



MORE THAN ARCHITECTS

August 31, 2015

Emily Barron
City of Pflugerville
201-B East Pecan St.
Pflugerville, Texas 78691

Re: Pflugerville ISD
Project Name: New District Stadium
Huckabee Project Number: 1685-03

Dear Ms. Barron,

On behalf of Pflugerville ISD, Huckabee & Associates, Inc. is requesting approval for the athletic field lighting at the New District Stadium in accordance with Subchapter 13 (Section 13.9 Athletic Field and Golf Driving Range Lighting) of the Unified Development Code. Each subsection is addressed below.

13.9.1 Fixtures/Luminaries

A. All fixtures and luminaries shall be constructed with die-cast aluminum housing, mounted on galvanized steel poles set on an engineered concrete base, and be maintained in good working condition in conformity with the provisions of this Code.

✓ **Comply**

13.9.1 Fixtures/Luminaries

B. Only full cutoff or shielded, directional fixtures shall be permitted. Lighting shall be oriented not to direct illumination or glare onto streets in a manner that may distract or interfere with the vision of drivers, cyclists, or pedestrians on such streets.

1. Shielded, directional fixtures refers to a technique or method of construction which causes all of the light emitted to be directed to the surface or area to be illuminated in such a way that the emanating source of light is not visible from any angle except those angles that exist between the fixture and the target to be illuminated. The emanating source shall not be visible from any adjacent properties or roadways to minimize light pollution.

✓ **Comply**

2. Lamp systems from 1000-1500 watts, or an equivalent, shall be permitted. Only incandescent, fluorescent, LED, metal halide or color corrected high-pressure sodium lamps may be used.

✓ **Comply**

3. Power lines to serve lights shall be placed underground. Where overhead utility service exists, transformers shall be pad mounted and screened.

✓ **Comply**

13.9.2 Fixture Height

- A. The maximum height for any athletic field lighting fixtures shall be not more than 60 feet.

- **Request variance for height: pole heights of 90 and 120 feet, with mounting heights between 60 feet and 132 feet.**
- **Increased heights allow for less glare and light trespass**

Huckabee

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- B. Lighting fixtures shall not exceed 15 feet in height when located within 50 feet of any residential zoning district or land use.
 - ✓ **Comply. Closest pole is 240 feet from property line adjacent to residential.**

13.9.3 Lighting Period

- A. The illumination of any athletic field or recreational facility, public or private, is allowed between sunrise and 10:00 p.m.
 - **Request variance for operating hours: Extend end time to 11:00 pm**
- B. Athletic field lights require the installation of an on-site control switch to allow lights to be operated at the site, and to allow individual fields to be lighted separately and with the use of timers.
 - ✓ **Comply**

13.9.4 Illumination Requirements

- A. Where the predominant use is **recreation and/or team practices**, all athletic field lighting shall be designed so that the level of illumination, as measured in foot-candles (fc), at any point complies with the following table.

Table 13.9.4 Athletic Field Illumination		
Type of Lighting	Illumination Level	
	Average	Maximum
Athletic Field Lighting	25.0	30.0

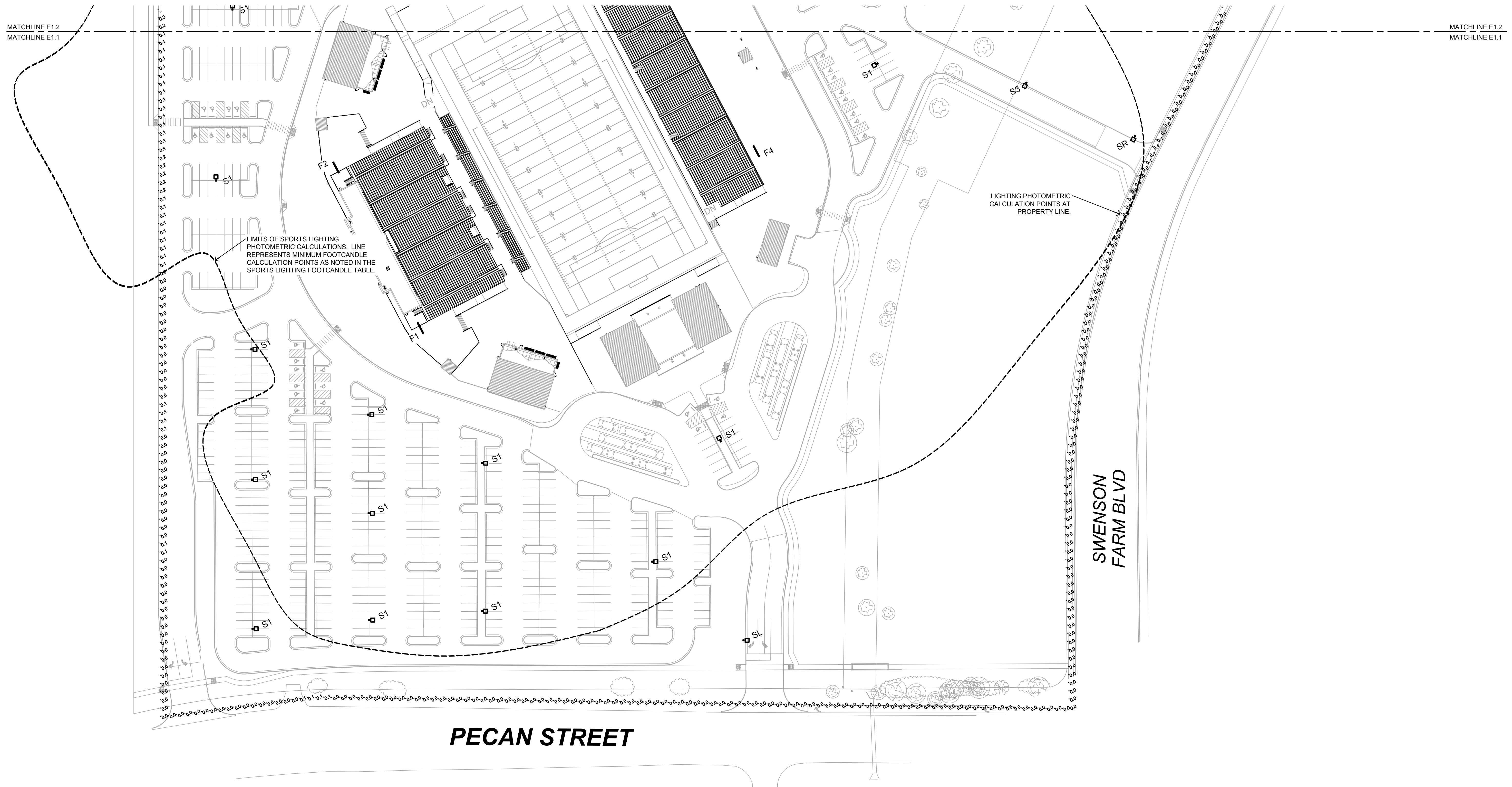
- **Not applicable - Predominant use is for competitions, not recreation or team practices. Maximum horizontal illumination at 3 feet above grade (field area) is 86 fc. Average is 70 fc. Illumination levels are based on NCAA guidelines, which UIL references for lighting design. Lower light levels do not provide a safe play environment and limit the usability of the field.**
- B. The maximum illumination at any lot line adjacent to, or across the street from, any property with a residential zoning designation or use is 0.5 foot-candles.
 - ✓ **Comply**
- C. The maximum illumination at any property line adjacent to a street is 5.0 foot-candles
 - ✓ **Comply**

