DEVELOPMENT REVIEW COMMITTEE (DRC)
SITE PLAN APPLICATION

PRE-APPLICATION MEETING REQUEST: Prior to formal submittal of a Development Review Committee site plan application, applicants are encouraged to schedule an appointment with Urban Design & Planning Division staff to obtain feedback regarding subject proposals, rezoning and right-of-way vacation requests, as well as any other considerable development projects. This meeting provides the applicant with an opportunity to obtain feedback and general direction, prior to expending significant effort on design and preparation of submittal documents.

DEADLINE: Submittals must be received by 12:00 PM each business day. Pursuant to Section 47-24.1(1), the Department will review all applications to determine completeness within five (5) business days. Applicants will be notified via email; if plans do not meet the submittal requirements and if changes are required.

FEES: All applications for development permits are established by the City Commission, as set forth by resolution and amended from time to time. In addition to the application fee, any additional costs incurred by the City including review by a consultant on behalf of the City, or special advertising costs shall be paid by the applicant. Any additional costs, which are unknown at the time of application, but are later incurred by the City, shall be paid by the applicant prior to the issuance of a development permit.

- Planned Districts (PUD/PDD) $12,760.00
- Site Plan Level I $4,590.00
- Site Plan Level II $3,500.00
- Site Plan Level II in Regional Activity Center $4,290.00
- Site Plan Level III $2,470.00
- Change of Use (requiring Development Review) $970.00
- Parking Reduction (in addition to Site Plan fee) $970.00
- Flexibility Units/Acreage (in addition to Site Plan fee) $60.00

NOTES: Optional 15-minute time slots are available during DRC meetings for scheduling to applicants, to obtain signatures on completed DRC plans (including Pre-Planning and Zoning Board, Pre- City Commission and Final DRC plans) from all representatives at one time, in preference to scheduling individual appointments. Appointments are subject to availability. To make an appointment, please call 954-828-5020 latest by Friday at 12:00 noon prior to the meeting date.

INSTRUCTIONS: The following information is requested pursuant to the City’s Unified Land Development Regulations (ULDR). The application must be filled out accurately and completely. Please print or type and answer all questions. Indicate N/A if does not apply. To obtain information on a property such as land use, zoning, ownership, folio, lot size, etc., please visit http://gis.fortlauderdale.gov/zoninggis.
**A. DEPARTMENT INFORMATION: (FOR STAFF USE ONLY)**

<table>
<thead>
<tr>
<th>Case Number</th>
<th>Submit Date</th>
<th>Intake By</th>
<th>City Commission District</th>
</tr>
</thead>
</table>

| Civic Association |  |  |  |

**B. OWNER/APPLICANT CONTACT INFORMATION:** For purpose of identification, the **PROPERTY OWNER** is the **APPLICANT**

<table>
<thead>
<tr>
<th>Property Owner’s Name</th>
<th>City of Fort Lauderdale</th>
<th>Signature</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Address, City, State, Zip</td>
<td>701 S. Andrews Ave Fort Lauderdale, FL 33316</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone Number</td>
<td>954-828-5129</td>
<td>Email</td>
<td><a href="mailto:Esanchez@fortlauderdale.gov">Esanchez@fortlauderdale.gov</a></td>
</tr>
<tr>
<td>Proof of Ownership</td>
<td>Tax Record</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**C. AGENT CONTACT INFORMATION:** If **AGENT** is to represent **OWNER,** notarized letter of consent is required

<table>
<thead>
<tr>
<th>Agent’s Name</th>
<th>City of Fort Lauderdale</th>
<th>Signature</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Address, City, State, Zip</td>
<td>701 S. Andrews Ave Fort Lauderdale, FL 33316</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone Number</td>
<td>954-828-5129</td>
<td>Email</td>
<td><a href="mailto:Esanchez@fortlauderdale.gov">Esanchez@fortlauderdale.gov</a></td>
</tr>
<tr>
<td>Letter of Consent Submitted</td>
<td>[ ] Yes or [ ] No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**D. DEVELOPMENT INFORMATION**

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Riverland Park Sports Lighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Address</td>
<td>(Provide Address Verifiable) 950 SW 27th Ave Fort Lauderdale, FL 33312</td>
</tr>
<tr>
<td>Legal Description</td>
<td>16.5 ACRES VICT BR 19.5 X 100 FT. GALLEY STREET</td>
</tr>
<tr>
<td>Tax ID Folio Numbers</td>
<td>(For all parcels in development) 5042 08 08 0380</td>
</tr>
<tr>
<td>Description of Project</td>
<td>Installation of sports lighting on athletic field</td>
</tr>
</tbody>
</table>

| Total Estimated Cost of Project | $442,500 (land costs) | Site Adjacent to Waterway | No |

**E. PROPERTY USE INFORMATION**

<table>
<thead>
<tr>
<th>Land Use Designation</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoning Designation</td>
<td>N/A</td>
</tr>
<tr>
<td>Use of Property</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of Residential Units</td>
<td>N/A</td>
</tr>
<tr>
<td>Non-Residential SF (and Type)</td>
<td>N/A</td>
</tr>
<tr>
<td>Bldg Sq.Ft. (include structured parking)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**F. DIMENSIONAL REQUIREMENTS**

<table>
<thead>
<tr>
<th>Lot Size (SF / Acreage)</th>
<th>N/A</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lot Density (Units/Acre)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Lot Width</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Building Height (Feet / Floors)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Structure Length</td>
<td>60 Feet</td>
<td>70 Foot Light Poles</td>
</tr>
<tr>
<td>Floor Area Ratio (F.A.R.)</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Lot Coverage</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Vehicular Use Area</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Parking Spaces</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>setbacks (indicate direction N.S.E.W)</th>
<th>Required Per ULDR</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Side</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Side</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Rear</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

ID Number: DSO_UDP_SF  
Revision Number: 4  
Revision Date: 5/20/2019  
Page: 2 of 6  
Approved by: Ella Parker, Urban Design and Planning Manager  
Uncontrolled in hard copy unless otherwise marked  

diy
Required Documentation / Submittal Checklist

One (1) copy of the following documents:

- COMPLETED APPLICATION with all pages filled out as applicable;
- PROOF OF OWNERSHIP (warranty deed or tax record), including corporation documents and SunBiz verification if applicable;
- PROPERTY OWNER’S SIGNATURE and/or agent letter signed by the property owner;
- PROJECT DESCRIPTION NARRATIVE describing project specifics. Please provide as much detail as possible. These project specifics may include: architectural style and important design elements, trash disposal system, security/gating system, hours of operation, multi-modal experience, site improvements, etc.;
- ULDR CODE NARRATIVE response referencing all applicable sections of the ULDR, with point-by-point responses of how project complies with criteria. Reference ULDR language that requires project to go through the Development Review Committee process. Narratives must be an outline format, dated, and signed by the project owner;
- ADDRESS VERIFICATION FORM (To obtain for please contact Devon Anderson at 954-828-5233 or DAnderson@fortlauderdale.gov); and,

Additional documentation required for specific projects

- TRAFFIC STATEMENT/STUDY for projects that trigger vehicular trip threshold (See ULDR Section 47-24)
- PUBLIC PARTICIPATION ORDINANCE acknowledgment for Site Plan Level III or IV
- COLOR PHOTOGRAPHS of the property and surrounding properties, dated, labeled and identified as to orientation, may be submitted by applicant to aid in project analysis.
- FOR PUD AND PDD (See ULDR Sections 47-37 and 47-37A for specific application requirements)

The following number of Plans:

- One (1) original set, signed and sealed at 24" x 36"
- Seven (7) copy sets, with plans at 11" x 17"

NOTE: For initial submittal one signed and sealed set is required. Copied sets will be requested after review for completion. All copy sets must be clear and legible and should include any graphic material in color. If the development site is separated by a public right-of-way, including alley or alley reservations, a separate application must be completed for each parcel.

Plan sets should include the following:

- PLANS "A" thru "J" with all elements as listed under Technical Specifications:
  - A. Cover Sheet
  - B. Survey
  - C. Site Plan
  - D. Details
  - E. Floor Plans
  - F. Building Elevations
  - G. Additional Renderings
  - H. Landscape Plan
  - I. Photometric Diagram
  - J. Civil Plans

ONE DIGITAL SUBMITTAL (CD OR USB) OF THE FOLLOWING:

- DOCUMENTS containing the signed application, proof of ownership, property owner’s signature or agent authorization letter, and address verification form combined into one PDF file named the following: "InsertProjectName"Documents.pdf
- NARRATIVES containing the project description narrative and Unified Land Development Regulations (ULDR) Narrative combined into one PDF file named the following: "InsertProjectName"Narratives.pdf
- PLANS containing the cover sheet, survey, site plan, details, floor plans, building elevations, renderings, landscape plan, photometric diagram, and civil plans combined into one PDF file named the following: "InsertProjectName"Plans.pdf
A. COVER SHEET
1. Project Name
2. Location map including section, township and range
3. Index of plans submitted including sheet name and number
4. List of all consultants including contact information
5. List of franchise and utility service providers for project

B. SURVEY
1. Signed and sealed boundary and topographic survey
   - Show existing conditions of project site alone excluding adjacent properties or portions or land not in proposal
   - Existing above ground improvements including valve boxes, manholes, grates, and other similar utility features
   - Existing easements and referencing of recorded documents
   - This survey shall be based on a Standard Title Commitment issued by a title insurer licensed to do business in Florida or an Opinion of Title issued by an attorney admitted to the Florida Bar. The title commitment or Opinion of Title must have an effective date no more than thirty days prior to the date of submittal of the survey and must be certified to the City of Fort Lauderdale.
   - Provide spot elevations on site, at property corners, along property lines (50' min. interval), existing roadway crowns and pavement edges adjacent to property as appropriate. Elevations shall be referenced to the North American Vertical Datum of 1988 (NAVD 88).

C. SITE PLAN
1. Title Block including project name and design professional's address, email, and phone number
2. Scale (1" = 30' minimum, must be engineer's scale)
3. North indicator
4. Location map showing relationship to major arterials
5. Drawing and revision dates, as applicable
6. Full legal description
7. Site Plan Data Table:
   - Current use of property and intensity
   - Land Use designation
   - Zoning designation
   - Water/wastewater service provider
   - Site area (sq. ft. and acres)
   - Building footprint coverage
   - Residential development: number of dwelling units, type, floor area(s): site density (gross and net)
   - Non-residential development: uses, gross floor area
   - Parking data: parking required (#), parking provided (#), loading zones (if applicable), ADA spaces, bicycle spaces
   - Floor Area Ratio (FAR): total building square footage, including structured parking, divided by site area
   - Building height (expressed in feet above grade)
   - Structure length
   - Number of stories
   - Setback table (required by ULDR and Design Standards vs. provided)
   - Open space
   - Vehicular use area (as defined by ULDR Section 47-58.2, in sq. ft.)
   - Open space (in sq. ft.)
   - Landscape area (in sq. ft.)

