

Newton South High School Football/Soccer

Newton, MA

Lighting System

Pole / Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
S1-S2	80'	80'	9	TLC-LED-1500	12.87 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
S3-S4	80'	80'	9	TLC-LED-1500	12.87 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
		70'	1	TLC-LED-400	0.40 kW	B
4			46		56.88 kW	

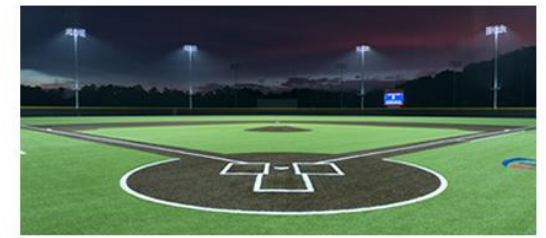
Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Soccer	56.08 kW	44
B	Bleachers	0.8 kW	2

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1500	LED 5700K - 75 CRI	1430W	160,000	>81,000	>81,000	>81,000	36
TLC-LED-400	LED 5700K - 75 CRI	400W	46,500	>81,000	>81,000	>81,000	2
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>81,000	>81,000	>81,000	8

Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Bleachers	Horizontal Illuminance	5.03	2	9	3.83	2.52	B	2
Football	Horizontal Illuminance	51	40	59	1.46	1.27	A	44
Property Line	Horizontal	0	0	0.04	0.00		A,B	46
Property Line	Max Candela (by Fixture)	285	0	2317	0.00		A,B	46
Property Line	Max Vertical Illuminance Metric	0.01	0	0.08	0.00		A,B	46
Soccer	Horizontal Illuminance	50.1	40	59	1.46	1.25	A	44
Zero Grid	Horizontal	14.9	0	62	12727.78		A,B	46

From Hometown to Professional



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EQUIPMENT LIST FOR AREAS SHOWN							
Pole				Luminaires			
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID
2	S1-S2	80'	-	15.5'	TLC-BT-575	2	2
				80'	TLC-LED-1500	9	9
2	S3-S4	80'	-	15.5'	TLC-BT-575	2	2
				70'	TLC-LED-400	1	0
				80'	TLC-LED-1500	9	9
4	TOTALS					46	44