Enclosed with this letter is a photometric site package and final Musco layout with detailed illumination information. Please contact me or Crystal Vasquez should you need anything else for this request for approval.

Sincerely,



Mike Boyle, AIA, CBPE
Associate Principal



LIMITS OF SPORTS LIGHTING PHOTOMETRIC CALCULATIONS. LINE REPRESENTS MINIMUM FOOTCANDLE CALCULATION POINTS AS NOTED IN THE SPORTS LIGHTING FOOTCANDLE TABLE.

LIGHTING PHOTOMETRIC CALCULATION POINTS AT PROPERTY LINE.

PECAN STREET

SWENSON FARM BLVD



1 PHOTOMETRIC SITE PLAN - SOUTH
1" = 60'-0"

LIGHT FIXTURE SCHEDULE				
MARK	MANUFACTURER	MODEL	DISTRIBUTION TYPE	POLE HEIGHT
F1	MUSCO	GENERATION GREEN	SPORTS FIELD (SHIELD)	120'-0"
F2	MUSCO	GENERATION GREEN	SPORTS FIELD (SHIELD)	120'-0"
F3	MUSCO	GENERATION GREEN	SPORTS FIELD (SHIELD)	90'-0"
F4	MUSCO	GENERATION GREEN	SPORTS FIELD (SHIELD)	90'-0"
S1	MCGRAW-EDISON	GLEON AE 10 LED	TYPE V WIDE	20'-0"
S2	MCGRAW-EDISON	GLEON AE 04 LED	TYPE IV WIDE	20'-0"
SL	MCGRAW-EDISON	GLEON AE 02 LED	90° SPILL ELIMINATOR LT	20'-0"
SR	MCGRAW-EDISON	GLEON AE 02 LED	90° SPILL ELIMINATOR RT	20'-0"

NOTE:

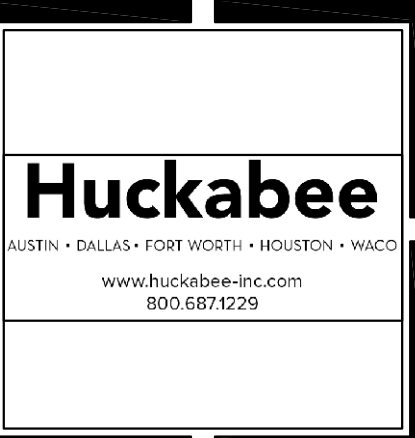
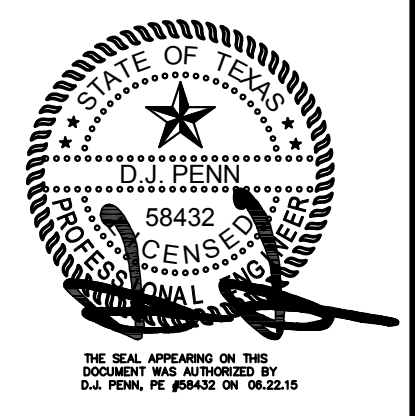
- ALL LIGHTING INCLUDING BUILDING WALL PACKS ARE TO BE DOWNCAST AND FULL CUT-OFF TYPE.
- ALL SITE LIGHTING TO BE IN CONFORMANCE WITH CITY OF PFLUGERVILLE SITE DEVELOPMENT REGULATIONS.

