



GUARANTEED PERFORMANCE

EQUIPMENT LAYOUT

Darien High School

Darien, CT

INCLUDES:

- Football
- Track

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

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

EQUIPMENT LIST FOR AREAS SHOWN

QTY	LOCATION	Pole		Luminaires			QTY / POLE	
		SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE			
2	F1-F2	90'	-	90'	1500W MZ	13		
2	F3-F4	80'	-	80'	1500W MZ	12		
4	← TOTALS						50	

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)								
	120 (60)	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	415 (60)	480 (60)
Single Phase Voltage									
1500 watt MZ	Max	8.6	7.7	7.5	6.5	5.1	4.7	-	3.7
	Min	11.7	6.7	6.0	5.9	5.1	4.0	3.7	2.9

KEY:

- ⊕ Field lighting poles
- Additional parking lot lights
- Conduit location

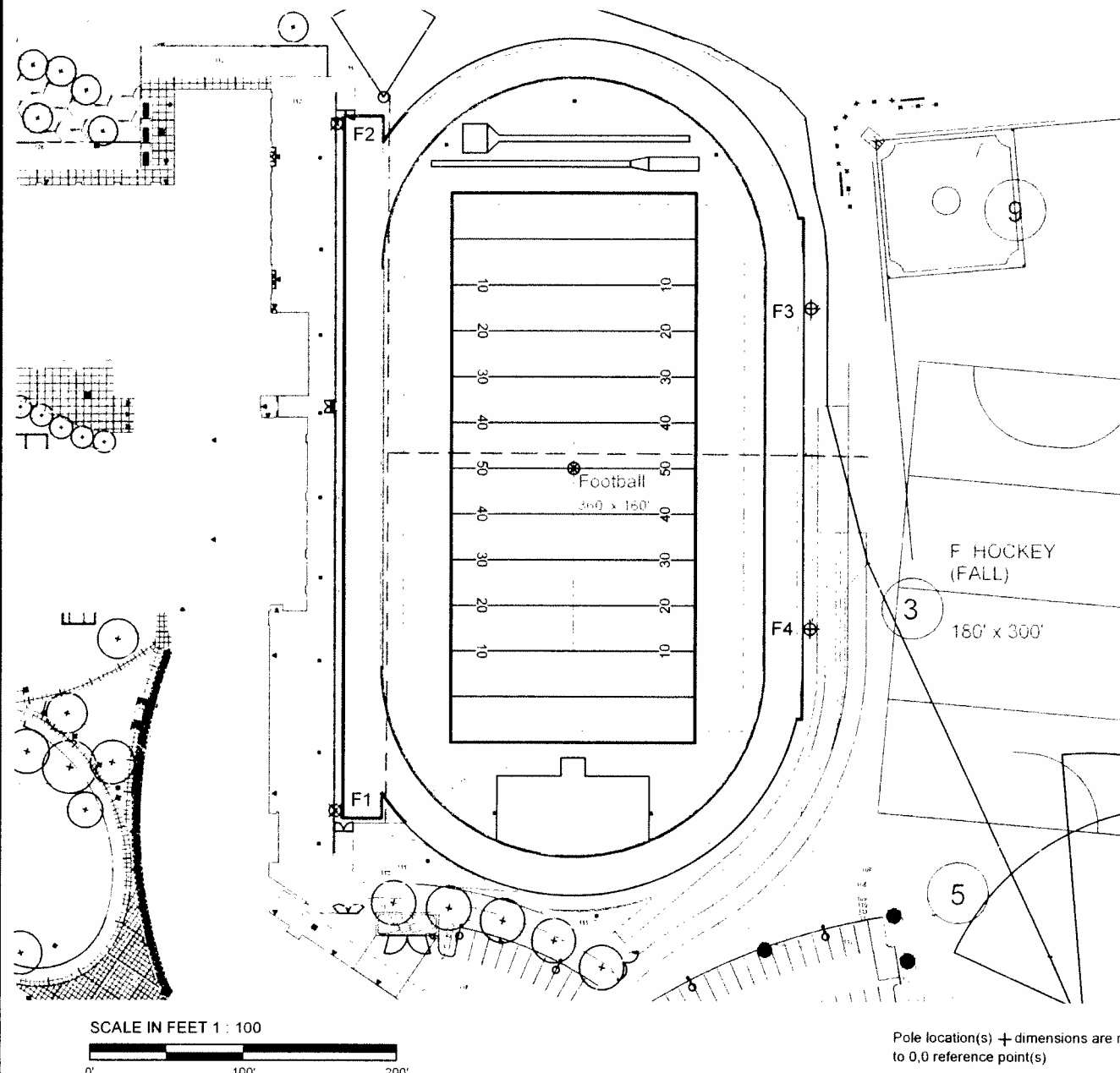
By: Ryan Wolver

File #: 115528r3

Date: 12-May-08

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SHEET 1: EQUIPMENT LOCATIONS

- **Light poles:** There will be 4 light poles. The 2 on the east side of the field will be ninety feet in height and will be located approximately at the 15 yard line at each end of the field. Each pole will have 13 lights. The 2 poles on the west side of the field will be eighty feet tall and will be located near the end of the running track straight-aways. Each of these poles will have 12 lights.
- **Sound system:** The current sound system consists of very large, high output and high dispersion speakers. As a result, the sound is not controlled in terms of direction. The speakers are aimed directly across the field toward the neighboring properties. The new sound system will consist of highly directional, low output and low dispersion speakers that will be aimed directly at the stands and not toward neighboring properties. In addition, the system will be zoned so that certain speakers can be turned off for events that do not draw large crowds.