8. Site Plan Features (graphically indicated)
   - Municipal boundaries (as applicable)
   - Zoning designation of adjacent properties with current use listed
   - Adjacent rights-of-way to opposite property lines (indicate all nearby curb cuts)
   - Waterway width, if applicable
   - Outline of adjacent buildings (indicate height in stories and approximate feet)
   - Property lines (diminished)
   - Building outlines of all proposed structures (diminished)
   - Ground floor plan
   - Dimension of grade at center line of road, at curb, and finished floor elevation
   - Dimension for all site plan features (i.e., sidewalks, building lengths and widths, balconies, parking spaces, street widths, etc.)
   - Mechanical equipment dimensioned from property lines
   - Setbacks and building separations (diminished)
   - Driveways, parking areas, pavement markings (including parking spaces delineated and dimensioned as well as handicapped spaces as applicable)
   - On-site light fixtures
   - Proposed right of way improvements (i.e. bus stops, curbs, tree plantings, etc.)
   - Pedestrian walkways (including public sidewalks and on-site pedestrian paths)
   - Project signage
   - Traffic control signage
   - Catch basins or other drainage control devices
   - Fire hydrants (including on-site and adjacent hydrants)
   - Easements (as applicable)
D. DETAILS
1. Provide details of: (Scale 1" = 1' min.)
   - Ground floor elevation
   - Storefronts, awnings, entryway features, doors, windows
   - Fences/walls
   - Dumpster
   - Light fixtures
   - Balconies, railings
   - Trash receptacles, benches, other seat furniture
   - Pavers, concrete, hardscape ground cover material
   - Line of sight from sidewalk to roof (if mechanical equipment is on roof)

E. FLOOR PLANS (TYPICAL FLOOR PLAN MAY BE SUBMITTED FOR LIKE FLOORS)
1. Delineate and dimension, indicating use of spaces
2. Show property lines and setbacks on all plans
3. Typical floor plan for multi-level structure
4. Floor plan for every level of parking garage
5. Roof plan with mechanical equipment depicted

F. BUILDING ELEVATIONS (IN COLOR)
1. All building facades in color with directional labels (i.e., North, South) and building names if more than one building
2. Dimensions, including height and width of all structures
3. Dimensions of setbacks and required setbacks from property lines
4. Dimension grade at crown of road, at curb, sidewalk, building entrance, and finished floor
5. Indicate architectural elements, materials and colors
6. Include proposed signage
7. Building cross section with dimensions and use type per level

G. ADDITIONAL RENDERINGS (as applicable)
For projects in a Regional Activity Center zoning district and/or subject to ULDR Section 47-25.3 Neighborhood Compatibility, and/or new buildings 55’ or five stories or more in height, the following are required:
- Street-level perspective renderings of project in context of surroundings, as viewed from a pedestrian level, with ground elements and references to depict and determine appropriate scale of project
- Oblique aerial perspectives from opposing views, which indicate the mass outline of all proposed structures, including the outlines of adjacent existing structures
- Context site plan indicating proposed development and outline of nearby properties with uses and height labeled

NOTE: Please provide the .KML, .KML or .DAE files with submission when providing renderings.

H. LANDSCAPE PLAN (PREPARED BY A CERTIFIED LANDSCAPE ARCHITECT)
1. Landscape plan drawn at a scale no less than one (1) inch equals thirty (30) feet. (ULDR Section 47-21). An overall project plan may be provided at a smaller scale when using it to reference section sheets provided. Landscape plan to be designed so that landscaping shall not be adversely affected by salt exposure, prevailing winds, deep shadows, unusual soil conditions, tidal fluctuations, etc.
2. Landscape plan must provide:
   - Title block including name and address of project, RLA contact information, RLA seal and dated signature, original and sequential revision delta with revision date and narrative
   - North indicator, plans orientated to correctly correspond with survey and site plan
   - Site information and landscape information, in tabular form, sorted required vs. provided calculations
   - Property boundaries and dimensions, depth of landscape islands and perimeters and buffers, property easements, adjacent right of way with street tree planting and parallel parking if applicable, existing and proposed structures, vehicular use areas, location of site amenities, dumpster, walls and fencing, location of plantings, adjacent hardscape, curbing, walks, etc.
   - All underground and overhead utilities, light poles, ground mounted signs, billboards, transformers, generators, fire hydrants, Siamese connections, adjacent or existing photovoltaic systems for photovoltaic systems, etc.
   - Site and right of way grading, including swales, retention areas, berms, bio swales, rain gardens, etc.
   - Structural soil, silica cell, or similar, illustrated and labeled
   - Appropriate clear sight distance areas at intersections, cross section of street tree planting showing pedestrian clearance and underground soil structure and overhead obstructions, etc.
   - Landscape material schedule listing all plants and material. This will include key, botanical name, common name, quantity, overall height for hardwood and clear trunk for palms, plant spacing, native and/or Florida Friendly Landscaping indicator, existing vs. proposed, etc.
   - Hydromine plantings illustrated and labeled
   - Installation, planting, staking, pruning, grading, protection, root pruning, relocation, etc. details and specification for trees, palms, shrubs, groundcover, hydromine, mulch, structural soil or similar, etc.
3. ISA Certified Arborist report for specimen trees. This report is to be on ISA Certified Arborist business letterhead with contact information and ISA Certification number clearly stated. This report would include tree survey with numbered trees, a corresponding table which includes tree number, botanical name and common name, trunk diameter at breast height, clear trunk for palms, condition percentage, etc.; and a written assessment of existing tree characteristics.

I. PHOTOMETRIC DIAGRAM
1. Title Block including project name and design professional's address, email, and phone number
2. Date of initial plan preparation and any amendments
3. Site plan indicating the location of property lines and improvements
4. Location and description of all existing over story landscaping
5. Location and height of all lighting on the property
6. Lighting control description and schedule
7. Foot-candle readings must extend to all property lines
8. Note on plan stating that proposed lighting will be designed and installed so as to reflect the light away and prevent any glare or excessive light on any adjacent property

J. CIVIL PLANS
1. Engineering Site Plan
   - Investigate existing utilities to determine any proposed conflicts with site improvements. Contact Engineering Records Tech - Steve Plummer at StevePfi@fortlauderdale.gov or (954) 828-5051 for as-built information
   - Driveway connections - dimension to established survey reference points (i.e., property corners)
   - Concrete, pavers, and asphalt clearly differentiated
   - Identification of all existing easements and referencing of recorded documents (i.e., OR book & page)
   - Right-of-way adjacent to parcel including labels, width, and referencing of recorded documents
   - Abbreviated legal descriptions for adjacent parcels
   - Finished floor elevation for all buildings, including all existing buildings referenced in NAVD 88
   - Location of existing and proposed fire hydrants
   - Inclusion of monument sign note: "Approved under separate permit"
   - Impervious and pervious areas, both area and percentage are identified
   - Relationship of existing above ground features with site improvements
   - Location of dumpster with relationship to easements and existing underground utilities

   Details for accessible parking spaces and ramps
   - Accessible ramps on adjacent sidewalk
   - Compliance with applicable accessibility code including accessible parking, accessible path from parking, and accessible path from adjacent ROW
   - Location of accessible parking signs - located at back of sidewalk if possible
   - Sight triangles are identified and clear of obstructions
   - Outside turning radii (50-feet) and adequate vehicular circulation for fire trucks
   - All site related details shall be located on a separate sheet
   - All drainage must be maintained on site. The minimum landscape buffer may not be sufficient to achieve this

2. Pavement Marking & Signage Plan
   - Inclusion of signage details for nonstandard signs
   - Inclusion of Manual on Uniform Traffic Control Devices (MUTCD) sign names (i.e., R1-1) and sign size
   - Inclusion of note: "All traffic signage and pavement markings to be provided on the site plan in conformance with Broward County Traffic Engineering Division (BCHTED) and MUTCD Standards.
   - All offsite pavement marking and signage shall be approved by BCHTED.
March 11, 2019

Mike Terango
Imperial Electrical
Inc 951 NW 51st Pl
Fort Lauderdale, FL 33309

Enrique Sanchez
City of Ft. Lauderdale
220 SW 14 Avenue
Ft. Lauderdale, FL 33312

RE: Riverland Park
Project #175708

Dear Sirs:

This serves as approval for submittals provided by Musco Sports Lighting, LLC. Please review the enclosed documents and note changes where appropriate. Upon your approval, we can begin fabrication of the materials for your project. Any changes may result in delay of production, delivery, and additional costs.

Please confirm the following items and return a signed copy of this Submittal Approval:

- Voltage to pole requirements: 240/Phase to enclosure: 1
- What color of the Cree OSQ luminarie is needed?
- How will the Cree OSQ luminaires be mounted?

We shall deliver equipment to the job site 6 - 8 weeks, after submittal approval or release of order.

Please indicate your approval of these submittals in their entirety by signing below.

Authorized Signature ___________________________ Date ______________

Printed Name ___________________________ Company Name ___________________________

Please return one copy of this form to:
Musco Sports Lighting, LLC
Attn: Cynde Gillispie
2107 Stewart Road
Muscatine, Iowa 52761
Phone: 800-756-1205
Fax: 800-374-6402
Email: cynde.gillispie@musco.com
MUSCO LIGHTING SUBMITTAL FOR PRODUCTION
PREPARED FOR:

Riverland Park

Lighting Project
Fort Lauderdale, FL
March 11, 2019

Project #175708

Submitted by:
Musco Sports Lighting, LLC

2107 Stewart Road
Muscatine, Iowa  52761
Toll Free: 800-756-1205
Fax: 800-374-6402
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A. BILL OF MATERIALS
B. SCOPE OF WORK
C. LIGHTING DESIGN
D. CONTROLS AND MONITORING
E. STRUCTURAL INFORMATION
F. WARRANTY
G. PRODUCT INFORMATION
H. POOL AND PARKING LIGHTING
A. BILL OF MATERIALS
### Equipment Description

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>Light-Structure System™ Total Light Control™ TLC-LED-1150 luminaires</td>
</tr>
<tr>
<td>8</td>
<td>Light-Structure System™ Total Light Control™ TLC-LED-900 luminaires</td>
</tr>
<tr>
<td>3</td>
<td>Light-Structure System™ Total Light Control™ TLC-LED-400 luminaires</td>
</tr>
<tr>
<td>3</td>
<td>50’ galvanized steel poles</td>
</tr>
<tr>
<td>4</td>
<td>70’ galvanized steel poles</td>
</tr>
<tr>
<td>7</td>
<td>Pre-cast concrete foundations (9,500 PSI) with integrated grounding</td>
</tr>
</tbody>
</table>

- Factory wired and assembled pole top luminaire assemblies
- Factory wired electrical component enclosures
- Factory built wire harnesses with plug-in connections

### Controls

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24 x 72 Controls and Monitoring cabinet</td>
</tr>
<tr>
<td>3</td>
<td>30-amp contactors</td>
</tr>
<tr>
<td>4</td>
<td>60-amp contactors</td>
</tr>
<tr>
<td>3</td>
<td>On-Off-Auto (OOA) switches</td>
</tr>
<tr>
<td>3</td>
<td>Multi-watt switches</td>
</tr>
</tbody>
</table>

### Warranty

- Musco’s Constant 25™ product assurance and warranty program that eliminates 100% maintenance costs for 25 years, including labor, materials, monitoring and guaranteed light levels.