SITE PARKING FOOTCANDLE TABLE	
MINIMUM	0.0 fc
AVERAGE	1.2 fc
MAXIMUM	6.5 fc

SPORTS LIGHTING FOOTCANDLE TABLE	
MINIMUM	0.0 fc
AVERAGE	7.0 fc
MAXIMUM	85.0 fc

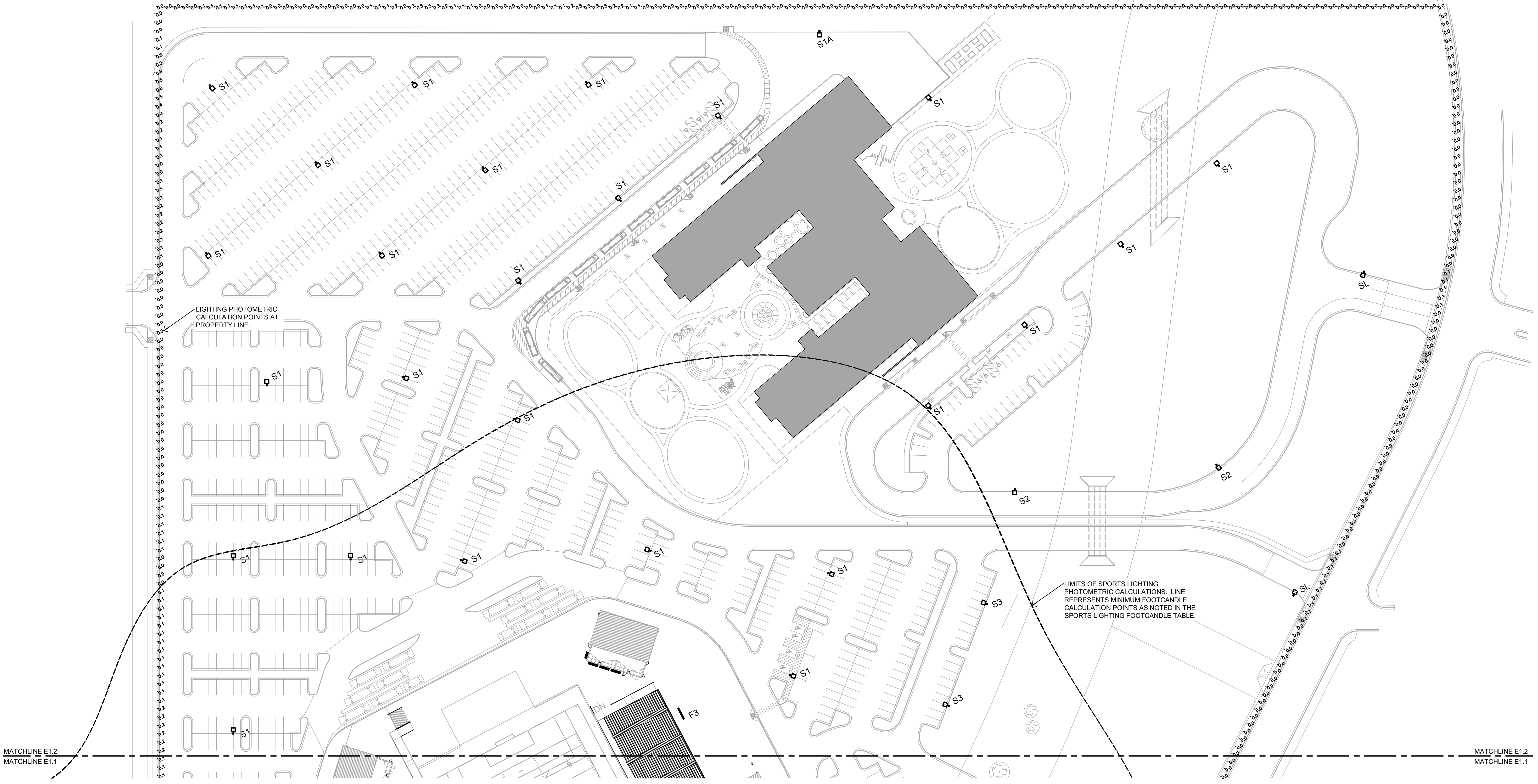
Revision /
Date

Project:
NEW TIMMERMAN ELEMENTARY SCHOOL
AND NEW DISTRICT STADIUM
FOR
PFLUGERVILLE I.S.D.
PFLUGERVILLE, TX



PHOTOMETRIC SITE PLAN - SOUTH	
VOLUME	
Job No. 1685-02, 1685-03	Sheet No. E1.1
Drawn By: IEG	
Date: JUNE 22, 2015	





LIGHTING PHOTOMETRIC CALCULATION POINTS AT PROPERTY LINE.

LIMITS OF SPORTS LIGHTING PHOTOMETRIC CALCULATIONS. LINE REPRESENTS MINIMUM FOOTCANDLE CALCULATION POINTS AS NOTED IN THE SPORTS LIGHTING FOOTCANDLE TABLE.

MATCHLINE E1.2
MATCHLINE E1.1

MATCHLINE E1.2
MATCHLINE E1.1



1 PHOTOMETRIC SITE PLAN - NORTH
1" = 60'-0"

LIGHT FIXTURE SCHEDULE				
MARK	MANUFACTURER	MODEL	DISTRIBUTION TYPE	POLE HEIGHT
F1	MUSCO	GENERATION GREEN	SPORTS FIELD (SHIELD)	120'-0"
F2	MUSCO	GENERATION GREEN	SPORTS FIELD (SHIELD)	120'-0"
F3	MUSCO	GENERATION GREEN	SPORTS FIELD (SHIELD)	90'-0"
F4	MUSCO	GENERATION GREEN	SPORTS FIELD (SHIELD)	90'-0"
S1	MCGRAW-EDISON	GLEON AE 10 LED	TYPE V WIDE	20'-0"
S2	MCGRAW-EDISON	GLEON AE 04 LED	TYPE IV WIDE	20'-0"
SL	MCGRAW-EDISON	GLEON AE 02 LED	90° SPILL ELIMINATOR LT	20'-0"
SR	MCGRAW-EDISON	GLEON AE 02 LED	90° SPILL ELIMINATOR RT	20'-0"

NOTE:
1. ALL LIGHTING INCLUDING BUILDING WALL PACKS ARE TO BE DOWNCAST AND FULL CUT-OFF TYPE.
2. ALL SITE LIGHTING TO BE IN CONFORMANCE WITH CITY OF PFLUGERVILLE SITE DEVELOPMENT REGULATIONS.

