



Longview Independent School District

Request for Pricing

RFP 2024-BRP01

Sports Facilities Lighting Upgrades

Longview High School Football Stadium

Longview High School Coliseum

Judson Middle School Football Stadium

Baseball Stadium

Softball Stadium

Grass Soccer Stadium

IMPORTANT NOTE: Prospective respondents are prohibited from contacting any Board member, Superintendent, senior staff member, principal, department head, director, manager, or other District employee who has influence in the evaluation or selection process as outlined in paragraph 2.0 in Section II labeled **INSTRUCTION**.

Request for Pricing # 2024-BRP01

Sports Facilities Lighting Upgrades

Introduction

RFP Schedule and Delivery

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Engineered Design

Introduction:

Longview ISD is requesting pricing for sports facilities lighting upgrades by qualified and licensed electrical installers. The locations include Longview High School Football Stadium, Longview High School Coliseum, Judson Middle School Football Stadium, Baseball Stadium, Softball Stadium, Grass Soccer Stadium. This project will be

scheduled to avoid disruptions to any and all sporting events scheduled by the district. The district reserves the right to, before awarding the contract, to require additional evidence of qualifications, licensing, and previous experience if deemed necessary. Contractors will be required to provide a Performance and Payment Bond, submit proof of liability insurance and workers compensation.

RFP Schedule and Delivery:

Subject to change as deemed necessary by Longview ISD.

RFP published 9-20-2024

A site walk to evaluate existing electrical and existing conditions at each location will be 10-7-2024 starting at 8:30AM. This will begin in the visitors parking lot on the Northeast corner of the high school football stadium. From this location everyone will travel together to the adjacent softball field, walk to the basketball coliseum, drive to the baseball and soccer field, then driving to finish up at Judson middle school.

Any questions answered during the walk will be documented and dispersed via email to all prospective bidders. No one will be allowed to submit pricing if they do not participate in the walk through.

Any additional RFI will need to be submitted via email to both

Mike Gipson mgipson@lisd.org and John Erickson- e4contracting@outlook.com no later than 9-27-2024 @ 11:00 AM . Any questions and answers will be sent out via email to all prospective bidders.

Sealed proposals must be submitted 10-21-2024 before 1:00 PM to:

Longview ISD Sports Lighting Upgrades

ATTN: Mike Gipson

1301 E. Young St. Longview, TX 75602

*Substitution requests must be formally submitted and approved: see specifications.

Scoring Methodology

Points Value	Category
25	Experience
10	Similar Project & Owner Protection
15	Design & Restoration Experience of Sport Facilities Electrical Lighting Elements
15	References
10	Firm Stability
10	Capacity & Additional Services Available
15	Demonstrated Cost Savings

General Intent/Scope:

Longview High School Football Stadium: Remove and replace stadium lightning as specified. Existing poles to remain, existing conduit and wiring to remain. Dispose of old lighting.

Longview High School Coliseum: Remove and replace lighting as specified. Conduit and wiring to be included as required. Dispose of old lighting.

Judson Middle School Football Stadium Lighting: Remove and replace all poles and lighting. New switches, conduit and wiring required. New switches will be located next to the existing 480 disconnect on the Northwest side of the stadium. All conduit will travel south and outside of the playing field. Directional boring is possible. Crossing the field is an option but all damaged irrigation and sod must be returned to the existing playing condition or better. Crossing the field must be approved by the district.

Baseball Stadium: Remove and replace all poles and lighting. New switches, conduit and wiring required. Existing power is located in the electrical closet, inside the concession stand. Conduit and wiring to be run the most economic and efficient way. Poles A3 and A4 will require saw cutting demo and pour back of concrete.

Softball Stadium: Remove and replace all poles and lighting. New switches, conduit and wiring required. Existing power is located next to the batting cages. Conduit and wiring to be run the most economic and efficient way. Poles A1 and A2 will require saw cutting demo and pour back of concrete. Existing switches could possibly be left in place.

Grass Soccer Stadium: Remove and replace all poles and lighting. New switches, conduit and wiring required. Existing power is located in the electrical closet, inside the concession stand. Conduit and wiring to be run the most economic and efficient way.

General Notes:

All existing piers will need to be chipped down a minimum of 18 inches below grade, cleaned up, and covered with top soil.

All lights and poles will need to be disposed of. Specifications and engineering take precedence over general notes.

Tentative Schedule: These are tentative dates that have some flexibility. Start dates follow a sport finishing.

Baseball and Softball- Immediate start to be completed before February 18th 2025 if materials are available.

High School Stadium- Mid April 2025 start

Judson Stadium- January 2025 start

Soccer Stadium – Mid April 2025 start

Coliseum - April 2025 start

Finalizing start and completion dates will be approved by E4 Contracting and Longview ISD after a contractor is selected.

LIGHTING SPECIFICATION
PREPARED FOR

Longview ISD Athletic Fields

Athletic Lighting Project
Longview, TX
August 12th, 2024

Project # 238383

SUBMITTED BY:

Musco Sports Lighting, LLC

2107 Stewart Road
PO Box 260
Muscatine, Iowa 52761
Local Phone: 563/263-2281
Toll Free: 800/756-1205
Fax: 800/374-6402



SECTION 26 56 68 – EXTERIOR ATHLETIC LIGHTING

Lighting System with LED Light Source

PART 1 – GENERAL

1.1 SUMMARY

- A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.
- B. The purpose of these specifications is to define the lighting system performance and design standards for Longview ISD 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. High School Football Field w/Track
 - 2. Baseball Field
 - 3. Softball Field
 - 4. Soccer Field
 - 5. Middle School Football Field
- D. The primary goals of this sports lighting project are:
 - 1. **Guaranteed Light Levels:** Selection of appropriate light levels impacts the safety of players and the enjoyment of spectators. Therefore, light levels are guaranteed to not drop below specified target values for a period of 25 years for fields with new poles and 10 years for fields being retrofitted.
 - 2. **Environmental Light Control:** It is the primary goal of this project to minimize spill light to adjoining properties and glare to players, spectators, and neighbors.
 - 3. **Cost of Ownership:** 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. All lighting designs shall comply with UIL standards and City of Longview, TX lighting ordinances.
 - 5. **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 for fields with new poles and 10 years for fields being retrofitted. All communication and monitoring costs for 25-year period shall be included in the bid.
 - a. **Entertainment Features:** Incorporation of theatrical light shows enhance the presentation and enjoyment of players and spectators. Control system shall incorporate pre-programmed light shows such as "chase", "wave", "marquee", and "random." Control system shall incorporate the ability to initiate these shows locally. System shall be able to synchronize light shows to customer-supplied music. (For High School Football only)
 - b. **Accent Lighting:** To allow for custom lighting effects, including team colors, lighting for special occasions, and theatrical effects, all poles should be equipped with RGB accent luminaires to illuminate the structures in various custom colors. Colors should be selectable via an onsite device. (For High School Football only)

1.2 ONFIELD 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 manufacturers will provide a guarantee that light levels will be sustained over the life of the warranty period. Lighting calculations shall be developed, and field measurements taken on the grid spacing with the minimum number of grid points specified below.

Manufacturers will provide lumen maintenance data of the LED luminaires used per TM-21-11 and

will incorporate the lumen maintenance projections into the lighting designs to ensure target light levels are achieved throughout the guaranteed period of the system. Per IES guidelines, lumen maintenance hours should be reported based on the 6x multiplier of testing hours.

Area of Lighting	Average Target Illumination Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
High School Football Field	100 foot-candles	2.0:1.0	72	30' x 30'
Track	50 foot-candles	12:1.0	46	30' x 30'
Home side Bleachers	3 foot-candles	N/A	186	10' x 10'
Away side Bleachers	3 foot-candles	N/A	248	10' x 10'
Baseball Infield	50 foot-candles	2.0:1.0	25	30' x 30'
Baseball Outfield	30 foot-candles	2.5:1.0	107	30' x 30'
Baseball 1 st Base Bullpen	15 foot-candles	2.5:1.0	14	10' x 10'
Baseball 3 rd Base Bullpen	15 foot-candles	2.5:1.0	14	10' x 10'
Baseball Bleachers	10 foot-candles	2.5:1.0	12	10' x 10'
Softball Infield	50 foot-candles	2.0:1.0	25	20' x 20'
Softball Outfield	30 foot-candles	2.5:1.0	69	20' x 20'
Softball 1 st Base Bullpen	20 foot-candles	2.0:1.0	12	10' x 10'
Softball 3 rd Base Bullpen	18 foot-candles	2.0:1.0	21	10' x 10'
Softball Bleachers	10 foot-candles	2.0:1.0	22	10' x 10'
Soccer Field	50 foot-candles	2.0:1.0	96	30' x 30'
Middle School Football Field	50 foot-candles	2.0:1.0	72	30' x 30'
Home side Bleachers	10 foot-candles	2.0:1.0	30	10' x 10'
Away Bleachers	10 foot-candles	2.0:1.0	22	10' x 10'

- B. Color Temperature: The lighting system shall have a minimum color temperature of 5700K and a CRI of 75.
- C. Playability: Lighting design and luminaire selection should be optimized for playability by reducing glare onfield and providing sufficient uplight.
 - 1. Aiming Angles: To reduce glare, luminaire aiming should ensure the top of the luminaire field angle (based on sample photometric reports) is a minimum of 10 degrees below horizontal.
 - 2. Glare Control Technology – Luminaires selected should have glare control technology including, but not limited to: external visors, internal shields and louvres. No symmetrical beam patterns are acceptable.
 - 3. Aerial lighting – Adequate illumination must be provided above the field to see the ball in flight. It is recommended that a lighting analysis be performed above the field of play to evaluate the visibility of the ball over its typical trajectory to ensure the participants will adequately see the ball. Calculation planes should be evaluated up to the maximum anticipated height for the level of play.
 - 4. Mounting Heights: To ensure proper aiming angles, minimum mountings heights shall be as described below. Higher mounting heights may be necessary for luminaire with lesser glare control to meet field angle requirements of section 1.2.C.1.

# of Poles	Pole Designation	Pole Height
2	A1 – A2	60'
16	A3 – A4, B1 – B2, C1 – C2, D1 – D2, S1 – S4, F1 – F4 (Middle School Football)	70'
2	B3 – B4	80'
4	F1 – F4 (High School Football)	95' (Existing)

1.3 **ENVIRONMENTAL LIGHT CONTROL**

- A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers, and external shields. No symmetrical beam patterns are accepted.
- B. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical footcandles along the specified lines. Light levels shall be provided in 30-foot intervals along the boundary line at 3 ft above grade.
- C. Sample Photometry: 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 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.
- D. Field Verification: Lighting manufacturer shall supply field verification of environmental light control using a meter calibrated within the last 12 months:
 - 1. Spill verification: Illumination levels shall be taken in accordance with IESNA RP-6-22. The light sensing surface of the light meter should be held 36 inches above the playing surface with the sensing surface horizontal (for horizontal readings) or vertically pointed at the brightest light bank (for max vertical readings)

1.4 **COST OF OWNERSHIP**

- A. Manufacturer shall submit a 25-year Cost of Ownership summary that includes energy consumption, anticipated maintenance costs, and control costs. All costs associated with faulty luminaire replacement - equipment rentals, removal and installation labor, and shipping - are to be included in the maintenance costs.

PART 2 – PRODUCT

2.1 **SPORTS LIGHTING SYSTEM CONSTRUCTION (Fields with New Poles)**

- A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.
- B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and

galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.

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

1. Galvanized steel poles and cross-arm assembly.
 2. Non-approved pole technology:
 - a. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long term performance concerns.
 3. Lighting systems shall use concrete foundations. See Section 2.4 for details.
 - a. For a foundation using a pre-stressed concrete base embedded in concrete backfill the concrete shall be air-entrained and have a minimum compressive design strength at 28 days of 3,000 PSI. 3,000 PSI concrete specified for early pole erection, actual required minimum allowable concrete strength is 1,000 PSI. All piers and concrete backfill must bear on and against firm undisturbed soil.
 - b. For anchor bolt foundations or foundations using a pre-stressed concrete base in a suspended pier or re-enforced pier design pole erection may occur after 7 days. Or after a concrete sample from the same batch achieves a certain strength.
 4. Manufacturer will supply all drivers and supporting electrical equipment.
 - a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral drivers are not allowed.
 - b. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.
 5. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
 6. All luminaires, visors, and cross-arm assemblies shall withstand 150 mi/h winds and maintain luminaire aiming alignment.
 7. Control cabinet to provide remote on-off control, monitoring, and entertainment features (For High School Football Field) of the lighting system. See Section 2.3 for further details.
 8. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
 - a. Integrated grounding via concrete encased electrode grounding system.
 - b. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780. The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.
- D. Safety: All system components shall be UL listed for the appropriate application.

2.2 SPORTS LIGHTING SYSTEM CONSTRUCTION (High School Football Field)

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

- B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.
- C. System Description: Lighting system is intended to mount to existing structures and shall reuse existing foundations, poles, underground supply wiring, and control system. The system shall consist of the following:
 - 1. Existing equipment: Strength and condition of existing poles and foundations must be verified as strong enough to handle the weight and wind loading of new equipment by calculation and visual inspection.
 - 2. Pole top luminaire assembly: Galvanized steel pole top luminaire assemblies to replace existing pole top by slip fit over the pole sections, bolting to top flange, or clamping to pole. Lighting manufacturer must supply new crossarms, or supply calculations that show crossarms are strong enough to support new loads without deflection.
 - 3. All luminaires, visors, and pole top luminaire assemblies shall withstand 150 mi/h winds and maintain luminaire aiming alignment.
 - 4. Manufacturer will supply all drivers and supporting electrical equipment
 - a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral drivers are not allowed.
 - b. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.
 - 8. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
 - 9. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
 - a. Installer shall supply grounding electrodes, down conductors, and exothermic weld kits. For steel poles, down conductor required from bottom of steel. For concrete poles full length down conductor is required. Electrodes and conductors shall be sized as required by NFPA 780.
- 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: Per Plans.
 - 2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.
- B. Energy Consumption: The kW consumption for the field lighting system shall be 268.52 kW for high school fields and 41.68 kW for middle school.

2.3 CONTROL

- A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.
- B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation

with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.