- **Additional parking lot lights:** They will be of the same or equal style and will have the same light output as the existing parking lot lights.
- **Pedestrian lighting:** This will consist of bollard lights approximately 3-4' in height along the pedestrian pathways leading to the home and visitor side bleachers. The lights will be directed away from adjacent properties. Additional low lighting will also be placed on the existing school near the auditorium and cafeteria. No lighting will be installed on the north side of the field or building.

STADIUM FIELD LIGHTING PROPOSAL
Darien High School, Darien, Connecticut



MUSCO
GREEN GENERATION LIGHTING™

GUARANTEED PERFORMANCE

ILLUMINATION SUMMARY

Football
Darien High School
Darien, CT

Football
Size: 360' x 160'
Grid Spacing = 30.0' x 30.0'
Values given at 3.0' above grade

Luminaire Type: Green Generation
Rated Lamp Life: 5000 hours
Avg Lumens/Lamp: 134,000

CONSTANT ILLUMINATION HORIZONTAL FOOTCANDLES	
Entire Grid	
No. of Target Points:	72
Average:	50.3
Maximum:	61
Minimum:	35
Avg/Min:	1.46
Max/Min:	1.76
UG (Adjacent Pts):	1.33
CV:	0
Average Lamp Tilt Factor:	1.000
Number of Luminaires:	50
Avg KW over 5000 hours:	78.2
Max KW	85.0

Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the rated life of the lamp.

Field Measurements: Averages shall be +/-10% in accordance with IESNA RP-6-01 and CIBSE LG4. Individual measurements may vary from computer predictions.

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.

