

Lighting System

Pole/Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
F1	80'	80'	10	TLC-LED-1500	14.10 kW	A
		16'	1	TLC-RGB-U	0.43 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
F2	90'	90'	10	TLC-LED-1500	14.10 kW	A
		16'	1	TLC-RGB-U	0.43 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
F3-F4	90'	90'	10	TLC-LED-1500	14.10 kW	A
		30'	1	TLC-RGB-U	0.43 kW	A
		30'	2	TLC-BT-575	1.15 kW	A
4			52		62.72 kW	

Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Football	62.72 kW	52

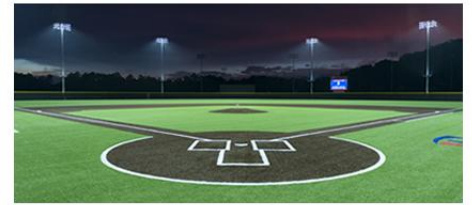
Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	8
TLC-LED-1500	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	40
TLC-RGB-U	RED-GREEN (Shown)-BLUE	430W	16,000	21,300	>36,300	>36,300	4

Single Luminaire Amperage Draw Chart							
Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-RGB-U	3.0	2.8	2.6	2.2	1.8	1.3	1.3

Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Away Bleacher	Perpendicular	9.92	6	17	2.94	1.75	A	52
Football	Horizontal Illuminance	56.84	41	67	1.64	1.38	A	52
Home Bleachers	Perpendicular	14.71	4	32	8.69	3.96	A	52
Max Spill	Horizontal Illuminance	0.0222	0.00	0.07	38.728	11.680	A	52
Max Spill	Max Candela Metric	2387.1853	80.72	6134.27	75.998	29.575	A	52
Max Spill	Max Vertical Illuminance Metric	0.0653	0.00	0.20	51.202	17.018	A	52
Track	Horizontal Illuminance	29.43	7	59	8.05	4.03	A	52
Vert & Horz Spill	Horizontal Illuminance	0.0256	0.00	0.08	31.588	10.365	A	52
Vert & Horz Spill	Max Candela Metric	2881.0317	109.82	6674.32	60.773	26.233	A	52
Vert & Horz Spill	Max Vertical Illuminance Metric	0.0755	0.01	0.21	41.619	14.964	A	52

From Hometown to Professional



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Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
1	F1	80'	-	80'	TLC-LED-1500	10	10	0
				15.5'	TLC-BT-575	2	2	0
				15.5'	TLC-RGB-U	1	1	0
1	F2	90'	-	90'	TLC-LED-1500	10	10	0
				15.5'	TLC-BT-575	2	2	0
				15.5'	TLC-RGB-U	1	1	0
2	F3-F4	90'	-	90'	TLC-LED-1500	10	10	0
				30'	TLC-BT-575	2	2	0
				30'	TLC-RGB-U	1	1	0
4	Totals					52	52	0

*Above Grade level relative to the field



239633

Livonia, MI

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

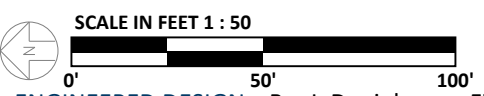
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Guaranteed Average	50
Scan Average	56.84
Maximum	67
Minimum	41
Avg/Min	1.38
Guaranteed Max/Min	2
Max/Min	1.64
UG (adjacent pts)	1.24
CU	0.47
No. of Points	72
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	52
Total Load	62.72 kW

