



SPORTS FIELD LIGHTING :

SPECIAL MEETING FOR THE PURPOSE OF EXAMINING
FIELD LIGHTING AT BERNARDS HIGH SCHOOL

SOLUTIONS
ARCHITECTURE

FRANK A. MESSINEO • AIA



SOMERSET HILLS
SCHOOL DISTRICT

SEPTEMBER 16, 2024

FIELD LIGHTING PROJECT

Improving Quality and Access to Facilities For All Somerset Hills

 SOLUTIONS
ARCHITECTURE



OVERVIEW OF OUR WORK

WHO ? - Somerset Hills Board of Education

WHAT ? - Sports Lighting Feasibility Study

WHEN ? - June 2023 - July 2024

WHERE ? - Bernards High School Sports Complex

WHY ? - Goal to improve quality and access to facilities for the Somerset Hills School Community



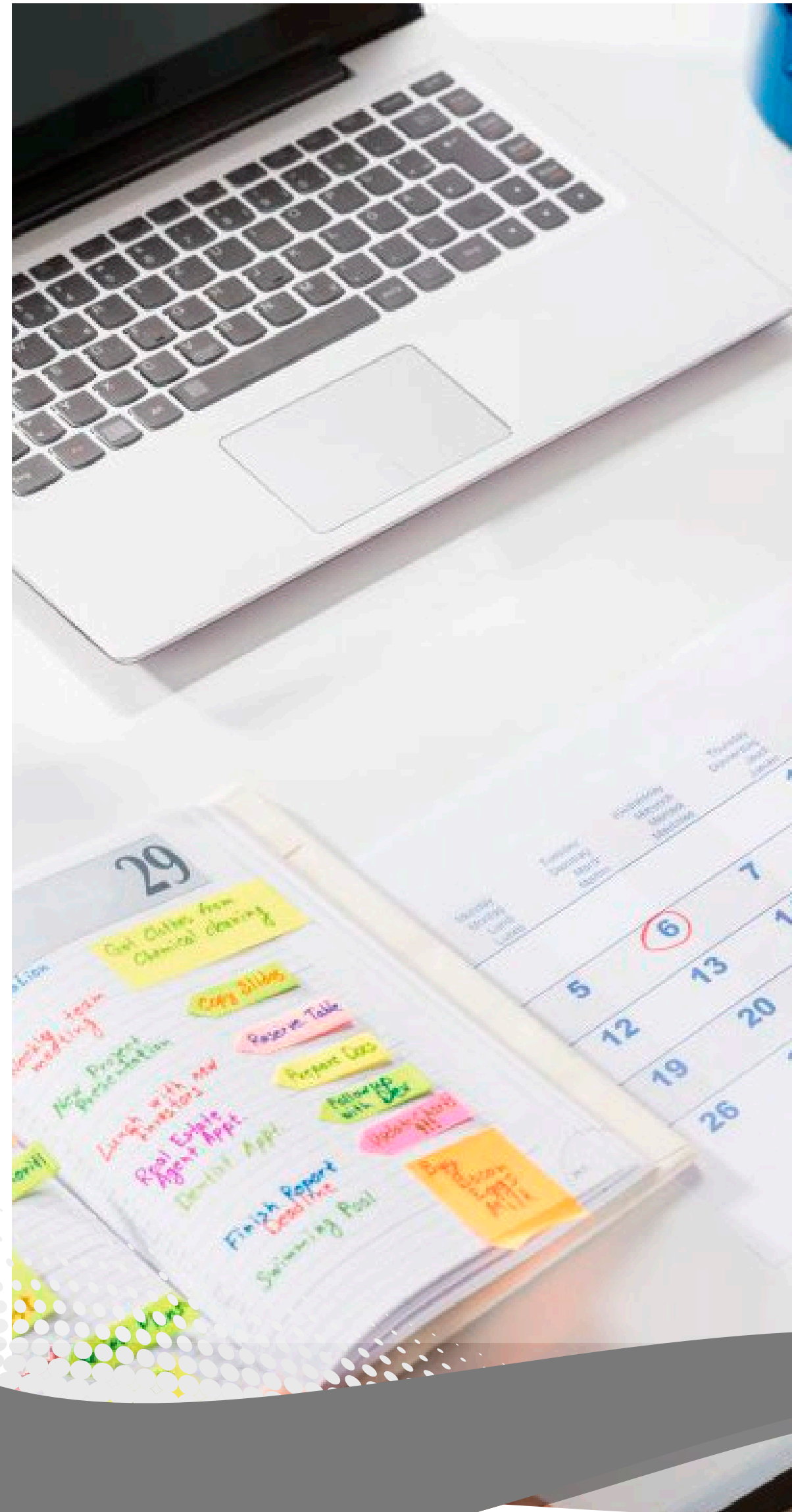
HISTORICAL REVIEW



- 2008-2014: Turf Installation/Consideration of lights
- 2022 Strategic Plan: Feasibility
- 2023-2024 Feasibility Study:
 - » Community Forums and Findings

FEASIBILITY STUDY: CONDUCTING OUR STUDY

- The study would assess the feasibility of installing Light Emitting Diode (“LED”) lights in the Long-Range Facility Plan
 - » June 2023: Community Forum
 - » December 2023, March 2024, and June 2024:
 - » Focus Group Meetings
 - » January 2024: Full Community Surveying
 - » April 2024: Site Visit - New Installation
 - » July 2024: Final Report Published
 - » Board Committees: August 2024 review of applicable law, policy, finance and facility/operations



SPECIAL MEETING: PROCESS

- » Presentation to the Board in Public
- » Board Inquiries with Professional Services
(architecture, lighting, law)
- » Board Discussion with each other in public
- » Public Comment to the Board
- » Policy Matter for Consideration: Facility Use Policy



