulated.

Warranty commitment is applicable only after failure of 10% the covered Products. TGS SPORTS shall not be bound by any terms, conditions, or representations, which are not stated herein including, but not limited to, any statements made by distributors or re-sellers.

TGS SPORTS guarantees to meet or exceed the project's lighting requirement for the duration of the warranty period.

### II. Warranty Activation / Service Claims

You must make a valid Warranty claim to TGS SPORTS in order to receive coverage under the Warranty. Warranty claims can be serviced by contacting TGS SPORTS at:

Phone: (818) 206-4404

Email: [RMA@trulygreensolutions.com](mailto:RMA@trulygreensolutions.com)

If you are unsure whether a situation exists that is covered by the Warranty, please contact TGS SPORTS customer service center at the phone number or email address listed above for assistance.

TGS SPORTS customer service shall be available via web site, phone, fax, or email. Maintenance service specialists shall be available 8AM to 5PM PST, and services shall be rendered during these same hours in your local time zone, Monday through Friday (with the exception of national holidays). Hours of operation are subject to change without notice to you. TGS SPORTS will exercise all reasonable efforts to perform service under this Contract, but will not be responsible for delays or failure in performing such services caused by adverse weather conditions, acts of any government, failure of transportation, accidents, riots, war, labor actions or strikes or other causes beyond its control.

### III. What is Not Covered Under the Warranty

This Warranty does not cover:

- a) cosmetic defects;
- b) damage, defects, or failure caused by:
  - i. acts of God; (including but not limited to floods, tornadoes, lightning or earthquakes);

- ii. accident, theft, environmental conditions, misuse, misapplication, abuse, negligence, or modification of any part of the Product, civil disturbances;

- iii. improper storage, installation, repair, operation, inspection or maintenance;

- iv. the use of unauthorized components, parts, accessories, or other materials or by equipment or products manufactured by other than TGS SPORTS as stated in Addendum "A";

- v. wrong or inadequate electrical current or connection or supply;

- vi. transit.

c) Other equipment or products manufactured by someone other than TGS SPORTS, including but not limited to control system components (hub, DMX wiring, control cards, gateway), poles/crossarms/other structures, mounting gear or other non-product related material.

User agrees to check and replace fuses as needed. TGS SPORTS provides spare fuses in the lowest alpha- numeric numbered enclosure and will replenish spare fuses used.

This Warranty does not cover labor costs associated with wiring, pole installation or existing infrastructure. The cost of lift/crane equipment or scaffolding rental is also excluded.

### IV. What voids the Warranty

This Warranty is void, and TGS SPORTS shall have no liability hereunder, with respect to a Product if You or any person other than an employee, independent contractor, or subcontractor of TGS SPORTS: (a) install(s) or use a Product in a manner that is not in accordance with the applicable specifications and instructions, including, but not limited to, over/under voltage or current conditions, excessive switching cycles, operating hours, or outside any applicable operating conditions; (b) without the prior written consent of TGS SPORTS, modify, tamper, or disassemble a Product, including, without limitation, alter serial numbers or removes factory supplied stickers or labels of a Product; or (c) use unauthorized components, parts, accessories, or other materials to repair a Product.

### V. Replacement of or Repair to Product

TGS SPORTS will utilize the wireless control system to determine needed repair and/or replacement of Covered Product(s) and parts. Repair will be with product(s) of like kind and quality. TGS SPORTS, in its sole discretion, may use comparable product of equal or greater value to replace a Product that meets the conditions of this Warranty. Furthermore, in performing repairs to a Product that meets the conditions of this Warranty, TGS SPORTS reserves the right to utilize new, reconditioned, refurbished, repaired or remanufactured products or parts. Repaired or replaced Products are warranted for the remainder of the original Warranty Period. TGS SPORTS reserves the right to examine all returned Products, their specific installation location, and patterns of usage to determine the cause of failure.

TGS SPORTS requires reasonable access for a crane or man lift equipment to service the lighting system. TGS SPORTS will not be responsible for damage from operating the vehicle on the property when the equipment is operated in the prescribed manner over the designated access route.

#### VI. Limitation of Warranty

THE FOREGOING WARRANTIES ARE EXCLUSIVE EXCEPT FOR WARRANTY OF TITLE. TGS SPORTS DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. CORRECTION OF NON-CONFORMITIES IN THE MANNER AND FOR THE PERIOD OF TIME PROVIDED ABOVE SHALL CONSTITUTE TGS SPORTS' SOLE LIABILITY AND USER'S EXCLUSIVE REMEDY FOR FAILURE OF TGS SPORTS TO MEET ITS WARRANTY OBLIGATIONS, WHETHER CLAIMS OF THE USER ARE BASED IN CONTRACT (INCLUDING WARRANTY), IN TORT (INCLUDING NEGLIGENCE OR STRICT LIABILITY) OR OTHERWISE. For the purposes of and by your acceptance of this Contract you acknowledge and agree that if a surety bond ("Bond") is provided the warranty and/or maintenance guarantee provided for in this Contract and any corresponding liability on behalf of the issuing surety under the Bond is limited to the first twelve (12) months of said warranty and/or maintenance guarantee coverage period. Any warranty and/or guarantee coverage period in excess of said initial 12-month period does not fall within the scope of the Bond and shall be the sole responsibility of TGS SPORTS.

If any of the parts of the Covered Product(s) are found to be either obsolete, no longer available, or prohibited by any state or federal agency, TGS SPORTS shall replace said parts with comparable parts and materials with equal operating characteristics solely at TGS SPORTS' discretion. The cost of replacement of any obsolete cellular related technology shall be borne by you. Prior to completing any such work, TGS SPORTS shall notify you of the cost (if any) you will incur in the replacement of such parts under this section.