- C. Contactor control of lights: To minimize wear on drivers and other electrical components and prevent lights from turning on due to communication loss, circuits must be controlled via contactor switching, not dimming driver output to zero.
- D. Dimming: System shall provide for 3-stage dimming (high-medium-low). Dimming will be set via scheduling options (Website, app, phone, email) or via an onsite user interface tablet or device (For High School Football Field only).
- E. 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, 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.
- F. 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).
- G. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. The dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS and Android 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.
- H. Communication Costs: Manufacturer shall include communication costs for operating the control and monitoring system for a period of 25 years.
- I. Communication with luminaire drivers: Control system shall interface with drivers in electrical components enclosures by means of powerline communication.
- J. Entertainment Features: Control System shall store four (4) standard preprogrammed lighting effects per field with option for two (2) custom preprogrammed lighting scenes or effects. Programming will additionally include four (4) minutes of custom programming with lights synchronized to music supplied by customer. Shows shall be initiated by a manufacturer-provided touchscreen user interface on the control system network. (For High School Football Field only).

2.4 STRUCTURAL PARAMETERS

- A. Wind Loads: Wind loads shall be based on the 2021 International Building Code. Wind loads to be calculated using ASCE 7-16, an ultimate design wind speed of 105 mph and exposure category C.
- B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2013 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-6).
- C. Foundation Design: The foundation design shall be based on soil parameters as outlined in the geotechnical report. If no geotechnical report is available, the foundation design shall be based on

soils that meet or exceed those of a Class 5 material as defined by 2021 IBC Table 1806.2.

- D. Foundation Drawings: Project specific foundation drawings stamped by a registered engineer in the state where the project is located are required. The foundation drawings must list the moment, shear (horizontal) force, and axial (vertical) force at ground level for each pole. These drawings must be submitted at time of bid to allow for accurate pricing.

PART 3 – EXECUTION

3.1 SOIL QUALITY CONTROL

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

3.2 DELIVERY TIMING

- B. Delivery Timing Equipment On-Site: The equipment must be on-site 8-10 weeks from receipt of approved submittals and receipt of complete order information.

3.3 FIELD QUALITY CONTROL

- A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA RP-6-22.
- B. Field Light Level Accountability
 - 1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 years. These levels will be specifically stated as "guaranteed" on the illumination summary provided by the manufacturer.
 - 2. The contractor/manufacturer shall be responsible for conducting initial light level testing and an additional inspection of the system, in the presence of the owner, one year from the date of commissioning of the lighting.
 - 3. The contractor/manufacturer will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.
- C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles, uniformity ratios, upright for aerial visibility, and offsite candela readings 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. The warranty shall guarantee specified light levels. The manufacturer shall maintain specifically funded financial reserves to assure fulfillment of the warranty for the full term. The 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. (For fields with new poles.)
- B. 10-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 10 years from the date of shipment. The warranty shall guarantee specified light levels. The

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. (For High School Football Field)

- C. Maintenance: Manufacturer shall monitor the performance of the lighting system, including on/off status, hours of usage and luminaire outage for 25 years from the date of equipment shipment. Parts and labor shall be covered such that individual luminaire outages will be repaired when the usage of any field is materially impacted. The manufacturer is responsible for removal and replacement of failed luminaires, including all parts, labor, shipping, and equipment rental associated with maintenance. Owner agrees to check fuses in the event of a luminaire outage.

PART 4 – DESIGN APPROVAL

4.1 PRE-BID SUBMITTAL REQUIREMENTS (Non-Musco)

- A. Design Approval: The owner / engineer will review pre-bid submittals per section 4.1.B from all the manufacturers to ensure compliance to the specification 10 days prior to bid. If the design meets the design requirements of the specifications, a letter and/or addendum will be issued to the manufacturer indicating approval for the specific design submitted.
- B. Approved Product: Musco’s Light-Structure System™ with TLC for LED® is the approved product. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. An addendum will be issued prior to bid listing any other approved lighting manufacturers and designs.
- C. All listed manufacturers not pre-approved shall submit the information at the end of this section at least 10 days prior to bid. An addendum will be issued prior to bid; listing approved lighting manufacturers and the design method to be used.
- D. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner’s representative. Bids received that do not utilize an approved system/design, will be rejected.

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

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

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

	D	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. The lighting design showing glare along the boundary line in candela. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
	E	Photometric Report	Provide first page of photometric report for all luminaire types being proposed showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over 5 years experience.
	F	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period.
	G	Structural Calculations	Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in the state of Texas, if required by owner.
	H	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system and entertainment system. They will also provide ten (10) references of customers currently using proposed system in the state of Texas.
	I	Electrical Distribution Plans	Manufacturer bidding an alternate product must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing, signed by a licensed Electrical Engineer in the state of Texas.
	J	Warranty	Provide written warranty information including all terms and conditions. Provide ten (10) references of customers currently under specified warranty in the state of Texas.
	K	Project References	Manufacturer to provide a list of ten (10) projects where the technology and specific fixture proposed for this project has been installed in the state of Texas. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.
	L	Product Information	Complete bill of material and current brochures/cut sheets for all products being provided.
	M	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.
	N	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
	O	Cost of Ownership	Document cost of ownership as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system must be included. All costs should be based on 25 Years
	P	Environmental Light Control Design	Environmental glare impact scans must be submitted showing the maximum candela from the field edge on a map of the surrounding area until 2000 candela or less is achieved.

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

Manufacturer: _____

Signature: _____

Contact Name: _____

Date: ____/____/____

Contractor: _____

Signature: _____

Longview ISD Fields

Longview, TX

Lighting System

Pole/Fixture Summary							
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Avg Load	Max Load	Circuit
A1		30'	1	TLC-LED-550	0.49 kW	0.54 kW	A
A2		30'	1	TLC-RGBW	0.64 kW	0.64 kW	B
A3		30'	1	TLC-LED-550	0.49 kW	0.54 kW	A
A4		30'	1	TLC-RGBW	0.64 kW	0.64 kW	B
A5-A6		30'	1	TLC-LED-550	0.49 kW	0.54 kW	A
A7		30'	1	TLC-RGBW	0.64 kW	0.64 kW	B
A8		30'	1	TLC-LED-550	0.49 kW	0.54 kW	A
A9		30'	1	TLC-RGBW	0.64 kW	0.64 kW	B
A10-A11		30'	1	TLC-LED-550	0.49 kW	0.54 kW	A
A12		30'	1	TLC-RGBW	0.64 kW	0.64 kW	B
A13		30'	1	TLC-LED-550	0.49 kW	0.54 kW	A
A14		30'	1	TLC-RGBW	0.64 kW	0.64 kW	B
A15-A16		30'	1	TLC-LED-550	0.49 kW	0.54 kW	A
A17		30'	1	TLC-RGBW	0.64 kW	0.64 kW	B
A18		30'	1	TLC-LED-550	0.49 kW	0.54 kW	A
A19		30'	1	TLC-RGBW	0.64 kW	0.64 kW	B
A20		30'	1	TLC-LED-550	0.49 kW	0.54 kW	A
B1-B10		30'	1	Cree KBL	0.19 kW	0.19 kW	C
30			30		12.85 kW	13.50 kW	

Circuit Summary					
Circuit	Description	Avg Load	Max Load	Fixture Qty	
A	Basketball	5.83 kW	6.48 kW	12	
B	RGBW	5.12 kW	5.12 kW	8	
C	Bleachers	1.90 kW	1.90 kW	10	

Fixture Type Summary								
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity	
Cree KBL	LED 5000K - 80 CRI	190W	23,994	--	--	--	10	
TLC-RGBW	LED 5700K - 75 CRI	640W	28,500	>120,000	>120,000	>120,000	8	

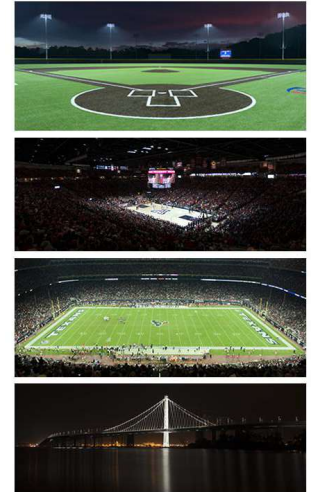
Type	Source	Avg Wattage	Max Wattage	Constant Lumens	Application	Quantity
TLC-LED-550	LED 5700K - 75 CRI	486W	540W	56,950	100k	12

Single Luminaire Amperage Draw Chart								
Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)							
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)	
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)	
CREE KBL	-	-	-	-	-	-	-	
TLC-LED-550	3.2	3.0	2.8	2.4	1.9	1.8	1.4	
TLC-RGBW	4.5	4.3	3.8	3.3	2.7	1.9	1.9	

Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Basketball	Horizontal Illuminance	55.2	45.69	73.10	1.60	1.21	A	12
Bleachers	Horizontal Illuminance	17.7	2.45	48.28	19.72	7.22	C	10
RGBW	Horizontal Illuminance	30.5	12.08	42.72	3.54	2.52	B	8

From Hometown to Professional



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PROJECT SUMMARY

Equipment List For Areas Shown									
Pole				Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS	
12	A1 A3 A5-A6 A8 A10-A11 A13 A15-A16 A18 A20		30'	30'	TLC-LED-550	1	1	0	
12	Totals					12	12	0	

*Above Grade level relative to the field

Longview ISD Fields

Longview, TX

Grid Summary	
Name	Basketball
Size	94' x 50'
Spacing	10.0' x 10.0'
Height	3.0' above grade

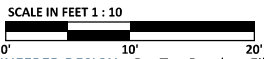
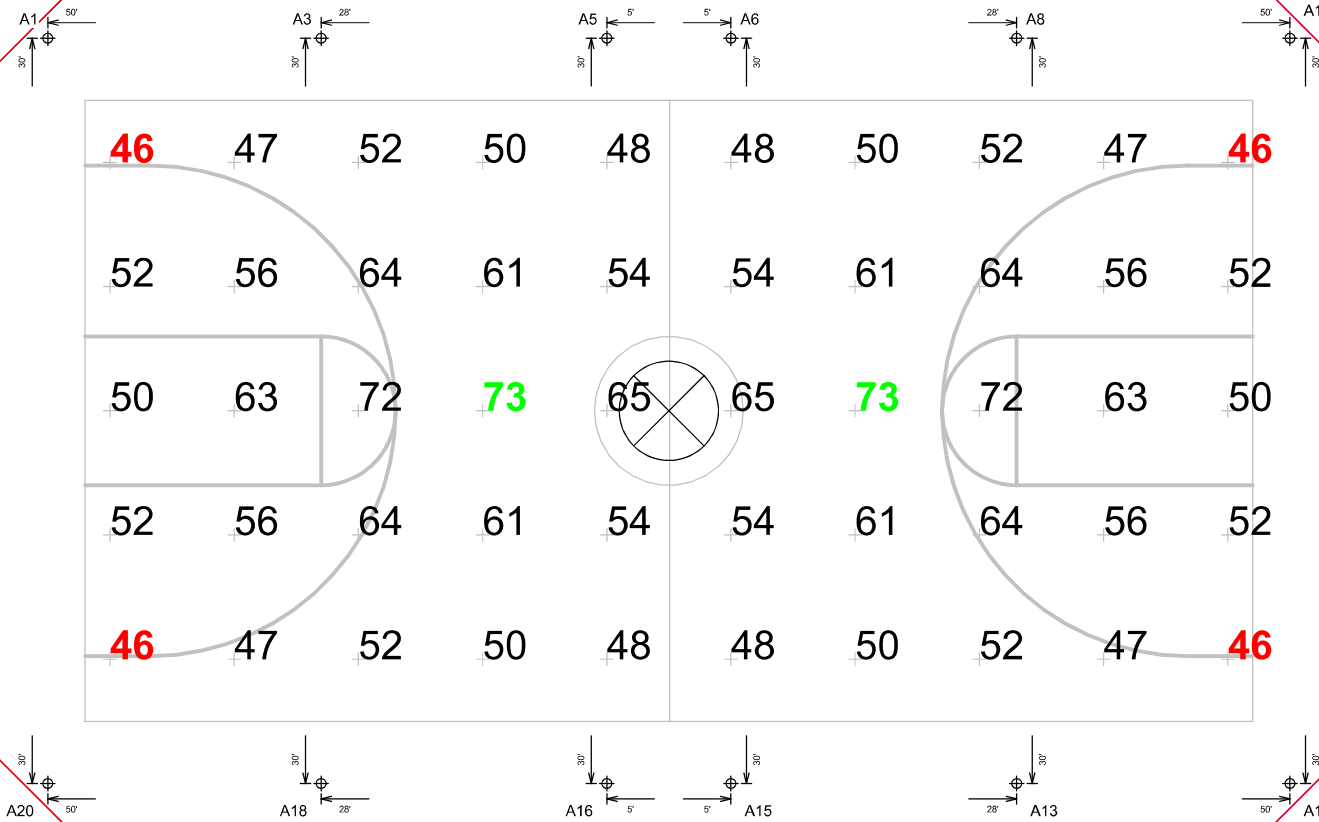
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Guaranteed Average	50
Scan Average	55.2
Maximum	73.10
Minimum	45.89
Avg/Min	1.21
Guaranteed Max/Min	73
Max/Min	1.60
UG (adjacent pts)	1.25
CU	0.57
No. of Points	50
LUMINAIRE INFORMATION	
Applied Circuits	A
Design Usage Hours	100000
No. of Luminaires	12
Avg Load	5.83 kW
Max Load	6.48 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

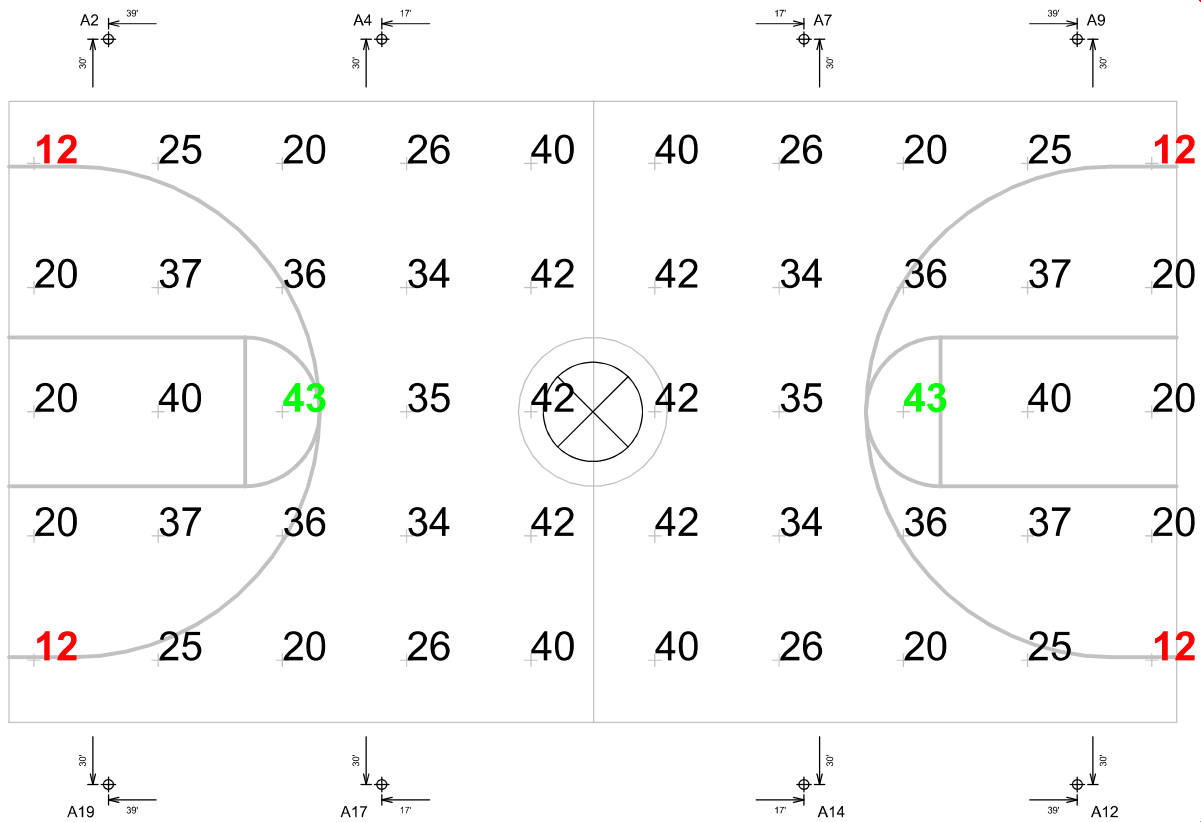


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Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
8	A2 A4 A7 A9 A12 A14 A17 A19	30'		30.0'	TLC-RGBW	1	1	0
8	Totals					8	8	0