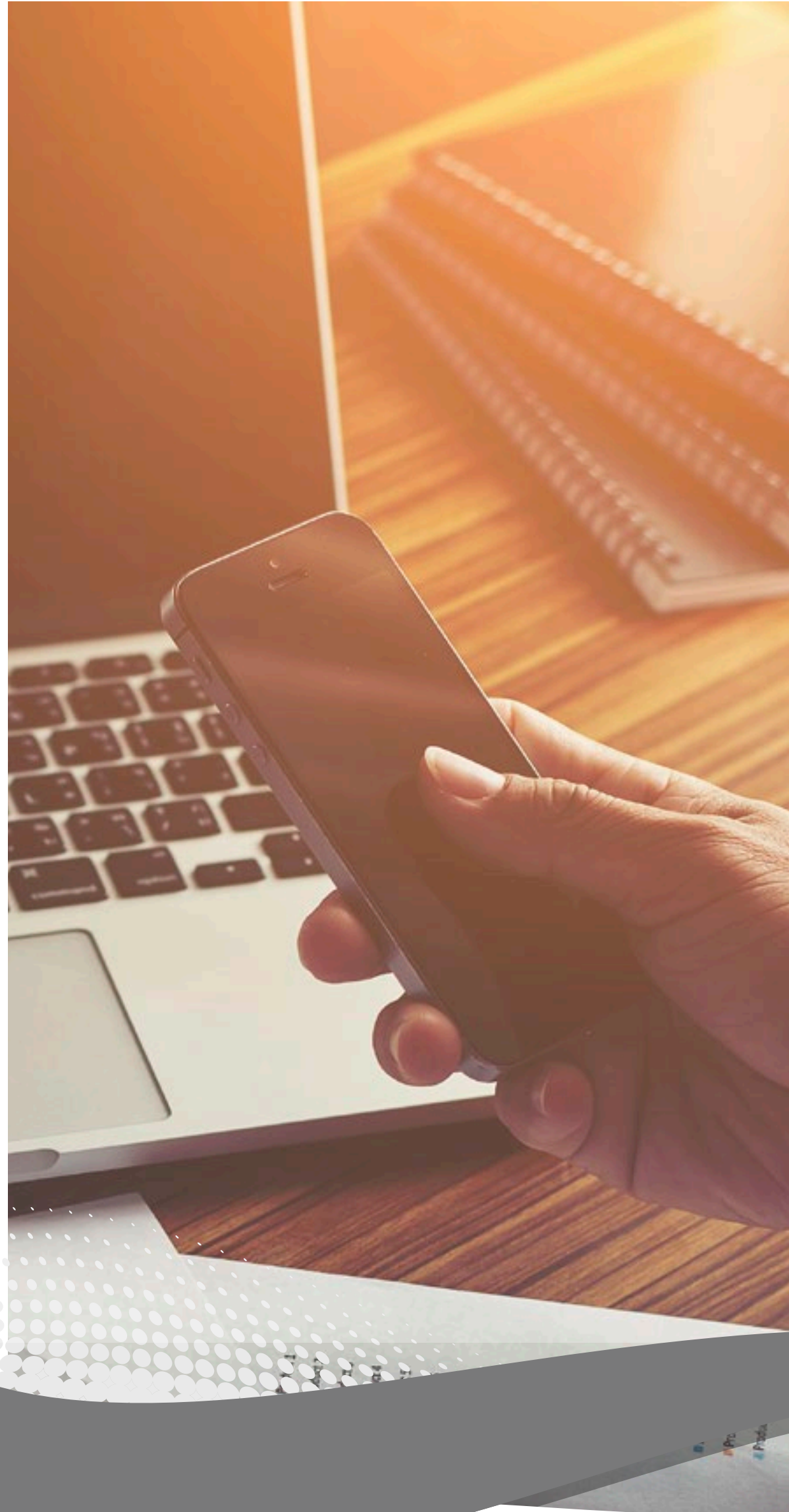
FISCAL MATTERS: INSTALLATION OF LIGHTS



- Replacing expiring debt results in a neutral fiscal impact.
- Due to planning and timing, funding is anticipated to be available for FY26.

BOARD ARCHITECTS AND TECHNICAL ADVISOR INTRODUCTION

- Frank Messineo, AIA - Solutions Architecture
- Valdemar Fracz, AIA - Solutions Architecture
- Bob Zoeller, Musco Lighting

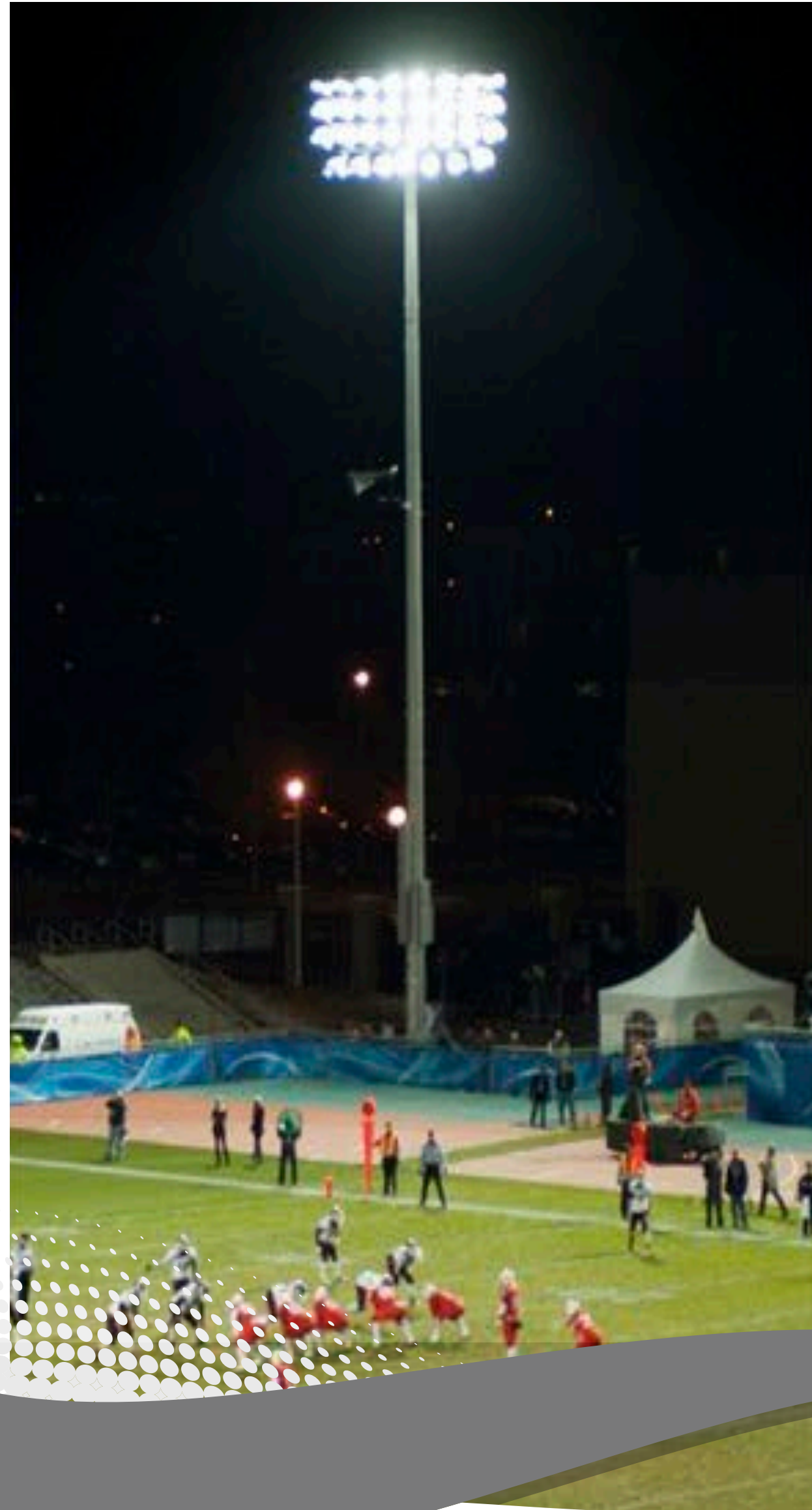


WHO IS SOLUTIONS ARCHITECTURE?

- » Multi-Disciplinary Architectural & Interior Design Firm
- » Located in Verona, NJ -
(27 Miles Away or 35 minutes door-to-door)
- » Unique ability for Solving Problems
- » Client focused with Communication, Personal Attention & Service as our core tenets.
- » Recently appointed Architect of Record