#### VII. Limitation of Liability

THE REMEDIES OF THE USER SET FORTH IN THIS WARRANTY ARE EXCLUSIVE AND ARE USER'S SOLE REMEDIES FOR ANY FAILURE OF TGS SPORTS TO COMPLY WITH ITS OBLIGATIONS HEREUNDER. NOTWITHSTANDING ANY PROVISION TO THE CONTRARY, IN NO EVENT SHALL TGS SPORTS BE LIABLE IN CONTRACT (INCLUDING WARRANTY), IN TORT (INCLUDING NEGLIGENCE OR STRICT LIABILITY) OR OTHERWISE FOR DAMAGE TO PROPERTY OR EQUIPMENT OTHER THAN PRODUCTS TO WHICH THIS WARRANTY RELATES, LOSS OF PROFITS OR REVENUE, LOSS OF USE OF PRODUCTS, COST OF CAPITAL, CLAIMS OF CUSTOMERS OF THE USER OR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER, REGARDLESS OF WHETHER SUCH POTENTIAL DAMAGES ARE FORESEEABLE OR IF USER HAS BEEN ADVISED OF SUCH DAMAGES. THE TOTAL CUMULATIVE LIABILITY OF TGS SPORTS ARISING FROM OR RELATED TO THIS CONTRACT WHETHER THE CLAIMS ARE BASED IN CONTRACT (INCLUDING WARRANTY), IN TORT (INCLUDING NEGLIGENCE OR STRICT LIABILITY) OR OTHERWISE, SHALL NOT EXCEED THE PRICE OF THE PRODUCT OR SERVICES ON WHICH SUCH LIABILITY IS BASED.

#### VIII. Severability

If any term or provision of this Warranty, or the application thereof to any person or circumstances shall, to any extent, be held invalid or unenforceable, the remainder of this Warranty, or the application of such terms or provision, to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be effected, and every other term and provision of this contract shall be deemed valid and enforceable to the extent permitted by law.

#### IX. Transfer and Assignment

This Warranty cannot be transferred without the prior written consent of TGS SPORTS.

#### X. Choice of Law

The Warranty shall be construed and enforced in accordance with the laws of the state of California and the laws of the United States applicable in that state.

#### XI. Other Terms and Conditions

All other terms and conditions in TGS SPORTS' Terms and Conditions shall apply.

## ADDENDUM A

### TRULY GREEN SOLUTIONS, LLC DISCLAIMER AND WARNING REGARDING MOUNTING OF TGS'S SPORT LIGHTING PRODUCTS

The following disclaimer and warning are issued by TGS with regard to the installation of its Sport Lighting Products, including but not limited to Triton G2 and Nova G2.

TGS strongly recommends that its customers purchase TGS's Sports lighting poles, brackets and adaptors as shown on its website at <https://tgssports.com/tgs-sports-lighting-solutions/>, for use in the installation of its Sports Lighting Products. The safe installation of the poles, brackets, adaptors and lighting products can and will prevent property damage, bodily injury and even death. The use of existing poles, brackets and/or adaptors for the installation of TGS Sports Lighting Products is strongly discouraged and any warranty offered by TGS for its Sports Lighting Products that happen to be damaged due to the use of the customers' existing poles, brackets and/or adaptors will be voided.

Prior to installing any TGS Sports Lighting Products and whether the customer is utilizing TGS's approved poles, brackets and adaptors, or if the customer is using existing poles, brackets, and adaptors, the customer **must** consult with local and licensed civil, soil, geo-technical and structural engineers for assistance with wind load, structural, and soil analysis. The size, depth, and backfill material needs to be calculated and approved by a licensed civil/structural/geo-technical engineer. The depth and diameter of the pole foundation vary depending on soils, local structural codes, standards, wind speeds, seismic requirements, structural load of the pole and luminaires and other equipment mounted to the pole. Pole foundations should be designed and certified by structural and geo-technical engineers to meet all local codes and standards.

**TGS IS NOT RESPONSIBLE FOR ANY ADVERSE EVENT CAUSED BY THE CUSTOMER'S FAILURE TO STRICTLY FOLLOW THE RECOMMENDATIONS AND GUIDELINES SET FORTH ABOVE.**

By signing below, TGS's customer hereby certifies that he/she has read and understood the recommendations and guidelines set forth above and will strictly follow those recommendations and guidelines. TGS's customer further certifies that he/she has consulted with and obtained appropriate engineering plans for the proper installation of the Sports Lighting Equipment, poles, brackets and adaptors and that those engineering plans have been strictly followed by any installer. TGS's customer further agrees to defend, indemnify and hold Truly Green Solutions, LLC and its officers, employees and agents harmless from and against any claim that arises out of the customer's failure to follow the recommendations and guidelines set forth above.

---

Customer Signature with date

## PROJECT REFERENCES

## Overview

TGS Sports is a wholly-owned subsidiary of commercial, industrial, and municipal LED lighting manufacturer Truly Green Solutions. TGS Sports was created to provide professional illumination and lighting controls to sports venues of all sizes. TGS Sports provides a turnkey service, including design and application support, poles and brackets, per-aimed and pre-wired fixtures, and extensive after-sales support. Every detail of the lighting package is accounted for with special attention paid to prioritizing safety, efficiency, performance, and visual comfort for both players and spectators. With a proven track record of success, TGS Sports stands ready to provide reliable illumination for almost any venue.

## Our Edge

### ➤ Turnkey Solution

TGS Sports provides poles, brackets, pre-aiming, pre-wiring, and accessories, reducing time and installation costs.

### ➤ Visual Comfort

High tech PCB optics in a variety of NEMA beam patterns puts light where it's needed without glare or player/spectator discomfort.

### ➤ Wireless Controls

Radiant wireless & DMX compatible. Monitor and schedule your lighting system through a smart phone or tablet. Allows you to control lighting behaviors in multiple zones, offline or cloud-connected.

### ➤ Funding & Financing

Funding and financing options are available for your LED sports lighting project through rebates from state programs, Energy Savings Performance Contracts with our ESCO partners and low-interest rate financing.

### ➤ UHD Broadcast Quality

Luminaires provide accurate and vivid color reproduction in 4k and 8k Ultra High Definition, exceeding national broadcast standards.

### ➤ Expert Design Assistance

Our design engineers will provide a complimentary point by point layout, an accurate representation of fixture placement and light uniformity on the field.

## Core Competencies

Design   Engineering   Manufacturing   Optics Controls  
Consulting   Technical Support   Customer Satisfaction  
Developing Customized Solutions   Safety & Efficiency

## Certifications & Associations

**TGS is certified with several organizations:**

- SAM
- MBE
- IES
- SBA
- WBENC
- IFMA
- GREEN BUILDING COUNCIL

TGS ensures that our products perform at or above industry standards by undergoing rigorous testing and certifications with nationally and locally approved organizations.