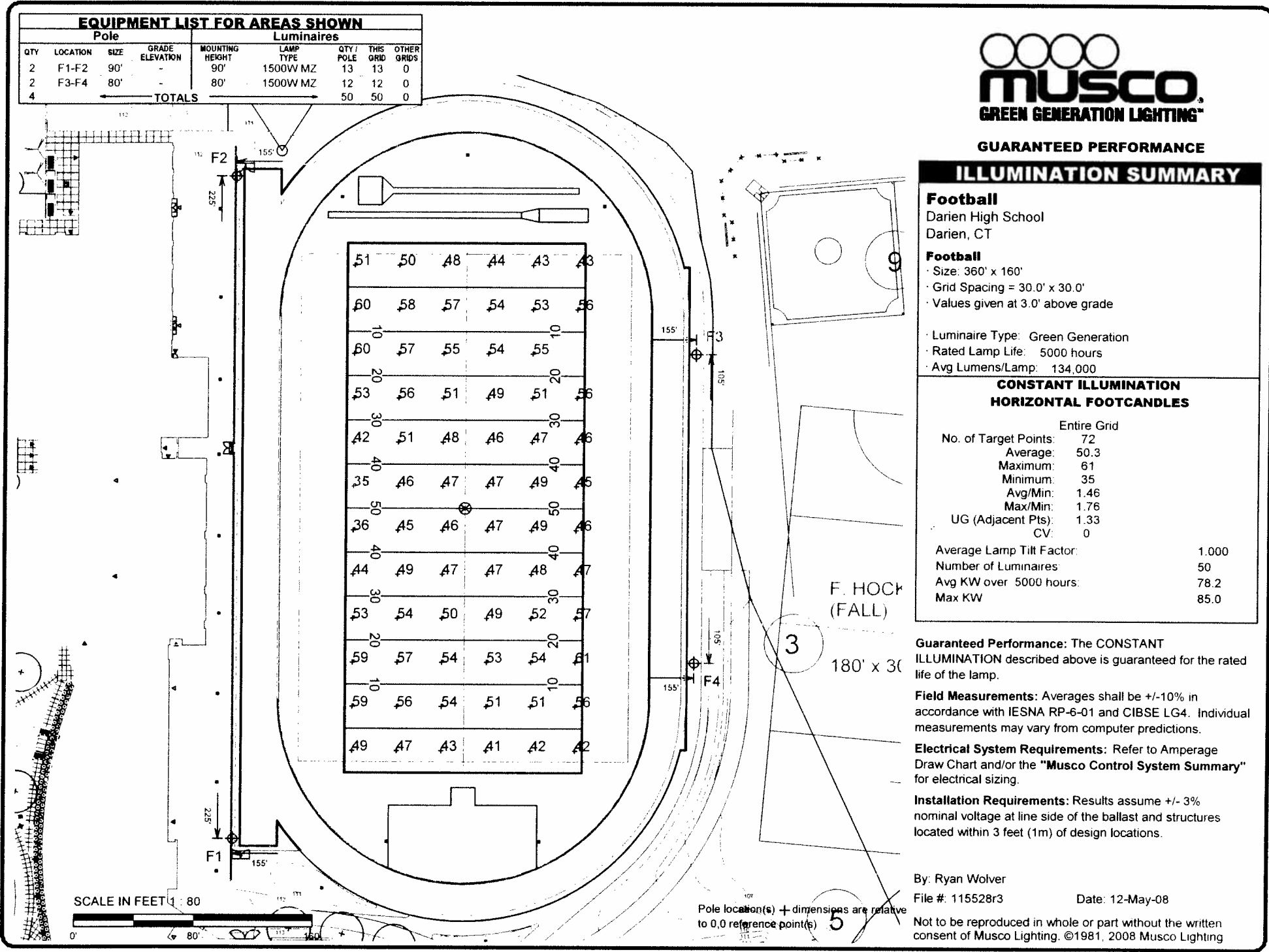
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SHEET 2: FIELD ILLUMINATION LEVELS

This sheet shows the illumination levels that will be provided on the fields by the lights. The levels are measured in foot candles and are based on a horizontal reading taken 3 feet above the playing surface.

The average illumination level for the field is 50.3 foot candles. The minimum level is 35 foot candles and the maximum level is 61 foot candles. These levels fall within the recommended illumination levels for athletic fields.



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STADIUM FIELD LIGHTING PROPOSAL
Darien High School, Darien, Connecticut



GUARANTEED PERFORMANCE

ILLUMINATION SUMMARY

Track
 Darien High School
 Darien, CT

Track
 · Size: N/A
 · Grid Spacing = 30.0' x 30.0'
 · Values given at 3.0' above grade

Luminaire Type: Green Generation
 Rated Lamp Life: 5000 hours
 Avg Lumens/Lamp: 134,000

CONSTANT ILLUMINATION HORIZONTAL FOOTCANDLES	
Entire Grid	
No. of Target Points:	52
Average:	12.4
Maximum:	27
Minimum:	2
Avg/Min:	5.18
Max/Min:	11.17
UG (Adjacent Pts):	0.00
CV:	1
Average Lamp Tilt Factor:	1.000
Number of Luminaires:	50
Avg KW over 5000 hours:	78.2
Max KW:	85.0

Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the rated life of the lamp.