**“Our goal is not to outperform others,
but to outperform ourselves.”**

WHO IS MUSCO LIGHTING

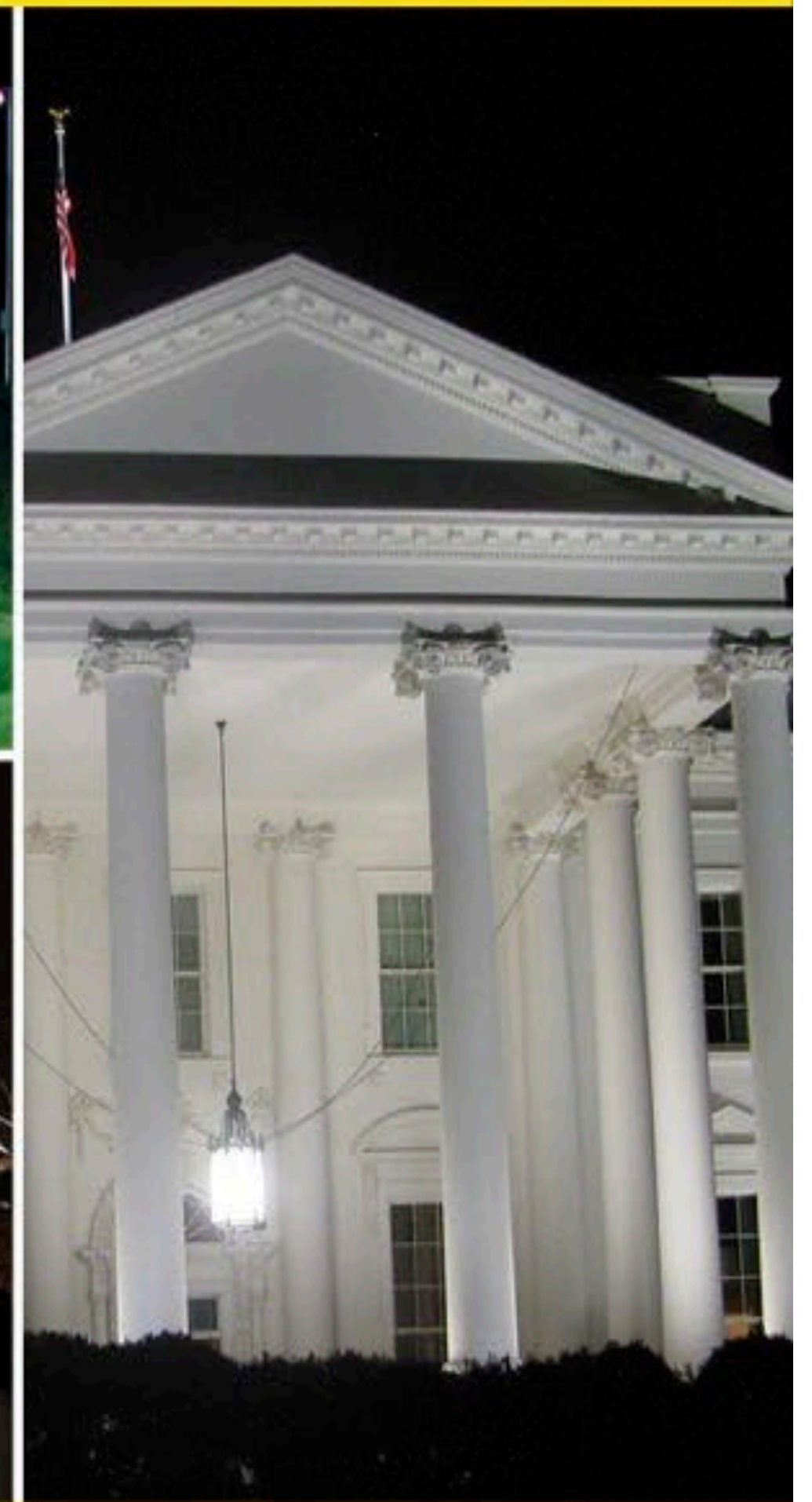