### Supplemental Lighting

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>OSQ area luminaires</td>
</tr>
</tbody>
</table>
B. SCOPE OF WORK
Project Submittal: **Scope of Work**

Light-Structure TLC-LED Turnkey Scope of Work  
Riverland Park Soccer  
Project # 175708

**Owner Responsibilities:**
1. Provide total access to the site and pole locations for construction.
2. Remove any trees, limbs, shrubs, etc. for total access to pole locations.
3. Removal, replacement, and repair of all fencing necessary for construction.
4. Repair and replacement inadvertently damaged field turf, asphalt, curbs, or concrete.
5. Provide area on site for disposal of spoils from foundation excavation.
6. Locate and mark existing underground utilities not covered by “One Call” and irrigation systems including sprinkler heads prior to excavation. Musco or Subcontractor will not be responsible for repairs to unmarked utilities.
7. Pay for any power company fees and requirements. (If necessary).
8. Additional charges will apply for foundation excavation and construction in non-standard soils (rock, caliche, high water table, collapsing holes, alluvial soils, etc.). Standard soils are defined as Class 5 soils in the 2017 edition of the Florida Building Code and can be excavated using standard earth auguring equipment.
9. Provide a source of water such as a fire hydrant or 2” water line for foundation excavation. Pay for any and all fees associated with the water access and usage.
10. Provide primary transformer to within 150 feet of electrical service location.
11. Pay for any and all permitting fees.

**Musco/Musco Subcontractors Responsibilities:**
1. Provide required poles, fixtures, foundations, and associated designs.
2. Provide structural design for poles and foundations, certified by a professional engineer licensed in the State of Florida.
3. Survey in pole locations and aiming points (one per field) for sighting in lighting cross-arms.
4. Provide layout of pole locations and aiming diagram.
5. Provide light test upon completion of work.
6. Provide Project Management assistance as needed.
7. Provide certified payroll and Davis Bacon Wages in accordance with the Davis Bacon Wage Determination provided.
8. Provide equipment and materials to off load equipment at jobsite per scheduled delivery.
9. Provide storage containers for material, including electronics enclosures.
10. Provide adequate trash container for cardboard waste and packing debris.
11. Provide adequate security to protect Musco delivered products from theft, vandalism or damage during the installation.
12. Obtain any and all required permits. Contact Musco PRIOR to attaining permits to arrange for payment.
13. Provide electrical design by Electrical Engineer as required. Also provide as-built drawings as required following the completion of the project.
14. Provide materials and equipment to install new electrical service panel(s) per electrical design. Service will be mounted to the side of the existing building at the NW corner of the park.
15. Provide materials and equipment to install all underground conduit, wiring, pull boxes, switchgear, etc. and terminate wiring as required per electrical design.
16. Provide equipment and materials to install the new controls and monitoring cabinet and terminate all necessary wiring. Commission Control-Link once system is energized.
17. Provide materials and equipment to install fencing to enclose electrical service and controls equipment to include (3) sides and a top.
18. Make appropriate contact to ensure utility locations have been marked prior to excavation and trenching. Repair any damage to existing utilities made during construction.
19. Provide materials and equipment to install Light-Structure System foundations per the layout.
20. Remove augured spoils to owner-designated location at jobsite.
21. Provide materials and equipment to assemble and install TLC-LED fixtures and terminate all necessary wiring.
22. Provide equipment and materials to assemble and erect Light-Structure System poles.
23. Verify aiming points have been located and are correct before sighting in lighting cross-arms.
24. Provide equipment and materials to install the new controls and monitoring cabinet and terminate all necessary wiring. Subcontractor to commission Control-Link once system is energized.
25. Keep all heavy equipment off of playing fields and surfaces whenever possible. Use due care to minimize damages when playing surface access is required.
26. Conduct system startup and additional aiming as required to provide a complete and operating sports lighting system.
C. LIGHTING DESIGN
### Pole / Fixture Summary

<table>
<thead>
<tr>
<th>Pole ID</th>
<th>Pole Height</th>
<th>Mtg Height</th>
<th>Fixture Qty</th>
<th>Luminaire Type</th>
<th>Load</th>
<th>Circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1-P2</td>
<td>50’</td>
<td>50’</td>
<td>4</td>
<td>TLC-LED-900</td>
<td>3.56 kW</td>
<td>B</td>
</tr>
<tr>
<td>S3</td>
<td>50’</td>
<td>50’</td>
<td>3</td>
<td>TLC-LED-400</td>
<td>1.20 kW</td>
<td>C</td>
</tr>
<tr>
<td>S1-S4</td>
<td>70’</td>
<td>70’</td>
<td>6</td>
<td>TLC-LED-1150</td>
<td>6.90 kW</td>
<td>A</td>
</tr>
<tr>
<td>7</td>
<td>70’</td>
<td>35’</td>
<td>35</td>
<td></td>
<td>35.92 kW</td>
<td></td>
</tr>
</tbody>
</table>

### Circuit Summary

<table>
<thead>
<tr>
<th>Circuit</th>
<th>Description</th>
<th>Load</th>
<th>Fixture Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Soccer</td>
<td>27.6 kW</td>
<td>24</td>
</tr>
<tr>
<td>B</td>
<td>Basketball</td>
<td>7.12 kW</td>
<td>8</td>
</tr>
<tr>
<td>C</td>
<td>Playground</td>
<td>1.2 kW</td>
<td>3</td>
</tr>
</tbody>
</table>

### Fixture Type Summary

<table>
<thead>
<tr>
<th>Type</th>
<th>Source</th>
<th>Wattage</th>
<th>Lumens</th>
<th>L90</th>
<th>L80</th>
<th>L70</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLC-LED-1150</td>
<td>LED 5700K - 75 CRI</td>
<td>1150W</td>
<td>121,000</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
<td>24</td>
</tr>
<tr>
<td>TLC-LED-900</td>
<td>LED 5700K - 75 CRI</td>
<td>890W</td>
<td>89,600</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
<td>8</td>
</tr>
<tr>
<td>TLC-LED-400</td>
<td>LED 5700K - 75 CRI</td>
<td>400W</td>
<td>46,500</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
<td>3</td>
</tr>
</tbody>
</table>

### Light Level Summary

<table>
<thead>
<tr>
<th>Calculation Grid Summary</th>
<th>Calculation Metric</th>
<th>Illumination</th>
<th>Circuits</th>
<th>Fixture Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basketball 1</td>
<td>Horizontal Illuminance</td>
<td>38.2 22 52 2.35 1.74</td>
<td>B</td>
<td>8</td>
</tr>
<tr>
<td>Basketball 2</td>
<td>Horizontal Illuminance</td>
<td>35.1 21 48 2.35 1.67</td>
<td>B</td>
<td>8</td>
</tr>
<tr>
<td>Playground</td>
<td>Horizontal Illuminance</td>
<td>10.7 2 21 11.36 5.36</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>Soccer</td>
<td>Horizontal Illuminance</td>
<td>31.9 21 39 1.85 1.52</td>
<td>A</td>
<td>24</td>
</tr>
<tr>
<td>Spill</td>
<td>Horizontal</td>
<td>0.03 0 0.40 0.00</td>
<td>A,B,C</td>
<td>35</td>
</tr>
<tr>
<td>Spill</td>
<td>Max Candela (by Fixture)</td>
<td>2294 0 10624 0.00</td>
<td>A,B,C</td>
<td>35</td>
</tr>
<tr>
<td>Spill</td>
<td>Max Vertical Illuminance Metric</td>
<td>0.06 0 0.90 0.00</td>
<td>A,B,C</td>
<td>35</td>
</tr>
</tbody>
</table>
**ILLUMINATION SUMMARY**

**Guaranteed Average:** 30

- **Scan Average:** 31.91
- **Maximum:** 39
- **Minimum:** 21
- **Avg / Min:** 1.50

**Guaranteed Max / Min:** 2.5

- **Max / Min:** 1.85
- **UG (adjacent pts):** 1.39
- **CU:** 0.80
- **No. of Points:** 80

**LUMINAIRE INFORMATION**

- **Color / CRI:** 5700K - 75 CRI
- **Luminaire Output:** 121,000 lumens
- **No. of Luminaires:** 24
- **Total Load:** 27.6 kW

**Lumen Maintenance**

<table>
<thead>
<tr>
<th>Luminaire Type</th>
<th>L90 hrs</th>
<th>L80 hrs</th>
<th>L70 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLC-LED-1150</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
</tr>
</tbody>
</table>

Reported per TM-21-11. See luminaire datasheet for details.

**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.

---

**EQUIPMENT LIST FOR AREAS SHOWN**

<table>
<thead>
<tr>
<th>Pole</th>
<th>Luminaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>QTY</td>
<td>LOCATION</td>
</tr>
<tr>
<td>4</td>
<td>S1-S4</td>
</tr>
</tbody>
</table>

---

**SCALE IN FEET 1:60**

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

---

**ENGINEERED DESIGN** By: Brad Vonk • File #175708C • 01-Mar-19
**EQUIPMENT LIST FOR AREAS SHOWN**

<table>
<thead>
<tr>
<th>Pole</th>
<th>Luminaires</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SCALE IN FEET 1:40**

**Pole location(s) + dimensions are relative to 0,0 reference point(s)**

**GRID SUMMARY**

<table>
<thead>
<tr>
<th>Name: Basketball 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size: 100' x 60'</td>
</tr>
<tr>
<td>Spacing: 10.0' x 10.0'</td>
</tr>
<tr>
<td>Height: 3.0' above grade</td>
</tr>
</tbody>
</table>

**ILLUMINATION SUMMARY**

**Maintained Horizontal Footcandles**

- **Guaranteed Average**: 30
- **Scan Average**: 38.19
- **Maximum**: 52
- **Minimum**: 22
- **Avg / Min**: 1.71

**Guaranteed Max / Min**: 2.5

- **Max / Min**: 2.35
- **UG (adjacent pts)**: 1.57
- **CU**: 0.32
- **No. of Points**: 60

**LUMINAIRE INFORMATION**

- **Color / CRI**: 5700K - 75 CRI
- **Luminaire Output**: 89,600 lumens
- **No. of Luminaires**: 8
- **Total Load**: 7.12 kW

**Lumen Maintenance**

- **L90 hrs**: >81,000
- **L80 hrs**: >81,000
- **L70 hrs**: >81,000

Reported per TM-21-11. See luminaire datasheet for details.

**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.
# EQUIPMENT LIST FOR AREAS SHOWN

<table>
<thead>
<tr>
<th>Pole</th>
<th>Luminaires</th>
</tr>
</thead>
<tbody>
<tr>
<td>QTY</td>
<td>LOCATION</td>
</tr>
<tr>
<td>2</td>
<td>P1-P2</td>
</tr>
<tr>
<td>2</td>
<td>TOTALS</td>
</tr>
</tbody>
</table>

**Riverland Park Soccer**  
Fort Lauderdale, FL

## GRID SUMMARY

- **Name:** Basketball 2
- **Size:** 100' x 60'
- **Spacing:** 10.0' x 10.0'
- **Height:** 3.0' above grade

## ILLUMINATION SUMMARY

### MAINTAINED HORIZONTAL FOOTCANDLES

- **Guaranteed Average:** 30
- **Scan Average:** 35.11
- **Maximum:** 48
- **Minimum:** 21
- **Avg / Min:** 1.71
- **Guaranteed Max / Min:** 2.5
- **Max / Min:** 2.35
- **UG (adjacent pts):** 1.38
- **CU:** 0.30
- **No. of Points:** 60

### LUMINAIRE INFORMATION

- **Color / CRI:** 5700K - 75 CRI
- **Luminaire Output:** 89,600 lumens
- **No. of Luminares:** 8
- **Total Load:** 7.12 kW

#### Lumen Maintenance

<table>
<thead>
<tr>
<th>Luminaire Type</th>
<th>L90 hrs</th>
<th>L80 hrs</th>
<th>L70 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLC-LED-900</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
</tr>
</tbody>
</table>

Reported per TM-21-11. See luminaire datasheet for details.