*Above Grade level relative to the field



Longview ISD Fields

Longview, TX

Grid Summary	
Name	RGBW
Size	94' x 50'
Spacing	10.0' x 10.0'
Height	3.0' above grade

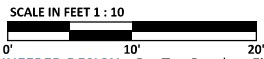
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	30.5
Maximum	42.72
Minimum	12.08
Avg/Min	2.52
Max/Min	3.54
UG (adjacent pts)	2.06
CU	0.80
No. of Points	50
LUMINAIRE INFORMATION	
Applied Circuits	B
No. of Luminaires	8
Total Load	5.12 KW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

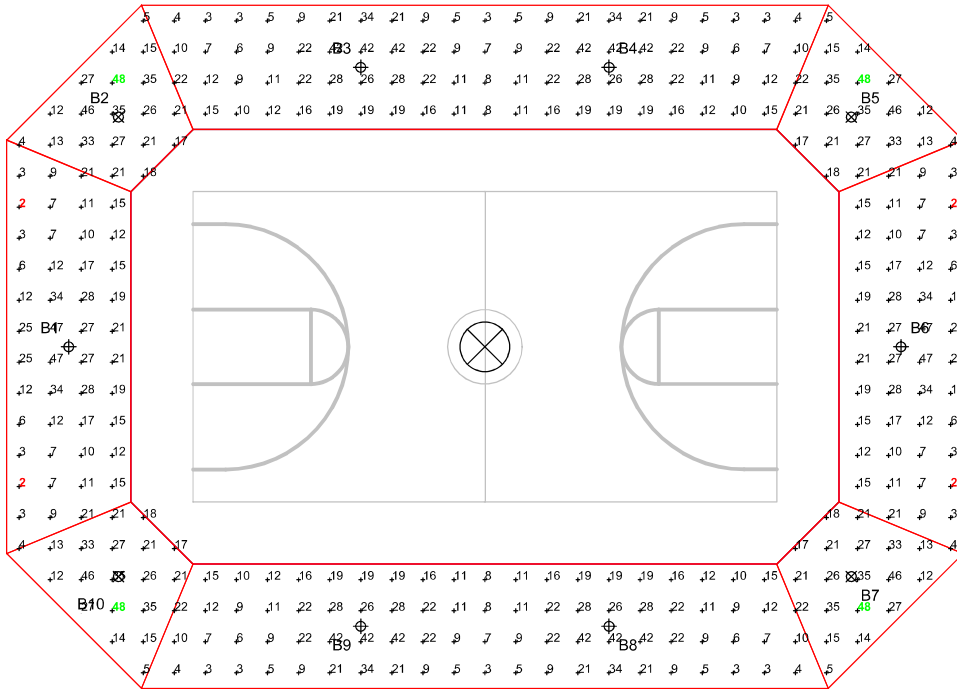


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ILLUMINATION SUMMARY

Equipment List For Areas Shown								
Pole			Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
10	B1-B10		30'	30'	CREE KBL	1	1	0
10				Totals		10	10	0

*Above Grade level relative to the field



Longview ISD Fields

Longview, TX

Grid Summary	
Name Bleachers	
Spacing 5.0' x 5.0'	
Height 18.3' above grade	
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	17.7
Maximum	48.28
Minimum	2.45
Avg/Min	7.22
Max/Min	19.72
UG (adjacent pts)	0.00
CU	0.57
No. of Points	0
LUMINAIRE INFORMATION	
Applied Circuits	C
No. of Luminaires	10
Total Load	1.90 KW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 20



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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ILLUMINATION SUMMARY

Longview ISD Fields

Longview, TX

Equipment Layout

INCLUDES:
Basketball

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

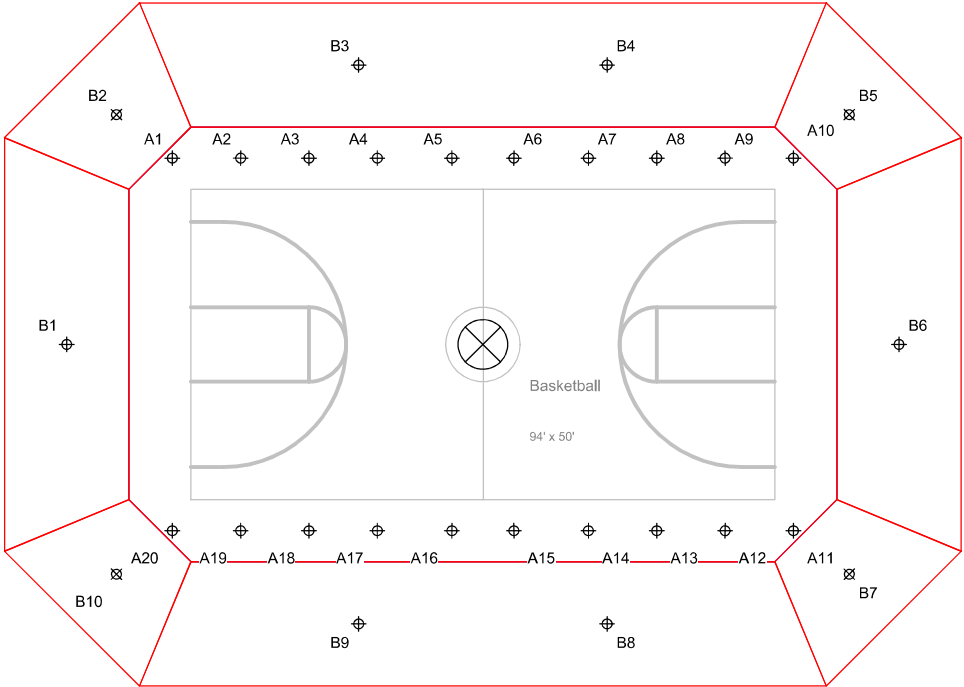
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Equipment List For Areas Shown

QTY	LOCATION	SIZE	GRADE ELEVATION	Luminaires									
				ABOVE GRADE LEVEL	LUMINAIRE TYPE								
12	A1 A3 A5-A6 A8 A10-A11 A13 A15-A16 A18 A20	30'	30'	TLC-LED-550	1								
	A2 A4 A7 A9 A12 A14 A17 A19					30'	30.0'	TLC-RGBW	1				
	B1-B10									30'	30'	CREE KBL	1
	Totals												

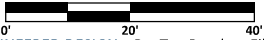
Single Luminaire Amperage Draw Chart

Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)					
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	480 (60)
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	480 (60)
CREE KBL	-	-	-	-	-	-
TLC-LED-550	3.2	3.0	2.8	2.4	1.9	1.4
TLC-RGBW	4.5	4.3	3.8	3.3	2.7	1.9



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

SCALE IN FEET 1 : 20



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EQUIPMENT LAYOUT

Longview ISD Fields

Longview, TX

Lighting System

Pole/Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
F1	70'	70'	1	TLC-LED-550	0.54 kW	B
		70'	6	TLC-LED-1500	8.46 kW	A
		20'	2	TLC-BT-575	1.15 kW	A
F2-F3	70'	70'	2	TLC-LED-550	1.08 kW	B
		70'	6	TLC-LED-1500	8.46 kW	A
		20'	2	TLC-BT-575	1.15 kW	A
F4	70'	70'	1	TLC-LED-550	0.54 kW	B
		70'	6	TLC-LED-1500	8.46 kW	A
		20'	2	TLC-BT-575	1.15 kW	A
4			38		41.68 kW	

Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Football	38.44 kW	32
B	Security	3.24 kW	6

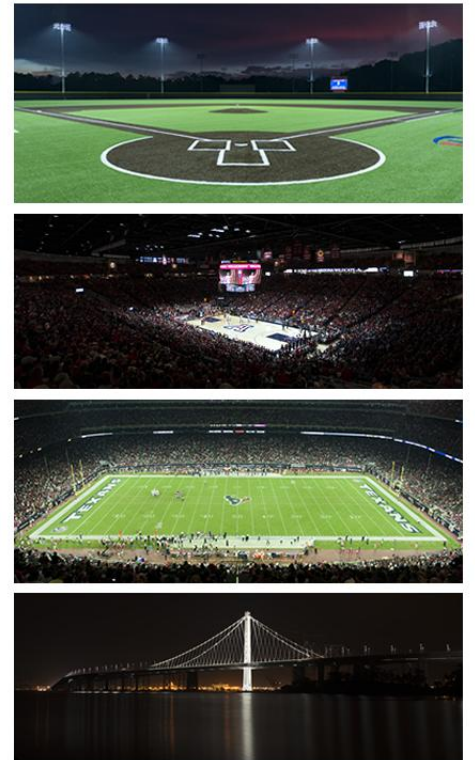
Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	8
TLC-LED-1500	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	24
TLC-LED-550	LED 5700K - 75 CRI	540W	67,000	>120,000	>120,000	>120,000	6

Single Luminaire Amperage Draw Chart							
Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
Single Phase Voltage							
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-550	3.2	3.0	2.8	2.4	1.9	1.8	1.4

Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Away Bleacher	Horizontal Illuminance	11.1	10.09	12.12	1.20	1.10	B	6
Football	Horizontal Illuminance	50.3	43.63	57.77	1.32	1.15	A	32
Home Bleachers	Horizontal Illuminance	10.7	7.02	12.54	1.79	1.52	B	6
Security Grid	Horizontal	1.9	0.00	10.52	-	-	B	6

From Hometown to Professional



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Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	70'	-	70'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	1	0	1
				20'	TLC-BT-575	2	2	0
2	F2-F3	70'	-	70'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	0	2
				20'	TLC-BT-575	2	2	0
4	Totals					38	32	6

*Above Grade level relative to the field



Longview ISD Fields

Longview, TX

Grid Summary	
Name	Football
Size	360' x 160'
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Guaranteed Average	50
Scan Average	50.3
Maximum	57.77
Minimum	43.63
Avg/Min	1.15
Guaranteed Max/Min	2
Max/Min	1.32
UG (adjacent pts)	1.32
CU	0.67
No. of Points	72
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	32
Total Load	38.44 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Longview ISD Fields

Longview, TX

Grid Summary

Name Home Bleachers
 Size 360' x 160'
 Spacing 10.0' x 10.0'
 Height 8.3' above grade

Illumination Summary

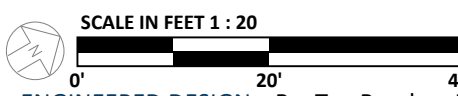
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	10.7
Maximum	12.54
Minimum	7.02
Avg/Min	1.52
Max/Min	1.79
UG (adjacent pts)	0.00
CU	0.08
No. of Points	0
LUMINAIRE INFORMATION	
Applied Circuits	B
No. of Luminaires	6
Total Load	3.24 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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Longview ISD Fields

Longview, TX

Grid Summary	
Name	Away Bleacher
Size	360' x 160'
Spacing	10.0' x 10.0'
Height	13.8' above grade

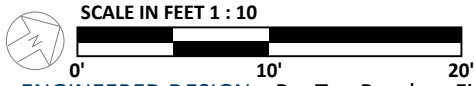
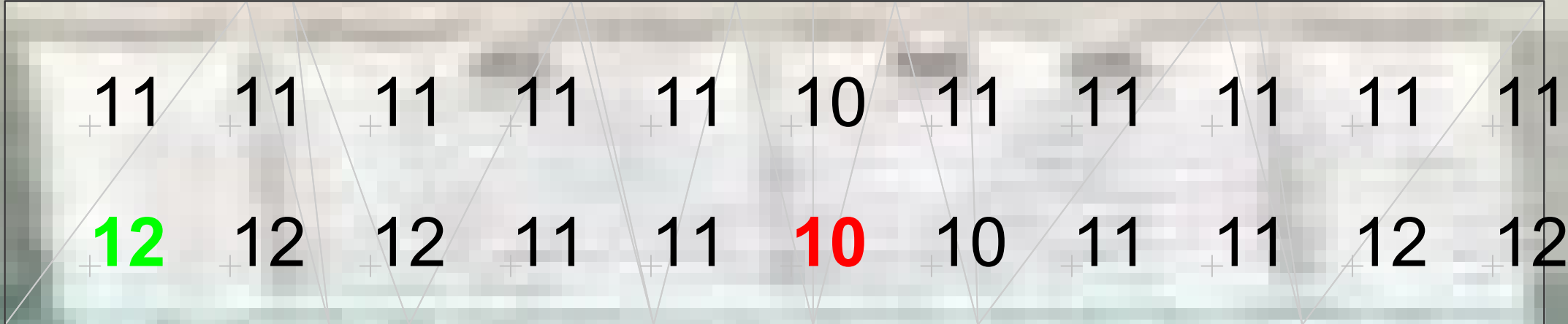
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	11.1
Maximum	12.12
Minimum	10.09
Avg/Min	1.10
Max/Min	1.20
UG (adjacent pts)	0.00
CU	0.06
No. of Points	0
LUMINAIRE INFORMATION	
Applied Circuits	B
No. of Luminaires	6
Total Load	3.24 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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Longview ISD Fields

Longview, TX

Grid Summary

Name	Security Grid
Size	360' x 160'
Spacing	15.0' x 15.0'
Height	3.0' above grade