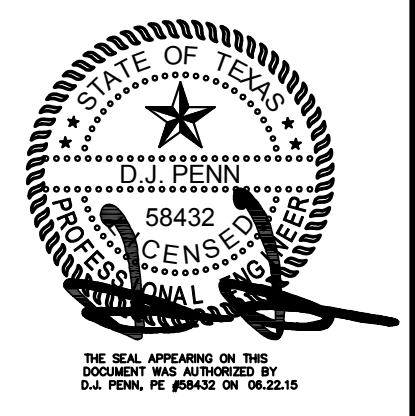
SITE PARKING FOOTCANDLE TABLE	
MINIMUM	0.0 fc
AVERAGE	1.2 fc
MAXIMUM	6.5 fc

SPORTS LIGHTING FOOTCANDLE TABLE	
MINIMUM	0.0 fc
AVERAGE	7.0 fc
MAXIMUM	85.0 fc

Project: **NEW TIMMERMAN ELEMENTARY SCHOOL AND NEW DISTRICT STADIUM FOR PFLUGERVILLE I.S.D., PFLUGERVILLE, TX**

Revision /

Date



PHOTOMETRIC SITE PLAN - SOUTH

VOLUME

Job No. 1685-02, 1685-03
Sheet No. E1.2

Drawn By: IEG
Date: JUNE 22, 2015

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	120'	12'	102'	LED 5700K - 65 CRI	4	4	0
				132'	1500W MZ	25	25	0
2	F3-F4	90'	-	60'	LED 5700K - 65 CRI	2	2	0
				90'	1500W MZ	21	21	0
4	TOTALS					104	104	0



MY PROJECT

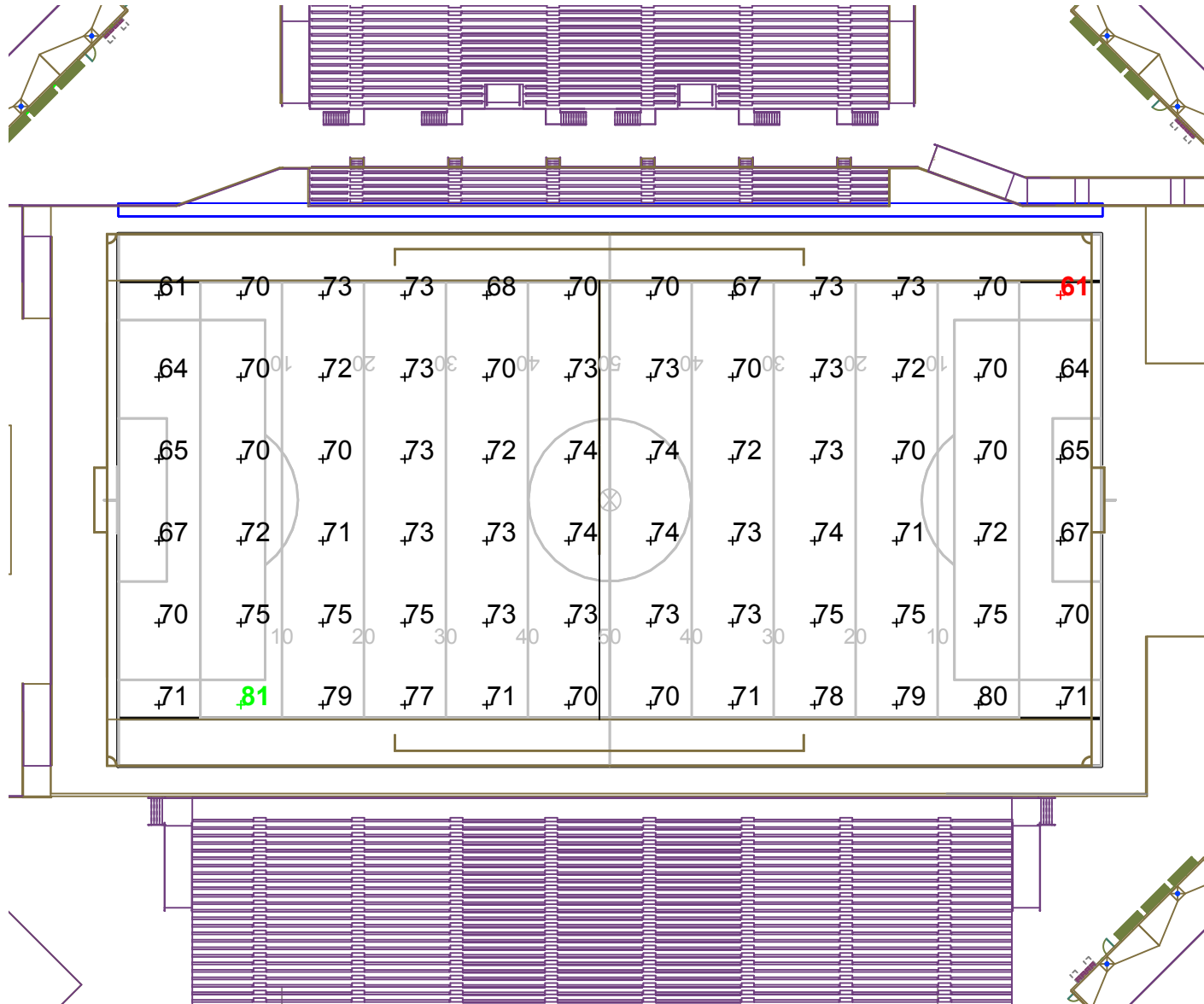
Name: Pflugerville ISD Regional Stadium
Location: Pflugerville, TX