### 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.
**Riverland Park Soccer**
Fort Lauderdale, FL

**GRID SUMMARY**

- **Name:** Playground
- **Size:** 100' x 125'
- **Spacing:** 10.0' x 10.0'
- **Height:** 3.0' above grade

**ILLUMINATION SUMMARY**

**MAINTAINED HORIZONTAL FOOTCANDLES**

- **Scan Average:** 10.71
- **Maximum:** 21
- **Minimum:** 2
- **Avg / Min:** 5.88
- **Max / Min:** 11.36
- **UG (adjacent pts):** 1.95
- **CU:** 0.59
- **No. of Points:** 75

**LUMINAIRE INFORMATION**

- **Color / CRI:** 5700K - 75 CRI
- **Luminaire Output:** 46,500 lumens
- **No. of Luminaires:** 3
- **Total Load:** 1.2 kW

<table>
<thead>
<tr>
<th>Lumen Maintenance</th>
<th>TLC-LED-400</th>
</tr>
</thead>
<tbody>
<tr>
<td>L90 hrs</td>
<td>&gt;81,000</td>
</tr>
<tr>
<td>L80 hrs</td>
<td>&gt;81,000</td>
</tr>
<tr>
<td>L70 hrs</td>
<td>&gt;81,000</td>
</tr>
</tbody>
</table>

*Reported per TM-21-11. See luminaire datasheet for details.*

**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.
ILLUMINATION SUMMARY

Riverland Park Soccer
Fort Lauderdale, FL

GRID SUMMARY

Name: Spill
Spacing: 30.0’
Height: 3.0’ above grade

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

Entire Grid
Scan Average: 0.0278
Maximum: 0.40
Minimum: 0.00
No. of Points: 94

LUMINAIRE INFORMATION

Color / CRI: 5700K - 75 CRI
Luminaire Output: 121,000 / 89,600 / 46,500 lumens
No. of Luminaires: 35
Total Load: 35.92 kW

Lumen Maintenance

<table>
<thead>
<tr>
<th>Luminaire Type</th>
<th>L90 hrs</th>
<th>L80 hrs</th>
<th>L70 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLC-LED-1150</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
</tr>
<tr>
<td>TLC-LED-900</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
</tr>
<tr>
<td>TLC-LED-400</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
<td>&gt;81,000</td>
</tr>
</tbody>
</table>

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

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.
Riverland Park Soccer  
Fort Lauderdale, FL

GRID SUMMARY

Name: Spill  
Spacing: 30.0'  
Height: 3.0' above grade

ILLUMINATION SUMMARY

MAX VERTICAL FOOTCANDLES

| Entire Grid | Scan Average: | 0.0641 | Maximum: | 0.90 | Minimum: | 0.00 | No. of Points: | 94 |

LUMINAIRE INFORMATION

| Color / CRI: | 5700K - 75 CRI | Luminaire Output: | 121,000 / 89,600 / 46,500 lumens |
| No. of Luminaires: | 35 | Total Load: | 35.92 kW |

| Lumen Maintenance | L90 hrs | L80 hrs | L70 hrs |
| TLC-LED-1150 | >81,000 | >81,000 | >81,000 |
| TLC-LED-900 | >81,000 | >81,000 | >81,000 |
| TLC-LED-400 | >81,000 | >81,000 | >81,000 |

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

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: Brad Vonk • File #175708C • 01-Mar-19

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### EQUIPMENT LIST FOR AREAS SHOWN

<table>
<thead>
<tr>
<th>Pole</th>
<th>Location</th>
<th>Size</th>
<th>Grade</th>
<th>Elevation</th>
<th>Mounting Height</th>
<th>Luminaire Type</th>
<th>QTY / Pole</th>
<th>This Grid</th>
<th>Others Grids</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>P1-P2</td>
<td>50'</td>
<td>50'</td>
<td>50'</td>
<td>TLC-LED-900</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>S1-S4</td>
<td>70'</td>
<td></td>
<td>70'</td>
<td>TLC-LED-1150</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**TOTALS**

|   |   | 15 | 15 | 0 |

---

**GRID SUMMARY**

- **Name**: Spill
- **Spacing**: 30.0'
- **Height**: 3.0' above grade

---

**ILLUMINATION SUMMARY**

- **CADDELA (PER FIXTURE)**
  - **Scan Average**: 2294.0559
  - **Maximum**: 10623.62
  - **Minimum**: 0.00
  - **No. of Points**: 94

---

**LUMINAIRE INFORMATION**

- **Color / CRI**: 5700K - 75 CRI
- **Luminaire Output**: 121,000 / 89,600 / 46,500 lumens
- **No. of Luminaires**: 35
- **Total Load**: 35.92 kW
- **Lumen Maintenance**
  - **Luminaire Type**
  - **L90 hrs**
  - **L80 hrs**
  - **L70 hrs**
  - TLC-LED-1150 >81,000
  - TLC-LED-900 >81,000
  - TLC-LED-400 >81,000

Reported per TM-21-11. See luminaire datasheet for details.

---

**Guaranteed Performance**: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

**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.
Riverland Park Soccer
Fort Lauderdale, FL

EQUIPMENT LAYOUT
INCLUDES:
- Basketball 1
- Basketball 2
- Playground
- Soccer

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

<table>
<thead>
<tr>
<th>Pole</th>
<th>Luminaires</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pole Location</td>
</tr>
<tr>
<td>P1-P2</td>
<td>2</td>
</tr>
<tr>
<td>P3</td>
<td>1</td>
</tr>
<tr>
<td>S1-S4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>TOTALS</td>
</tr>
</tbody>
</table>

SINGLE LUMINAIRES AMPERAGE DRAW CHART

<table>
<thead>
<tr>
<th>Ballast Specifications (.90 min power factor)</th>
<th>Line Amperage Per Luminaire (max draw)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Phase Voltage</td>
<td>208 (240V 60Hz) 220 (208V 60Hz) 240 (240V 60Hz) 277 (277V 60Hz) 347 (347V 60Hz) 380 (380V 60Hz) 480 (480V 60Hz)</td>
</tr>
<tr>
<td>TLC-LED-1150</td>
<td>6.8 6.5 5.9 5.1 4.7 3.5 3.0</td>
</tr>
<tr>
<td>TLC-LED-900-A</td>
<td>5.3 5.0 4.6 4.0 3.7 3.2 2.9 2.6</td>
</tr>
<tr>
<td>TLC-LED-400-A</td>
<td>2.9 2.5 2.0 1.7 1.4 1.3 1.0 1.0</td>
</tr>
</tbody>
</table>

Scale in feet 1 : 200
Pole location(s) ➕ dimensions are relative to 0,0 reference point(s) ©
**GLARE IMPACT**

**Summary**

Map indicates the maximum candela an observer would see when facing the brightest light source from any direction.

A well-designed lighting system controls light to provide maximum useful on-field illumination with minimal destructive off-site glare.

**GLARE**

**Candela Levels**

- **High Glare**: 150,000 or more candela
  - Should only occur on or very near the lit area where the light source is in direct view. Care must be taken to minimize high glare zones.

- **Significant Glare**: 25,000 to 75,000 candela
  - Equivalent to high beam headlights of a car.

- **Minimal to No Glare**: 500 or less candela
  - Equivalent to 100W incandescent light bulb.
D. CONTROLS AND MONITORING
Project Specific Notes:

Materials Checklist
Contractor/Customer Supplied:
- A dedicated control circuit must be supplied per distribution panel location.
  - If the control voltage is NOT available, a control transformer is required.
- Electrical distribution panel to provide overcurrent protection for circuits
  - HID rated or D-curve circuit breaker sized per full load amps on Circuit Summary by Zone Chart
- Wiring:
  - See chart on page 2 for wiring requirements
  - Multi-Watt™ control power circuit from control cabinet to electrical (if present) components enclosures
  - Equipment grounding conductor and splices must be insulated. (per circuit)
  - Lightning ground protection (per pole), if not Musco supplied.
- Electrical conduit wireway system
  - Entrance hubs rated NEMA 4: must be die-cast zinc, PVC, or copper-free die-cast aluminum
- Mounting hardware for cabinets
- Breaker lock-on device to prevent unauthorized power interruption to control power
- Anti-corrosion compound to apply to ends of wire, if necessary

Call Control-Link Central™ operations center at 877/347-3319 to schedule activation of the control system upon completion of the installation. Note: Activation may take up to 1 1/2 hours

Equipment Listing

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>APPROXIMATE SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control and Monitoring Cabinet</td>
<td>24 X 72</td>
</tr>
<tr>
<td>Total Contactors</td>
<td>3, 30 AMP</td>
</tr>
<tr>
<td>Total Contactors</td>
<td>4, 60 AMP</td>
</tr>
<tr>
<td>Total Off/On/Auto Switches:</td>
<td>3</td>
</tr>
<tr>
<td>Total Multi-Watt Switches:</td>
<td>3</td>
</tr>
</tbody>
</table>

IMPORTANT NOTES
1. Please confirm that the design voltage listed above is accurate for this facility. Design voltage/phase is defined as the voltage/phase being connected and utilized at each lighting pole's electrical components enclosure disconnect. Inaccurate design voltage/phase can result in additional costs and delays. Contact your Musco sales representative to confirm this item.
2. In a 3 phase design, all 3 phases are to be run to each pole. When a 3 phase design is used Musco's single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each pole. When a pole has multiple circuits, one contactor is required for each circuit. All contactors are UL 100% rated for the published continuous load. All contactors are 3 pole.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.
5. A single control circuit must be supplied per control system.
6. Size overcurrent devices using the full load amps column of the Circuit Summary By Zone chart- Minimum power factor is 0.9.