Illumination Summary

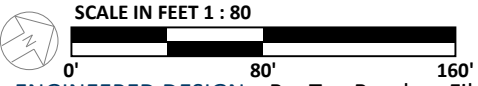
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	1.9
Maximum	10.52
Minimum	0.00
Avg/Min	-
Max/Min	-
UG (adjacent pts)	4.72
CU	0.77
No. of Points	2784
LUMINAIRE INFORMATION	
Applied Circuits	B
No. of Luminaires	6
Total Load	3.24 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Longview ISD Fields

Longview, TX

Equipment Layout

INCLUDES:

- Football

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

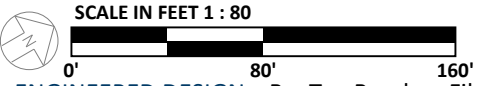
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Equipment List For Areas Shown

QTY	Pole			Luminaires		
	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE
2	F1 F4	70'	-	70'	TLC-LED-1500	6
				70'	TLC-LED-550	1
				20'	TLC-BT-575	2
2	F2-F3	70'	-	70'	TLC-LED-1500	6
				70'	TLC-LED-550	2
				20'	TLC-BT-575	2
4	Totals					38

Single Luminaire Amperage Draw Chart

Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-550	3.2	3.0	2.8	2.4	1.9	1.8	1.4



ENGINEERED DESIGN By: Tye Burch • File #238383A - Middle School • 08-Aug-24

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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Longview ISD Fields

Longview, TX

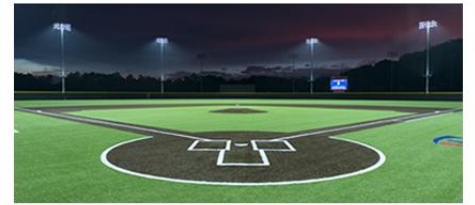
Lighting System

Pole/Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
A1-A2	60'	60'	3	TLC-LED-900	2.64 kW	D
		60'	2	TLC-LED-550	1.08 kW	F
		16'	1	TLC-BT-575	0.57 kW	D
A3	70'	70'	1	TLC-LED-1200	1.17 kW	G
		70'	1	TLC-LED-550	0.54 kW	H
		70'	1	TLC-LED-900	0.88 kW	G
		70'	2	TLC-LED-1500	2.82 kW	G
A4	70'	16'	1	TLC-BT-575	0.57 kW	G
		70'	1	TLC-LED-900	0.88 kW	G
		70'	1	TLC-LED-1200	1.17 kW	G
		70'	2	TLC-LED-1500	2.82 kW	G
		70'	3	TLC-LED-550	1.62 kW	H
B1	70'	16'	1	TLC-BT-575	0.57 kW	G
		70'	1	TLC-LED-900	0.88 kW	D
		70'	5	TLC-LED-1200	5.85 kW	D
		70'	5	TLC-LED-1200	5.85 kW	E
		16'	1	TLC-BT-575	0.57 kW	D
B2	70'	70'	5	TLC-LED-1200	5.85 kW	D
		16'	1	TLC-BT-575	0.57 kW	D
B3	80'	80'	7	TLC-LED-1500	9.87 kW	G
		16'	2	TLC-BT-575	1.15 kW	G
B4	80'	80'	3	TLC-LED-550	1.62 kW	H
		80'	7	TLC-LED-1500	9.87 kW	G
		16'	2	TLC-BT-575	1.15 kW	G
C1	70'	70'	3	TLC-LED-1200	3.51 kW	G
		16'	1	TLC-BT-575	0.57 kW	G
		70'	2	TLC-LED-550	1.08 kW	H
C2	70'	70'	3	TLC-LED-1200	3.51 kW	G
		16'	1	TLC-BT-575	0.57 kW	G
		70'	3	TLC-LED-1200	3.51 kW	G
D1	70'	70'	3	TLC-LED-1200	3.51 kW	G
		16'	1	TLC-BT-575	0.57 kW	G
		70'	3	TLC-LED-1200	3.51 kW	G
D2	70'	70'	1	TLC-LED-550	0.54 kW	H
		70'	3	TLC-LED-1200	3.51 kW	G
		16'	1	TLC-BT-575	0.57 kW	G
F1-F4	95'	95'	23	TLC-LED-1500	32.43 kW	A
		60'	1	TLC-LED-900	0.89 kW	C
		60'	2	TLC-RGBW	1.28 kW	B
S1-S4	70'	70'	1	TLC-LED-550	0.54 kW	J
		70'	8	TLC-LED-1500	11.28 kW	I
20			224		268.52 kW	

Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Football	129.72 kW	92
B	RGBW	5.12 kW	8
C	Security	3.56 kW	4
D	Softball	20.16 kW	21
E	Practice Area	5.85 kW	5
F	Softball Security	2.16 kW	4
G	Baseball	49.27 kW	44
H	Baseball Security	5.40 kW	10
I	Soccer	45.12 kW	32
J	Soccer Bleacher	2.16 kW	4

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	14
TLC-LED-1200	LED 5700K - 75 CRI	1170W	150,000	>120,000	>120,000	>120,000	29
TLC-LED-1500	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	142
TLC-LED-550	LED 5700K - 75 CRI	540W	67,000	>120,000	>120,000	>120,000	18
TLC-LED-900	LED 5700K - 75 CRI	880W	104,000	>120,000	>120,000	>120,000	9
TLC-LED-900	LED 5700K - 75 CRI	890W	89,600	>120,000	>120,000	>120,000	4
TLC-RGBW	LED 5700K - 75 CRI	640W	28,500	>120,000	>120,000	>120,000	8

From Hometown to Professional



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PROJECT SUMMARY

Single Luminaire Amperage Draw Chart							
Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
Single Phase Voltage							
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-1200	6.9	6.5	6.0	5.2	4.2	3.8	3.0
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-550	3.2	3.0	2.8	2.4	1.9	1.8	1.4
TLC-LED-900	-	-	-	-	-	-	-
TLC-RGBW	4.5	4.3	3.8	3.3	2.7	1.9	1.9

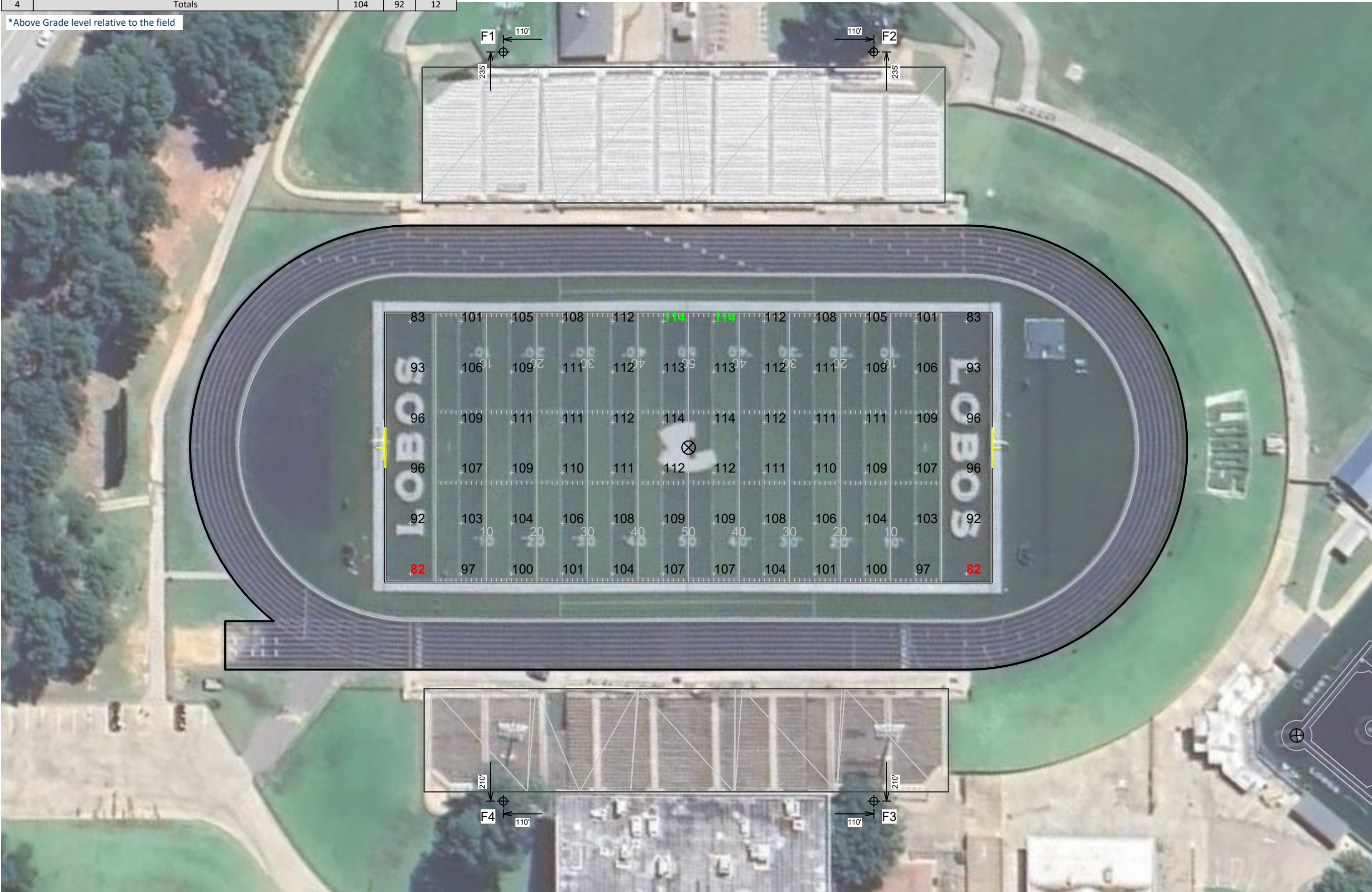
Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Away Bleachers	Horizontal Illuminance	3.0	0.23	6.19	26.94	12.93	B	8
Baseball (Infield)	Horizontal Illuminance	51.3	40.37	57.29	1.42	1.27	G	44
Baseball (Outfield)	Horizontal Illuminance	34.9	24.49	47.88	1.95	1.42	G	44
Baseball Bleacher	Horizontal Illuminance	12.8	8.08	17.47	2.16	1.58	H	10
Baseball First Base BP	Horizontal	16.8	11.37	22.91	2.02	1.48	G	44
Baseball Hillside	Horizontal Illuminance	3.7	0.16	12.45	79.66	23.47	H	10
Baseball Sidewalk	Horizontal	5.2	1.57	13.92	8.87	3.29	H	10
Baseball Third Base BP	Horizontal	16.2	11.25	21.10	1.87	1.44	G	44
Football	1 Main (Center)	112.6	89.55	126.28	1.41	1.26	A	92
Football	2 Reverse Main (Center)	117.7	84.51	138.21	1.64	1.39	A	92
Football	3 End Main	61.7	17.73	103.52	5.84	3.48	A	92
Football	Horizontal Illuminance	104.9	82.42	113.82	1.38	1.27	A	92
Home Bleachers	Horizontal Illuminance	3.4	0.32	5.72	18.03	10.68	B	8
Practice Area	Horizontal	11.2	0.18	28.48	155.97	61.17	E	5
SB First Base BP	Horizontal	22.5	16.77	27.75	1.65	1.34	D	21
SB Third Base BP	Horizontal	19.4	15.77	23.42	1.48	1.23	D	21
Sidewalk	Horizontal	3.5	1.02	8.34	8.19	3.42	C,A	96
Soccer	Horizontal Illuminance	50.2	41.24	60.14	1.46	1.22	I	32
Soccer Bleacher	Horizontal	2.9	0.00	8.85	-	-	J	4
Softball (Infield)	Horizontal Illuminance	50.2	35.11	59.27	1.69	1.43	D	21
Softball (Outfield)	Horizontal Illuminance	34.4	24.02	47.59	1.98	1.43	D	21
Softball Bleacher	Horizontal Illuminance	12.2	9.20	14.10	1.53	1.33	F	4
Softball Security	Horizontal	2.0	0.00	9.17	-	-	F	4
Track	Horizontal Illuminance	54.5	9.71	115.26	11.87	5.61	A	92



Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	95'	20'	115'	TLC-LED-1500	23	23	0
				80'	TLC-LED-900	1	0	1
				80'	TLC-RGBW	2	0	2
4				Totals		104	92	12

*Above Grade level relative to the field



Longview ISD Fields

Longview, TX

Grid Summary	
Name	Football
Size	360' x 160'
Spacing	30.0' x 30.0'
Height	3.0' above grade

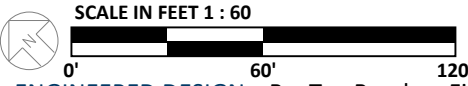
Illumination Summary	
	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Guaranteed Average	100
Scan Average	104.9
Maximum	113.82
Minimum	82.42
Avg/Min	1.27
Guaranteed Max/Min	1.7
Max/Min	1.38
UG (adjacent pts)	1.22
CU	0.44
No. of Points	72
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	92
Total Load	129.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