## References

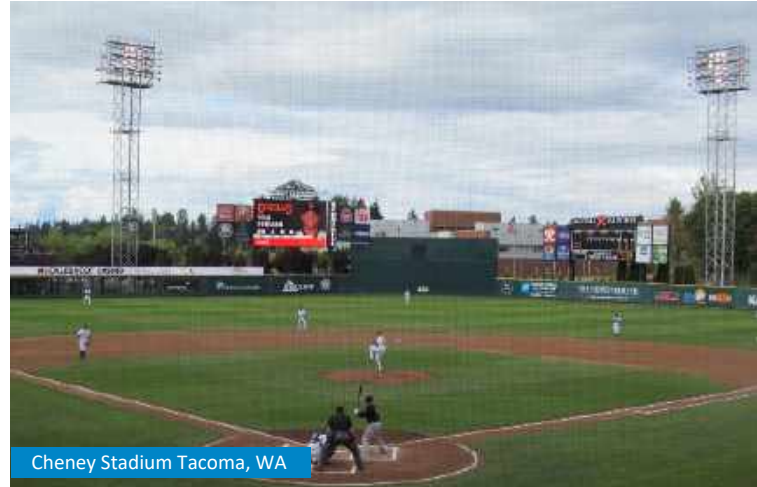
1. Oral Robert University, J.L. Johnson Field, Tulsa, OK
2. Tacoma Rainier's Stadium, Tacoma, WA
3. Ohio State University St John Arena, Columbus, OH
4. Sierra Canyon Football Field, Chatsworth, CA
5. Cambellsville University Sports Complex, Harrodsburg, KY
6. Walker Little League Ball Field, Walker, MN
7. Glen Ellyn Park District, Glen Ellyn, IL
8. SMMA Athletic Association, St. Louis, MO
9. Frey Park, Lynn, MA
10. Panguitch Rodeo Arena, Panguitch, UT
11. Ross Field, Glastonbury, CT
12. Hays Kennedy Park, Prospect, KY
13. Kentucky Expo Center, Louisville, KY
14. Gun Club, Ashland, OR
15. Prairie Lakes Aquatic Center, Des Plaines, IL
16. Memorial Field, Park Ridge, NJ
17. Binger Ball Fields, Binger, OK
18. Nevada Gold Mine, Elko, NV
19. Wahoo Rodeo Arena, Wahoo, NE

## Success Stories & References



O.R.U. J.L. Johnson Field Tulsa, OK

Home to the Oral Roberts Golden Eagles, this stadium renovated their baseball field with TGS Sports' Triton™ G2 sports lights for a uniform and full-coverage illuminated field.



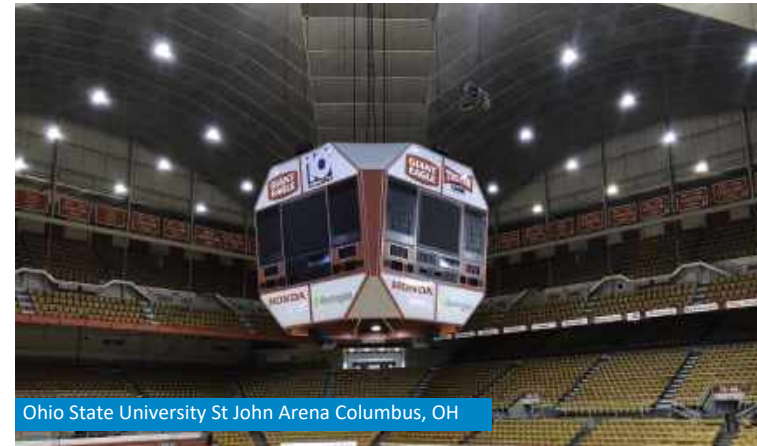
Cheney Stadium Tacoma, WA

This minor league baseball Stadium, grounds for the Tacoma Rainiers, Reign FC of the National Women's Soccer League and Tacoma Defiance, renovated their professional baseball field with the TGS Sports' Triton™ G2 sports lights.



Harrodsburg Sports Complex Harrodsburg, KY

A new soccer field and outdoor track has been constructed and will now be illuminated with the optimum illumination choice, TGS Sports' Triton™ G2 sports lights.



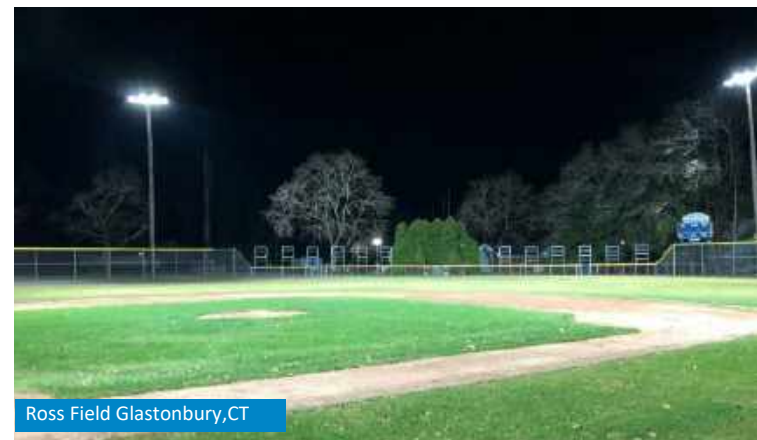
Ohio State University St John Arena Columbus, OH

Formerly the home of Ohio State basketball for 42 seasons, St. John Arena O.S.U renovated its basketball court with TGS Sports' SportHB™ High power high bays for the ultimate play experience in 90CRI action.



Sierra Canyon High School, CA

Sierra Canyon School (SCS), a private school located in the Los Angeles upgraded their existing MH fixtures with TGS Sports' Triton™ G2 solution a better quality and experience of light.



Ross Field Glastonbury, CT

Home of the Glastonbury Little League, Ross Field renovated their baseball field with TGS Sports' Triton™ G2 sports lights.

| No  | Project                        | Location        | Installed Date |
|-----|--------------------------------|-----------------|----------------|
| 1.  | Cimarron Correct               | Tampa, FL       | 02-13-2020     |
| 2.  | Frost Stadium                  | Chattanooga, TN | 06-10-2019     |
| 3.  | JM Wood Auction Company        | Montgomery, AL  | 11-19-2019     |
| 4.  | Harrodsburg Sports Complex     | Harrodsburg, KY | 05-16-2019     |
| 5.  | Panguitch Rodeo Arena          | Panguitch, UT   | 09-16-2019     |
| 6.  | Shotgun Range - Bossier Parish | Shreveport, LA  | 06-26-2020     |
| 7.  | ORU J.L. Johnson Stadium       | Tulsa, OK       | 10-17-2019     |
| 8.  | Tacoma Rainier's Stadium       | Tacoma, WA      | 12-05-2019     |
| 9.  | Ross Field                     | Glastonbury, CT | 01-14-2020     |
| 10. | SMMA Athletic Association      | St. Louis, MO   | 09-18-2020     |