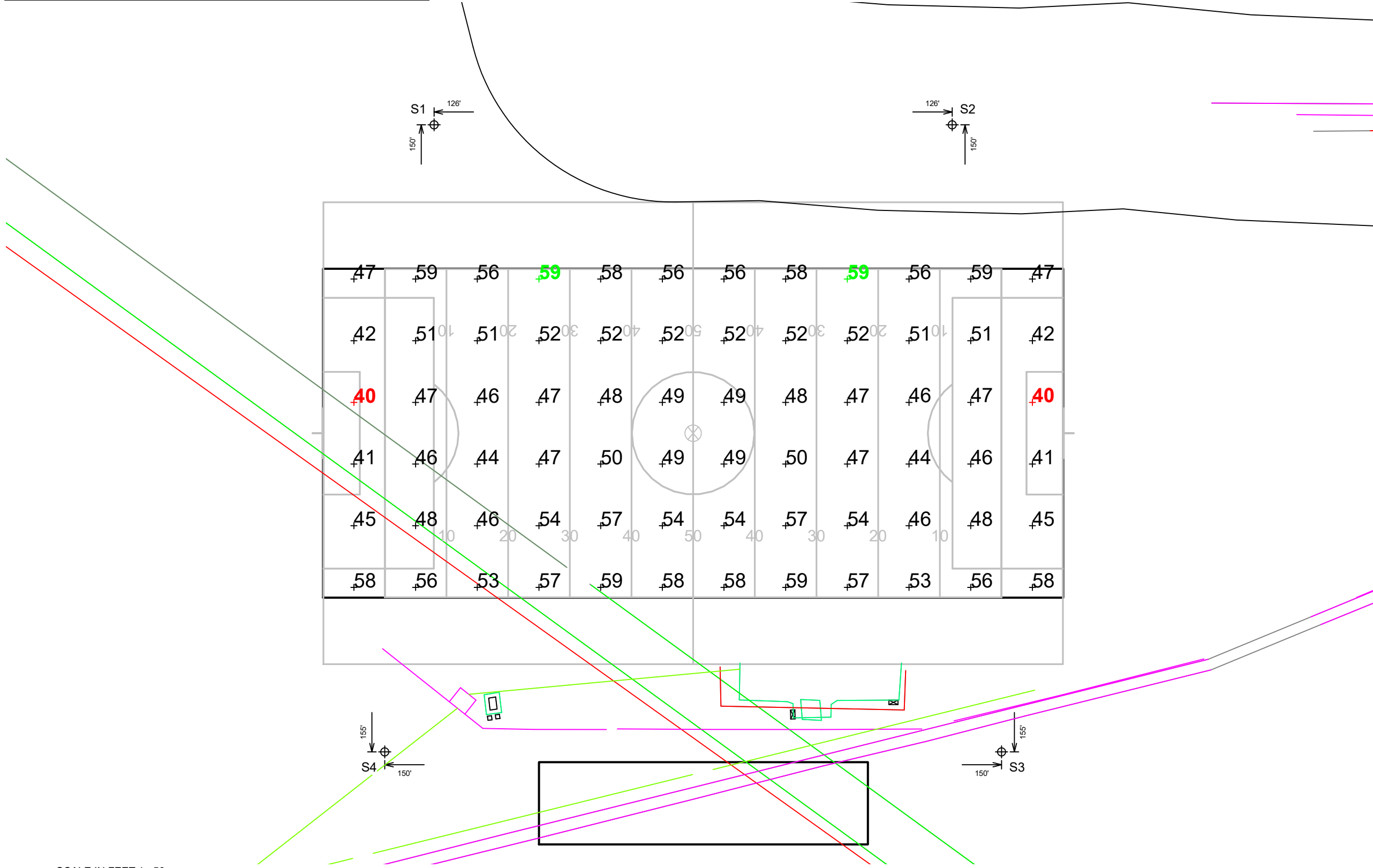
GRID SUMMARY	
Name:	Football
Size:	360' x 160'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Guaranteed Average:	50
Scan Average:	50.96
Maximum:	59
Minimum:	40
Avg / Min:	1.26
Guaranteed Max / Min:	2
Max / Min:	1.46
UG (adjacent pts):	1.28
CU:	0.54
No. of Points:	72

LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	160,000 / 52,000 lumens		
No. of Luminaires:	44		
Total Load:	56.08 kW		

Luminaire Type	Lumen Maintenance		
	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>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 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.