ENGINEERED DESIGN By: Tye Burch • File #238383A • 08-Aug-24

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



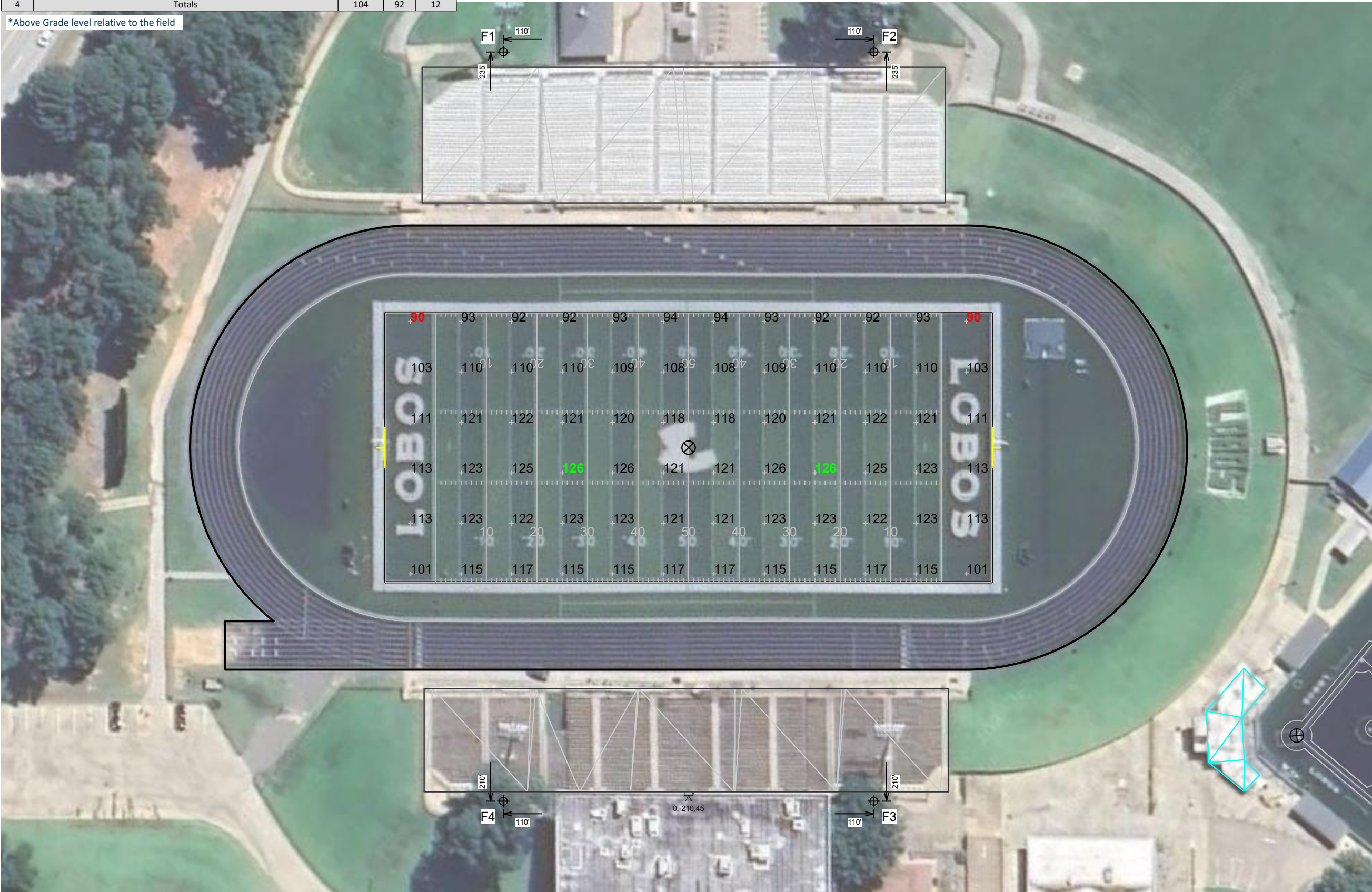
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ILLUMINATION SUMMARY

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	95'	20'	115'	TLC-LED-1500	23	23	0
				80'	TLC-LED-900	1	0	1
				80'	TLC-RGBW	2	0	2
4				Totals		104	92	12

*Above Grade level relative to the field



Longview ISD Fields

Longview, TX

Grid Summary	
Name	Football
Size	360' x 160'
Spacing	30.0' x 30.0'
Height	3.0' above grade

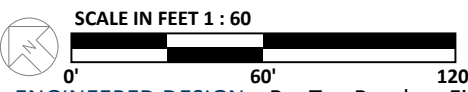
Illumination Summary	
	MAINTAINED TV FOOTCANDLES: 1 Main (Center)
	Entire Grid
Guaranteed Average	100
Scan Average	112.6
Maximum	126.28
Minimum	89.55
Avg/Min	1.26
Guaranteed Max/Min	1.7
Max/Min	1.41
UG (adjacent pts)	1.20
CU	0.44
No. of Points	72
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	92
Total Load	129.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

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ENGINEERED DESIGN By: Tye Burch • File #238383A • 08-Aug-24

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



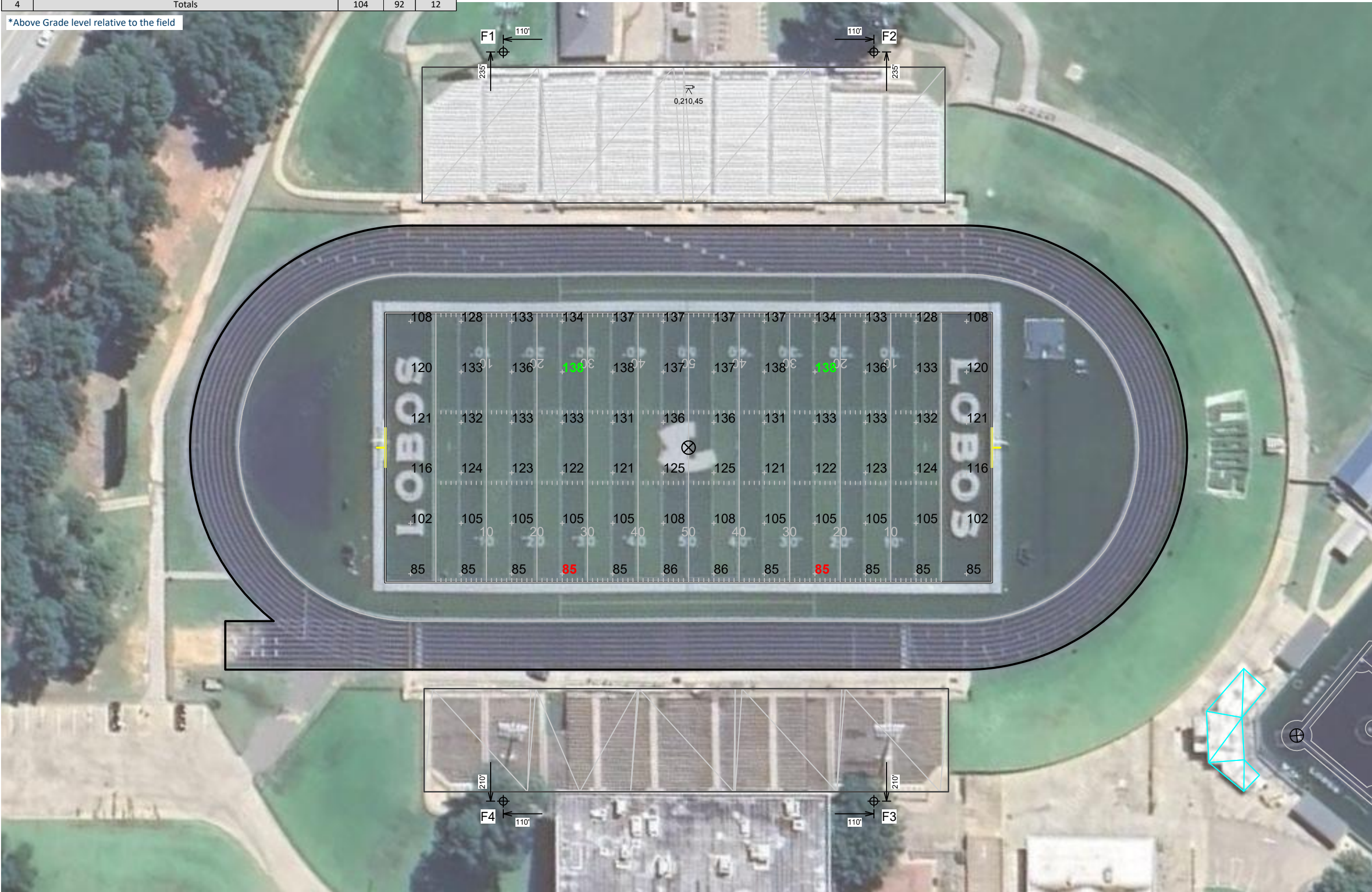
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ILLUMINATION SUMMARY

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	95'	20'	115'	TLC-LED-1500	23	23	0
				80'	TLC-LED-900	1	0	1
				80'	TLC-RGBW	2	0	2
4				Totals		104	92	12

*Above Grade level relative to the field



Longview ISD Fields

Longview, TX

Grid Summary	
Name	Football
Size	360' x 160'
Spacing	30.0' x 30.0'
Height	3.0' above grade

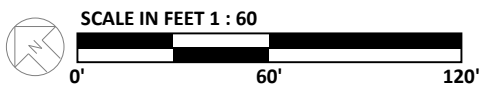
Illumination Summary	
MAINTAINED TV FOOTCANDLES: 2 Reverse Main (Center)	
Entire Grid	
Guaranteed Average	100
Scan Average	117.7
Maximum	138.21
Minimum	84.51
Avg/Min	1.39
Guaranteed Max/Min	1.7
Max/Min	1.64
UG (adjacent pts)	1.25
CU	0.44
No. of Points	72
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	92
Total Load	129.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



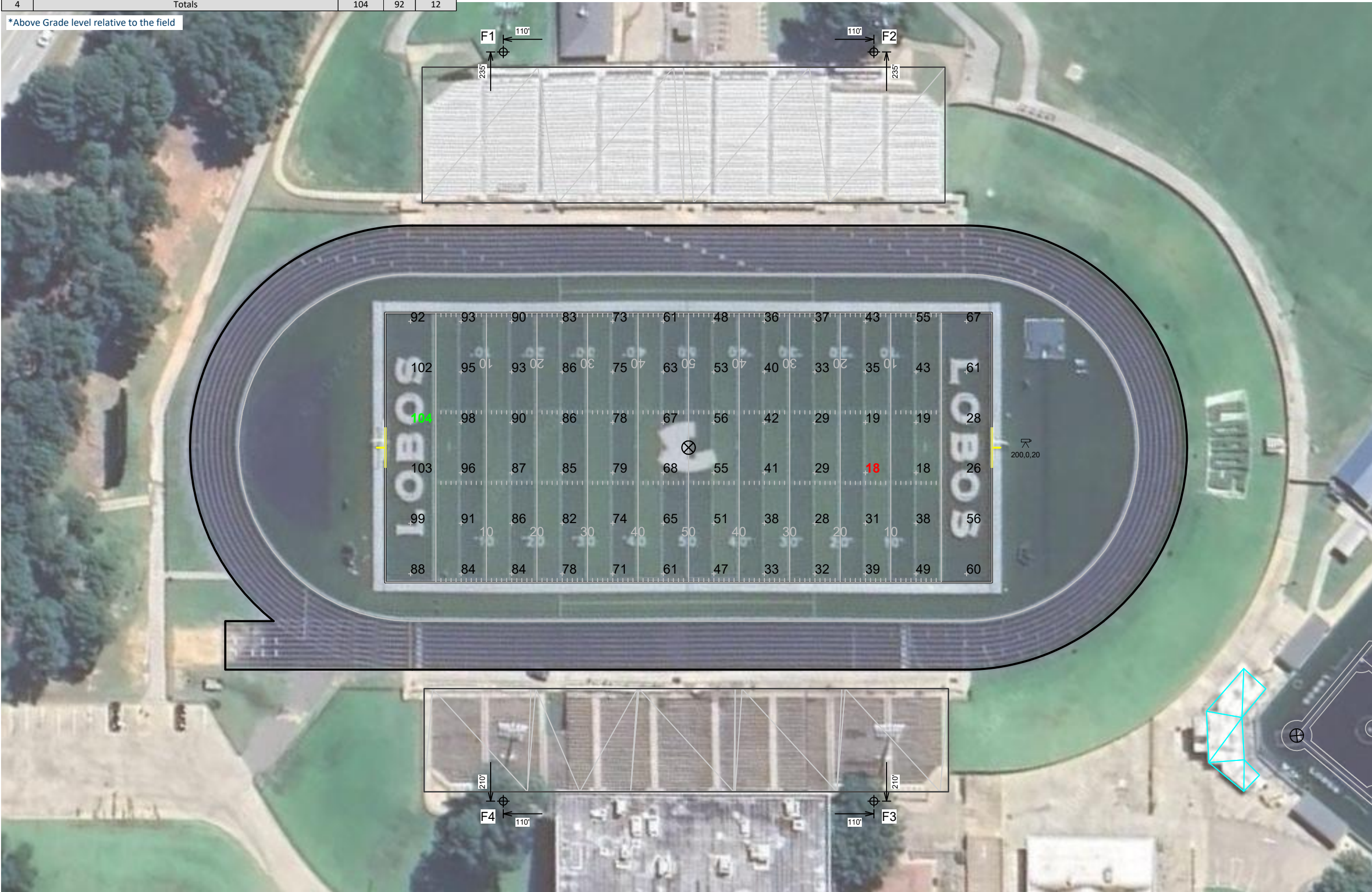
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ILLUMINATION SUMMARY

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	95'	20'	115'	TLC-LED-1500	23	23	0
				80'	TLC-LED-900	1	0	1
				80'	TLC-RGBW	2	0	2
4				Totals		104	92	12

*Above Grade level relative to the field



Longview ISD Fields

Longview, TX

Grid Summary	
Name	Football
Size	360' x 160'
Spacing	30.0' x 30.0'
Height	3.0' above grade

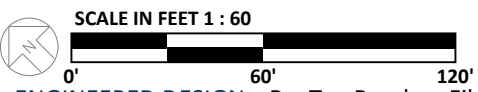
Illumination Summary	
	MAINTAINED TV FOOTCANDLES: 3 End Main
	Entire Grid
Guaranteed Average	0.0
Scan Average	61.7
Maximum	103.52
Minimum	17.73
Avg/Min	3.48
Guaranteed Max/Min	2
Max/Min	5.84
UG (adjacent pts)	2.22
CU	0.44
No. of Points	72
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	92
Total Load	129.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