## PRODUCT INFORMATION



**GAME CHANGING PERFORMANCE  
AND RELIABILITY**

9601 Variel Ave.  
Chatsworth, CA 91311  
Phone: (818) 206-4404 Fax: (866) 577-5302

Quote Date: 2020-11-04 21:24:35  
Quote Number: 6136  
Sales Person: Melinda Berezowsky  
Valid Until: 2020-12-04  
Agency Sales Person: Jeffrey Kleiss  
Agency Quotes Person: Jeffrey Kleiss  
Project Name: Morningside Tennis Court

| Bill To                                                                                                  | Ship To                                                                                                  |
|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Jeffrey Kleiss<br>SESCO Lighting -Ft. Lauderdale,<br>FL<br>737 Shotgun Road<br>Ft. Lauderdale, FL, 33326 | Jeffrey Kleiss<br>SESCO Lighting -Ft. Lauderdale,<br>FL<br>737 Shotgun Road<br>Ft. Lauderdale, FL, 33326 |

| Quantity | Part Number        | Description                                                                | List Price | Unit Price  | Ext. Price  | Discount |
|----------|--------------------|----------------------------------------------------------------------------|------------|-------------|-------------|----------|
| 8.00     | NOVA2-600-57-H-D-4 | NOVA™ - G2 LED Flood/Sports<br>Light - 600W - 57K - 277-480V -<br>NEMA 4   | \$0.00     | \$0.00      | \$0.00      | 0.00%    |
| 8.00     | NOVA2-600-57-H-D-5 | NOVA™ - G2 LED Flood/Sports<br>Light - 600W - 57K - 277-480V -<br>NEMA 5   | \$0.00     | \$0.00      | \$0.00      | 0.00%    |
| 6.00     | RTS-50-1207        | 50FT Galvanized Pole - Anchor<br>Base                                      | \$0.00     | \$0.00      | \$0.00      | 0.00%    |
| 4.00     | CRS-02             | SIDE MOUNTED CROSS ARM<br>BRACKETS 2                                       | \$0.00     | \$0.00      | \$0.00      | 0.00%    |
| 2.00     | CRS-04             | SIDE MOUNTED CROSS ARM<br>BRACKETS 4                                       | \$0.00     | \$0.00      | \$0.00      | 0.00%    |
| 2.00     | NOVA2-LG           | NOVA™ - G2 LED Flood/Sports<br>Light - Laser Guide                         | \$0.00     | \$0.00      | \$0.00      | 0.00%    |
| 16.00    | DIM10-087-06       | "Node - 802.15.4 Embedded<br>Wireless Controller With<br>External Antenna" | \$0.00     | \$0.00      | \$0.00      | 0.00%    |
| 1.00     | CBSSW-450-001      | "Central Base Station,<br>SS450-based Model w/ 5-Button<br>Switch"         | \$0.00     | \$0.00      | \$0.00      | 0.00%    |
| 16.00    | TGS-REMOTEDV       | Remote Commissioning<br>Services - Per Fixture                             | \$0.00     | \$0.00      | \$0.00      | 0.00%    |
| 1.00     | TGS-REMOTE         | Remote Commissioning<br>Services                                           | \$0.00     | \$0.00      | \$0.00      | 0.00%    |
| 1.00     | 25 YEAR WARRANTY   | 25 YEAR WARRANTY                                                           | \$0.00     | \$0.00      | \$0.00      | 0.00%    |
| 1.00     | LOT BILLING        | LOT BILLING                                                                | \$0.00     | \$65,694.18 | \$65,694.18 | 0.00%    |

\*\*\*Prices based on 7%  
commission\*\*\*

Subtotal: \$65,694.18  
Tax: \$0.00  
Shipping: \$0.00  
Total: \$65,694.18

---

Above quote is subject to the following conditions:

1. Subject to TGS' Terms and Conditions: <http://trulygreensolutions.com/solutions/terms-and-conditions/>
2. Any changes will require a new quote.
3. Deposit may be required for custom/non-stock items and/or orders over approved credit limit.
4. Freight allowed orders over \$2500 (continental USA only). One destination only.
5. Freight allowed orders ship standard carrier, no lift gate trucks, lift gate fee varies from \$90-\$175. (Additional handling is not included.)
6. TGS quote number must be referenced on purchase order.
7. Check lead time before order confirmation.

We trust that you will find our quote satisfactory and look forward to working with you.

If you have any questions concerning this quote, please contact [Quotes@trulygreensolutions.com](mailto:Quotes@trulygreensolutions.com) or your sales representative

**25 YEAR  
WARRANTY**



Not all products are qualified on the DLC® QPL. To view our DLC® qualified products, please consult the DLC® Qualified Products List at [www.designlights.org/qpl](http://www.designlights.org/qpl).

**RADIANT™**  
WIRELESS CONTROL SYSTEM

Project:

Prepared by:

Type:

Date:

300W (39,000 lm)  
400W (52,000 lm)  
500W (65,000 lm)  
750W (97,500 lm)  
1250W (162,500 lm)

## ORDERING INFORMATION

Sample SKU: SPL2-750-57-U-D-3

| Series | Wattage                                                              | CCT                                    | Input Voltage                    | Controls                                                                      | Distribution                                     |
|--------|----------------------------------------------------------------------|----------------------------------------|----------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------|
| SPL2   |                                                                      |                                        |                                  |                                                                               |                                                  |
| SPL2   | 300 - 300W<br>400 - 400W<br>500 - 500W<br>750 - 750W<br>1250 - 1250W | 57 - 5700K<br>50 - 5000K<br>40 - 4000K | U - 100-277VAC<br>H - 277-480VAC | D - 0-10V Dimming<br>D0 - Non-Dimming<br>D1 - Radiant Wireless Control System | 3 - NEMA3<br>4 - NEMA4<br>5 - NEMA5<br>6 - NEMA6 |

### Accessories

SPL2-LG (Laser Guide Option)  
SPL2-SF (Slip Fitter Option only for 300W-500W)

\*MOQ and longer lead times may apply, please contact customer service for more information.