NOTE: Refer to Installation Instructions for more details on equipment information and the installation requirements.
# Control·Link® Control and Monitoring System with Multi-Watt™ Dimming

![Diagram of Control System](image)

<table>
<thead>
<tr>
<th>Wire</th>
<th>Description</th>
<th># of Wires</th>
<th>Typ. Wire Size (AWG)</th>
<th>Max. Wire Length (FT)</th>
<th>Wire from Musco</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Line power to contactors, and equipment grounding conductor</td>
<td>Note A</td>
<td>Note B</td>
<td>27</td>
<td>No</td>
<td>A – E</td>
</tr>
<tr>
<td>2</td>
<td>Load power to lighting circuits, and equipment grounding conductor</td>
<td>Note A</td>
<td>Note B</td>
<td>N/A</td>
<td>No</td>
<td>A – D</td>
</tr>
<tr>
<td>3</td>
<td>Control power (dedicated, 20A)</td>
<td>3</td>
<td>12</td>
<td>N/A</td>
<td>No</td>
<td>C, D</td>
</tr>
<tr>
<td>4</td>
<td>Multi-Watt control power (15A)</td>
<td>3</td>
<td>14</td>
<td>2500</td>
<td>No</td>
<td>C, F, G</td>
</tr>
</tbody>
</table>

**Notes:**
A. See voltage and phasing per the notes on cover page.
B. Calculate per load and voltage drop.
C. All conduit diameters should be per code.
D. Refer to control and monitoring system installation instructions for more details on equipment information and the installation requirements.
E. Contact Musco if maximum wire length from circuit breaker to contactor exceeds value in chart.
F. Multi-Watt control power is sourced from control and monitoring cabinet control power and is individually fused (15A) inside cabinet.
G. Distance assumes ≤ 150 luminaireMulti-Watt control. If luminaire quantity or distance required exceeds values shown, contact your project engineer.

**IMPORTANT:** Control wire (3) must be in separate conduit from line and load power wires (1, 2).
**SWITCHING SCHEDULE**

<table>
<thead>
<tr>
<th>Field/Zone Description</th>
<th>Zones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soccer</td>
<td>1 *</td>
</tr>
<tr>
<td>Basketball 1-2</td>
<td>2 *</td>
</tr>
<tr>
<td>Playground</td>
<td>3 *</td>
</tr>
</tbody>
</table>

* Multi-Watt zones.

**CONTROL POWER CONSUMPTION**

<table>
<thead>
<tr>
<th>120V Single Phase</th>
<th>VA loading of Musco Supplied Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>INRUSH: 2303.0</td>
</tr>
<tr>
<td></td>
<td>SEALED: 272.8</td>
</tr>
</tbody>
</table>

**CIRCUIT SUMMARY BY ZONE**

<table>
<thead>
<tr>
<th>POLE</th>
<th>CIRCUIT DESCRIPTION</th>
<th># OF FIXTURES</th>
<th># OF DRIVERS</th>
<th>*FULL LOAD AMPS</th>
<th>CONTACTOR SIZE (AMPS)</th>
<th>CONTACTOR ID</th>
<th>ZONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>Soccer</td>
<td>6</td>
<td>6</td>
<td>35.5</td>
<td>60</td>
<td>C1</td>
<td>1</td>
</tr>
<tr>
<td>S2</td>
<td>Soccer</td>
<td>6</td>
<td>6</td>
<td>35.5</td>
<td>60</td>
<td>C2</td>
<td>1</td>
</tr>
<tr>
<td>S3</td>
<td>Soccer</td>
<td>6</td>
<td>6</td>
<td>35.5</td>
<td>60</td>
<td>C3</td>
<td>1</td>
</tr>
<tr>
<td>S4</td>
<td>Soccer</td>
<td>6</td>
<td>6</td>
<td>35.5</td>
<td>60</td>
<td>C4</td>
<td>1</td>
</tr>
<tr>
<td>P1</td>
<td>Basketball 1-2</td>
<td>4</td>
<td>4</td>
<td>18.3</td>
<td>30</td>
<td>C5</td>
<td>2</td>
</tr>
<tr>
<td>P2</td>
<td>Basketball 1-2</td>
<td>4</td>
<td>4</td>
<td>18.3</td>
<td>30</td>
<td>C6</td>
<td>2</td>
</tr>
<tr>
<td>P3</td>
<td>Playground</td>
<td>3</td>
<td>2</td>
<td>6.0</td>
<td>30</td>
<td>C7</td>
<td>3</td>
</tr>
</tbody>
</table>

*Full Load Amps based on amps per driver.
### Panel Summary

<table>
<thead>
<tr>
<th>CABINET #</th>
<th>CONTROL MODULE LOCATION</th>
<th>CONTROLLER ID</th>
<th>CIRCUIT DESCRIPTION</th>
<th>FULL LOAD AMPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>C1</td>
<td>Pole S1</td>
<td>35.52</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>C2</td>
<td>Pole S2</td>
<td>35.52</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>C3</td>
<td>Pole S3</td>
<td>35.52</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>C4</td>
<td>Pole S4</td>
<td>35.52</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>C5</td>
<td>Pole P1</td>
<td>18.32</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>C6</td>
<td>Pole P2</td>
<td>18.32</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>C7</td>
<td>Pole P3</td>
<td>6.00</td>
</tr>
</tbody>
</table>

### Zone Schedule

<table>
<thead>
<tr>
<th>ZONE</th>
<th>SELECTOR SWITCH</th>
<th>MULTI-WATT SWITCH</th>
<th>ZONE DESCRIPTION</th>
<th>POLE ID</th>
<th>CONTROLLER ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>1</td>
<td>1</td>
<td>Soccer</td>
<td>S1, S2, S3, S4</td>
<td>C1, C2, C3, C4</td>
</tr>
<tr>
<td>Zone 2</td>
<td>2</td>
<td>2</td>
<td>Basketball 1-2</td>
<td>P1, P2</td>
<td>C5</td>
</tr>
<tr>
<td>Zone 3</td>
<td>3</td>
<td>3</td>
<td>Playground</td>
<td>P3</td>
<td>C7</td>
</tr>
</tbody>
</table>
Overview
Control-Link® control and monitoring system provides flexible remote on/off control, monitoring, and management of your lighting system.

Features
Control
- Lighting system and auxiliary equipment
- Customized on/off control via phone, website, smartphone application, email, or fax up to 10 years in advance
- Multi-level user security settings
- Key-activated on/off/auto switches allow manual or automated control
- Seven controllable lighting zones

Monitoring
- Detects lamp outages and other issues that affect light quality

Management and Support
- Control-Link Central™ service center provides support 24 hours a day, 7 days a week for scheduling, monitoring, and reporting
- Luminaire outage notification within the next business day
- Customized usage reports through website

Technical Specifications

Ratings
UL 508A Listed................................. E204954
FCC Part 15 .................................. Class A compliant
Operating temperature ...................... -4 °F to 140 °F
                                           (-20 °C to 60 °C)
Weight for 72 inch (1829 mm) cabinet ....... 180 lb (82 kg)
Weight for 48 inch (1219 mm) cabinet ......... 140 lb (64 kg)
Short Circuit Current Rating (SCCR)
   with 30 A contactors* ...................... 18 kA
   with 60 or 100 A contactors* ............. 25 kA
*Minimum circuit breaker interrupt rating must be greater than or equal to SCCR rating listed above.
Technical Specifications

Construction
- NEMA type 4 cabinet
- Powder-coated aluminum 5052 H32 cabinet and panel
- Lockable, 3-point latch
- Supports lighting system voltage up to 480 V
- Requires 120 V phase-to-neutral control voltage
- Protective cover isolates high voltage

Internal Details
- Factory wired, programmed, and tested
- Internally fused
- Control power terminal blocks provided
- One control circuit operates entire cabinet
- Plug-in wire harnesses provided to connect multiple cabinets

Control Module
Receives and stores schedules from Control-Link Central™ service center, operates your equipment, and verifies schedules were carried out.
- Stores and executes schedules for up to 7 days
- Reboots automatically and executes current schedule when power is restored, in case of power interruption

Monitoring Modules
Monitors Musco lighting system and reports issues to keep facilities operating and to help plan routine maintenance. Alerts Control-Link Central service center to schedule appropriate action or maintenance.

Communication Module
Integrated communication system providing two-way reliable, high speed communication to Control-Link Central service center with no additional monthly charges during warranty period.

Contactor Modules
Switches equipment based on control module schedules.
- Tested and UL-listed for continuous operation at 100% of rated current
- Contactors rated for 30, 60, or 100 A

Ground Bar
Provides integral ground bar for lighting equipment grounding.
Overview

The Multi-Watt™ dimming control system makes it possible to operate your lighting system at multiple energy and light levels appropriate to the activities taking place.

<table>
<thead>
<tr>
<th></th>
<th>Electrical Consumption</th>
<th>Energy Savings</th>
<th>Light Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>100%</td>
<td>—</td>
<td>100%</td>
</tr>
<tr>
<td>Medium</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Low</td>
<td>20%</td>
<td>Up to 80%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Features

- Reduces system electrical consumption
- Key-activated switches allow for automated dimming control or manual override with switches
- Engineered to work with Musco’s industry-leading LED sports-lighting systems
- Durable construction may be mounted inside or outside
- Factory assembled and wired, in our UL-authorized manufacturing facility
- Fully integrated with Musco lighting control system—Control-Link® control and monitoring system or lighting contactor cabinet
- Separate dimming control box provided if not utilizing Musco lighting control system

Control-Link® Control and Monitoring System

- Allows administrator to set dimming schedule for various activity needs. High, medium, and low light level schedules can be pre-set

Key Override

- Allows authorized users to override normal dimming schedule

Technical Specifications

Construction

- NEMA 4, IP65 cabinet (separate cabinet provided if lighting control system not provided by Musco)
- Operates on either 120 Vac or 230 Vac phase-to-neutral power
Supplied by Contractor

- Proper circuit protection per NEC
- 120 Vac or 230 Vac phase-to-neutral circuit from service distribution panel to control cabinet continuing to the electrical components enclosure at each pole location in lighting zone.
  - Use 2-wire circuit for high/low systems
  - Use 3-wire circuit for high/med/low systems
  - Max distance of 2500 ft for 14 AWG wires (760 m for 2.5 mm² wires). For longer distances, contact Musco for wire sizing 800-825-6020 or +1-641-673-0411.

Connecting the Lighting Equipment

At each electrical components enclosure, the control circuit connects to the auxiliary contacts on the disconnect switch and neutral lugs.

<table>
<thead>
<tr>
<th>Wire</th>
<th>Description</th>
<th># of Wires</th>
<th>Typ. Wire Size</th>
<th>Max. Wire Length</th>
<th>Wire from Musco</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Multi-Watt™ control power</td>
<td>3</td>
<td>14 AWG (2.5 mm²)</td>
<td>See Note D</td>
<td>No</td>
<td>A, B, D</td>
</tr>
<tr>
<td>2</td>
<td>Switched Multi-Watt™ control power</td>
<td>See Note A</td>
<td>14 AWG (2.5 mm²)</td>
<td>See Note D</td>
<td>No</td>
<td>A, B, D</td>
</tr>
<tr>
<td>3</td>
<td>Power to lighting circuits</td>
<td>See Note C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
A. High/med/low requires 3 conductors (Sw1, Sw2, N). High/low requires 2 conductors (Sw1, N).
B. Multi-Watt control power is routed from first lighting pole to additional poles in lighting zone.
C. See Musco Control System Summary for lighting circuit details including full load amps, max wire length, and conduit sizing.
D. Total wire length for 1 & 2 not to exceed 2500 ft (762 m) for up to 150 luminaires.
E. STRUCTURAL INFORMATION
Stamped foundation designs shall be provided upon completion.

Foundation design are based upon FBC, 2017, 180 mph, C.
F. WARRANTY
Musco Sports Lighting, LLC will provide all materials and labor to maintain operation of your lighting system to original design criteria for 25 years, or until maximum hours of coverage have accumulated, whichever comes first. Musco products and services are guaranteed to perform on your project as detailed in this document.