GRID SUMMARY

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

CONSTANT ILLUMINATION

SUMMARY		HORIZONTAL FOOTCANDLES	
		Entire Grid	
Guaranteed Average:	70	Scan Average:	71.7
		Maximum:	81
		Minimum:	61
		Avg / Min:	1.17
Guaranteed Max / Min:	2	Max / Min:	1.32
		UG (adjacent pts):	1.14
		No. of Points:	72
LUMINAIRE INFORMATION			
Luminaire Type:	Green Generation / LED-96		
Design Usage Hours:	5,000 / 10,000 hrs		
Design Lumens:	134,000 / 38,600		
Avg Lamp Tilt Factor:	1.000		
No. of Luminaires:	104		
Avg KW:	148.62 (161.13 max)		



Guaranteed Performance: The Guaranteed Average CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA LM-5-04 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

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

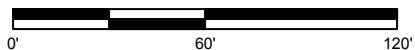
Installation Requirements: Results assume +/- 3% nominal voltage at line side of the ballast and structures located within 3 feet (1m) of design locations.

ENGINEERED DESIGN

By: Cory Kitzman
File # / Date: 172610A 12-May-15

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SCALE IN FEET 1 : 60



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

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	120'	12'	102'	LED 5700K - 65 CRI	4	4	0
				132'	1500W MZ	25	25	0
2	F3-F4	90'	-	60'	LED 5700K - 65 CRI	2	2	0
				90'	1500W MZ	21	21	0
4	TOTALS					104	104	0



MY PROJECT

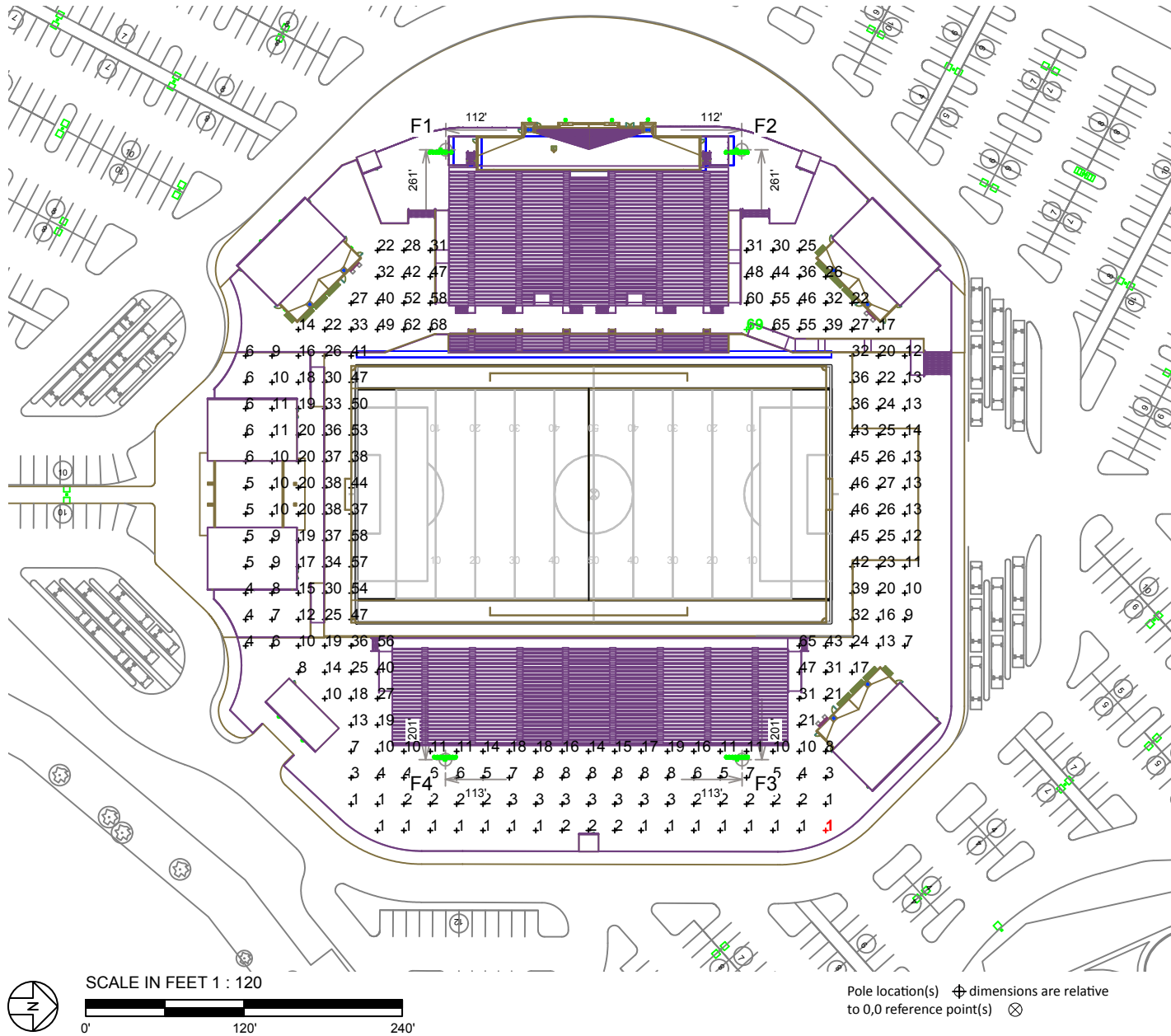
Name: Pflugerville ISD Regional Stadium
Location: Pflugerville, TX