## TECHNICAL SPECIFICATIONS

### CONSTRUCTION

**IP/Enclosure Rating:**  
IP66/NEMA 4x

**Operating Temperature:**  
-40°F-131°F

**Housing:**  
Cold-forged aluminum

**Driver Compartment:**  
Die-cast aluminum

**Optics:**  
Precision plastic injected molded optic

**Power Cord:**  
• 16/3, 6' SJOW (300V) - 100-277VAC  
• 14/3, 6' SOW (600V) - 277-480VAC

### ELECTRICAL

**Input Voltage:**  
• 100-277VAC  
• 277-480VAC

**THD:**  
<20%

**Power Factor:**  
>0.95

**Surge Protection:**  
20kV/10kA:  
Compliant With:  
- ANSI C136.2-2015 Extreme  
- ANSI C82.77-5-2015 High Exposure  
- IEEE C62.41.2 Location Category C High Exposure

### CONTROLS/DIMMING

• Non-Dimming  
• 0-10V Dimming  
• RADIANT® Wireless Control System

### ENGINE & OPTICAL

**Available NEMA Distribution:**  
NEMA3, NEMA4, NEMA5, NEMA6

**CRI/TLCI:**  
• CRI>70 (Standard)  
• \*CRI>80 (Optional)  
• \*CRI>90 (Optional)  
TLCI is option available upon request

**Available CCT:**  
4000K, 5000K, 5700K

**Projected L70:**  
>100,000 hrs

### WARRANTY

25 Year Warranty  
See warranty documentation for more information.

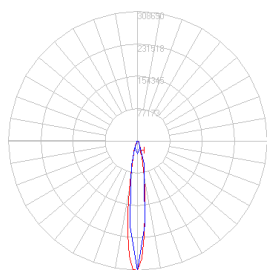
## PERFORMANCE DATA

| Wattage          | 300W     | 400W     | 500W     | 750W     | 1250W    |
|------------------|----------|----------|----------|----------|----------|
| Delivered Lumens | 39000lm  | 52000lm  | 65000lm  | 97500lm  | 162500lm |
| System Efficacy  | 130 lm/W | 130 lm/W | 130 lm/W | 130 lm/W | 130 lm/W |

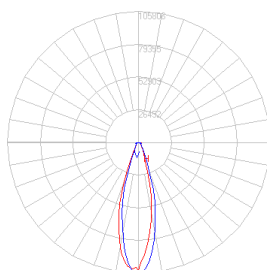
Typical delivered lumen data is approximate. Actual lumens may vary due to installation environment and NEMA Distribution. Please See IES Files

## NEMA DISTRIBUTION

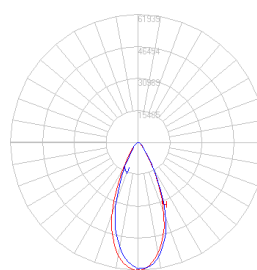
\*IESNA LM-63 IES Available upon request



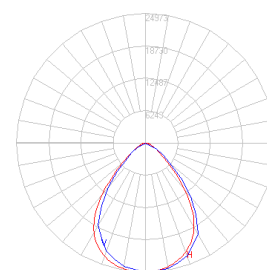
NEMA3



NEMA4

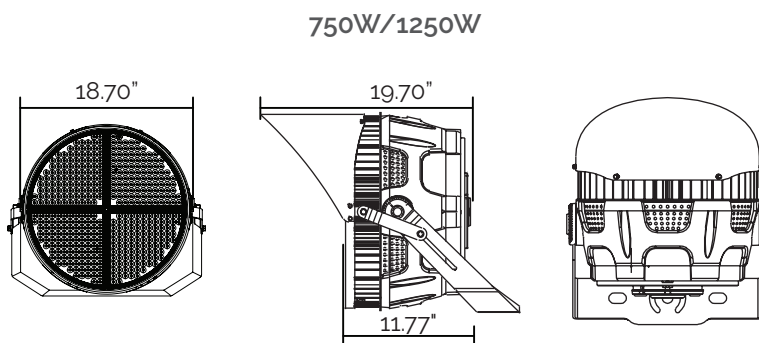
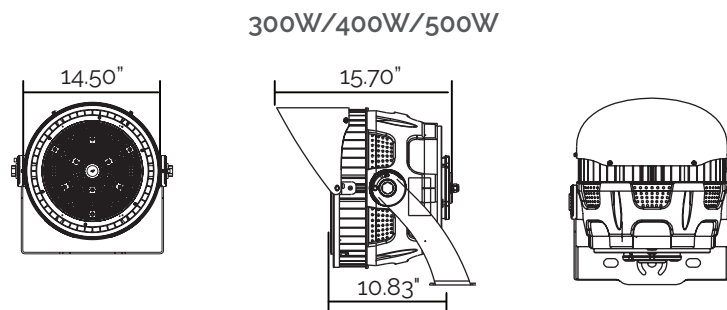


NEMA5



NEMA6

## DIMENSIONS



## ELECTRICAL LOAD

| Wattage (W) | Input Voltage |      |      |      |      |      |
|-------------|---------------|------|------|------|------|------|
|             | 120V          | 208V | 240V | 277V | 347V | 480V |
|             | Current (A)   |      |      |      |      |      |
| 300         | 2.63          | 1.51 | 1.31 | 1.14 | 0.91 | 0.66 |
| 400         | 3.50          | 2.02 | 1.75 | 1.52 | 1.21 | 0.88 |
| 500         | 4.38          | 2.52 | 2.19 | 1.90 | 1.51 | 1.09 |
| 750         | 6.56          | 3.79 | 3.28 | 2.84 | 2.27 | 1.64 |
| 1250        | 10.94         | 6.31 | 5.47 | 4.74 | 3.78 | 2.73 |

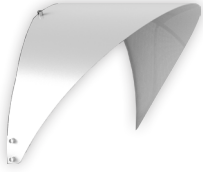
## EPA RATING (ft²)

| Wattage (W) | Front | Side |
|-------------|-------|------|
| 300/400/500 | 1.42  | 1.14 |
| 750/1250    | 2.08  | 1.67 |

## WEIGHT (lbs)

| Wattage (W) | Weight |
|-------------|--------|
| 300/400/500 | 33     |
| 750         | 56     |
| 1250        | 62     |

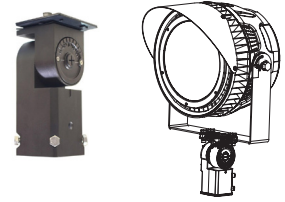
## ACCESSORIES



Visor Hood  
[Included]



Laser Guide  
[SPL2-LG]



Slip Fitter  
Round Tenon (2 3/8" OD)  
(Available only for  
300W-500W)  
[SPL2-SF]

# RADIANT™

## WIRELESS CONTROL SYSTEM



Integrated Node

- Future-Proof: Integral Wireless Access Node
- Adaptable Deployment – Offline or Cloud-Connected
- Web-Browser or App Based Management
- Multiple Zones, Behaviors, Events, and Schedules
- LTE Cellular Connectivity – No Internet Required
- Professional Commissioning and After-Sales Support