**Light**

Average illumination levels are guaranteed as described in the Project Details on the following page. Musco will electronically monitor luminaire operation and operating hours, and will group re-lamp if applicable.

Individual luminaire outages that occur during the warranty and maintenance period are repaired when the usage of any field is materially impacted. If actual usage exceeds the maximum hours of coverage, the customer will be required to pay an additional fee in order to maintain the warranty to the end of 25 years.

**Energy Consumption**

Average and maximum energy consumptions for your lighting system are guaranteed.

**Monitoring, Maintenance and Control Services**

Musco shall monitor the performance of your lighting system, including on/off status, hours of usage and lamp outages. If fixture outages that affect playability are detected, Musco will contact you and proactively dispatch technicians.

On-off control of your lighting system is provided via an easy-to-use web site scheduling system, phone, fax, or email. Our trained Control-Link Central™ service center staff is available toll-free 24/7. Regular usage reports are always available on Control-Link Central’s web site.

**Spill Light Control**

Spill light readings at identified locations are guaranteed to be controlled to the values provided in Musco’s design documents for your project.

**Structural Integrity**

Your project has been designed to FBC 2017, 180 mph, exposure C. Structural integrity of equipment manufactured by Musco is guaranteed.

Musco has a team of people to ensure fulfillment of our product and services warranty (Exhibit C) and maintains financial reserves dedicated to support our fulfillment of this warranty. Please keep this document as your signed contract guaranteeing comprehensive service for the 25 year period.
Musco Constant 25™
25-Year Product Assurance & Warranty Program

Project Details

Project Name: Riverland Park
Project Number: 175708
Owner: City of Fort Lauderdale
City: Fort Lauderdale
State: FL

Product(s) Covered: Light-Structure System™ Lighting with TLC for LED™ Technology

Date Issued: Date of shipment
Expiration: Date of shipment + 25 years or maximum hours of coverage noted below, whichever occurs first

Total Average kW per hour: 35.92

Musco products and services are guaranteed to perform on your project as follows:

<table>
<thead>
<tr>
<th>Field/Zone</th>
<th>Fixture Quantity</th>
<th>Lamp Type</th>
<th>Average Target Light Level</th>
<th>Uniformity Max/Min</th>
<th>Total Relamps Included</th>
<th>Estimated Annual/25-Year Estimated Usage Hours</th>
<th>Maximum Hours of Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soccer</td>
<td>24</td>
<td>TLC-LED-1150</td>
<td>30 FC</td>
<td>2.5:1.0</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Basketball 1 &amp; 2</td>
<td>8</td>
<td>TLC-LED-900</td>
<td>30 FC Each</td>
<td>2.5:1.0 Each</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Playground</td>
<td>3</td>
<td>TLC-LED-400</td>
<td>10 FC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

- Page 2 of 3 -
Service under this Contract is provided by Musco Sports Lighting, LLC ("Musco") or an authorized servicer approved by Musco. Services performed under this Contract shall consist of furnishing labor and parts necessary to restore the operation of the Covered Product(s) to original design criteria provided such service is necessitated by failure of the Covered Product(s) during normal usage. This Contract covers Product(s) consisting of Musco's Total Light Control – TLC for LED™ or Green Generation Lighting™ with Control-Link™ and any additional Musco manufactured product as listed on page 2.

"We", "us" and "our" mean Musco. "You" and "your" mean the purchaser of the Covered Product(s). No one has the authority to change this Contract without the prior written approval of Musco. Musco shall not assume responsibility for their agents or assignees other than as described below. If there is a conflict between the terms of this Contract and information communicated either orally or in writing by one or more of our employees or agents, this Contract shall control.

Additional Provisions

1. Availability of Service: Control-Link Central operators shall be available 24/7 via web site, phone, fax, or email. Maintenance service specialists shall be available 8AM to 5PM Central Time, and services shall be rendered during these same hours in your local time zone, Monday through Friday (with the exception of national holidays). Hours of operation are subject to change without notice to you. Musco will exercise all reasonable efforts to perform service under this Contract, but will not be responsible for delays or failure in performing such services caused by adverse weather conditions, acts of any government, failure of transportation, accidents, riots, war, labor actions or strikes or other causes beyond its control.

2. Determination of Repairs: Musco will utilize the field monitoring system and any information provided by the customer to determine when the usage of the field is materially impacted. From this information, Musco will determine needed repair and/or replacement of Covered Product(s) and parts. Repair will be with product(s) of like kind and quality.

3. Your Requirements Under this Contract: You must meet all electrical and installation requirements as specified by the manufacturer. In addition, you promise and assure: full cooperation with Musco, Musco's technicians and authorized servicers during telephone diagnosis and repair of the Covered Product(s); reasonable accessibility of the Covered Product(s); a non-threatening and safe environment for service.

You agree to check fuses and to replace fuses as needed. Musco provides spare fuses in the lowest alpha-numeric numbered enclosure. Musco will replenish spare fuses used.

You agree to keep your control system online. This means keeping the required control voltage to the control system at all times. Any deviation from this practice must be discussed with Musco's Warranty Department.

4. Service Limitations - This Contract does not cover: Maintenance, repair or replacement necessitated by loss or damage resulting from any external causes such as, but not limited to, theft, environmental conditions, negligence, misuse, abuse, improper electrical/power supply, unauthorized repairs by third parties, attachments, damage to cabinetry, equipment modifications, vandalism, animal or insect infestation, physical damage to Covered Products or parts or components, failure of existing structures, supporting electrical systems or any non-Musco equipment, or acts of God/nature (including, but not limited to: earthquake, flood, tornadoes, typhoons, hurricanes or lightning).

5. Contract Limitations:

   a. EXCLUSIONS FROM COVERAGE: IN NO EVENT WILL MUSCO BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH INCLUDE, BUT ARE NOT LIMITED TO, ANY DELAY IN RENDERING SERVICE OR LOSS OF USE DURING THE REPAIR PERIOD OF THE COVERED PRODUCT(S) OR WHILE OTHERWISE AWAITING PARTS.

   b. Limitation of Liability: To the extent permitted by applicable law, the liability of Musco, if any, for any allegedly defective Covered Product(s) or components shall be limited to repair or replacement of the Covered Product(s) or components at Musco's option. THIS CONTRACT IS YOUR SOLE EXPRESS WARRANTY WITH RESPECT TO THE COVERED PRODUCT(S). ALL IMPLIED WARRANTIES WITH RESPECT TO THE COVERED PRODUCT(S) INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY EXPRESSLY EXCLUDED.

   c. For the purposes of and by your acceptance of this Contract you acknowledge and agree that if a surety bond ("Bond") is provided the warranty and/or maintenance guarantee provided for in this Contract and any corresponding liability on behalf of the issuing surety under the Bond is limited to the first twelve (12) months of said warranty and/or maintenance guarantee coverage period. Any warranty and/or guarantee coverage period in excess of said initial 12 month period does not fall within the scope of the Bond and shall be the sole responsibility of Musco.

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

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

6. Transfer and Assignment: Except to owners, you shall not have the right to assign or otherwise transfer your rights and obligations under this Contract except with the prior written consent of Musco; however, a successor in interest by merger, operation of law, assignment or purchase or otherwise of your entire business shall acquire all of your interests under this Contract.

7. Governing Law: Unless otherwise governed by applicable state law, the Contract shall be interpreted and enforced according to the laws of the State of Iowa.

8. Subrogation: In the event Musco repairs or replaces any Covered Product(s), parts or components due to any defect for which the manufacturer or its agents or suppliers may be legally responsible, you agree to assign your rights of recovery to Musco. You will be reimbursed for any reasonable costs and expenses you may incur in connection with the assignment of your rights. You will be made whole before Musco retains any amounts it may recover.

Signature: ____________________________________________

Vice President of Sales

- Page 3 of 3 -
UNEQUALED. ACCESSIBLE. KNOWLEDGABLE. ACCOUNTABLE.

Over 160 team members dedicated to operating and maintaining your sports lighting

Control-Link Central™ • (877) 347-3319
www.control-link.com • schedule@musco.com • FAX (800) 853-8847

- Staffed 24/7 with several easy ways to contact us
- Trained operators provide scheduling and reporting assistance and one-on-one phone training
- Conducts proactive nightly tests to assure your control system is operating properly, even when the lights aren’t in use
- Easy access to field usage data
- Field operation monitoring

“We strive to provide a level of service where every customer reaches a live operator, rather than a voice mail system, when they call in. We can make your last minute schedule changes happen in just a few minutes.”
— Mike Mason, Control-Link Manager

Lighting Services Team • (800) 825-6020
warranty@musco.com • FAX (888) 397-8736

- Trained technicians specializing in sports lighting provide field maintenance, warranty work, consulting, and temporary lighting
- Regionally based to effectively provide lighting services in every state plus a network of over 1800 contractors
- Ongoing field inspection program

“Our technicians have an unequaled expertise in sports lighting. With our field monitoring, we’ll contact you within one business day of detecting a fixture outage on your field . . . often before you even know about it.”
— Jeff McNulty, Director of Field Operations

Control-Link Central operators oversee the on/off control of over 22,000 fields each month and have experience with controlling over 4 million schedules per year.

Our lighting services team travels over 1 million miles each year. They inspect, fine tune, or provide yearly maintenance on more than 11,000 fields and supply temporary lighting for over 250 hours of live television broadcasts annually.

Each year, Musco technicians work atop a combined total of 318 miles of poles to ensure trouble-free operation for customers. That's the equivalent of climbing to the summit of Mount Everest . . . 58 times.

Specific funds are set aside to provide solid financial resources to fulfill the maintenance and warranty needs for every Musco Lighting project.

Musco Service ... We Make It Happen®
G. PRODUCT INFORMATION
POLE(S): P1, P2
Musco 50FT Light-Structure System™ pole
TLC for LED™ luminaires
(4) TLC-LED-900s
POLE(S): P3
Musco 50FT Light-Structure System™ pole
TLC for LED™ luminaires
(3) TLC-LED-400s
Galvanized steel pole

Precast concrete base

Electrical components enclosure

Ground level

POLE(S): S1, S2, S3, S4

Musco 70FT Light-Structure System pole
TLC for LED luminaires
(6) TLC-LED-1150s
5 Easy Pieces™
Complete System from Foundation to Poletop
Factory wired, aimed, and tested
Fast, trouble-free installation
Comprehensive corrosion package
Integrated lightning ground
TLC for LED® – Precast Concrete Base

Overview
The precast concrete base is set directly into the ground and backfilled with concrete. The base includes an integrated lightning ground system.

Features
Base
- Set pole on base in 24 hours
- Tapered upper section for slip-fit steel pole
- Access holes for wire entry
- Epoxy-coated ends prevent water intrusion
- Lifting hole accepts load-rated steel rod provided by Musco

Integrated Lightning Ground System
- Complies with NFPA 780, UL 96A, and EN 62305 standards when installed per Musco installation instructions
- UL Listed, Class II Lightning Protection, file number E337467
- Tested up to 100 kA by independent laboratory
- Steel pole interfaces with integrated grounding system by means of the pole grounding connector
- 2/0 AWG (cross-sectional area of 67.4 mm²) grounding electrode conductor
- Concrete-encased grounding electrode, 20 feet (6.1 m) total length, ½ inch (12.7 mm) diameter

Technical Specifications
Base dimensions vary. For measurements refer to project-specific Foundation and Pole Assembly drawing.