GRID SUMMARY

Name: Concourse Area
Size: 360' x 160'
Spacing: 20.0' x 20.0'
Height: 3.0' above grade

CONSTANT ILLUMINATION

SUMMARY	HORIZONTAL FOOTCANDLES
Entire Grid	
Scan Average:	20.1
Maximum:	69
Minimum:	1
Avg / Min:	24.77
Max / Min:	84.88
UG (adjacent pts):	2.97
No. of Points:	223
LUMINAIRE INFORMATION	
Luminaire Type:	Green Generation / LED-96
Design Usage Hours:	5,000 / 10,000 hrs
Design Lumens:	134,000 / 38,600
Avg Lamp Tilt Factor:	1.000
No. of Luminaires:	104
Avg KW:	148.62 (161.13 max)



Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA LM-5-04 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

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

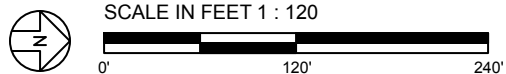
Installation Requirements: Results assume +/- 3% nominal voltage at line side of the ballast and structures located within 3 feet (1m) of design locations.

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ILLUMINATION SUMMARY



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

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	120'	12'	102' 132'	LED 5700K - 65 CRI 1500W MZ	4 25	4 25	0 0
2	F3-F4	90'	-	60' 90'	LED 5700K - 65 CRI 1500W MZ	2 21	2 21	0 0
4	TOTALS					104	104	0



MY PROJECT

Name: Pflugerville ISD Regional Stadium
Location: Pflugerville, TX

GRID SUMMARY

Name: Area Grid
Size: 360' x 160'
Spacing: 30.0' x 30.0'
Height: 3.0' above grade

CONSTANT ILLUMINATION

SUMMARY	HORIZONTAL FOOTCANDLES
Entire Grid	
Scan Average:	7.0
Maximum:	85
Minimum:	0
Avg / Min:	-
Max / Min:	-
UG (adjacent pts):	256.48
No. of Points:	1640
LUMINAIRE INFORMATION	
Luminaire Type:	Green Generation / LED-96
Design Usage Hours:	5,000 / 10,000 hrs
Design Lumens:	134,000 / 38,600
Avg Lamp Tilt Factor:	1.000
No. of Luminaires:	104
Avg KW:	148.62 (161.13 max)

Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA LM-5-04 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

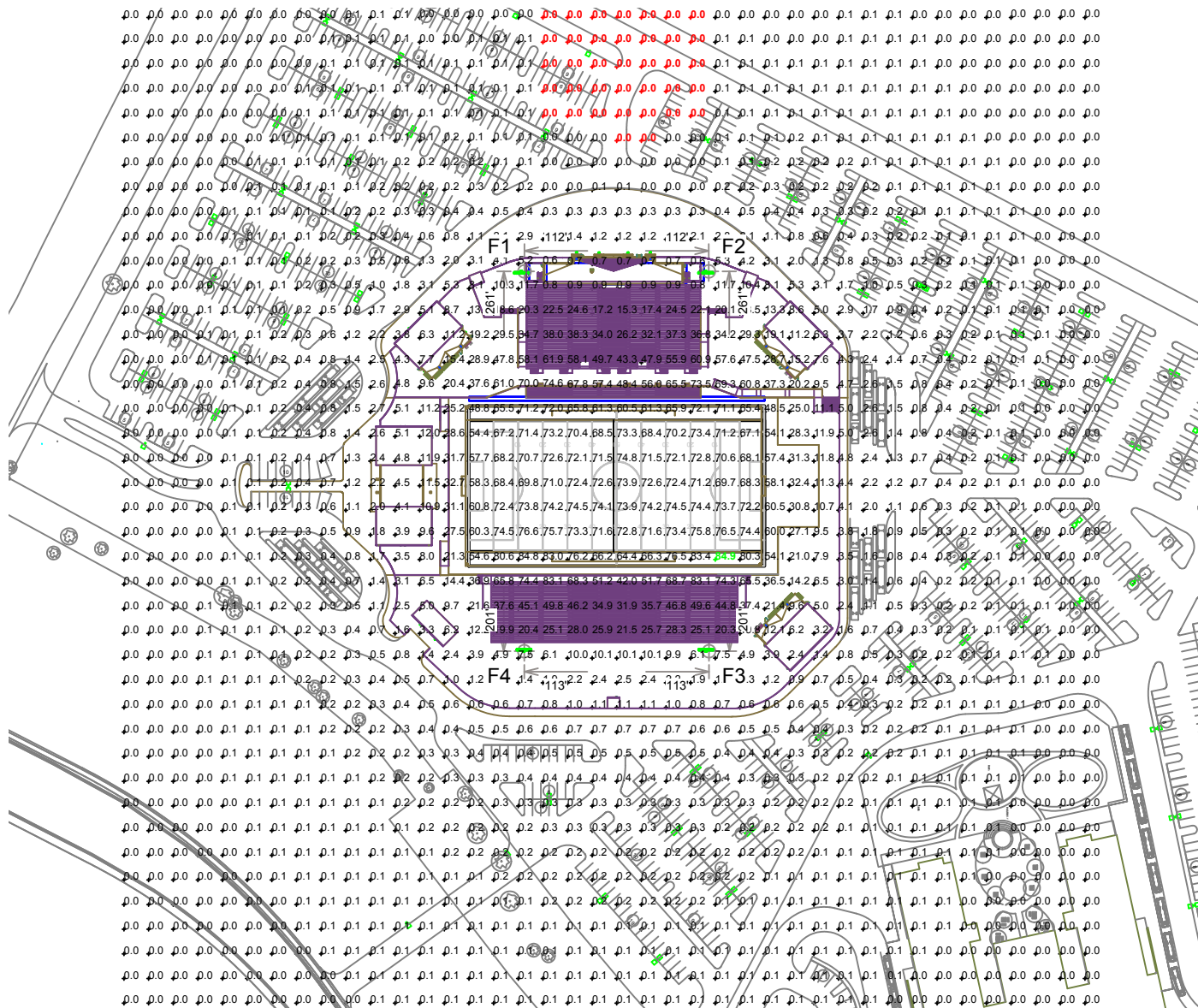
Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