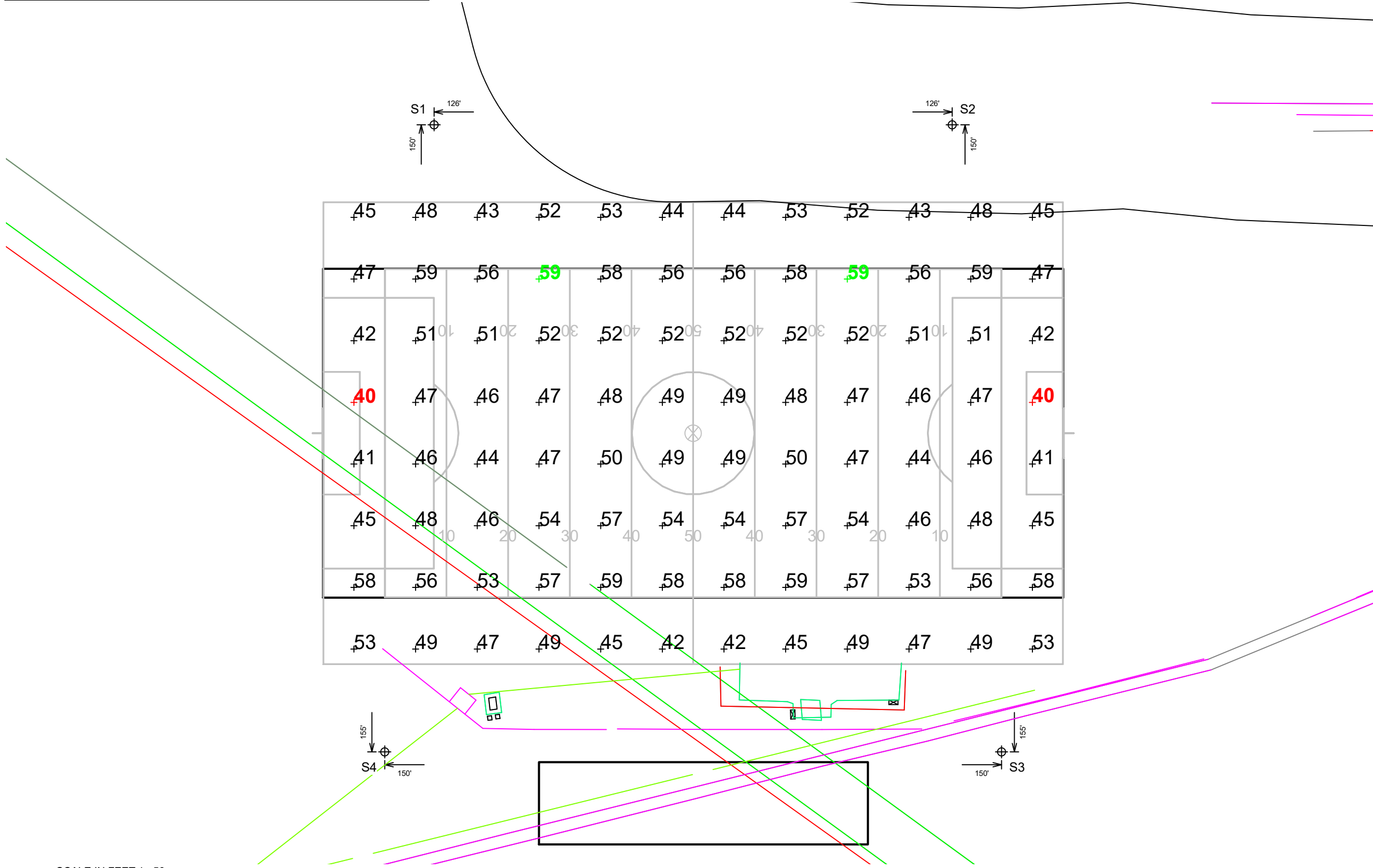


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EQUIPMENT LIST FOR AREAS SHOWN								
Pole			Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	80'	-	15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	9	9	0
2	S3-S4	80'	-	15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-400	1	0	1
				80'	TLC-LED-1500	9	9	0
4	TOTALS					46	44	2

GRID SUMMARY			
Name:	Soccer		
Size:	360' x 225'		
Spacing:	30.0' x 30.0'		
Height:	3.0' above grade		
ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
Entire Grid			
Guaranteed Average:	50		
Scan Average:	50.06		
Maximum:	59		
Minimum:	40		
Avg / Min:	1.24		
Guaranteed Max / Min:	2		
Max / Min:	1.46		
UG (adjacent pts):	1.40		
CU:	0.71		
No. of Points:	96		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	160,000 / 52,000 lumens		
No. of Luminaires:	44		
Total Load:	56.08 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000

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

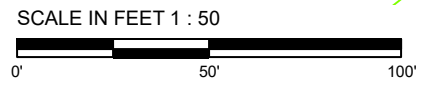


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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



EQUIPMENT LIST FOR AREAS SHOWN									
Pole				Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS	
2	S3-S4	80'	-	15.5'	TLC-BT-575	2	0	2	
				70'	TLC-LED-400	1	1	0	
				80'	TLC-LED-1500	9	0	9	
2	TOTALS					24	2	22	