Construction
- Spun concrete construction
- Prestressed steel vertical strands and coil spiral for strength throughout base
- Minimum design strength is 9500 lb/in² (65.5 MPa) at 28 days
- Meets ASTM C1804 design requirements

Quality Assurance Tests
- 28-day compressive strength
- Bending moment capacity
- Grounding system continuity
TLC for LED® – Precast Concrete Base

*Standard pier foundation shown. Foundation and/or backfill may vary per alternate foundation design.
TLC for LED® – Galvanized Steel Pole

Overview
The galvanized steel pole is designed to slip-fit together with the precast concrete base and the poletop luminaire assembly.

Features
- Slip-fit connection allows pole assembly with come-alongs
- Built-in hardware for attaching electrical components enclosure
- Wire access from inside the pole (no exposed wiring or conduit)
- Shipped in sections for easier handling
- Labeled with pole identification for location on field

Technical Specifications
Pole dimensions vary. For measurements refer to project specific pole configuration drawing.

Construction
- Pole designs comply with all major building codes
- High strength, low alloy, tapered, round steel pole
- Hot-dip galvanizing inside and outside after fabrication meets ASTM-A123 and EN 1461 standards
- Conforms to AASHTO stress standards and BS EN 40-3-1
- Grounding lug—rated for aluminum (AL) or copper (CU) wiring
- Pole shipped in sections
- Stainless steel fasteners passivated and coated
- Material certifications are available

Quality Assurance Tests
- Bending stress
- Minimum galvanizing thickness
- Straightness measurement
Datasheet: **Light-Structure System™**

**TLC for LED® – Galvanized Steel Pole**

Weld mark to identify field side orientation

Wire harness strain relief provided on poles 80 ft (24.5 m) and taller per NEC

Jacking ear

Electrical components enclosure attachment bracket

Electrical components enclosure hub with stainless steel screw threads

Wire access handhole

Grounding lug (inside handhole)

Slip-fit attachment to precast concrete base

Weld mark to identify field side orientation
Overview
The electrical components enclosure contains all necessary equipment to operate luminaires. Built-in mounting hardware allows for easy attachment to the galvanized steel pole. Quick connect plugs fasten to the wire harness.

Features
- Factory-built and tested as a unit
- Quick connect plug for easy field wiring
- Mounted 10 ft (3 m) above grade for servicing with ladder
- Labeled with pole identification and electrical information
- Drivers individually fused and spare fuses supplied
- Wire access from inside the pole (no exposed wiring or conduit)
- Disconnect per circuit

Technical Specifications
For amperage draws and circuitry refer to project specific document.

Construction
- 0.08 inch (2 mm) thick, powder-coated aluminum
- Enclosure ratings: NEMA 3R, IP54
- Designed to operate in up to 50°C (122°F) ambient temperature
- Full length stainless steel hinge
- All stainless steel fasteners passivated and coated
- Meets touchsafe standards
- Up to four drivers per enclosure
- Approximate weight 65 lb (29 kg)
- Lower enclosure size 14.25 in (362 mm) wide x 8 in (203 mm) deep x 52.5 in (1334 mm) high
- Upper enclosure size 14.25 in (362 mm) wide x 8 in (203 mm) deep x 40.5 in (1029 mm) high

Quality Assurance Tests
- Grounding continuity
- High potential dielectric withstand
- Full functionality test
TLC for LED® – Electrical Components Enclosure

- Controller
- Wiring schematics
- Driver
- Spare fuses
- Fuses
- Pole alignment beam switch
- Ground bar (AL, CU)*
- Surge protection
- Powerline communication (or wireless communication) module (if present)
- Disconnect (CU only)*
- Terminal blocks

* Aluminum (AL) Copper (CU)
TLC for LED® – Wire Harness

Overview
The factory-built wire harness connects the electrical components enclosure to the poletop luminaire assembly.

Features
- Quick connect plugs for easy field wiring
- Factory-assembled support grip alleviates strain on connections
- Spiral wound cable eliminates slippage
- Protective sleeve prevents wire damage
- All internal wiring, no exposed wires
- Labels identify pole and luminaires

Technical Specifications

Construction
- Spiral wound, wrapped cable, 14 AWG (cross-sectional area of 2.08 mm²) copper wire
- Integral cable support grip
- Two wires per driver
- Each harness supports up to four drivers
- Multiple top connectors may be present if required for number of luminaires

Quality Assurance Tests
- Connector/load resistance
- High potential dielectric withstand
- Grounding continuity
- Termination crimp
TLC for LED® – Wire Harness

- **Top quick connector**
- **Wire tie**
- **Top cable support grip**
- **Spiral wound cable consisting of 14 AWG (cross-sectional area of 2.08 mm²) copper wire**
- **Mid-point cable support grip for poles 80 ft (24.5 m) and taller**
- **Flexible protective sleeve**
- **Bottom quick connector**

- **Bar harness quick connector**
- **Wire harness top quick connector**
- **Cable support grip and snap hook**
- **Enclosure harness quick connector**
- **Wire harness bottom quick connector**
- **Cable support grip and snap hook (if required)**
Datasheet: **Light-Structure System™**

**TLC for LED® – Poletop Luminaire Assembly, Weld On**

**Overview**

The factory-aimed poletop luminaire assembly is the upper section of the pole and slip-fits together with the galvanized steel pole.

**Features**

- Each luminaire is factory-built, tested, and ships as a unit
- Luminaires are factory-aimed to two-tenths degree of accuracy
- Luminaire mounts and connects in a single step
- Slip-fit connection allows assembly with come-alongs
- All luminaires are factory-wired to a quick connect harness for easy installation
- Labels identify pole and luminaire location
- No exposed wiring or conduit
- Factory-set pole alignment beam allows easy field alignment

**Technical Specifications**

**Construction**

- Crossarms and pole shaft hot-dip galvanizing inside and outside after fabrication meets ASTM-A123 and EN 1461 standards
- All aluminum components are powder-coated or anodized to mil-A-8625F and BS 5599
- Luminaire and knuckle are powder-coated die-cast aluminum
- All stainless steel fasteners are passivated and coated
- Crossarms are constructed of rectangular steel tubing
- Polecap is attached with stainless steel lanyard and securing bolt

**Quality Assurance Tests**

- Galvanizing thickness
- High potential dielectric withstand
- Electrical continuity
All components from foundation to poletop are designed to work together in Light-Structure System™ to ensure reliable, trouble-free operation.
Luminaire and Driver – TLC-LED-1150

Driver Data

Electrical Data

<table>
<thead>
<tr>
<th>Rated wattage¹</th>
<th>1150 W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per driver</td>
<td></td>
</tr>
<tr>
<td>Per luminaire</td>
<td>1150 W</td>
</tr>
</tbody>
</table>

| Number of luminaires per driver | 1 |
| Starting (inrush) current       | <40 A, 256 µs |
| Fuse rating                     | 15 A |
| UL, IEC ambient temperature rating, electrical components enclosure | 50°C (122°F) |
| Ingress protection, electrical components enclosure | IP54 |
| Efficiency                      | 95% |
| Dimming mode                    | optional |
| Range, energy consumption       | 20 – 100% |
| Range, light output             | 25 – 100% |

<table>
<thead>
<tr>
<th>Voltage</th>
<th>200 Vac 50/60 Hz</th>
<th>208 Vac 50/60 Hz</th>
<th>220 Vac 50 Hz</th>
<th>230 Vac 50 Hz</th>
<th>240 Vac 50 Hz</th>
<th>277 Vac 60 Hz</th>
<th>347 Vac 50 Hz</th>
<th>380 Vac 50 Hz</th>
<th>400 Vac 50 Hz</th>
<th>415 Vac 50 Hz</th>
<th>480 Vac 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max operating current per luminaire¹</td>
<td>7.11 A</td>
<td>6.83 A</td>
<td>6.46 A</td>
<td>6.18 A</td>
<td>5.92 A</td>
<td>5.13 A</td>
<td>4.10 A</td>
<td>3.74 A</td>
<td>3.56 A</td>
<td>3.43 A</td>
<td>2.96 A</td>
</tr>
</tbody>
</table>

Footnotes:
1) Rated wattage is the power consumption, including driver efficiency losses, at stabilized operation in 25°C ambient temperature environment.
2) Operating current includes allowance for 0.90 minimum power factor, operating temperature, and LED light source manufacturing tolerances.

Notes
1. Use thermal magnetic HID-rated or D-curve circuit breakers.
2. See Musco Control System Summary for circuit information.
### Luminaire Data

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (luminaire)</td>
<td>40 lb (18 kg)</td>
</tr>
<tr>
<td>UL listing number</td>
<td>E338094</td>
</tr>
<tr>
<td>UL listed for USA / Canada</td>
<td>UL1598 CSA-C22.2 No.250.0</td>
</tr>
<tr>
<td>CE Declaration</td>
<td>LVD, EMC, RoHS</td>
</tr>
<tr>
<td>Ingress protection, luminaire</td>
<td>IP65</td>
</tr>
<tr>
<td>Material and finish</td>
<td>Aluminum, powder-coat painted</td>
</tr>
<tr>
<td>Wind speed rating (aiming only)</td>
<td>150 mi/h (67 m/s)</td>
</tr>
<tr>
<td>UL, IEC ambient temperature rating, luminaire</td>
<td>50°C (122°F)</td>
</tr>
</tbody>
</table>

### Photometric Characteristics

Projected lumen maintenance per IES TM-21-11

<table>
<thead>
<tr>
<th>Lumen Maintenance</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>L90 (13.5k)</td>
<td>&gt;81,000 h</td>
</tr>
<tr>
<td>L80 (13.5k)</td>
<td>&gt;81,000 h</td>
</tr>
<tr>
<td>L70 (13.5k)</td>
<td>&gt;81,000 h</td>
</tr>
</tbody>
</table>

CIE correlated color temperature: 5700 K

Color rendering index (CRI): 75 typ, 70 min

Lumens:\(^1\) 89,600

Footnotes:

1) Incorporates appropriate dirt depreciation factor for life of luminaire.
Datasheet: TLC-LED-900 Luminaire and Driver

Driver Data

Electrical Data

- Rated wattage¹
  - Per driver: 890 W
  - Per luminaire: 890 W

- Number of luminaires per driver: 1

- Starting (inrush) current: <40 A, 256 µs

- Fuse rating: 15 A

- UL, IEC ambient temperature rating, electrical components enclosure: 50°C (122°F)

- Ingress protection, electrical components enclosure: IP54

- Efficiency: 95%

- Dimming mode: optional
  - Range, energy consumption: 25 – 100%
  - Range, light output: 30 – 100%


<table>
<thead>
<tr>
<th>Voltage (Vac)</th>
<th>200 Vac 50/60 Hz</th>
<th>208 Vac 60 Hz</th>
<th>220 Vac 50/60 Hz</th>
<th>230 Vac 50 Hz</th>
<th>240 Vac 50/60 Hz</th>
<th>277 Vac 60 Hz</th>
<th>347 Vac 50/60 Hz</th>
<th>380 Vac 50 Hz</th>
<th>400 Vac 50 Hz</th>
<th>415 Vac 50 Hz</th>
<th>480 Vac 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max operating current per luminaire²</td>
<td>5.50 A</td>
<td>5.29 A</td>
<td>5.00 A</td>
<td>4.78 A</td>
<td>4.58 A</td>
<td>3.97 A</td>
<td>3.17 A</td>
<td>2.90 A</td>
<td>2.75 A</td>
<td>2.65 A</td>
<td>2.29 A</td>
</tr>
</tbody>
</table>

Footnotes:

1) Rated wattage is the power consumption, including driver efficiency losses, at stabilized operation in 25°C ambient temperature environment.