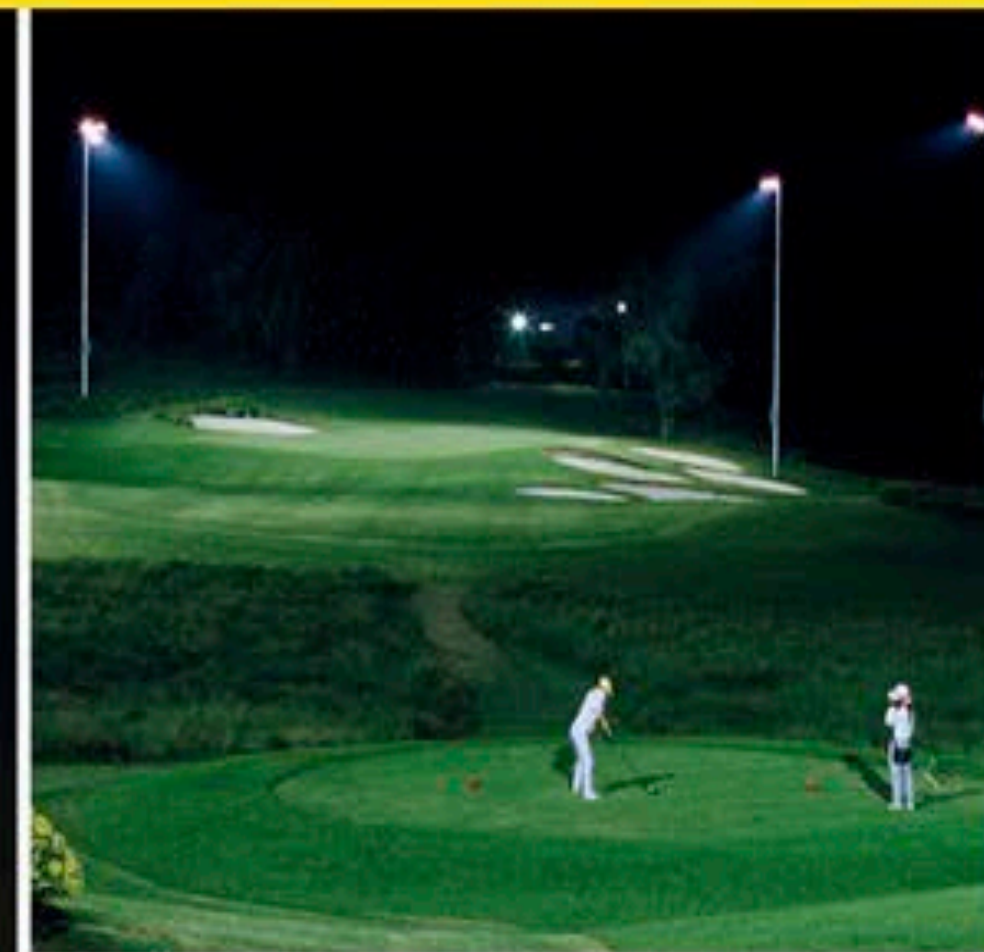
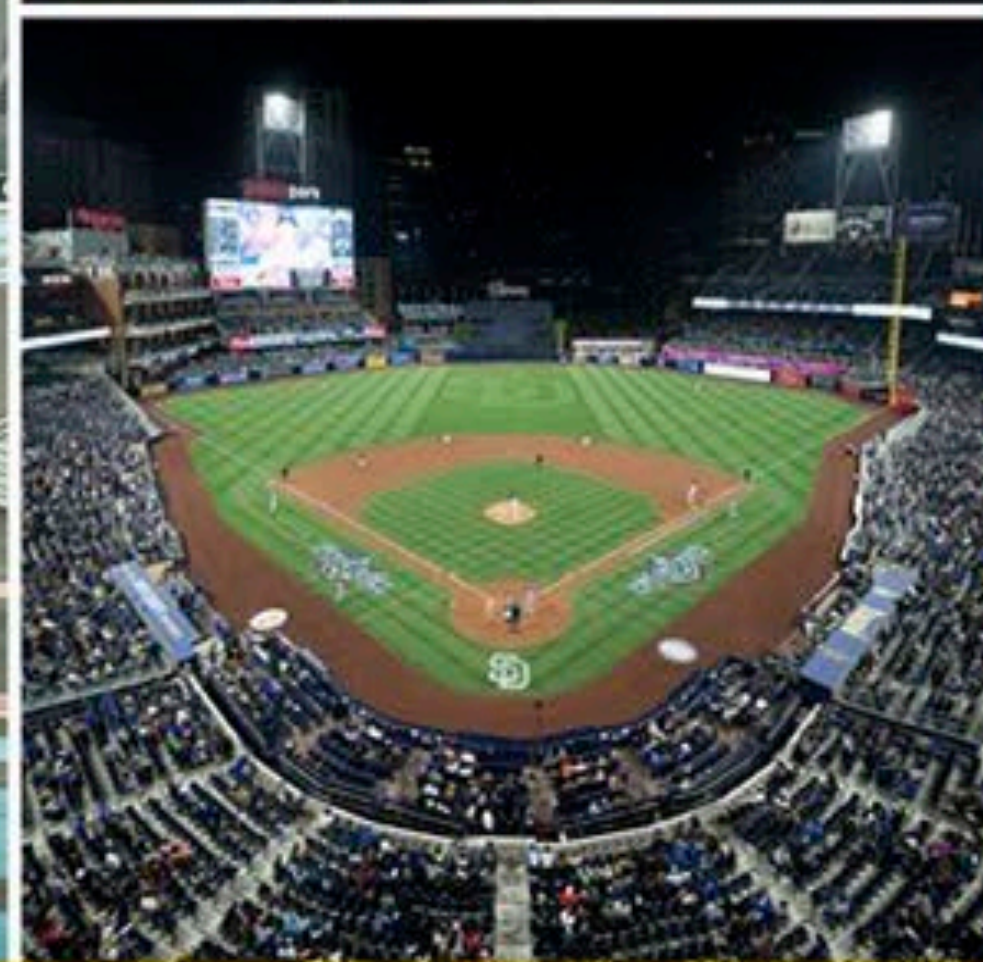
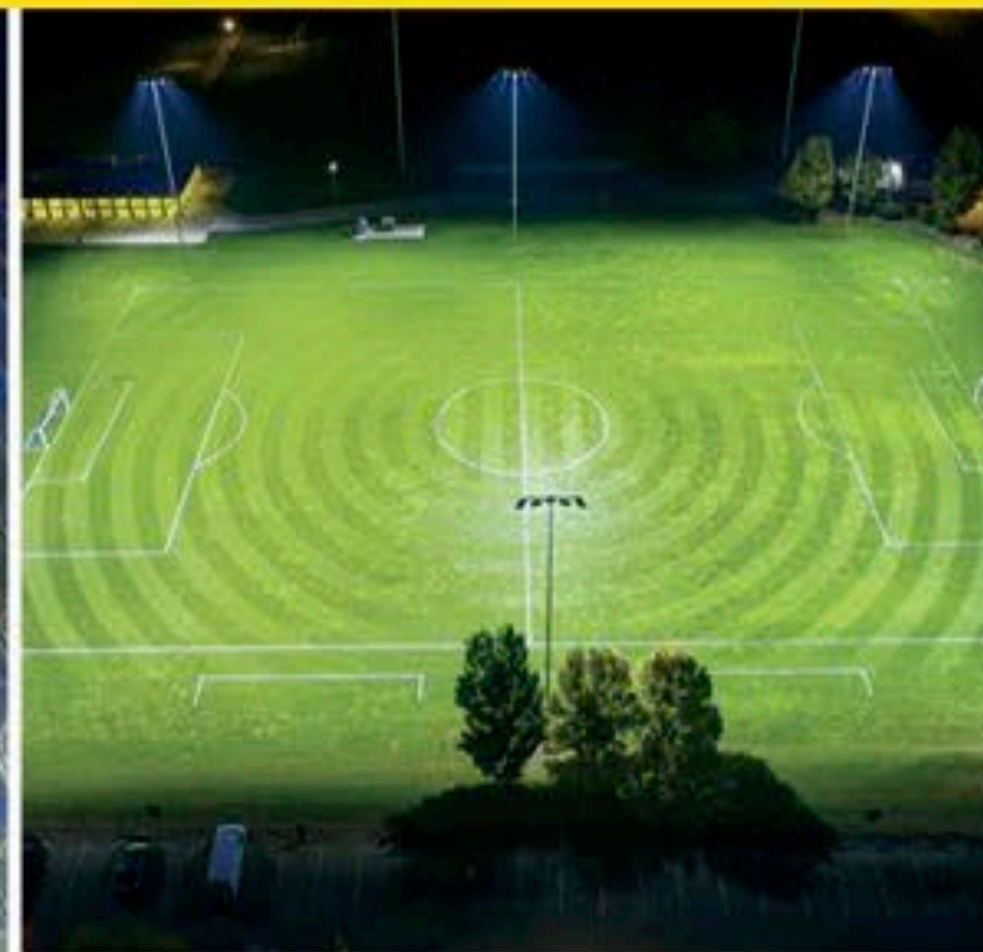
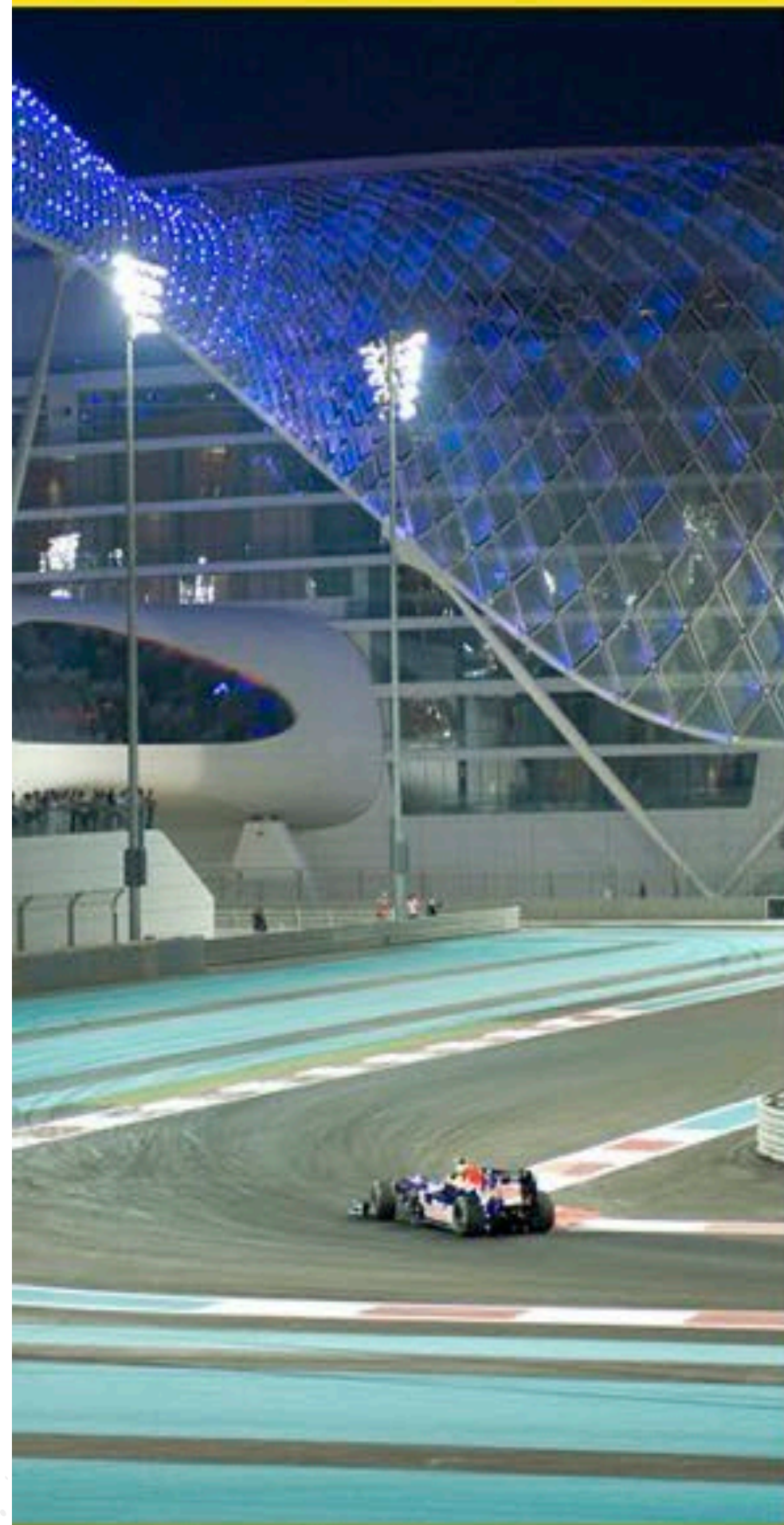