GRID SUMMARY	
Name:	Bleachers
Size:	160' x 40'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

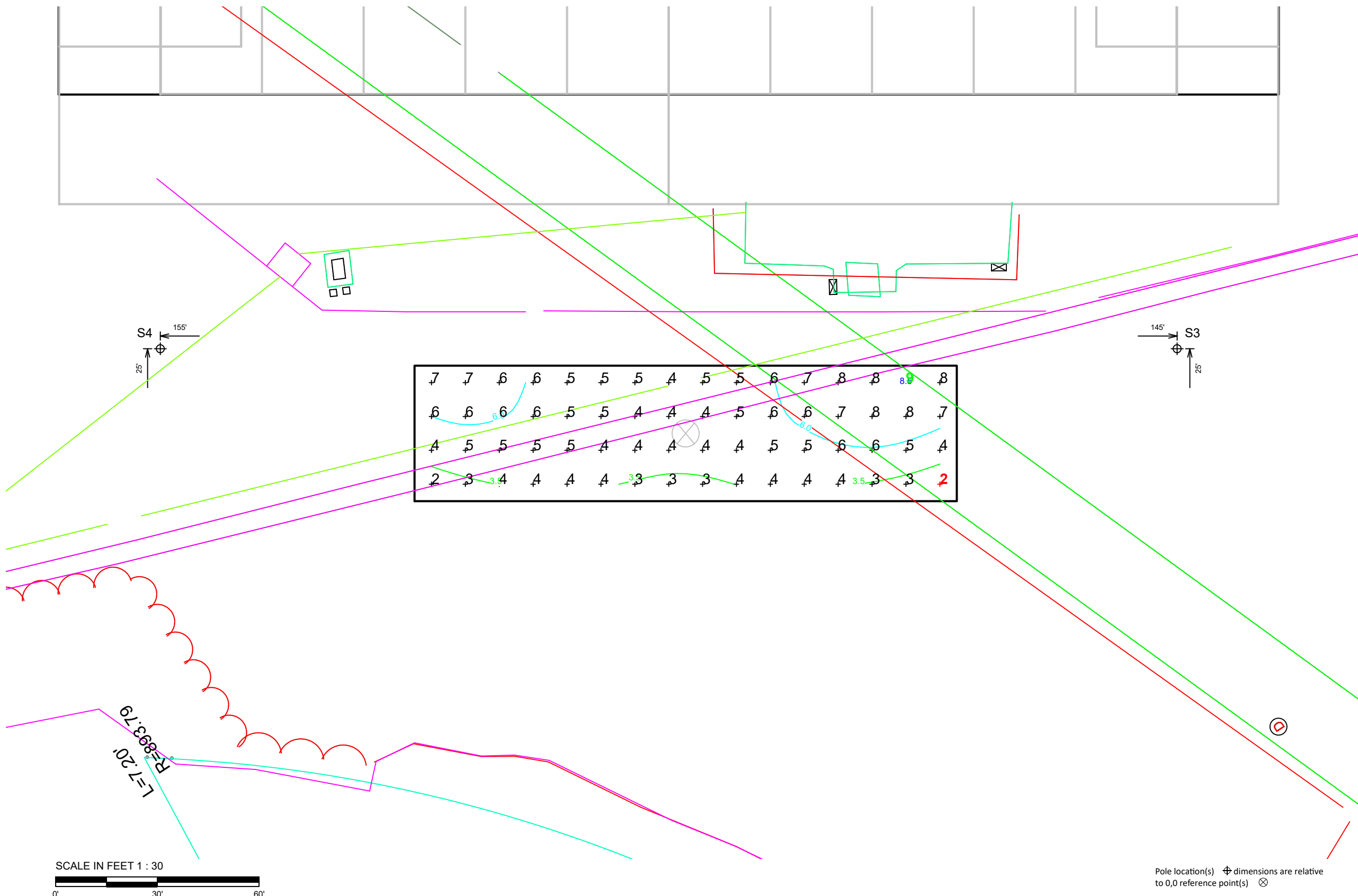
ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
Entire Grid			
Scan Average:	5.03		
Maximum:	9		
Minimum:	2		
Avg / Min:	2.26		
Max / Min:	3.83		
UG (adjacent pts):	1.96		
CU:	0.32		
No. of Points:	64		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	46,500 lumens		
No. of Luminaires:	2		
Total Load:	0.8 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-400	>81,000	>81,000	>81,000
Reported per TM-21-11. See luminaire datasheet for details.			