2) Operating current includes allowance for 0.90 minimum power factor, operating temperature, and LED light source manufacturing tolerances.

Notes

1. Use thermal magnetic HID-rated or D-curve circuit breakers.

2. See Musco Control System Summary for circuit information.
Luminaire Data

Weight (luminaire) 40 lb (18 kg)
UL listing number E338094
UL listed for USA / Canada UL1598 CSA-C22.2 No.250.0
CE Declaration LVD, EMC, RoHS
Ingress protection, luminaire IP65
Material and finish Aluminum, powder-coat painted
Wind speed rating (aiming only) 150 mi/h (67 m/s)
UL, IEC ambient temperature rating, luminaire 50°C (122°F)

Photometric Characteristics

Projected lumen maintenance per IES TM-21-11

L90 (13.5k) >81,000 h
L80 (13.5k) >81,000 h
L70 (13.5k) >81,000 h
CIE correlated color temperature 5700 K
Color rendering index (CRI) 75 typ, 70 min
Lumens1 46,500

Footnotes:
1) Incorporates appropriate dirt depreciation factor for life of luminaire.
Datasheet: **TLC-LED-400 Luminaire and Driver**

**Driver Data**

**Electrical Data**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated wattage&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Per driver 800 W, Per luminaire 400 W</td>
</tr>
<tr>
<td>Number of luminaires per driver</td>
<td>2</td>
</tr>
<tr>
<td>Starting (inrush) current</td>
<td>&lt;40 A, 256 µs</td>
</tr>
<tr>
<td>Fuse rating</td>
<td>15 A</td>
</tr>
<tr>
<td>UL, IEC ambient temperature rating, electrical components enclosure</td>
<td>50°C (122°F)</td>
</tr>
<tr>
<td>Ingress protection, electrical components enclosure</td>
<td>IP54</td>
</tr>
<tr>
<td>Efficiency</td>
<td>95%</td>
</tr>
<tr>
<td>Dimming mode</td>
<td>optional</td>
</tr>
<tr>
<td>Range, energy consumption</td>
<td>26 – 100%</td>
</tr>
<tr>
<td>Range, light output</td>
<td>30 – 100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Voltage (Vac)</th>
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<th>208 Vac 60 Hz</th>
<th>220 Vac 50/60 Hz</th>
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<th>240 Vac 50/60 Hz</th>
<th>277 Vac 50/60 Hz</th>
<th>347 Vac 50/60 Hz</th>
<th>380 Vac 50 Hz</th>
<th>400 Vac 50 Hz</th>
<th>415 Vac 50 Hz</th>
<th>480 Vac 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max operating current per luminaire&lt;sup&gt;2&lt;/sup&gt;</td>
<td>2.40 A</td>
<td>2.31 A</td>
<td>2.18 A</td>
<td>2.09 A</td>
<td>2.00 A</td>
<td>1.73 A</td>
<td>1.39 A</td>
<td>1.27 A</td>
<td>1.20 A</td>
<td>1.16 A</td>
<td>1.00 A</td>
</tr>
</tbody>
</table>

**Footnotes:**

1) Rated wattage is the power consumption, including driver efficiency losses, at stabilized operation in 25°C ambient temperature environment.

2) Operating current includes allowance for 0.90 minimum power factor, operating temperature, and LED light source manufacturing tolerances.

**Notes**

1. Use thermal magnetic HID-rated or D-curve circuit breakers.

2. See *Musco Control System Summary* for circuit information.
Manufacturers Certification of Enhanced Corrosion Protection for Light-Structure System™ and SportsCluster® Lighting Systems

Environmental conditions in corrosive environments such as coastal regions may accelerate the corrosion rate of equipment. Careful selection of materials and coatings can provide protection in these corrosive environments.

Musco conducted over 150,000 hours of testing to study the effects of highly corrosive environments. Salt spray testing of aluminium components was conducted per ASTM B117 at an independent laboratory and Musco’s in-house test chamber to evaluate various selections of alloys and coatings. All salt spray testing was conducted to minimum 3000 hours duration. Evaluation of various installation sites was also conducted to study actual field conditions.

The results of Musco’s research and development allowed selection of materials and coatings that significantly outperform the control sample, representing typical materials in the lighting industry.

The following standard corrosion protection is provided on your equipment:

All exposed components are constructed of corrosion-resistant material and/or coated to protect against corrosion. All exposed carbon steel is hot-dip galvanised, meeting ASTM A123 and ISO/EN 1461. All exposed aluminium is powder coated with high-performance polyester or anodised. All exterior reflective inserts are anodised, coated with a clear, high-gloss, durable fluorocarbon, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners are stainless steel of 18-8 grade or better, passivated, and coated with an aluminium based thermostetting epoxy resin for protection against corrosion and stress corrosion cracking. Alternately, for hardware in non-stressed applications, an electroless nickel coating meeting ASTM B733 may be used. Pole strapping used to mount certain equipment to light poles is annealed stainless steel (grade 304) and passivated. Certain structural fasteners are carbon steel, galvanised meeting ASTM A153 and ISO/EN 1461 (for hot-dip galvanising), or ASTM B695 (for mechanical galvanising). This corrosion protection package only applies to equipment manufactured by Musco.

In addition, these enhanced corrosion protection features are provided to address the specific challenges of your corrosive environment:

- **Poletop Luminaire Crossarm Assembly** is constructed of carbon steel and hot dip galvanised per ASTM A123. A proprietary galvanisation process ensures minimum 5 mil (125 μm) average thickness.
- **Exposed Die Cast Aluminium** components are constructed of low copper aluminium alloy, type II anodised per MIL-STD-8625, and sealed with proprietary coating before application of high performance polyester powder coating.
- **Exposed Extruded Aluminium** components are constructed of low copper aluminium alloy, type II anodised per MIL-STD-8625, and coated with high performance polyester powder coating.

Musco Sports Lighting, LLC

Tim Boyle
Research and Development Manager
H. POOL AND PARKING LIGHTING
Luminaire Data

Manufacturer: Cree, Inc.
Material and finish: Die-cast aluminum with bronze powder-coat finish
Mounting: Direct pole mount
Weight (luminaire): 26.5 lb (12 kg)

Regulatory and Voluntary Qualifications

UL: cULus Listed
Environment: Suitable for wet locations
Ingress Protection: IP66
Emissions: Meets FCC Part 15, Subpart B, Class A standards for conducted and radiated emissions
RoHS: Compliant

Photometric Characteristics

Lumen maintenance factor:
- 25k hours: 0.96
- 50k hours: 0.92
- 75k hours: 0.88
- 100k hours: 0.84

CIE correlated color temperature: 5700 K
Color Rendering Index (CRI), minimum: 70
Lumens: 17,000

Footnotes:
1) Cree’s exclusive Colorfast DeltaGuard® finish features an E-coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation, and abrasion.
2) Lumen maintenance values at 25°C ambient temperature are calculated per TM-21 based on LM-80 data and in-situ luminaire testing.
3) Values are represented as projected values within six times limit of tested hours per IES TM-21-11.
4) Values are represented as calculated values due to exceeding six times limit of tested hours.

Note: Luminaires will be mounted on existing poles.
Datasheet: **OSQ Area Luminaire**

**Electrical Data**

Rated wattage per luminaire¹: 130 W

Input voltage: 120 – 277 V or 347 – 480 V, 50/60 Hz

Driver configuration: Integral

Driver Efficiency: >90%

Starting (inrush) current: 73 A, 120 µs

Power factor: >0.9

Total Harmonic Distortion: <20%

Operating temperature range: -40°C – +35°C (-40°F – +95°F)

Dimming mode²: 0 – 10 V dimming to 10%

---

### Typical Wiring

<table>
<thead>
<tr>
<th>TERMINAL BLOCK</th>
<th>LUMINAIRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LINE- BLACK</td>
<td></td>
</tr>
<tr>
<td>OR HOT 1</td>
<td></td>
</tr>
<tr>
<td>GREEN</td>
<td>GROUND-GREEN</td>
</tr>
<tr>
<td>NEUTRAL</td>
<td>NEUTRAL-WHITE</td>
</tr>
<tr>
<td>VIOLET</td>
<td>DIM (+) VIOLET</td>
</tr>
<tr>
<td>GREY</td>
<td>DIM (-) GREY</td>
</tr>
</tbody>
</table>

### Max operating current³

<table>
<thead>
<tr>
<th>Voltage</th>
<th>120 Vac</th>
<th>208 Vac</th>
<th>240 Vac</th>
<th>277 Vac</th>
<th>347 Vac</th>
<th>480 Vac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current  A</td>
<td>1.09</td>
<td>0.65</td>
<td>0.56</td>
<td>0.49</td>
<td>0.38</td>
<td>0.28</td>
</tr>
</tbody>
</table>

---

Footnotes:

1) Rated wattage is the power consumption, including driver efficiency losses, at stabilized operation in 25°C ambient temperature environment.

2) Dimming controls not provided by Musco. Driver provides 10 V source current at 0.15 mA, compliant with IEC 60929 Annex E dimming standard.

3) Operating current based on 25°C.

Notes

1. Use thermal magnetic HID-rated or D-curve circuit breakers.
Riverland Park
LED Lighting System

Warranty Start Date: Date of Shipment
Product Covered: (22) OSQ Area Luminaires

For the next 10 years, Musco Sports Lighting, LLC ("Musco") will provide all materials and labor to maintain the operation of your lighting system.

Equipment
Musco warrants your lighting system to be free from defects in materials and workmanship for a period of 10 years starting from date of product shipment. Musco agrees to provide labor and materials to replace defective parts or repair defects in workmanship on all product provided by Musco. Individual outages that occur during the warranty period are repaired when the usage of any area is materially impacted.

Availability of Service
Musco Warranty Department is available from 8:00 AM to 5:00 PM Central time, Monday through Friday. Musco call center operators are available 24 hours a day, 7 days a week and can be contacted in the event of an emergency and to aid in troubleshooting. Musco will exercise all reasonable efforts to perform service under this contract, but will not be responsible for delays beyond its control. Customer agrees to provide reasonable access for crane or man lift equipment to service the lighting system. Musco is not responsible for damage from operating equipment on the site when the equipment is operated in the prescribed manner over a designated route.

Service Limitations
This contract does not cover weather condition events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers outside of the "Products Covered" listed above.

Warranty Contact Information
Musco Sports Lighting, LLC
Warranty Department
100 1st Avenue West
PO Box 808
Oskaloosa, IA USA
Phone: +1(641)673-0411
Email: lighting@musco.com