Field Measurements: Averages shall be +/-10% in accordance with IESNA RP-6-01 and CIBSE LG4. Individual measurements may vary from computer predictions.

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

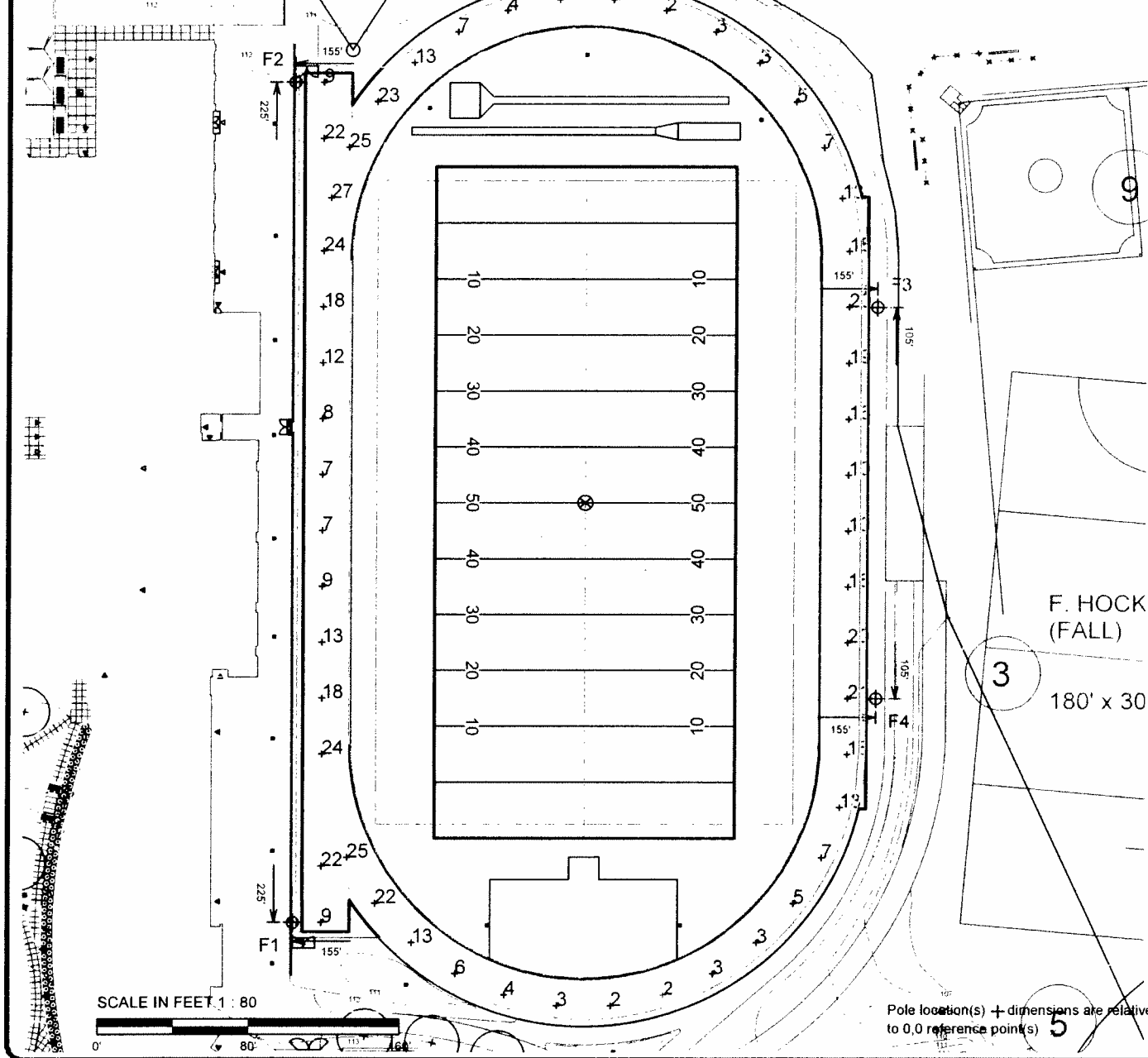
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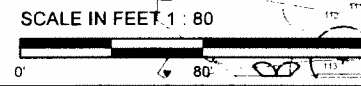
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1-F2	90'	-	90'	1500W MZ	13	13	0
2	F3-F4	80'	-	80'	1500W MZ	12	12	0
TOTALS						50	50	0