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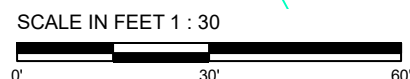
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Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



7	7	6	6	5	5	5	4	5	5	6	7	8	8	8	8
6	6	6	6	5	5	4	4	4	5	6	7	8	8	7	7
4	5	5	5	5	4	4	4	4	4	5	5	6	6	5	4
2	3	3	4	4	4	4	3	3	3	4	4	4	4	3	2



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



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ILLUMINATION SUMMARY

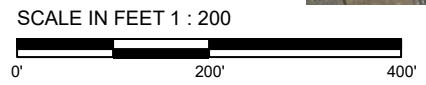
EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	80'	-	15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	9	9	0
2	S3-S4	80'	-	15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-400	1	1	0
				80'	TLC-LED-1500	9	9	0
4	TOTALS					46	46	0

GRID SUMMARY	
Name:	Zero Grid
Size:	360' x 160'
Spacing:	40.0' x 40.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
Entire Grid			
Scan Average:	14.89		
Maximum:	62		
Minimum:	0		
Avg / Min:	3071.15		
Max / Min:	12727.78		
UG (adjacent pts):	29.86		
CU:	0.93		
No. of Points:	240		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	160,000 / 46,500 / 52,000 lumens		
No. of Luminaires:	46		
Total Load:	56.88 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
Reported per TM-21-11. See luminaire datasheet for details.			