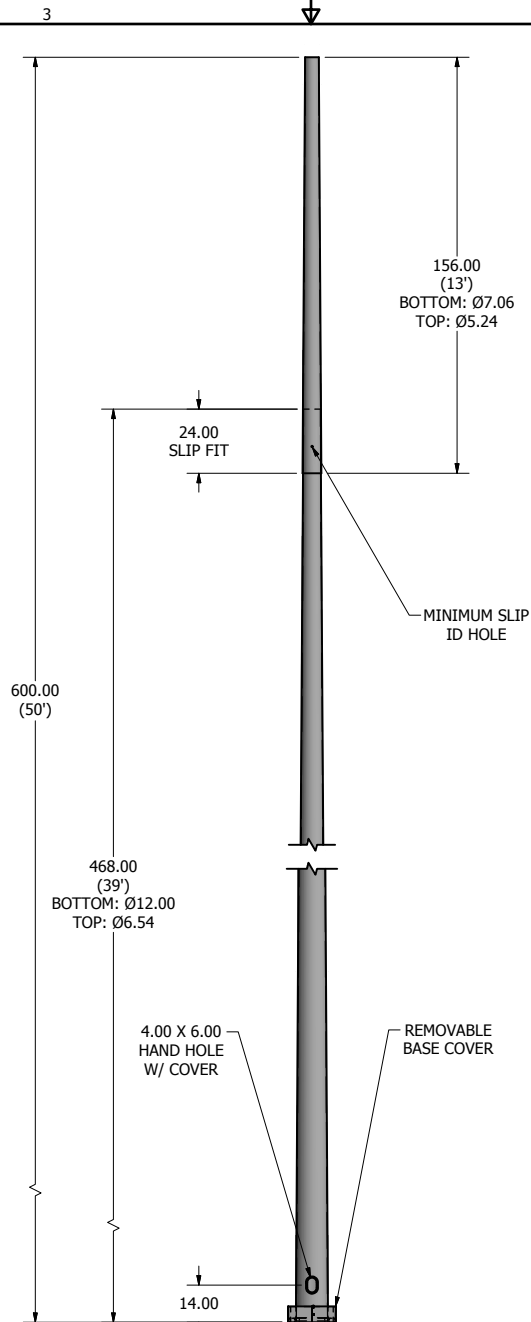
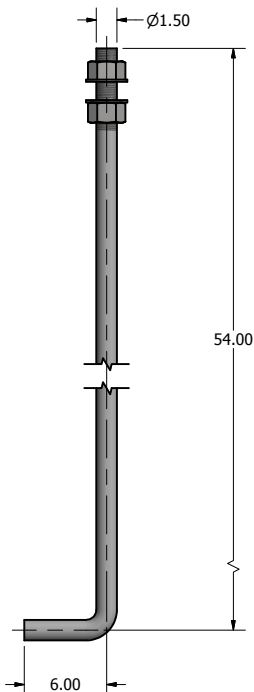
Central Control Base  
Station



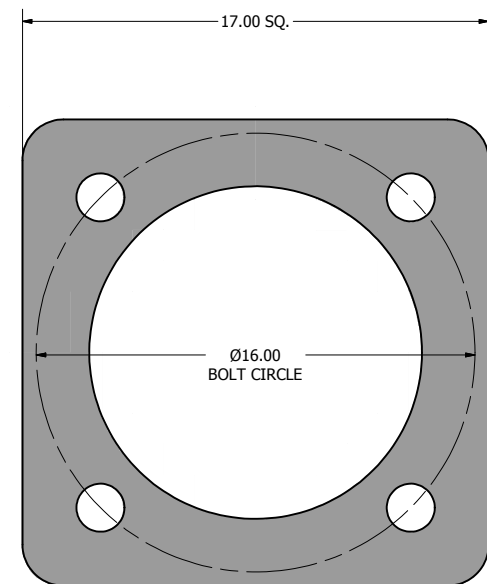
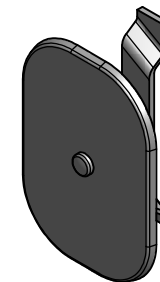
WiFi or LAN Network  
with browser based  
control interface



Cloud Control with  
Verizon 4G LTE  
(Optional)



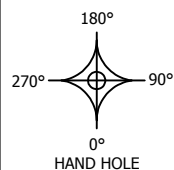
|                                                                      |                       |                          |                    |
|----------------------------------------------------------------------|-----------------------|--------------------------|--------------------|
| 2                                                                    |                       | 1                        |                    |
| POLE SPECIFICATIONS                                                  |                       |                          |                    |
| NO.                                                                  | COMPONENT             | ASTM DESIGNATION         | MIN. YIELD (P.S.I) |
| 1.                                                                   | POLE SHAFT            | A-595 GR. A              | 55,000             |
| 2.                                                                   | BASE PLATE            | A36                      | 36,000             |
| 3.                                                                   | ANCHOR BOLTS          | F1554 GR. 55             | 55,000             |
| 4.                                                                   | GALVANIZED HARDWARE   | A153                     | -                  |
| FINISH SPECIFICATIONS                                                |                       |                          |                    |
| POLES SHALL HAVE A POLYESTER POWDER COAT FINISH IN A STANDARD COLOR. |                       |                          |                    |
| POLE DIMENSIONS                                                      |                       |                          |                    |
| POLE HGT. (FT.)                                                      | TOP DIA. (IN.)        | BOTTOM DIA. (IN.)        | GAGE               |
| 50'                                                                  | 5.24                  | 12.00                    | 7-11 GA.           |
| MTG. HGT. (FT.)                                                      |                       |                          |                    |
| 50'                                                                  |                       |                          |                    |
| BASE PLATE DIMENSIONS                                                |                       |                          |                    |
| BOLT CIRCLE (IN.)                                                    | BASE PLATE DIM. (IN.) | BOLT HOLE (IN.)          | PLATE THK. (IN.)   |
| 16.00                                                                | 17.00 SQ              | 1.75                     | 1.50               |
| ANCHOR BOLT DIMENSIONS                                               |                       |                          |                    |
| ANCHOR BOLT DIA. (IN.)                                               |                       | ANCHOR BOLT LENGTH (IN.) |                    |
| 1.50                                                                 |                       | 60.00                    |                    |
| ALLOWABLE WIND LOADING (SQ. FT.)                                     |                       |                          |                    |
| WIND*                                                                | INDICATED EPA         | 80 MPH                   | 90 MPH             |
| EPA                                                                  | -                     | 33.4                     | 27.1               |
|                                                                      |                       | 21.8                     | 15.3               |