SHEET 3: IMMEDIATE PERIMETER ILLUMINATION LEVELS

This sheet shows the illumination levels around the immediate perimeter of the field. The average level is 12.4 foot candles. The maximum level is 27 foot candles and the minimum level is 2 foot candles. The minimum levels are on the east side of the field and the maximum levels are on the school building side of the field.



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STADIUM FIELD LIGHTING PROPOSAL
 Darien High School, Darien, Connecticut



GUARANTEED PERFORMANCE

ILLUMINATION SUMMARY

Track
 Darien High School
 Darien, CT

Track Spill
 · Grid Spacing = 30.0'
 · Values given at 3.0' above grade

· Luminaire Type: Green Generation
 · Rated Lamp Life: 5000 hours
 · Avg Lumens/Lamp: 134,000

CONSTANT ILLUMINATION
HORIZONTAL FOOTCANDLES

Entire Grid	
No. of Target Points:	80
Average:	0.122
Maximum:	0.30
Minimum:	0.05
Average Lamp Tilt Factor:	1.000
Number of Luminaires:	50
Avg KW over 5000 hours:	78.2
Max KW:	85.0

Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the rated life of the lamp.

Field Measurements: Averages shall be +/-10% in accordance with IESNA RP-6-01 and CIBSE LG4. Individual measurements may vary from computer predictions.