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

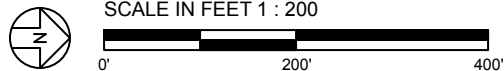
ENGINEERED DESIGN

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SCALE IN FEET 1 : 200



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

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	120'	12'	102'	LED 5700K - 65 CRI	4	4	0
				132'	1500W MZ	25	25	0
2	F3-F4	90'	-	60'	LED 5700K - 65 CRI	2	2	0
				90'	1500W MZ	21	21	0
4	TOTALS					104	104	0



MY PROJECT

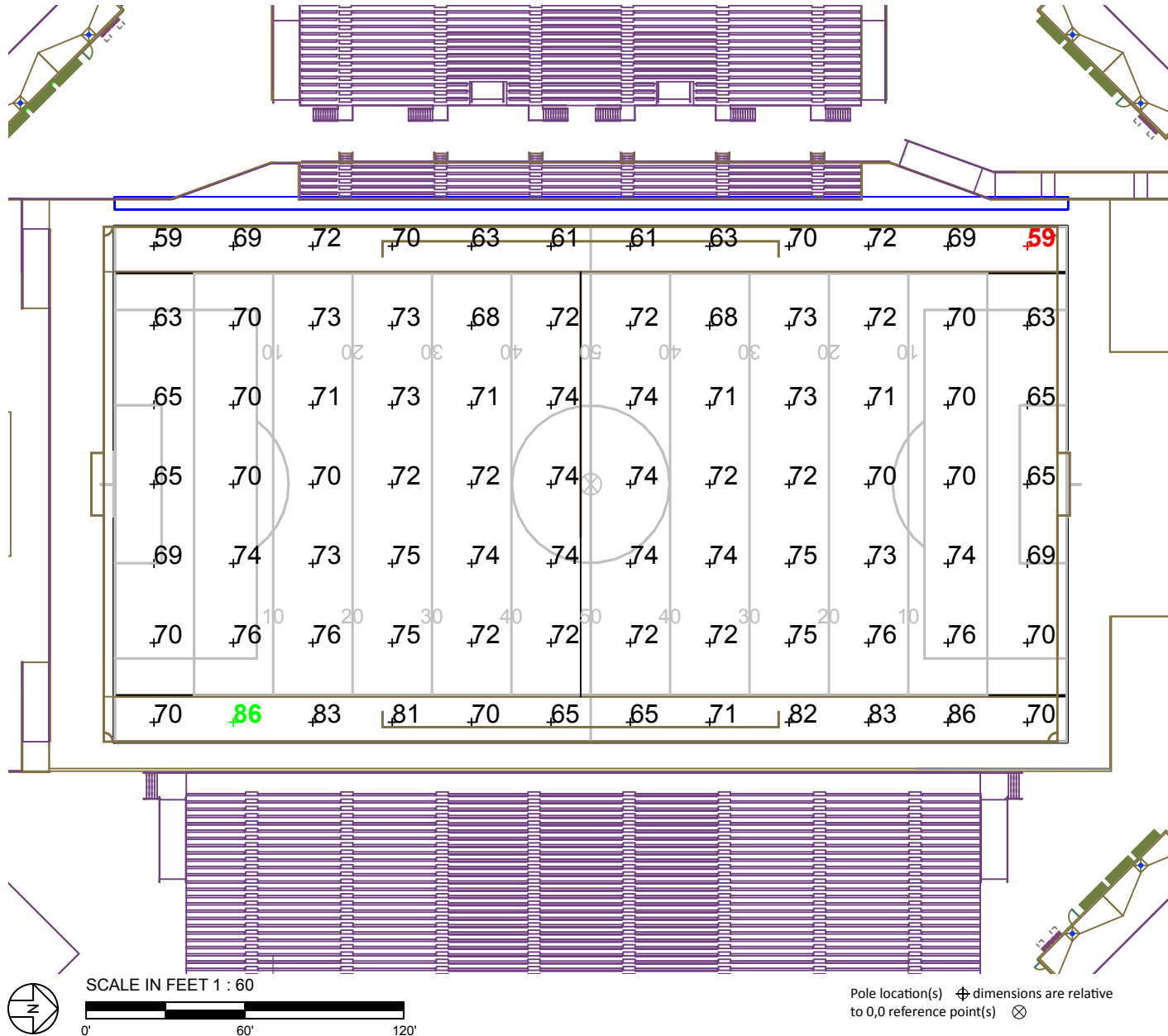
Name: Pflugerville ISD Regional Stadium
Location: Pflugerville, TX