Ø1.50 X 60.00 ANCHOR BOLT

### POLE DETAIL

17.00 X 17.00 X 1.50 THK. BASE PLATE



|                  |             |
|------------------|-------------|
| DRAWN: L. GRUNIS | 3/28/2017   |
| CHECKED          |             |
| REVISION:        | DATE:       |
| APPROVED:        |             |
| QUOTE:           |             |
| S.O.#            |             |
| REF:             | SCALE: NONE |



34

UNITED  
LIGHTING  
STANDARDS  
A DWM COMPANY

SOME GEOGRAPHICAL AREAS HAVE SPECIAL WIND CONDITIONS THAT CAN CREATE WIND INDUCED VIBRATIONS CAUSING A FATIGUE PROBLEM. NO METHOD HAS YET BEEN FOUND FOR PREDICTING DESTRUCTIVE LIGHTING POLE VIBRATION. THESE CONDITIONS ARE UNIQUE AND CANNOT BE GUARANTEED AGAINST, AND ARE THE RESPONSIBILITY OF A LOCAL SITE ENGINEER.

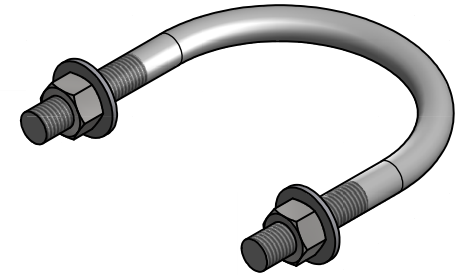
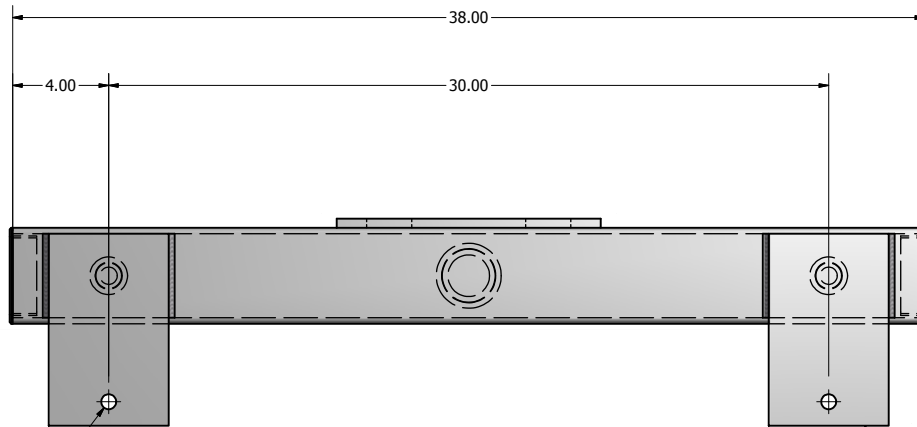
TITLE:

CATALOG:

DWG NO: RTS-50-1207

|         |              |
|---------|--------------|
| SIZE: C | SHEET 1 OF 1 |
|---------|--------------|

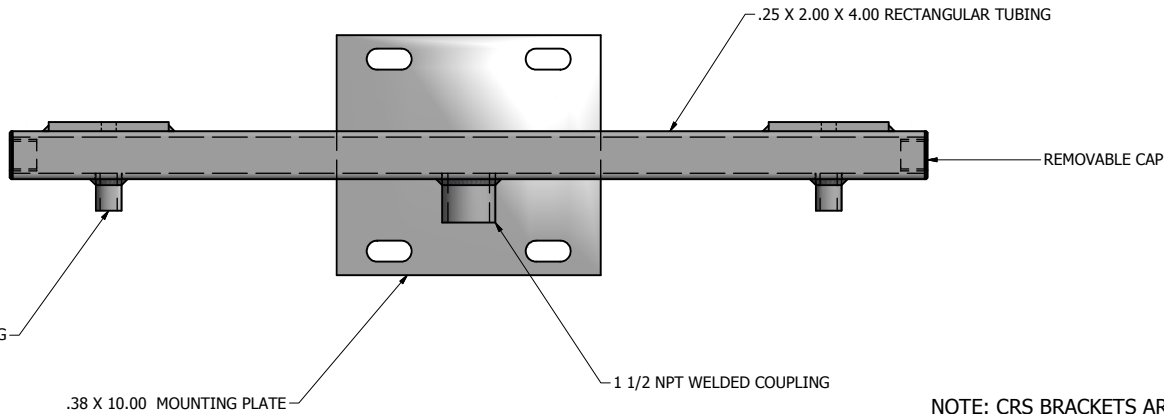
| CRS - SIDE MOUNTED CROSS ARM SPECIFICATIONS |             |               |               |
|---------------------------------------------|-------------|---------------|---------------|
| CATALOG #                                   | FIXTURE QTY | EPA (SQ. FT.) | WEIGHT (LBS.) |
| CRS-02                                      | 2           | 1.9           | 49            |



NOTE: CRS BRACKETS FASTENED TO POLE USING U BOLTS

DRILLED PER FIXTURE REQUIREMENTS

.38 X 5.00 X 8.00 MOUNTING PLATE



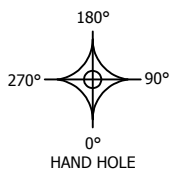
1/2 NPT WELDED COUPLING

.38 X 10.00 MOUNTING PLATE

1 1/2 NPT WELDED COUPLING

REMOVABLE CAP

NOTE: CRS BRACKETS ARE DESIGNED TO BE SIDE MOUNTED TO THE POLE SHAFT USING U-BOLTS. U-BOLTS & MOUNTING PLATE SIZING DETERMINED BY SHAFT SIZE. BRACKETS ARE FINISHED TO MATCH THE POLE.