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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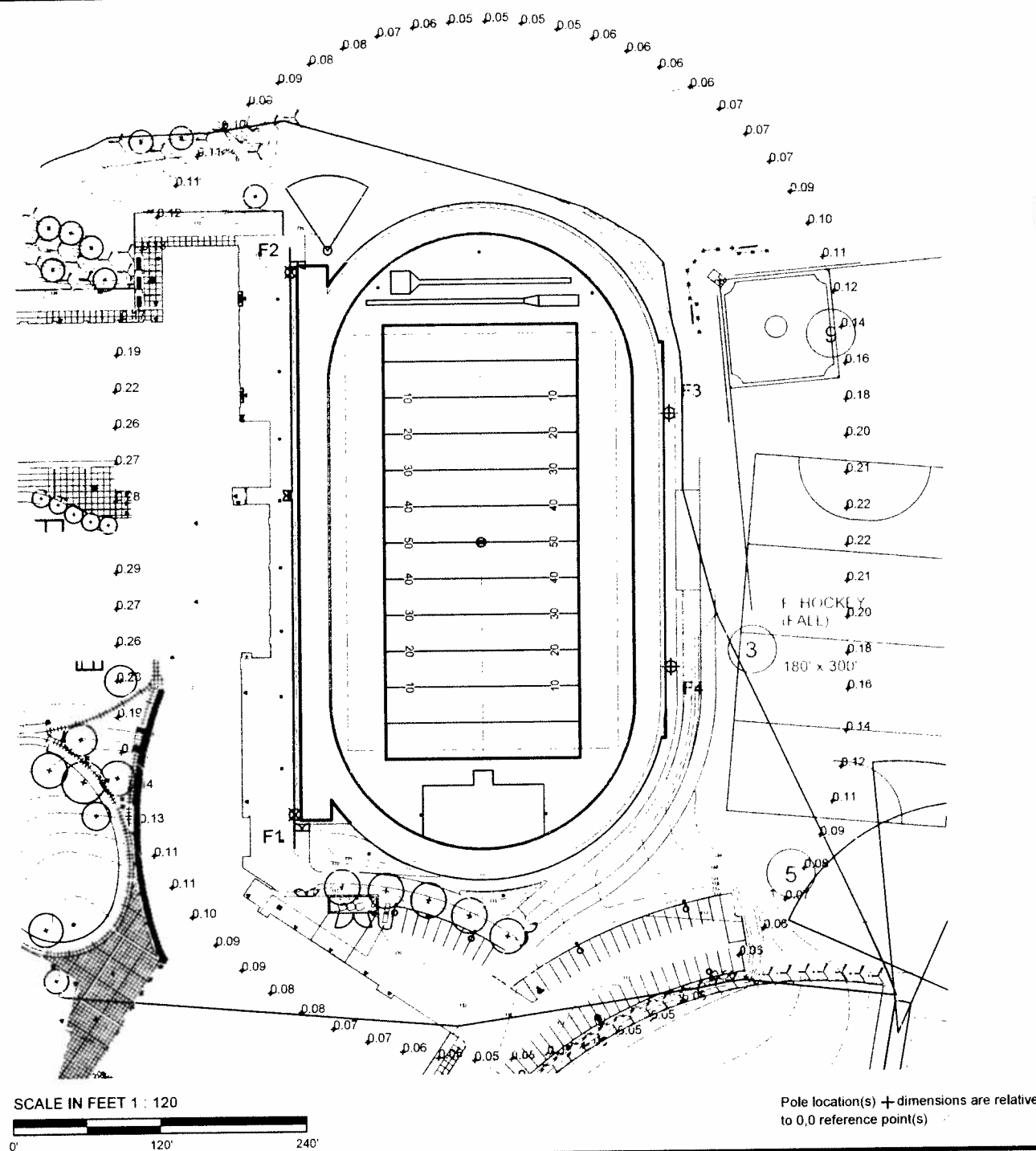
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SHEET 4: 150 FOOT PERIMETER ILLUMINATION LEVELS (HORIZONTAL)

This sheet shows the illumination levels taken along the perimeter of the field 150 feet from the running track. The levels are based on a horizontal reading taken 3 feet from the ground. The average level is 0.122 foot candles. The maximum level is 0.30 foot candles and the minimum level is 0.05 foot candles.

The readings assume that there is no vegetation to block the light.



STADIUM FIELD LIGHTING PROPOSAL
 Darien High School, Darien, Connecticut



GUARANTEED PERFORMANCE

ILLUMINATION SUMMARY

Track	
Darien High School Darien, CT	
Track Spill	
· Grid Spacing = 30.0'	
· Values given at 3.0' above grade	
· Luminaire Type: Green Generation	
· Rated Lamp Life: 5000 hours	
· Avg Lumens/Lamp: 134,000	
CONSTANT ILLUMINATION	
MAX VERTICAL FOOTCANDLES	
Entire Grid	
No. of Target Points:	80
Average:	0.550
Maximum:	1.14
Minimum:	0.20
Average Lamp Tilt Factor:	1.000
Number of Luminaires:	50
Avg KW over 5000 hours:	78.2
Max KW:	85.0

Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the rated life of the lamp.

Field Measurements: Averages shall be +/-10% in accordance with IESNA RP-6-01 and CIBSE LG4. Individual measurements may vary from computer predictions.