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

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

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

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



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



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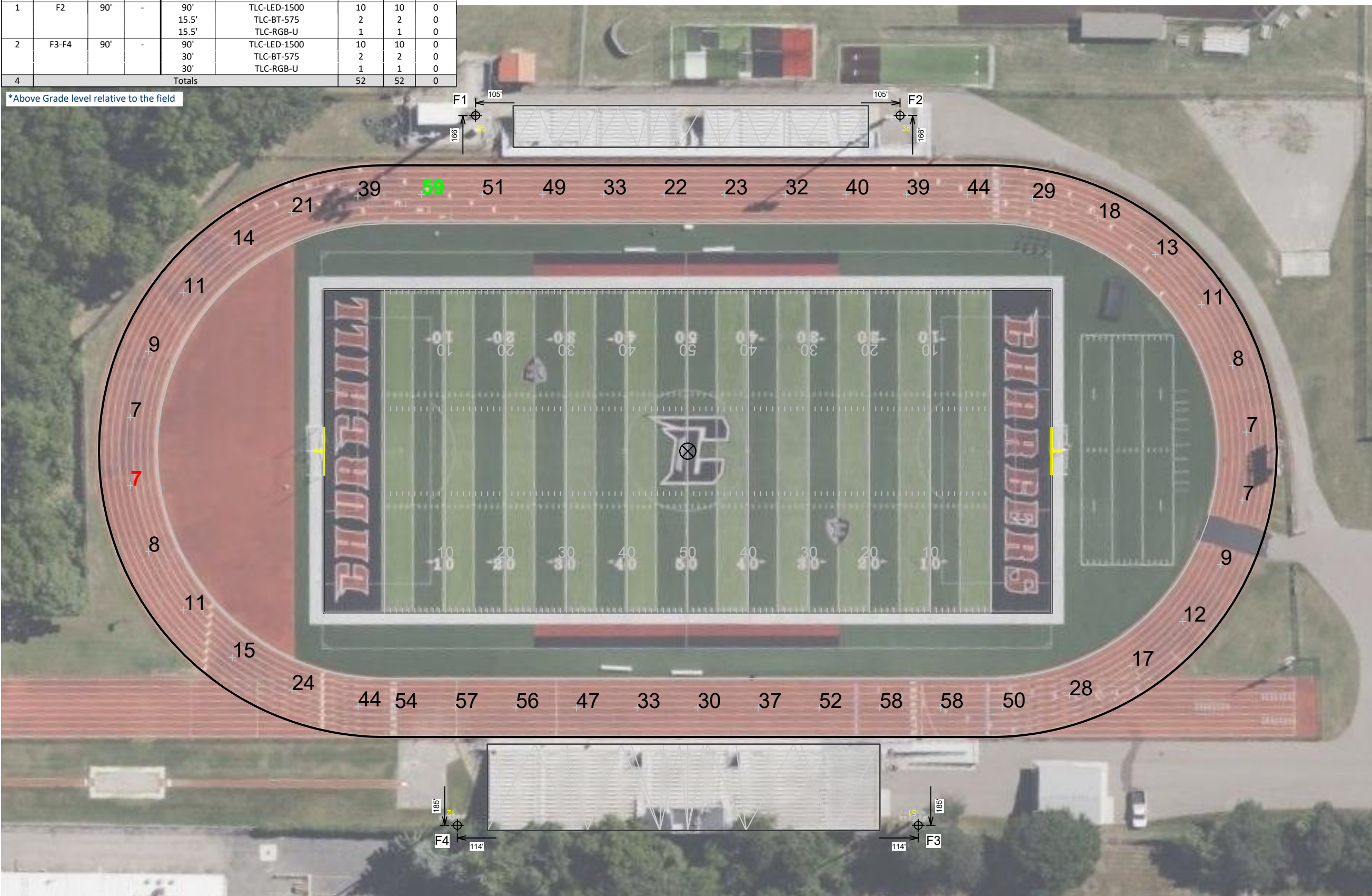
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ILLUMINATION SUMMARY

Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
1	F1	80'	-	80'	TLC-LED-1500	10	10	0
				15.5'	TLC-BT-575	2	2	0
				15.5'	TLC-RGB-U	1	1	0
1	F2	90'	-	90'	TLC-LED-1500	10	10	0
				15.5'	TLC-BT-575	2	2	0
				15.5'	TLC-RGB-U	1	1	0
2	F3-F4	90'	-	90'	TLC-LED-1500	10	10	0
				30'	TLC-BT-575	2	2	0
				30'	TLC-RGB-U	1	1	0
4	Totals					52	52	0

*Above Grade level relative to the field



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Livonia, MI

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

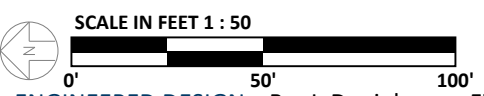
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average	29.43
Maximum	59
Minimum	7
Avg/Min	4.03
Max/Min	8.05
UG (adjacent pts)	0.00
CU	0.15
No. of Points	44
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	52
Total Load	62.72 kW

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ILLUMINATION SUMMARY

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
1	F1	80'	-	80'	TLC-LED-1500	10	10	0
				15.5'	TLC-BT-575	2	2	0
				15.5'	TLC-RGB-U	1	1	0
1	F2	90'	-	90'	TLC-LED-1500	10	10	0
				15.5'	TLC-BT-575	2	2	0
				15.5'	TLC-RGB-U	1	1	0
2	F3-F4	90'	-	90'	TLC-LED-1500	10	10	0
				30'	TLC-BT-575	2	2	0
				30'	TLC-RGB-U	1	1	0
4	Totals					52	52	0