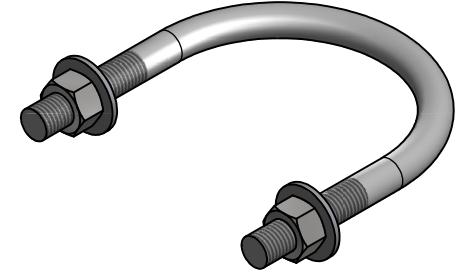
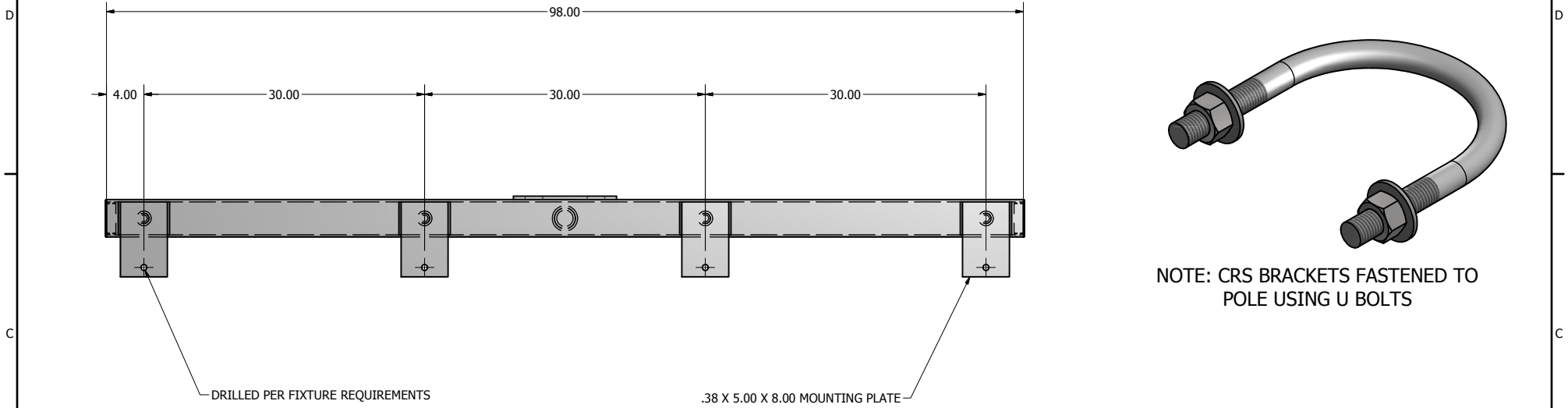


|                   |             |
|-------------------|-------------|
| DRAWN: M. HARVALA | 2/9/2015    |
| CHECKED           |             |
| REVISION:         | DATE:       |
| APPROVED:         |             |
| QUOTE:            |             |
| S.O. #            |             |
| REF:              | SCALE: NONE |

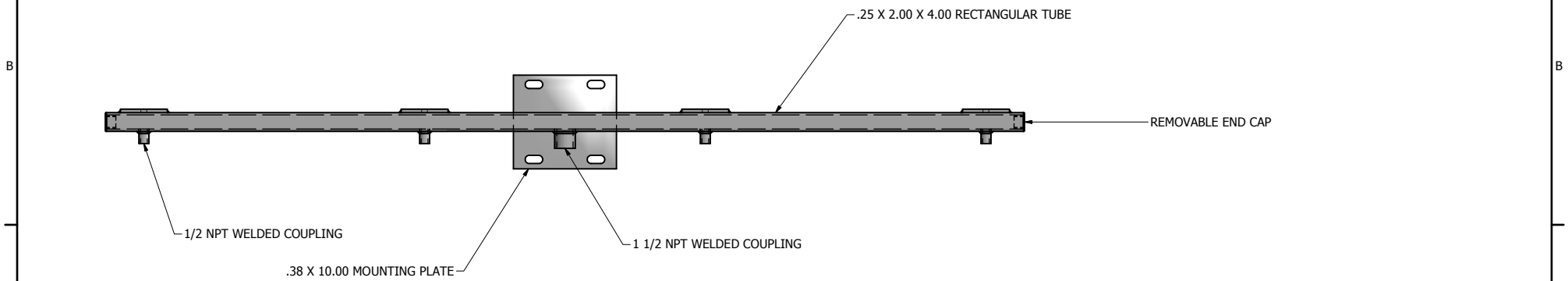


|                                                                                                                                                                                                                                                                                                                             |         |              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------|
| SOME GEOGRAPHICAL AREAS HAVE SPECIAL WIND CONDITIONS THAT CAN CREATE WIND INDUCED VIBRATIONS CAUSING A FATIGUE PROBLEM. NO METHOD HAS YET BEEN FOUND FOR PREDICTING DESTRUCTIVE LIGHTING POLE VIBRATION. THESE CONDITIONS ARE UNIQUE AND CANNOT BE GUARANTEED AGAINST, AND ARE THE RESPONSIBILITY OF A LOCAL SITE ENGINEER. |         |              |
| TITLE:                                                                                                                                                                                                                                                                                                                      |         |              |
| CATALOG:                                                                                                                                                                                                                                                                                                                    |         |              |
| DWG NO: CRS-02                                                                                                                                                                                                                                                                                                              | SIZE: C | SHEET 1 OF 1 |

| CRS - SIDE MOUNTED CROSS ARM SPECIFICATIONS |             |               |               |
|---------------------------------------------|-------------|---------------|---------------|
| CATALOG #                                   | FIXTURE QTY | EPA (SQ. FT.) | WEIGHT (LBS.) |
| CRS-04                                      | 4           | 3.30          | 104           |



NOTE: CRS BRACKETS FASTENED TO POLE USING U BOLTS



NOTE: CRS BRACKETS ARE DESIGNED TO BE SIDE MOUNTED TO THE POLE SHAFT USING U-BOLTS. U-BOLTS & MOUNTING PLATE SIZING DETERMINED BY SHAFT SIZE. BRACKETS ARE FINISHED TO MATCH THE POLE.

180°  
270° 0°  
HAND HOLE

|                   |             |
|-------------------|-------------|
| DRAWN: M. HARVALA | 2/9/2015    |
| CHECKED           |             |
| REVISION:         | DATE:       |
| APPROVED:         |             |
| QUOTE:            |             |
| S.O.#             |             |
| REF:              | SCALE: NONE |

a TGS company

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SOME GEOGRAPHICAL AREAS HAVE SPECIAL WIND CONDITIONS THAT CAN CREATE WIND INDUCED VIBRATIONS CAUSING A FATIGUE PROBLEM. NO METHOD HAS YET BEEN FOUND FOR PREDICTING DESTRUCTIVE LIGHTING POLE VIBRATION. THESE CONDITIONS ARE UNIQUE AND CANNOT BE GUARANTEED AGAINST, AND ARE THE RESPONSIBILITY OF A LOCAL SITE ENGINEER.

TITLE:

CATALOG:

DWG NO: CRS-04

SIZE: C SHEET 1 OF 1