- Providing Sports Lighting Solutions Since 1976
- Local Office in Farmingdale, NJ
 - » Manufacturing Plants in Iowa, USA Made
- Over 300 LED Lighting Projects in New Jersey
- Over 35 High School LED Projects in NJ

EXISTING SITE



MUSCO SPORTS LIGHTING



MUSCO SPORTS LIGHTING

FIXTURE DESIGN

1977

SportsCluster®



1989

SportsCluster.2



1989

SportsCluster.2
with Level 8™



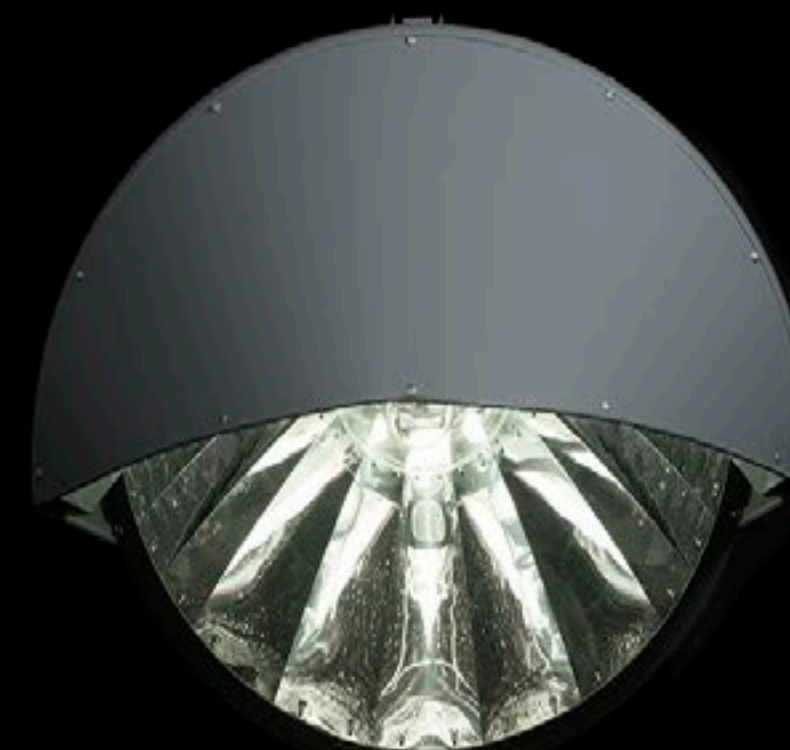
1989

Total Light
Control™



2005

Light-Structure
Green™ — HID

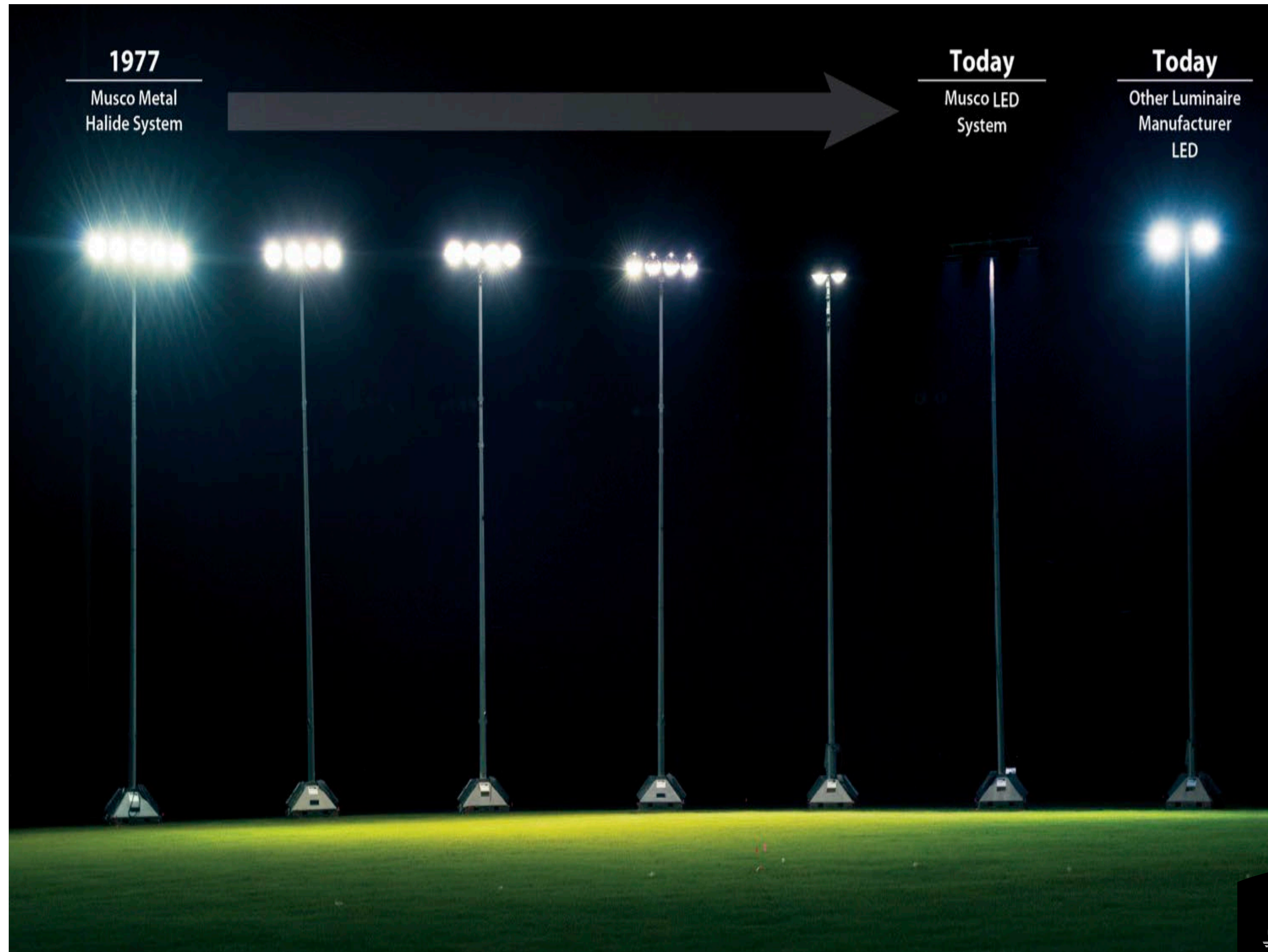


2013

Light-Structure
Green™ — LED



MUSCO SPORTS LIGHTING



LIGHT CONTROL MATTERS

WHAT CAN BE



MUSCO LED LIGHT SOURCE

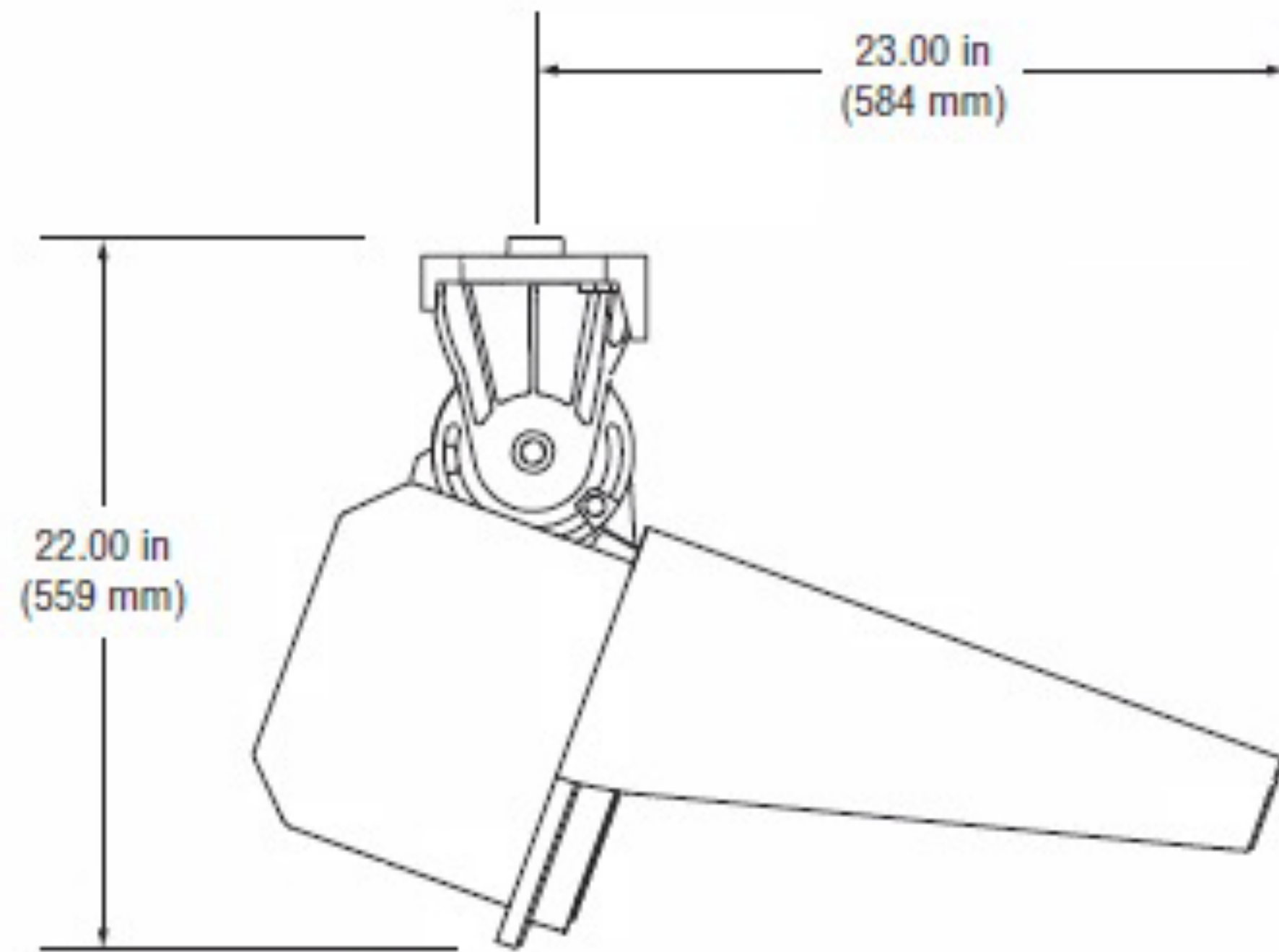
WHAT OFTEN IS



OTHER SUPPLIER LED LIGHT SOURCE

MUSCO TLC LED LUMINAIRE

FULL CUT OFF FIXTURE



LIGHTING AERIAL SPORTS

SEE THE BALL BETTER WITHOUT POLLUTING THE NEIGHBORHOOD



Increased visibility:
Ball has high contrast against dark background, no glare in player's line of sight



» Provides low level, targeted light to optimize visibility of the ball, when needed for aerial sports, patent pending