GRID SUMMARY

Name: Soccer
Size: 360' x 195'
Spacing: 30.0' x 30.0'
Height: 3.0' above grade

CONSTANT ILLUMINATION

SUMMARY		HORIZONTAL FOOTCANDLES	
		Entire Grid	
Guaranteed Average:	70	Scan Average:	71.3
		Maximum:	86
		Minimum:	59
		Avg / Min:	1.21
Guaranteed Max / Min:	2	Max / Min:	1.45
		UG (adjacent pts):	1.22
		No. of Points:	84
LUMINAIRE INFORMATION			
Luminaire Type:	Green Generation / LED-96		
Design Usage Hours:	5,000 / 10,000 hrs		
Design Lumens:	134,000 / 38,600		
Avg Lamp Tilt Factor:	1.000		
No. of Luminaires:	104		
Avg KW:	148.62 (161.13 max)		



Guaranteed Performance: The Guaranteed Average CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA LM-5-04 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

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 ballast and structures located within 3 feet (1m) of design locations.

ENGINEERED DESIGN

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MY PROJECT

Name: Pflugerville ISD Regional Stadium
 Location: Pflugerville, TX

EQUIPMENT LAYOUT

INCLUDES:

- Football
- 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 ballast and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

		Pole		Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE
2	F1-F2	120'	12'	102'	LED 5700K - 65 CR	4
				132'	1500W MZ	25
2	F3-F4	90'	-	60'	LED 5700K - 65 CR	2
				90'	1500W MZ	21
4	TOTALS					104

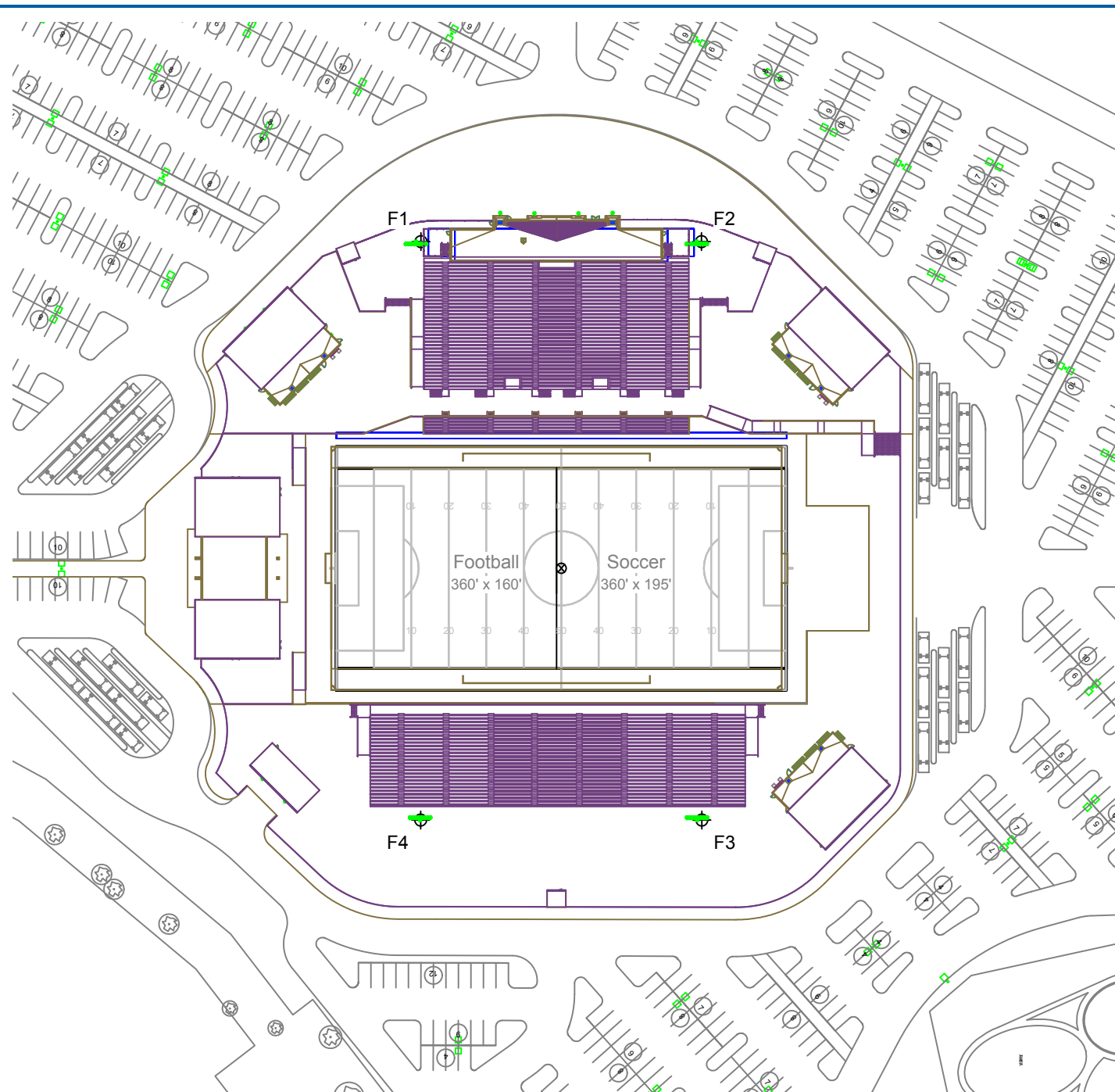
SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)					
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	480 (60)
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	480 (60)
1500 watt MZ	8.6	8.3	7.5	6.5	5.1	4.7
Other	-	-	-	-	-	-

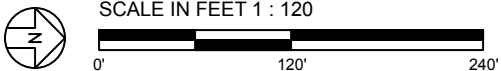
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SCALE IN FEET 1 : 120



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