ENGINEERED DESIGN By: Tye Burch • File #238383A • 08-Aug-24

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



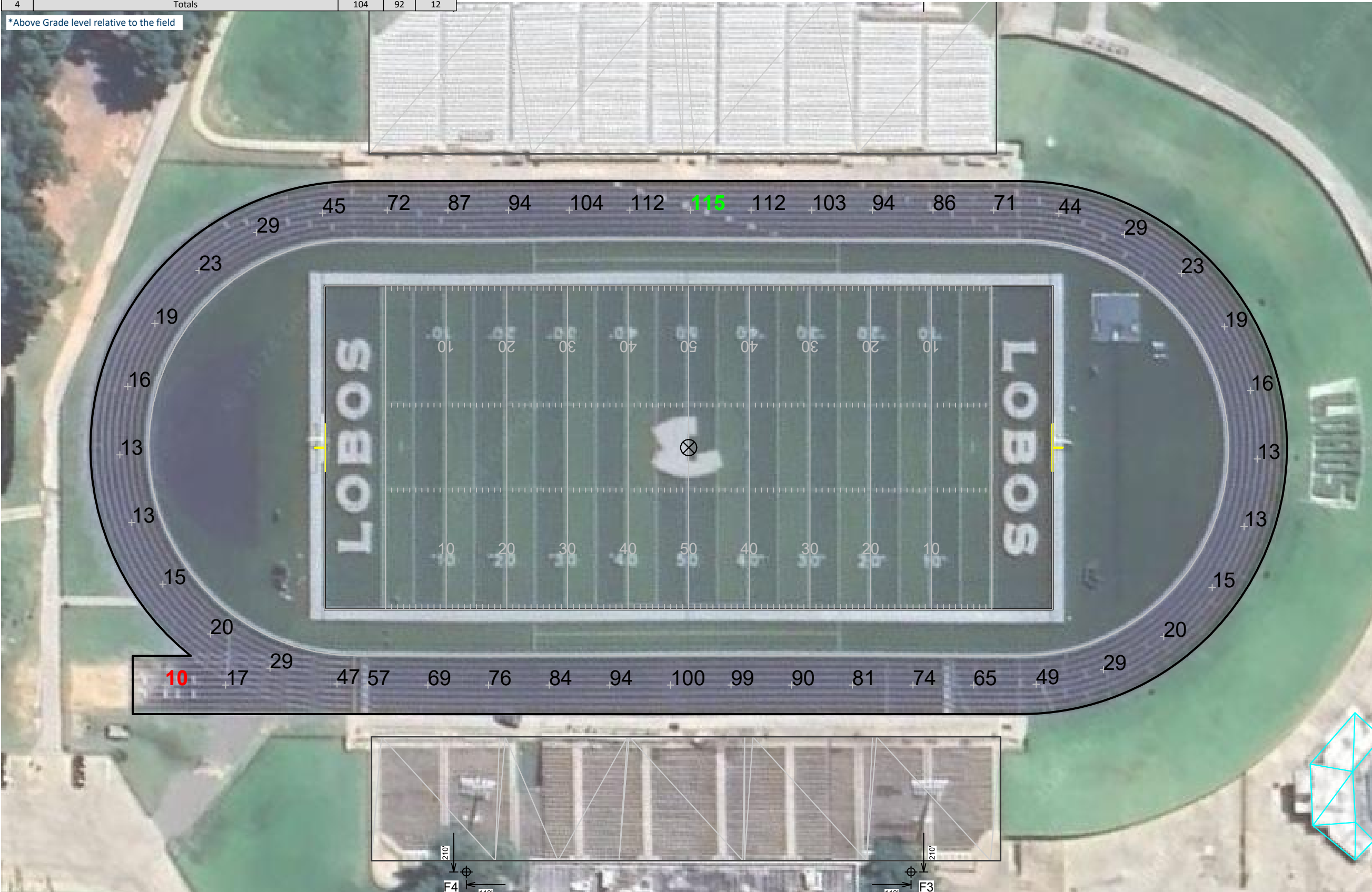
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ILLUMINATION SUMMARY

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	F1-F4	95'	20'	115'	TLC-LED-1500	23	23	0
				80'	TLC-LED-900	1	0	1
				80'	TLC-RGBW	2	0	2
4				Totals		104	92	12

*Above Grade level relative to the field



Longview ISD Fields

Longview, TX

Grid Summary	
Name	Track
Size	Irregular
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	54.5
Maximum	115.26
Minimum	9.71
Avg/Min	5.61
Max/Min	11.87
UG (adjacent pts)	0.00
CU	0.15
No. of Points	46
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	92
Total Load	129.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 50

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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Longview ISD Fields

Longview, TX

Grid Summary

Name Away Bleachers
Size 360' x 160'
Spacing 10.0' x 10.0'
Height 5.0' above grade

Illumination Summary

MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	3.0
Maximum	6.19
Minimum	0.23
Avg/Min	12.93
Max/Min	26.94
UG (adjacent pts)	0.00
CU	0.38
No. of Points	0
LUMINAIRE INFORMATION	
Applied Circuits	B
No. of Luminaires	8
Total Load	5.12 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

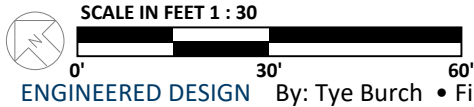
Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



0	1	2	4	5	5	5	4	4	3	3	2	2	2	1	1	1	2	2	2	3	3	4	4	5	5	5	4	2	1	0	
0	1	3	5	6	6	6	5	4	4	3	3	3	2	2	2	2	2	3	3	3	4	4	5	6	6	5	3	1	0		
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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



Longview ISD Fields

Longview, TX

Grid Summary	
Name	Home Bleachers
Size	360' x 160'
Spacing	10.0' x 10.0'
Height	19.8' above grade

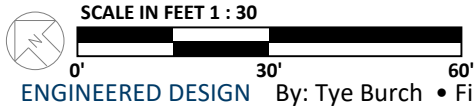
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	3.4
Maximum	5.72
Minimum	0.32
Avg/Min	10.68
Max/Min	18.03
UG (adjacent pts)	0.00
CU	0.33
No. of Points	0
LUMINAIRE INFORMATION	
Applied Circuits	B
No. of Luminaires	8
Total Load	5.12 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



Longview ISD Fields

Longview, TX

Grid Summary	
Name	Sidewalk
Spacing	30.0' x 10.0'
Height	23.0' above grade

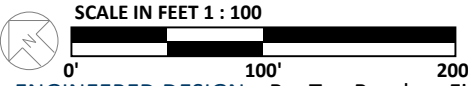
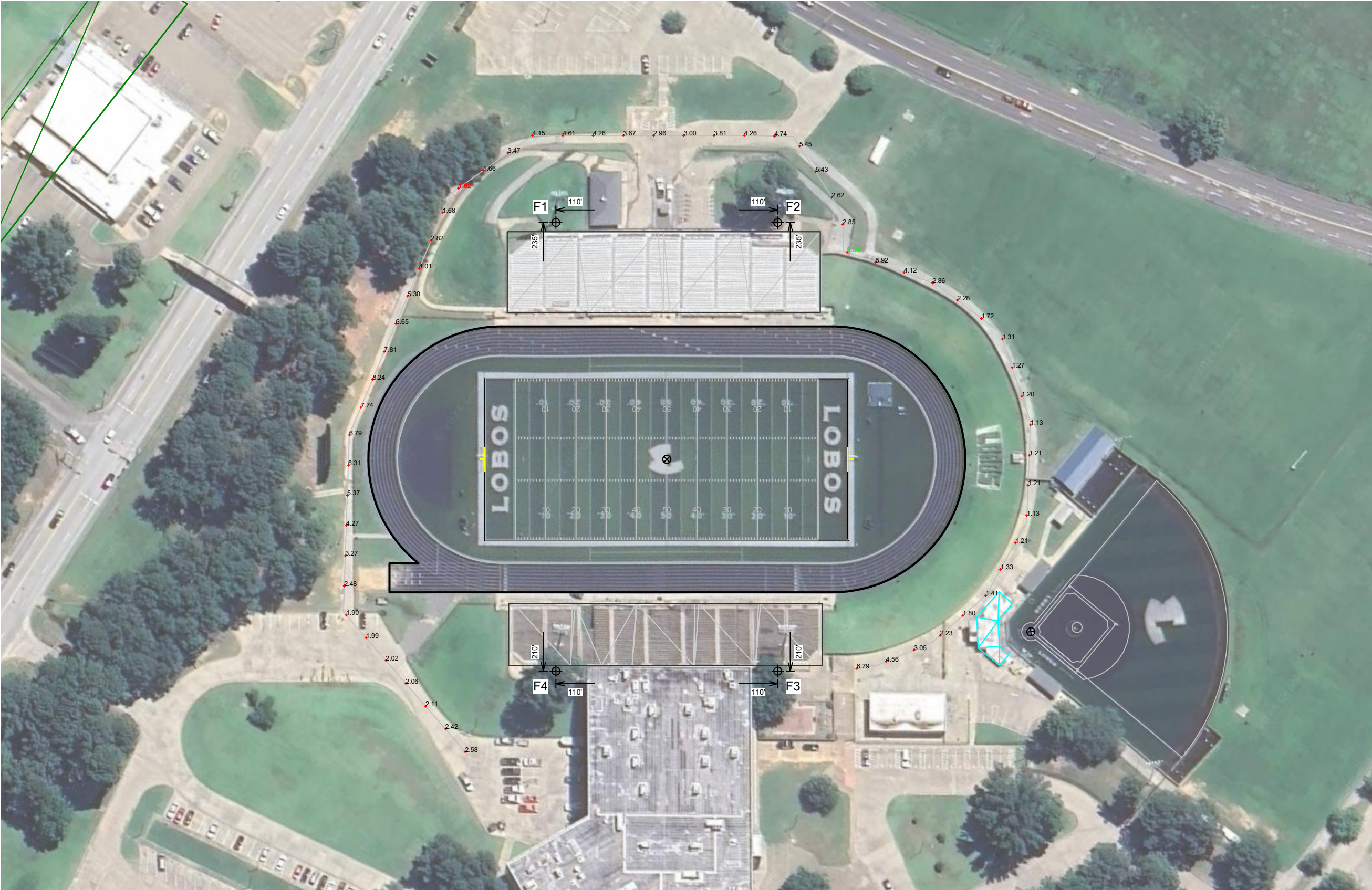
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	3.5
Maximum	8.34
Minimum	1.02
Avg/Min	3.42
Max/Min	8.19
UG (adjacent pts)	0.00
CU	0.00
No. of Points	58
LUMINAIRE INFORMATION	
Applied Circuits	C,A
No. of Luminaires	96
Total Load	133.28 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



ENGINEERED DESIGN By: Tye Burch • File #238383A • 08-Aug-24

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	A1-A2	60'	-	60'	TLC-LED-550	2*	0	2
				60'	TLC-LED-900	3	3	0
				15.5'	TLC-BT-575	1	1	0
1	B1	70'	-	70'	TLC-LED-1200	5/5*	5	5
				70'	TLC-LED-900	1*	1	0
				15.5'	TLC-BT-575	1	1	0
1	B2	70'	-	70'	TLC-LED-1200	5	5	0
				15.5'	TLC-BT-575	1	1	0
				Totals		30	21	9

*Above Grade level relative to the field
 *This structure utilizes a back-to-back mounting configuration



Longview ISD Fields

Longview, TX

Grid Summary	
Name	Softball
Size	195'/195'/195' - basepath 60'
Spacing	20.0' x 20.0'
Height	3.0' above grade

	MAINTAINED HORIZONTAL FOOTCANDLES	
	Infield	Outfield
Guaranteed Average	50	30
Scan Average	50.2	34.4
Maximum	59.27	47.59
Minimum	35.11	24.02
Avg/Min	1.43	1.43
Guaranteed Max/Min	2	2.5
Max/Min	1.69	1.98
UG (adjacent pts)	1.17	1.53
CU	0.62	
No. of Points	25	69
LUMINAIRE INFORMATION		
Applied Circuits	D	
No. of Luminaires	21	
Total Load	20.16 kW	

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Longview ISD Fields

Longview, TX

Grid Summary	
Name	SB First Base BP
Size	195'/195'/195' - basepath 60'
Spacing	10.0' x 10.0'
Height	3.0' above grade

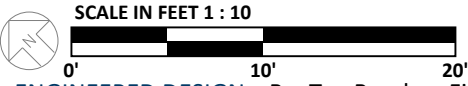
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average	22.5
Maximum	27.75
Minimum	16.77
Avg/Min	1.34
Max/Min	1.65
UG (adjacent pts)	1.46
CU	0.01
No. of Points	12
LUMINAIRE INFORMATION	
Applied Circuits	D
No. of Luminaires	21
Total Load	20.16 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Longview ISD Fields

Longview, TX

Grid Summary	
Name	SB Third Base BP
Size	195'/195'/195' - basepath 60'
Spacing	10.0' x 10.0'
Height	3.0' above grade

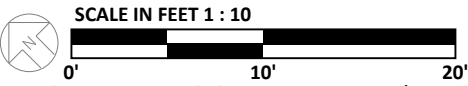
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average	19.4
Maximum	23.42
Minimum	15.77
Avg/Min	1.23
Max/Min	1.48
UG (adjacent pts)	1.26
CU	0.01
No. of Points	21
LUMINAIRE INFORMATION	
Applied Circuits	D
No. of Luminaires	21
Total Load	20.16 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
1	B1	70'	-	70'	TLC-LED-1200	5/5*	5	5
				70'	TLC-LED-900	1*	0	1
				15.5'	TLC-BT-575	1	0	1
1	Totals					12	5	7

*Above Grade level relative to the field
 *This structure utilizes a back-to-back mounting configuration

Longview ISD Fields

Longview, TX

Grid Summary	
Name	Practice Area
Size	195'/195'/195' - basepath 60'
Spacing	30.0' x 30.0'
Height	3.0' above grade

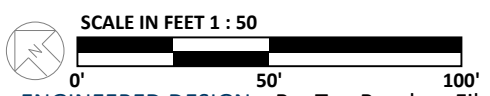
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	11.2
Maximum	28.48
Minimum	0.18
Avg/Min	61.17
Max/Min	155.97
UG (adjacent pts)	2.91
CU	0.86
No. of Points	612
LUMINAIRE INFORMATION	
Applied Circuits	E
No. of Luminaires	5
Total Load	5.85 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	A1-A2	60'	-	60'	TLC-LED-550	2*	2	0
				60'	TLC-LED-900	3	0	3
				15.5'	TLC-BT-575	1	0	1
2	Totals					12	4	8

*Above Grade level relative to the field
 *This structure utilizes a back-to-back mounting configuration



Longview ISD Fields

Longview, TX

Grid Summary	
Name	Softball Bleacher
Size	195'/195'/195' - basepath 60'
Spacing	8.0' x 8.0'
Height	15.7' above grade

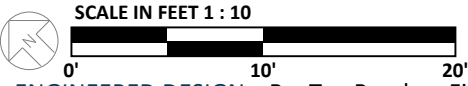
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	12.2
Maximum	14.10
Minimum	9.20
Avg/Min	1.33
Max/Min	1.53
UG (adjacent pts)	0.00
CU	0.07
No. of Points	2
LUMINAIRE INFORMATION	
Applied Circuits	F
No. of Luminaires	4
Total Load	2.16 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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ILLUMINATION SUMMARY

Longview ISD Fields

Longview, TX

Grid Summary	
Name	Softball Security
Size	195'/195'/195' - basepath 60'
Spacing	15.0' x 15.0'
Height	0.0' above grade