Light Intensity



LIGHTING AERIAL SPORTS

TYPICAL HID OR LED FLOODLIGHTING



Ball has low contrast against bright background, glare obstructs vision



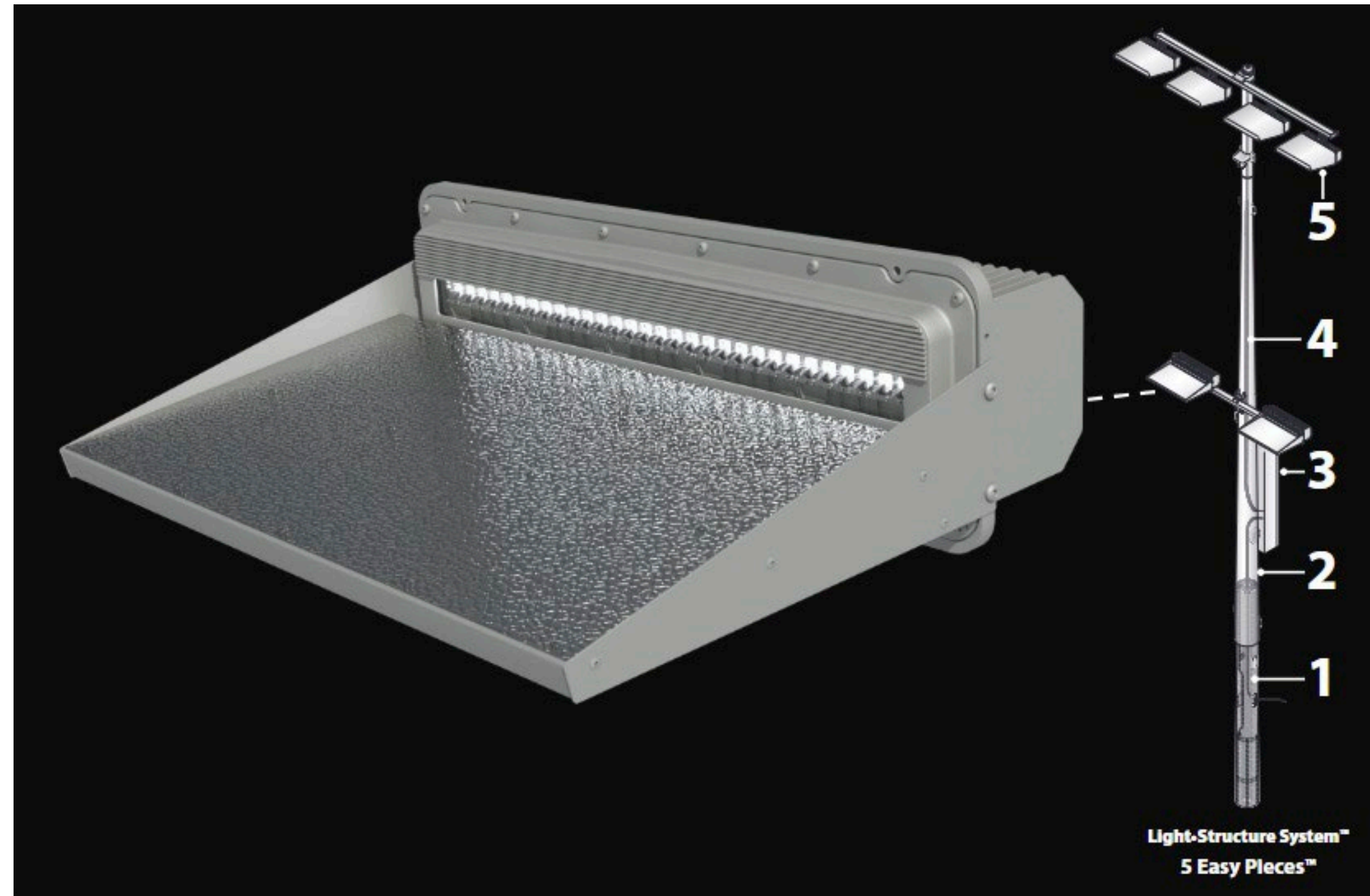
- » Produces high levels of uncontrolled spill light, cause light pollution
- » Floods light into the air and neighborhood, regardless of sport type (aerial and non-aerial), lighting aerial balls by default

Light Intensity



MUSCO TLC LED LUMINAIRE

BALL TRACKER TECHNOLOGY



SUPPLY & INSTALL

Datasheet: Light-Structure System™

TLC for LED®

5 Easy Pieces™

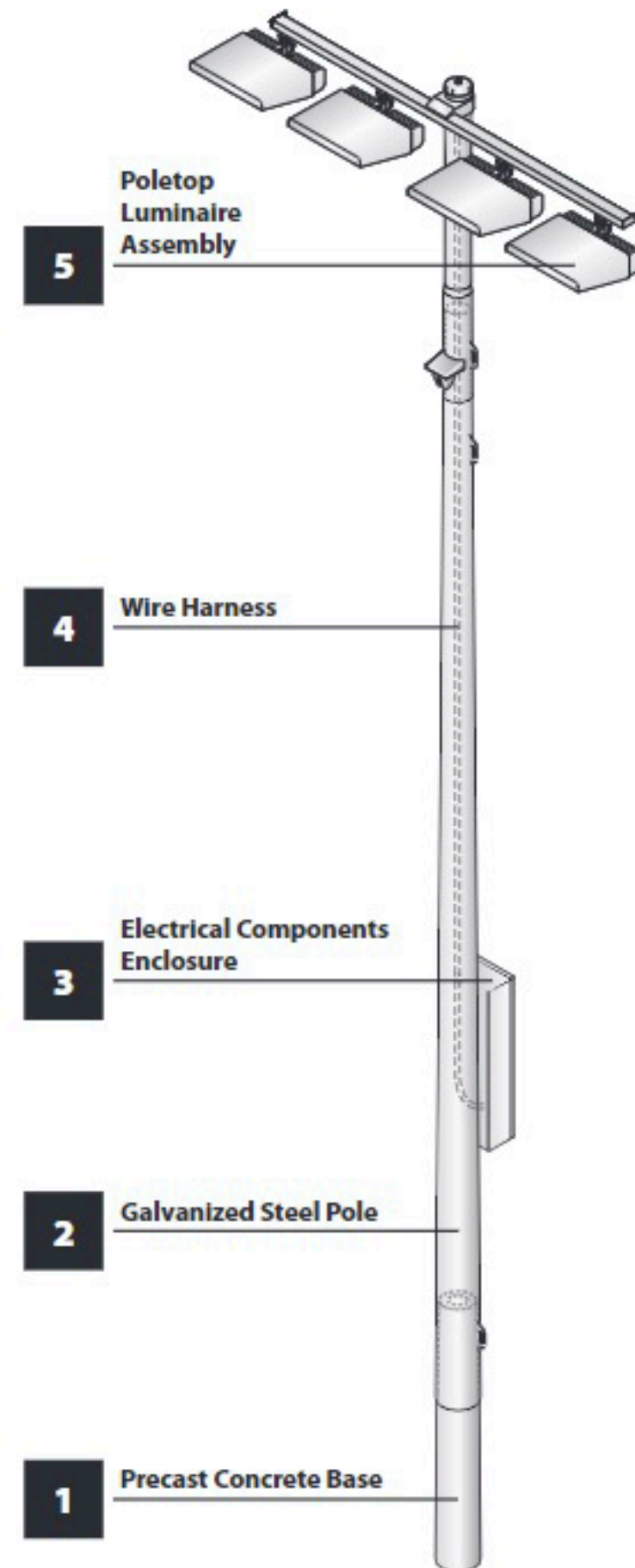
Complete System from Foundation to Poletop

Factory wired, aimed, and tested

Fast, trouble-free installation

Comprehensive corrosion package

Integrated lightning ground



SCOPE OF WORK

» LIGHTS

» POLES

» FOUNDATIONS

» WIRING FROM LIGHTS TO IN-GROUND BOX

» PROVIDE CONTROLS

» INCLUDES PREVAILING WAGES

MUSCO

TLC for LED is a trademark of Musco Sports Lighting, LLC and is registered in the United States.
©2015, 2019 Musco Sports Lighting, LLC - U.S. and foreign patents issued and pending. - M-2301 and 04-1
www.musco.com • lighting@musco.com

SUPPLY & INSTALL

SOR CONSULTING ENGINEERS, INC.