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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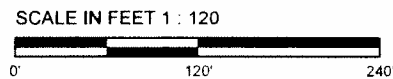
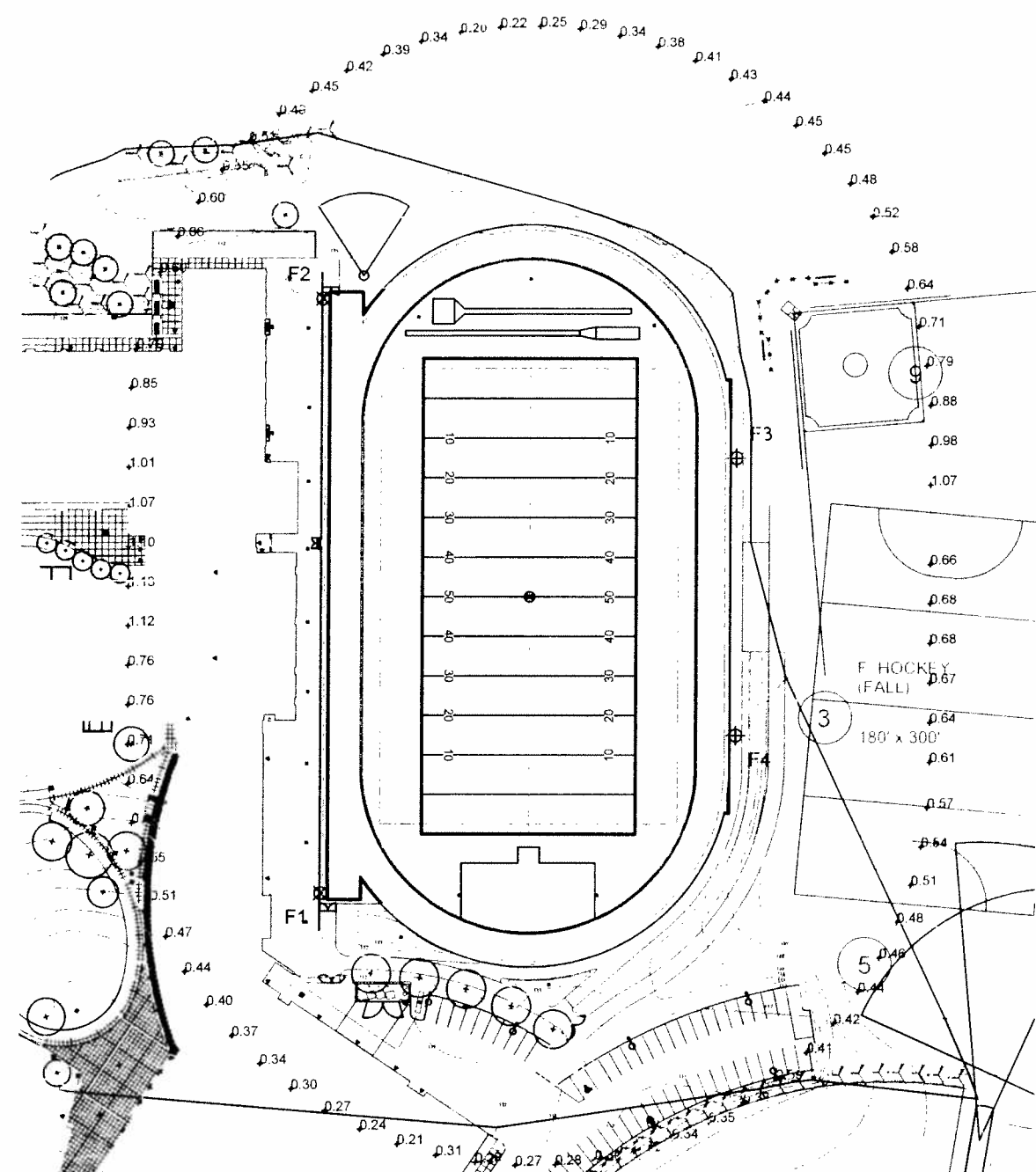
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SHEET 5: 150 FOOT PERIMETER ILLUMINATION LEVELS (VERTICAL)

This sheet also shows the illumination levels taken along the perimeter of the field 150 feet from the running track. However, these levels are based on a vertical reading taken 3 from the ground, rather than on a horizontal reading.

The average level is 0.550 foot candles. The maximum level is 1.14 foot candles and the minimum level is 0.20 foot candles.

These readings also assume that there is no vegetation to block the light.



STADIUM FIELD LIGHTING PROPOSAL

Darien High School, Darien, Connecticut