NOTES: Contour Line Key
Light blue: 1.0FC
Green: 0.5FC
Dark blue: 0.0FC



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

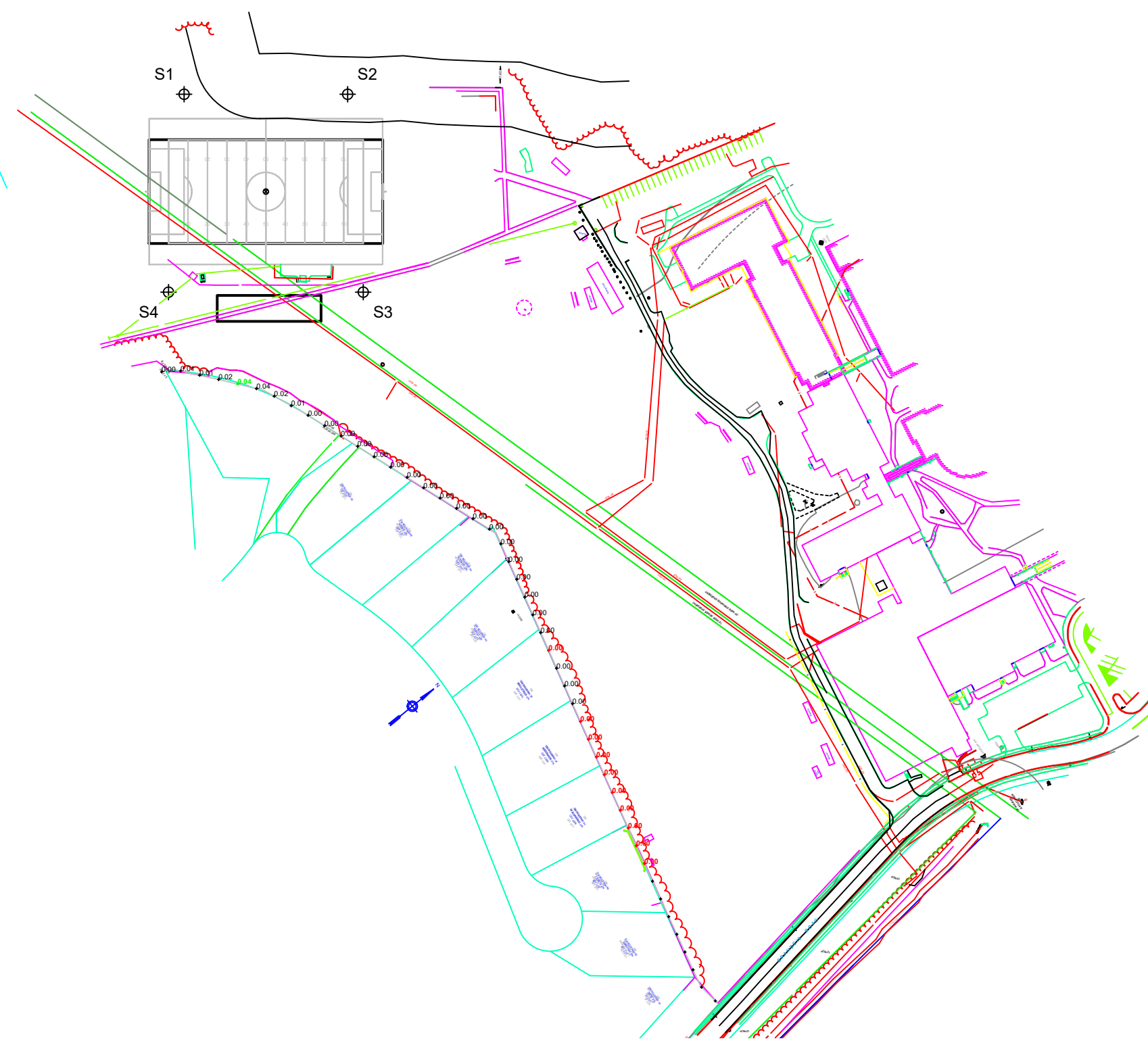


EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	80'	-	15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	9	9	0
2	S3-S4	80'	-	15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-400	1	1	0
				80'	TLC-LED-1500	9	9	0
4	TOTALS					46	46	0

**Newton South High School Football/Soccer
Newton, MA**

GRID SUMMARY	
Name:	Property Line
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
HORIZONTAL FOOTCANDLES			
Entire Grid			
Scan Average:	0.0039		
Maximum:	0.04		
Minimum:	0.00		
No. of Points:	47		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	160,000 / 46,500 / 52,000 lumens		
No. of Luminaires:	46		
Total Load:	56.88 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
Reported per TM-21-11. See luminaire datasheet for details.			