*Above Grade level relative to the field

239633

Livonia, MI

Grid Summary	
Name	Home Bleachers
Spacing	10.0' x 10.0'

Illumination Summary	
MAINTAINED VERTICAL FOOTCANDLES: -64" TH	
Entire Grid	
Scan Average	14.71
Maximum	32
Minimum	4
Avg/Min	3.96
Max/Min	8.69
UG (adjacent pts)	1.45
CU	0.02
No. of Points	95
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	52
Total Load	62.72 kW

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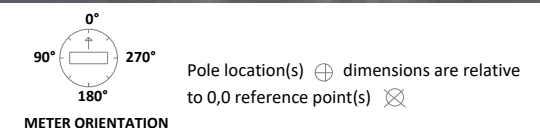
Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

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SCALE IN FEET 1 : 20
 0' 20' 40'
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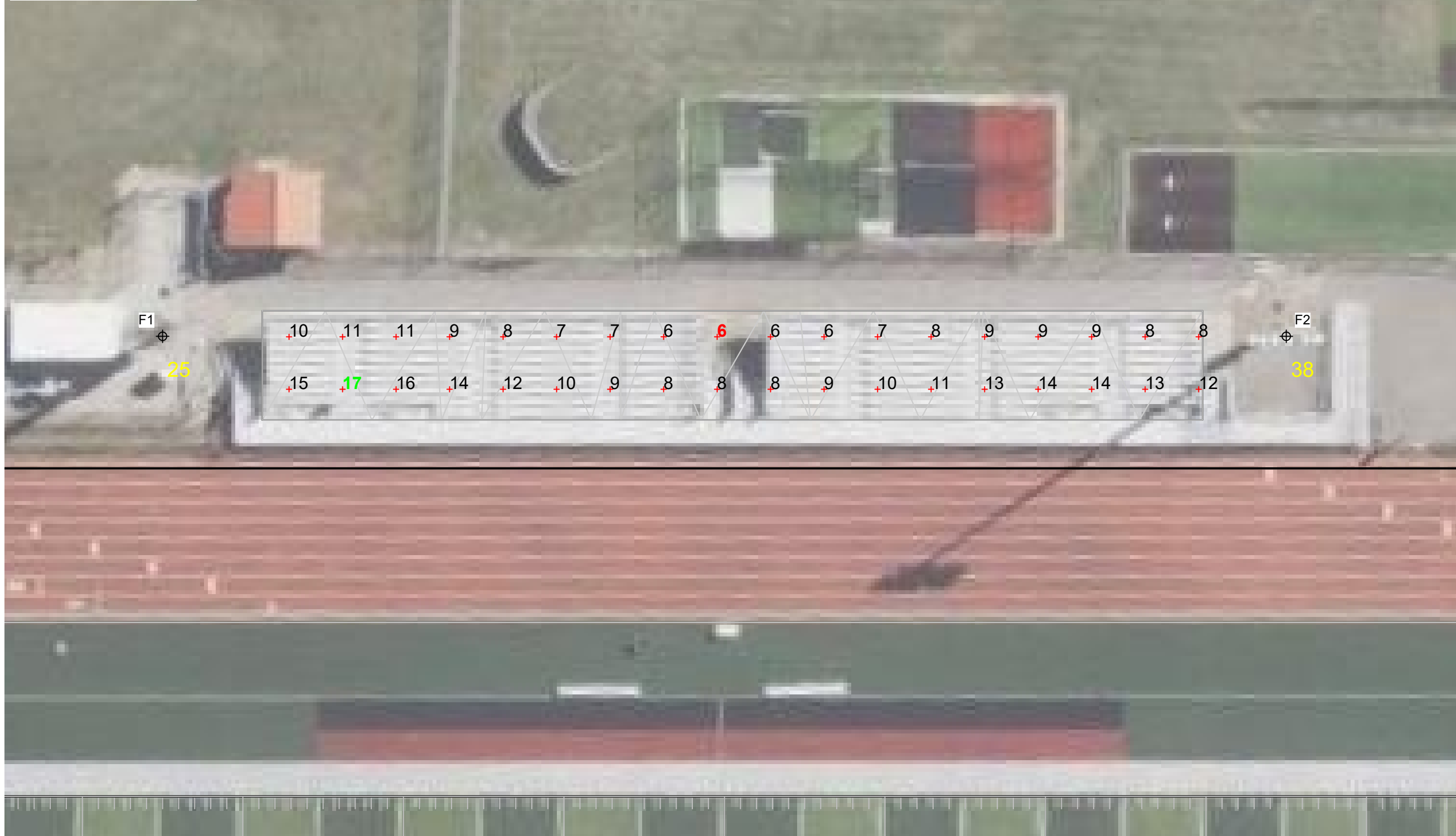