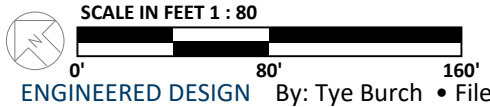
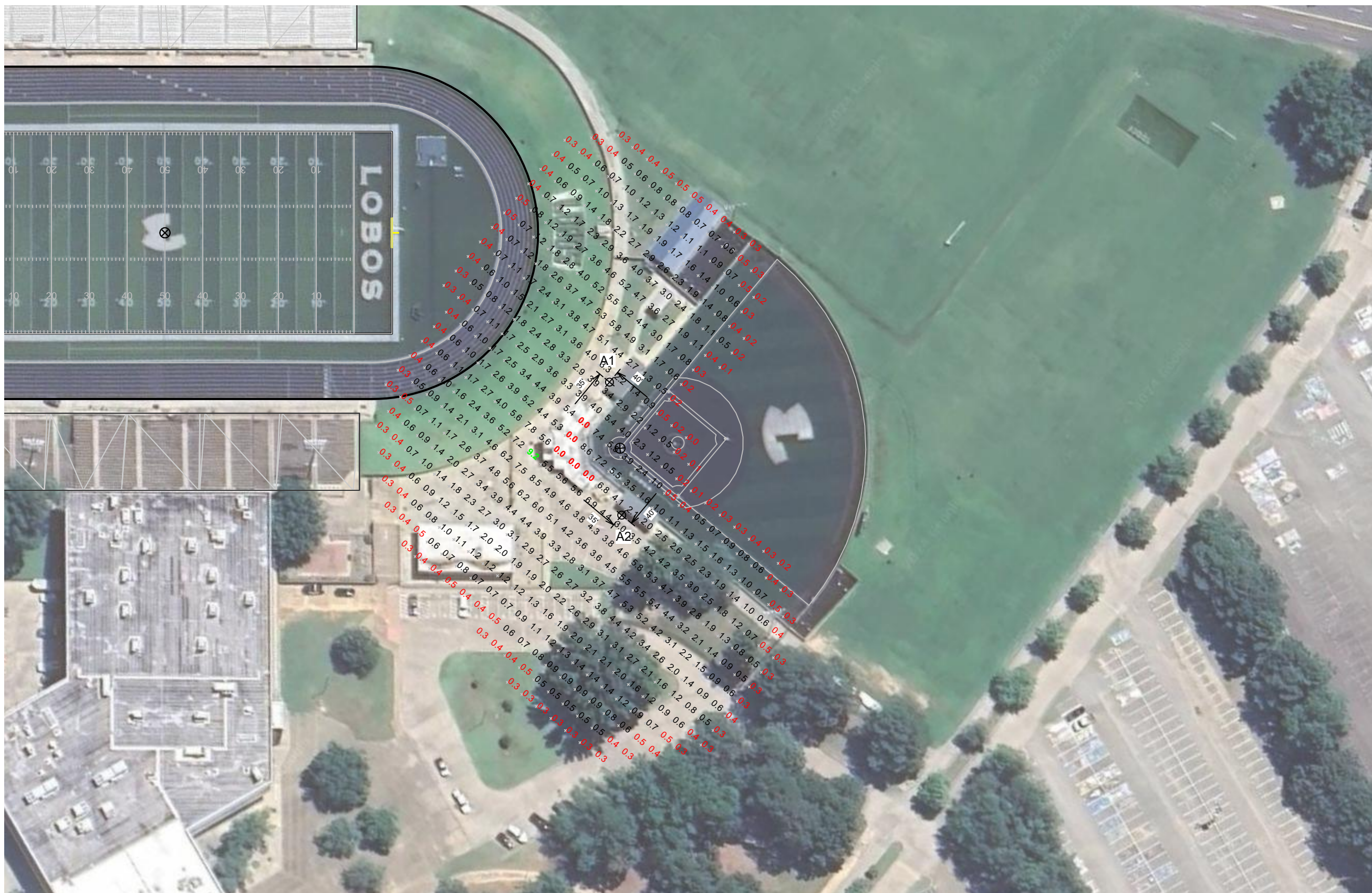
Illumination Summary	
	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average	2.0
Maximum	9.17
Minimum	0.00
Avg/Min	-
Max/Min	-
UG (adjacent pts)	3.99
CU	0.88
No. of Points	2809
LUMINAIRE INFORMATION	
Applied Circuits	F
No. of Luminaires	4
Total Load	2.16 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



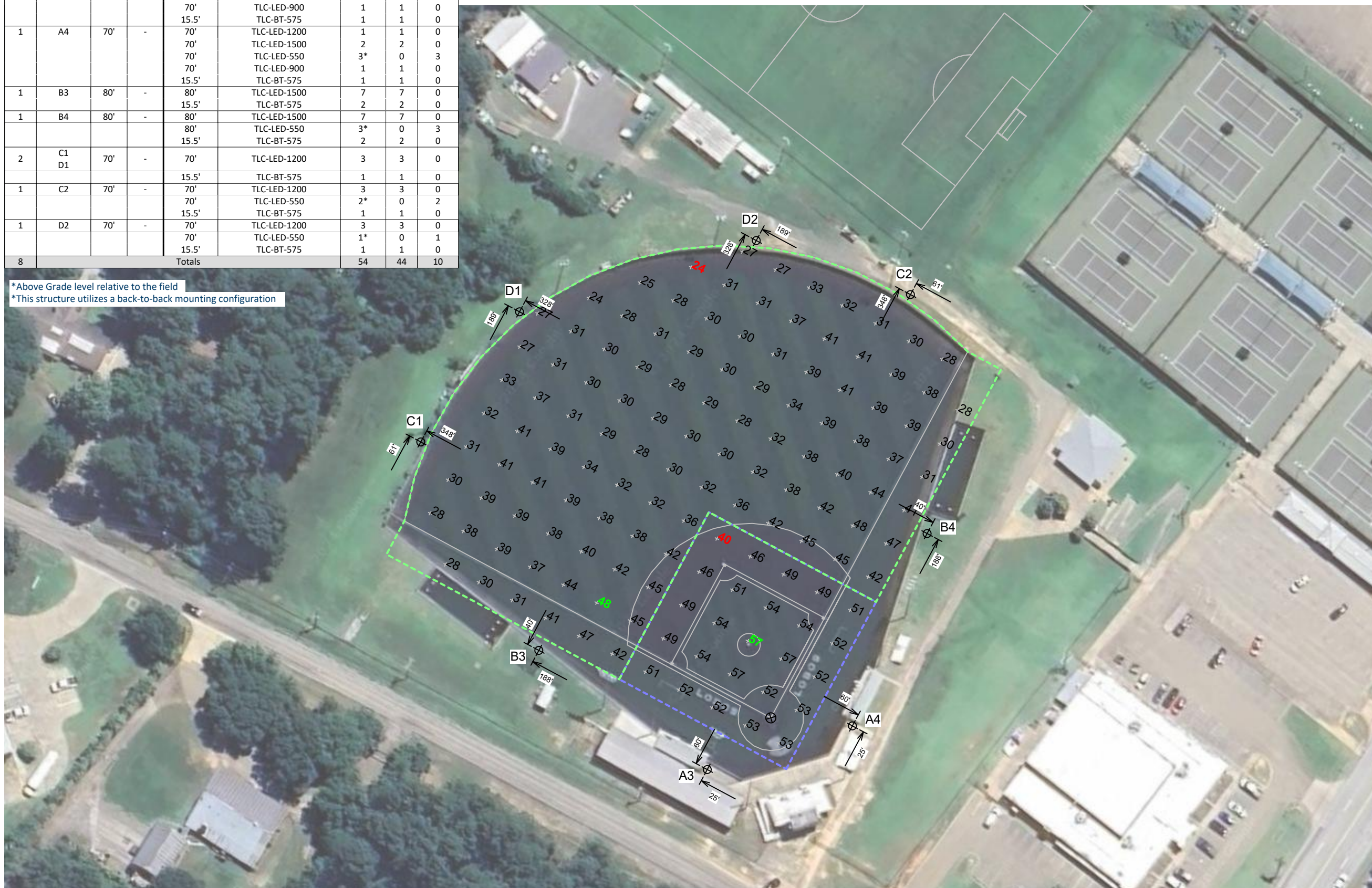
Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
1	A3	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-1500	2	2	0
				70'	TLC-LED-550	1*	0	1
				70'	TLC-LED-900	1	1	0
				15.5'	TLC-BT-575	1	1	0
1	A4	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-1500	2	2	0
				70'	TLC-LED-550	3*	0	3
				70'	TLC-LED-900	1	1	0
				15.5'	TLC-BT-575	1	1	0
1	B3	80'	-	80'	TLC-LED-1500	7	7	0
				15.5'	TLC-BT-575	2	2	0
1	B4	80'	-	80'	TLC-LED-1500	7	7	0
				80'	TLC-LED-550	3*	0	3
2	C1	70'	-	70'	TLC-LED-1200	3	3	0
				15.5'	TLC-BT-575	1	1	0
1	C2	70'	-	70'	TLC-LED-1200	3	3	0
				70'	TLC-LED-550	2*	0	2
				15.5'	TLC-BT-575	1	1	0
1	D2	70'	-	70'	TLC-LED-1200	3	3	0
				70'	TLC-LED-550	1*	0	1
				15.5'	TLC-BT-575	1	1	0
8	Totals					54	44	10

*Above Grade level relative to the field
 *This structure utilizes a back-to-back mounting configuration



Longview ISD Fields

Longview, TX

Grid Summary	
Name	Baseball
Size	330'/380'/330' - basepath 90'
Spacing	30.0' x 30.0'
Height	3.0' above grade

	MAINTAINED HORIZONTAL FOOTCANDLES	
	Infield	Outfield
Guaranteed Average	50	30
Scan Average	51.3	34.9
Maximum	57.29	47.88
Minimum	40.37	24.49
Avg/Min	1.27	1.42
Guaranteed Max/Min	2	2.5
Max/Min	1.42	1.95
UG (adjacent pts)	1.13	1.35
CU	0.74	
No. of Points	25	107
LUMINAIRE INFORMATION		
Applied Circuits	G	
No. of Luminaires	44	
Total Load	49.27 kW	

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Longview ISD Fields

Longview, TX

Grid Summary	
Name	Baseball First Base BP
Size	330'/380'/330' - basepath 90'
Spacing	10.0' x 10.0'
Height	3.0' above grade

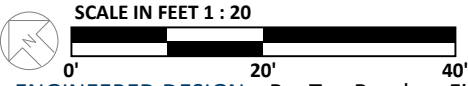
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average	16.8
Maximum	22.91
Minimum	11.37
Avg/Min	1.48
Max/Min	2.02
UG (adjacent pts)	1.54
CU	0.00
No. of Points	14
LUMINAIRE INFORMATION	
Applied Circuits	G
No. of Luminaires	44
Total Load	49.27 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Longview ISD Fields

Longview, TX

Grid Summary	
Name	Baseball Third Base BP
Size	330'/380'/330' - basepath 90'
Spacing	10.0' x 10.0'
Height	3.0' above grade

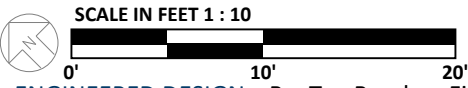
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	16.2
Maximum	21.10
Minimum	11.25
Avg/Min	1.44
Max/Min	1.87
UG (adjacent pts)	1.51
CU	0.00
No. of Points	14
LUMINAIRE INFORMATION	
Applied Circuits	G
No. of Luminaires	44
Total Load	49.27 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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ILLUMINATION SUMMARY

Longview ISD Fields

Longview, TX

Grid Summary	
Name	Baseball Hillside
Size	330'/380'/330' - basepath 90'
Spacing	15.0' x 15.0'
Height	15.0' above grade

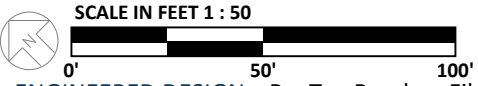
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	3.7
Maximum	12.45
Minimum	0.16
Avg/Min	23.47
Max/Min	79.66
UG (adjacent pts)	0.00
CU	0.30
No. of Points	0
LUMINAIRE INFORMATION	
Applied Circuits	H
No. of Luminaires	10
Total Load	5.40 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Longview ISD Fields

Longview, TX

Grid Summary	
Name	Baseball Bleacher
Size	330'/380'/330' - basepath 90'
Spacing	10.0' x 10.0'
Height	10.3' above grade

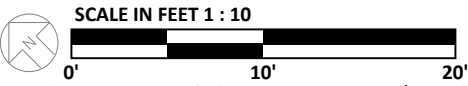
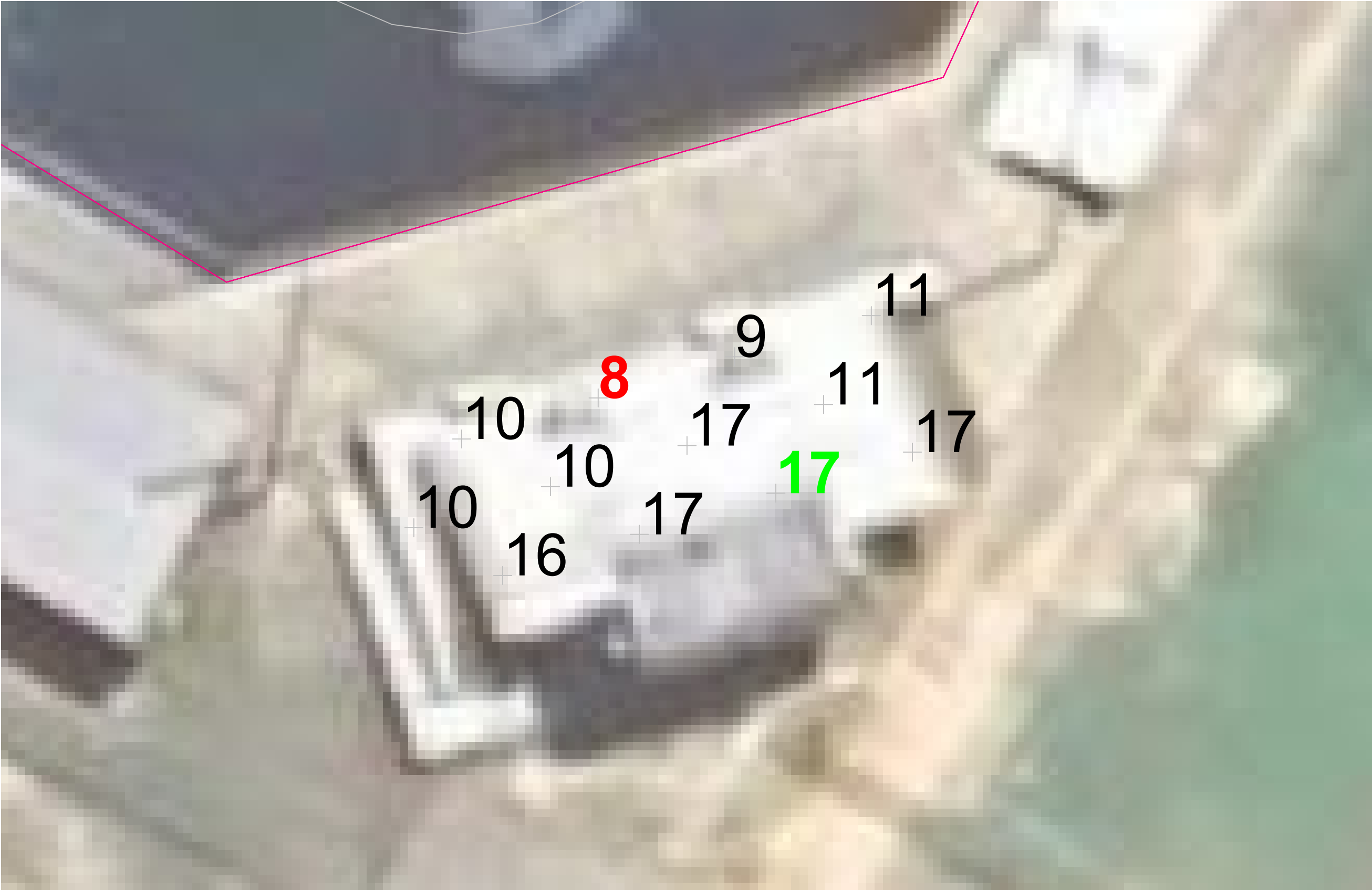
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average	12.8
Maximum	17.47
Minimum	8.08
Avg/Min	1.58
Max/Min	2.16
UG (adjacent pts)	0.00
CU	0.02
No. of Points	1
LUMINAIRE INFORMATION	
Applied Circuits	H
No. of Luminaires	10
Total Load	5.40 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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Longview ISD Fields