Geotechnical Engineering - Materials Testing - Forensic Studies

98 Sand Park Rd., Cedar Grove, NJ 07009
(973) 239-6001 Fax (973) 239-8380

GEOTECHNICAL INVESTIGATION REPORT
BOGOTA ATHLETIC FIELD IMPROVEMENTS
BOGOTA, NEW JERSEY

FOR

ANDERSON CONSULTING SERVICES LLC
BOONTON, NEW JERSEY

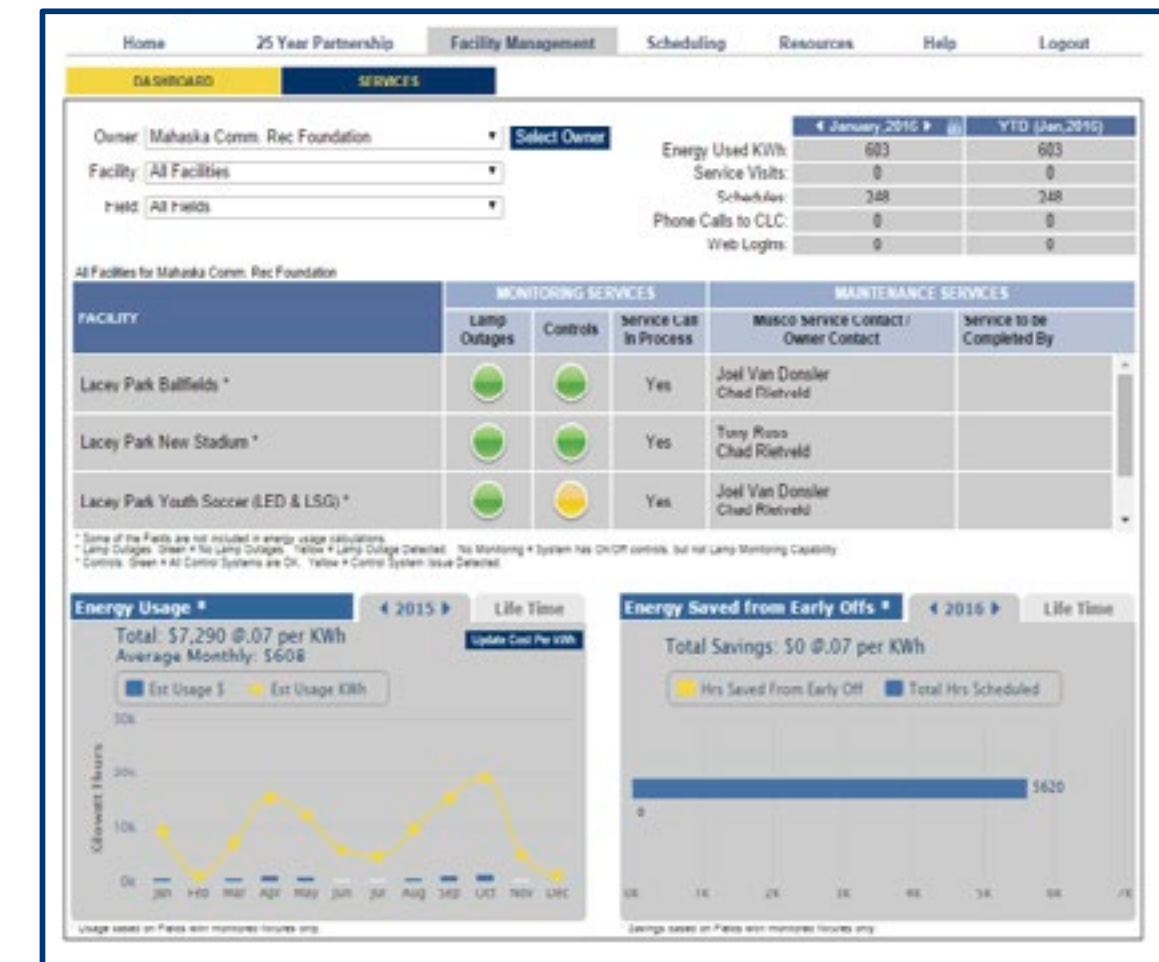
NECESSARY INVESTIGATION

- » GEOTECHNICAL ANALYSIS
- » REVIEW SOILS CONDITIONS
- » DETERMINE FOUNDATION SIZES
- » DETERMINE POWER FEED LOCATION
- » DETERMINE NEED FOR NEW / ADDITIONAL ELECTRICAL SERVICE

MUSCO WARRANTY



- 25 - YEAR WARRANTY COVERING PARTS, LABOR AND LIFT
- PROACTIVE MONITORING FOR OUTAGES
- 1,700 SERVICE TECHNICIANS TO MAKE REPAIRS
- INCLUDES OFF-SITE CONTROL VIA CELL PHONE, COMPUTER, 800-NUMBER AND INCLUDES 25 YEARS OF COMMUNICATION FEES



MUSCO CONNECTIVITY

User Guide: Control-Link® App for Mobile Devices

Getting Started

Control-Link® web schedulers can enter, view, and edit their lighting schedules right from the Musco Lighting App on their mobile device.

Advanced Scheduling and Administrative

For more advanced recurring schedules, reporting, and scheduler security, please use the Control-Link web page.

Get the App

On an Apple device, open the App Store. On an Android device, open the Google Play Store. Search for "Musco Lighting". Install the app.

After opening the Musco Lighting App, tap the Control-Link icon. On an Apple device, it is located on the home page. On an Android device, use the app menu button to open the sidebar.