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ILLUMINATION SUMMARY

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
1	F1	80'	-	80'	TLC-LED-1500	10	10	0
				15.5'	TLC-BT-575	2	2	0
				15.5'	TLC-RGB-U	1	1	0
1	F2	90'	-	90'	TLC-LED-1500	10	10	0
				15.5'	TLC-BT-575	2	2	0
				15.5'	TLC-RGB-U	1	1	0
2	F3-F4	90'	-	90'	TLC-LED-1500	10	10	0
				30'	TLC-BT-575	2	2	0
				30'	TLC-RGB-U	1	1	0
4	Totals					52	52	0

*Above Grade level relative to the field



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Livonia, MI

Grid Summary	
Name	Away Bleacher
Spacing	10.0' x 10.0'

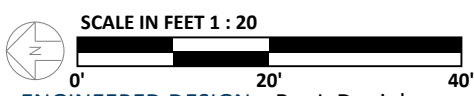
Illumination Summary	
MAINTAINED VERTICAL FOOTCANDES: -79" THT	
Entire Grid	
Scan Average	9.92
Maximum	17
Minimum	6
Avg/Min	1.75
Max/Min	2.94
UG (adjacent pts)	1.61
CU	0.00
No. of Points	36
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	52
Total Load	62.72 kW

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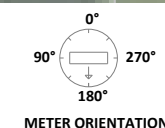
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ILLUMINATION SUMMARY

Grid Summary

Name	Max Spill
Spacing	30.0' x 30.0'
Height	5.0' above grade

Illumination Summary

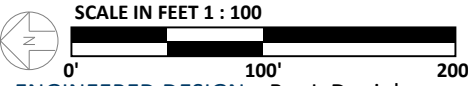
MAINTAINED CANDELA (PER FIXTURE)	
Entire Grid	
Scan Average	2387.1853
Maximum	6134.27
Minimum	80.72
CU	0.00
No. of Points	81
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	52
Total Load	62.72 kW

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Grid Summary

Name	Vert & Horz Spill
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary

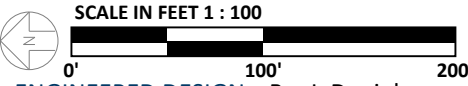
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average	0.0256
Maximum	0.08
Minimum	0.00
CU	0.00
No. of Points	81
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	52
Total Load	62.72 kW

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Grid Summary

Name	Vert & Horz Spill
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary

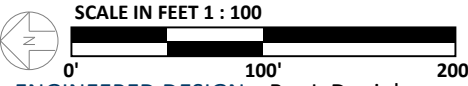
MAINTAINED MAX VERTICAL FOOTCANDLES	
Entire Grid	
Scan Average	0.0755
Maximum	0.21
Minimum	0.01
CU	0.00
No. of Points	81
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	52
Total Load	62.72 kW

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

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



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239633

Livonia, MI

Equipment Layout

INCLUDES:

- Football
- Track

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

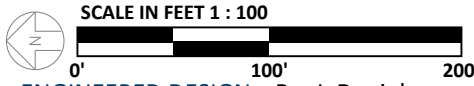
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Equipment List For Areas Shown

QTY	Pole			Luminaires		
	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE
1	F1	80'	-	80'	TLC-LED-1500	10
				15.5'	TLC-BT-575	2
				15.5'	TLC-RGB-U	1
1	F2	90'	-	90'	TLC-LED-1500	10
				15.5'	TLC-BT-575	2
				15.5'	TLC-RGB-U	1
2	F3-F4	90'	-	90'	TLC-LED-1500	10
				30'	TLC-BT-575	2
				30'	TLC-RGB-U	1
4	Totals					52

Single Luminaire Amperage Draw Chart

Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-RGB-U	3.0	2.8	2.6	2.2	1.8	1.3	1.3



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