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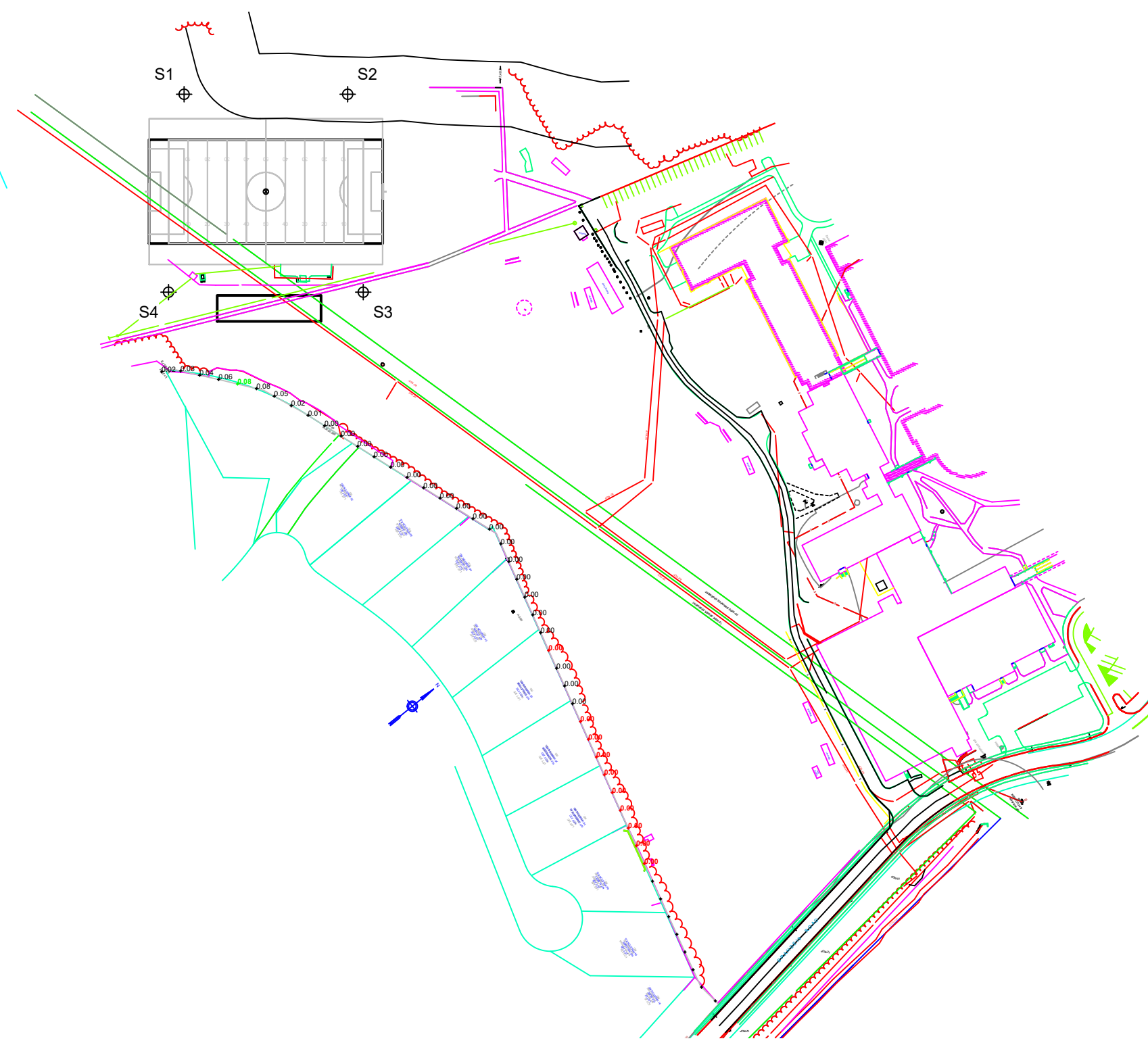
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EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	80'	-	15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	9	9	0
2	S3-S4	80'	-	15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-400	1	1	0
				80'	TLC-LED-1500	9	9	0
4	TOTALS					46	46	0

Newton South High School Football/Soccer
Newton, MA

GRID SUMMARY	
Name:	Property Line
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAX VERTICAL FOOTCANDLES			
Entire Grid			
Scan Average:	0.0102		
Maximum:	0.08		
Minimum:	0.00		
No. of Points:	47		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	160,000 / 46,500 / 52,000 lumens		
No. of Luminaires:	46		
Total Load:	56.88 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
Reported per TM-21-11. See luminaire datasheet for details.			