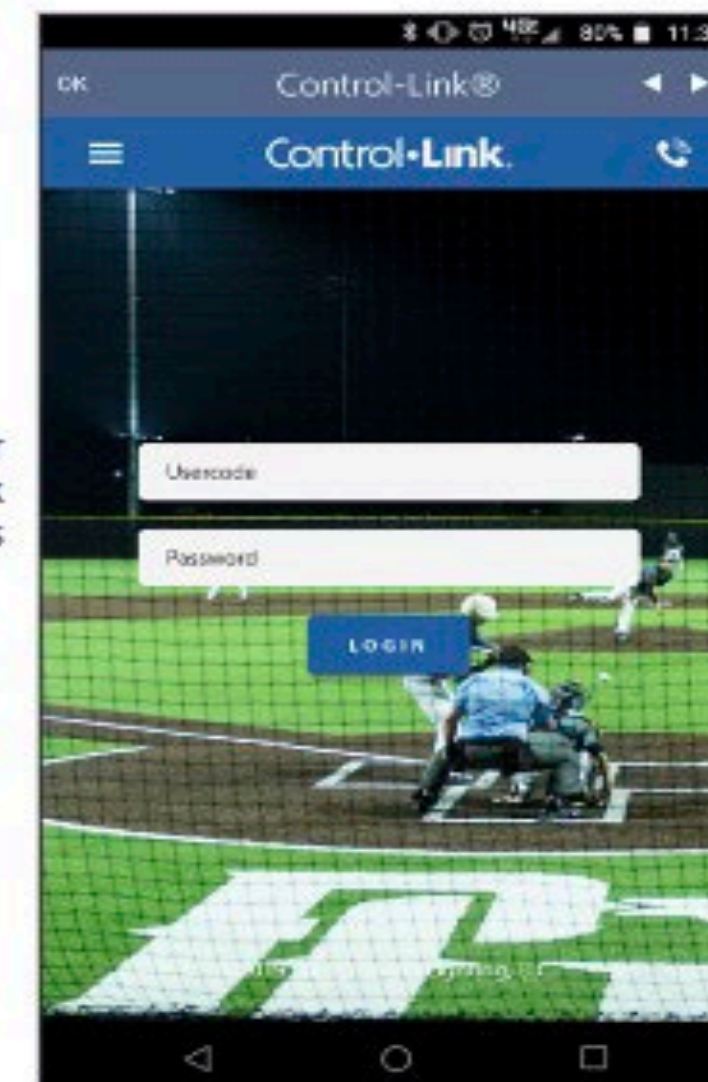
Android



Apple

Logging In

Log in using your Control-Link credentials



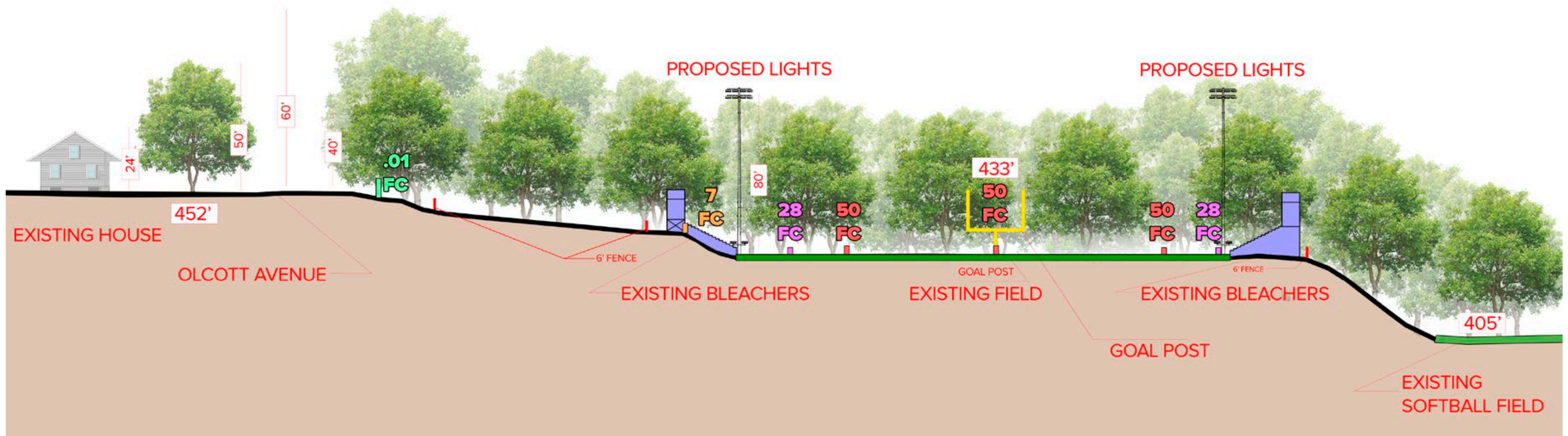
Select a Field

Select a field



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SITE CROSS SECTION - OLCOTT TO FIELD

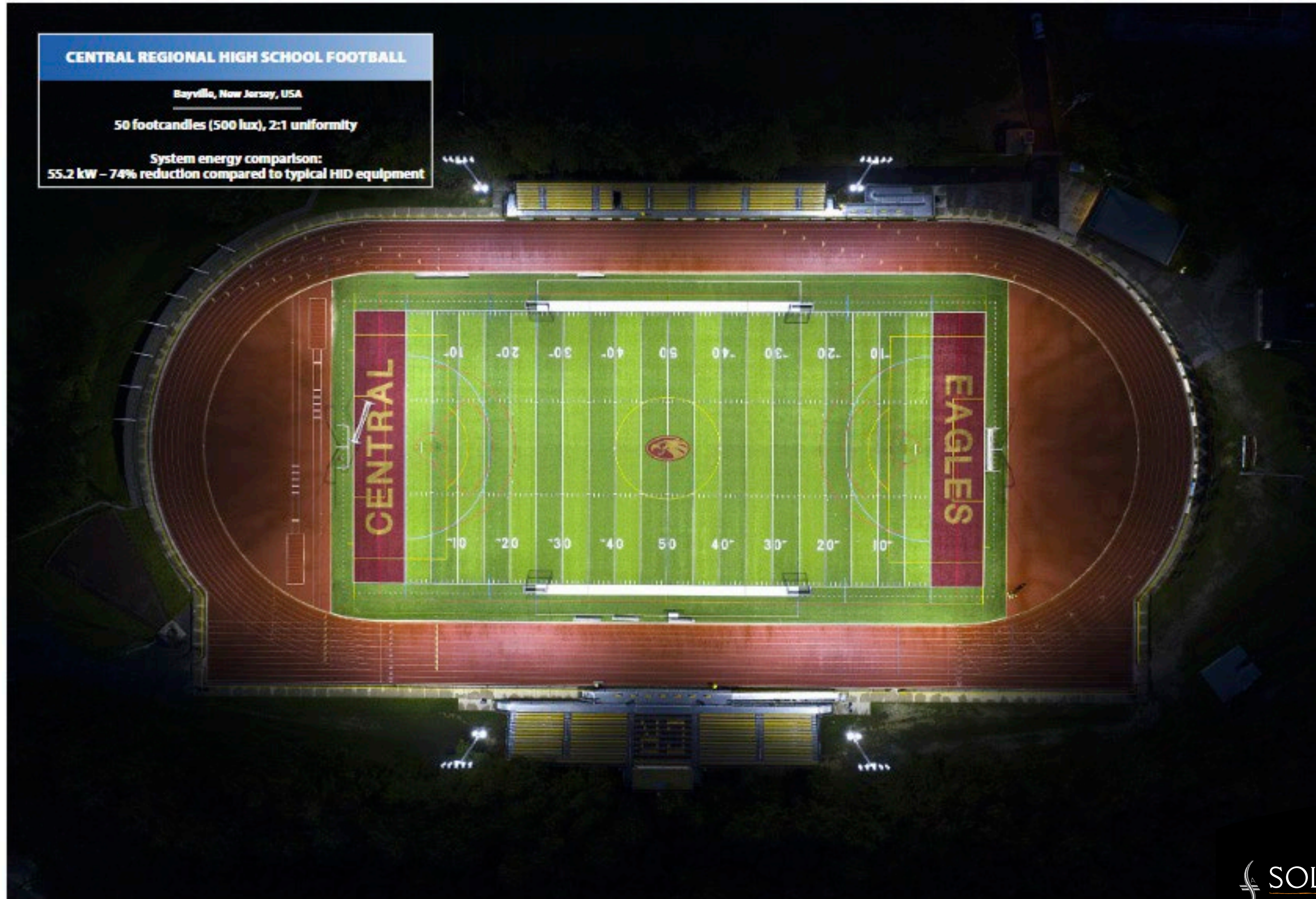


FRANKLIN FIELD, HAWTHORNE, NJ



CENTRAL REGIONAL HIGH SCHOOL, BAYVILLE, NJ

CENTRAL REGIONAL HIGH SCHOOL FOOTBALL
Bayville, New Jersey, USA
50 footcandles (500 lux), 2:1 uniformity
System energy comparison:
55.2 kW - 74% reduction compared to typical HID equipment



PASSAIC COUNTY VOCATIONAL TECHNICAL INSTITUTE, WAYNE, NJ

Football

Light Levels

50 horizontal footcandles

Uniformity

2:1 max:min

System Solutions Provided

- ✓ Total Light Control - TLC for LED® technology for minimized glare and spill
- ✓ TLC for LED® RGBW fixtures for color changing effects
- ✓ BallTracker® technology for optimized visibility of aerial balls
- ✓ Show-Light® control package for advanced special effects and light shows
- ✓ SportsCluster® System designed for retrofitting existing poles



BUDGETARY OPINION OF PROBABLE COST . . .



BERNARDS HIGH SCHOOL LIGHTING INSTALLATION PROJECT - Opinion of Probable Cost			
Budgetary Opinion of Probable Cost	Associated Budget Costs		
LIGHTING INSTALLATION COMPONENTS	UNIT/sf/ ea/lf/sy	COST	TOTAL
High School Stadium Field			
Install track protectives - mat and plates	1	\$30,000.00	\$30,000.00
Modify existing track fencing during construction and re-install post	1	\$15,000.00	\$15,000.00
Site work / Footings/Foundations for 4 light poles	4	\$20,000.00	\$80,000.00
Provide and install (4) 80' tall light poles and fixtures	4	\$100,000.00	\$400,000.00
Provide new electrical service, subpanel & control panel for (4) Light poles	1	\$80,000.00	\$80,000.00
Provide conduit & wiring for (4) lighting poles and fixtures (taking into consideration the existing conduits in place)	4	\$10,000.00	\$40,000.00
Additional Excavation Allowance** - Potential additional costs should soils not be conducive for the light pole footings - especilly on the hillside of the field	1	\$25,000.00	\$25,000.00
Subtotal Construction			\$670,000.00
Project Soft Costs			
Professional Services Fees - (Architectural, Civil, Electrical)	*	7.50%	\$ 50,300.00
Agency Fees, Testing, Legal - incl. DOE	*	*	\$2,500.00
Geotechnical testing for soils	1	\$10,000.00	\$10,000.00
Reimbursable Expenses (NTE)	*	*	\$1,500.00
Contingency	*	7%	\$46,900.00
Sub-Total "Soft" Costs			\$111,200.00
Total Associated Project Budget			\$899,220.00

SOLUTIONS ARCHITECTURE | FRANK MESSINEO, AIA

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