Longview, TX

Grid Summary	
Name	Baseball Sidewalk
Size	330'/380'/330' - basepath 90'
Spacing	20.0' x 20.0'
Height	3.0' above grade

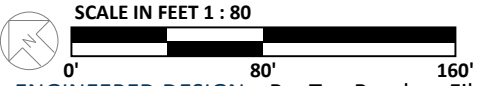
Illumination Summary	
	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average	5.2
Maximum	13.92
Minimum	1.57
Avg/Min	3.29
Max/Min	8.87
UG (adjacent pts)	0.00
CU	0.14
No. of Points	29
LUMINAIRE INFORMATION	
Applied Circuits	H
No. of Luminaires	10
Total Load	5.40 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	S1-S4	70'	-	70'	TLC-LED-1500	8	8	0
				70'	TLC-LED-550	1*	0	1
4				Totals		36	32	4

*Above Grade level relative to the field
 *This structure utilizes a back-to-back mounting configuration



Longview ISD Fields

Longview, TX

Grid Summary	
Name	Soccer
Size	350' x 220'
Spacing	30.0' x 30.0'
Height	3.0' above grade

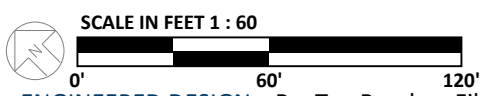
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Guaranteed Average	50
Scan Average	50.2
Maximum	60.14
Minimum	41.24
Avg/Min	1.22
Guaranteed Max/Min	2
Max/Min	1.46
UG (adjacent pts)	1.26
CU	0.74
No. of Points	96
LUMINAIRE INFORMATION	
Applied Circuits	1
No. of Luminaires	32
Total Load	45.12 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



ENGINEERED DESIGN By: Tye Burch • File #238383A • 08-Aug-24

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	S1-S4	70'	-	70'	TLC-LED-1500	8	0	8
				70'	TLC-LED-550	1*	1	0
4				Totals		36	4	32

*Above Grade level relative to the field
 *This structure utilizes a back-to-back mounting configuration



Longview ISD Fields

Longview, TX

Grid Summary	
Name	Soccer Bleacher
Size	350' x 220'
Spacing	15.0' x 15.0'
Height	3.0' above grade

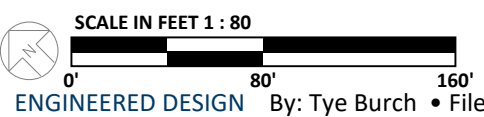
Illumination Summary	
	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average	2.9
Maximum	8.85
Minimum	0.00
Avg/Min	-
Max/Min	-
UG (adjacent pts)	6075.95
CU	0.95
No. of Points	2520
LUMINAIRE INFORMATION	
Applied Circuits	J
No. of Luminaires	4
Total Load	2.16 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Longview ISD Fields

Longview, TX

Equipment Layout

INCLUDES:

- Baseball
- Football
- Soccer
- Softball
- Track

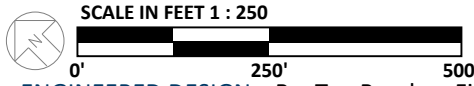
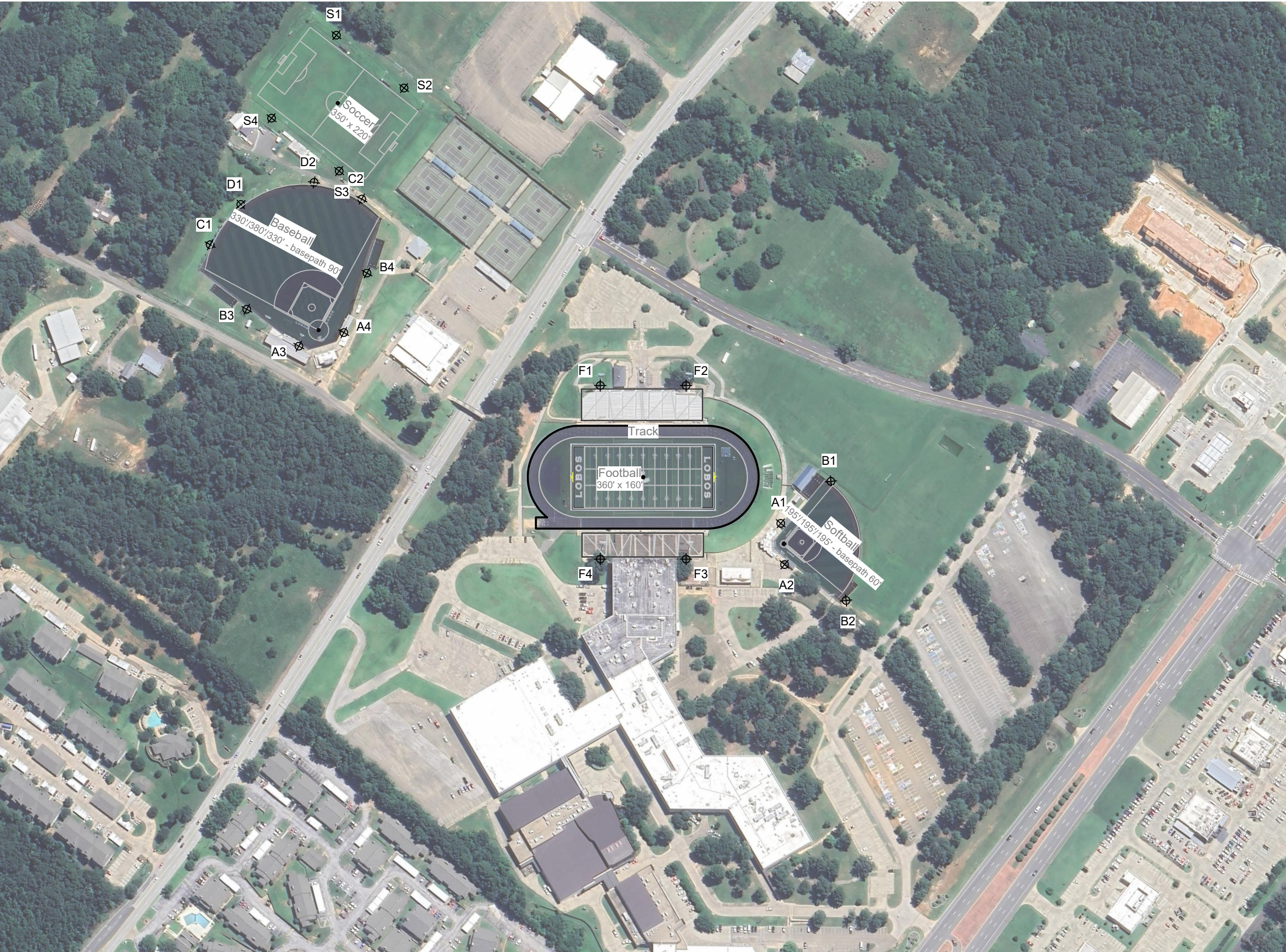
Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Equipment List For Areas Shown

QTY	LOCATION	Pole		Luminaires		
		SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE
2	A1-A2	60'	-	60'	TLC-LED-550	2*
				60'	TLC-LED-900	3
				15.5'	TLC-BT-575	1
1	A3	70'	-	70'	TLC-LED-1200	1
				70'	TLC-LED-1500	2
				70'	TLC-LED-550	1*
				70'	TLC-LED-900	1
				15.5'	TLC-BT-575	1
1	A4	70'	-	70'	TLC-LED-1200	1
				70'	TLC-LED-1500	2
				70'	TLC-LED-550	3*
				70'	TLC-LED-900	1
				15.5'	TLC-BT-575	1
1	B1	70'	-	70'	TLC-LED-1200	5/5*
				70'	TLC-LED-900	1*
				15.5'	TLC-BT-575	1
1	B2	70'	-	70'	TLC-LED-1200	5
				15.5'	TLC-BT-575	1
1	B3	80'	-	80'	TLC-LED-1500	7
				15.5'	TLC-BT-575	2
1	B4	80'	-	80'	TLC-LED-1500	7
				80'	TLC-LED-550	3*
				15.5'	TLC-BT-575	2
2	C1 D1	70'	-	15.5'	TLC-BT-575	1
				70'	TLC-LED-1200	3
1	C2	70'	-	70'	TLC-LED-1200	3
				70'	TLC-LED-550	2*
				15.5'	TLC-BT-575	1
1	D2	70'	-	70'	TLC-LED-550	1*
				70'	TLC-LED-1200	3
				70'	TLC-LED-550	1*
				15.5'	TLC-BT-575	1
4	F1-F4	95'	20'	115'	TLC-LED-1500	23
				80'	TLC-LED-900	1
				80'	TLC-RGBW	2
4	S1-S4	70'	-	70'	TLC-LED-1500	8
				70'	TLC-LED-550	1*
				Totals		224

*This structure utilizes a back-to-back mounting configuration



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



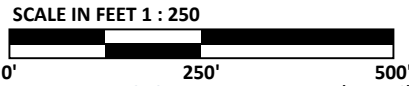
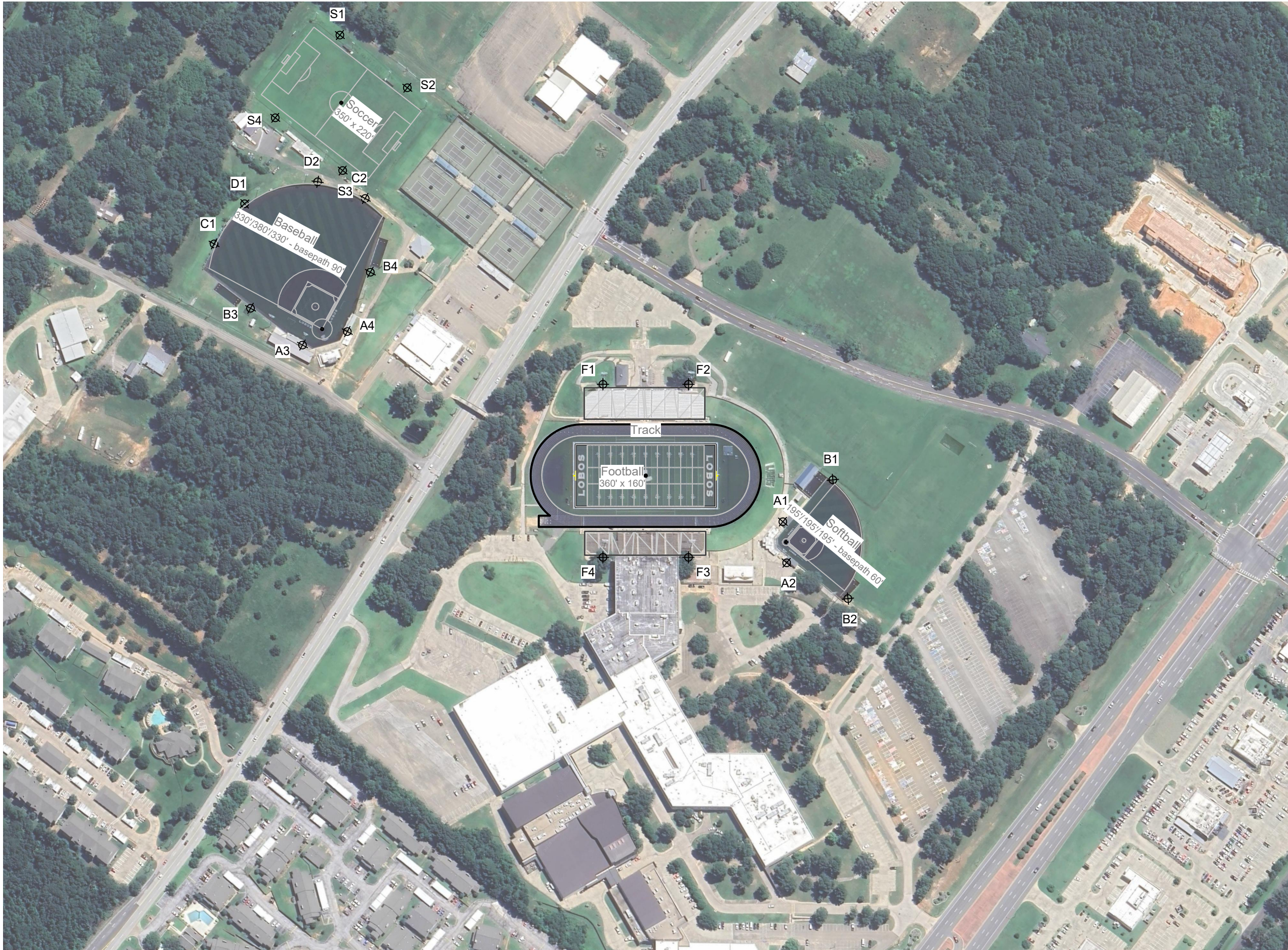
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Longview ISD Fields

Longview, TX

Single Luminaire Amperage Draw Chart

Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)							
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)	
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)	
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5	
TLC-LED-1200	6.9	6.5	6.0	5.2	4.2	3.8	3.0	
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6	
TLC-LED-550	3.2	3.0	2.8	2.4	1.9	1.8	1.4	
TLC-LED-900	-	-	-	-	-	-	-	-
TLC-RGBW	4.5	4.3	3.8	3.3	2.7	1.9	1.9	



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