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SCALE IN FEET 1 : 200

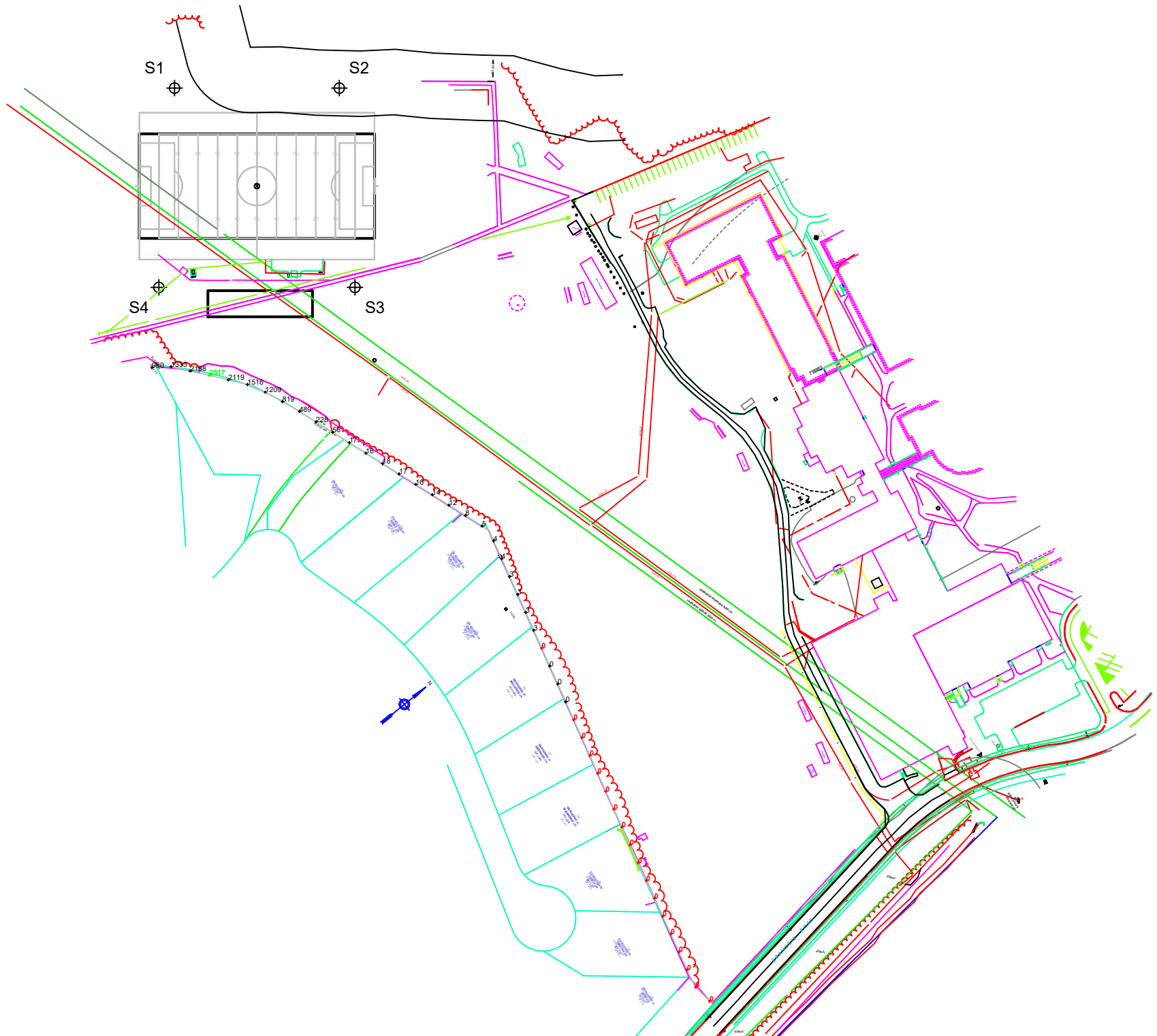


Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	80'	-	15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	9	9	0
2	S3-S4	80'	-	15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-400	1	1	0
				80'	TLC-LED-1500	9	9	0
4	TOTALS					46	46	0



**Newton South High School Football/Soccer
Newton, MA**

GRID SUMMARY	
Name:	Property Line
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
CANDELA (PER FIXTURE)			
Entire Grid			
Scan Average:	285.0473		
Maximum:	2316.63		
Minimum:	0.00		
No. of Points:	47		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	160,000 / 46,500 / 52,000 lumens		
No. of Luminaires:	46		
Total Load:	56.88 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
Reported per TM-21-11. See luminaire datasheet for details.			

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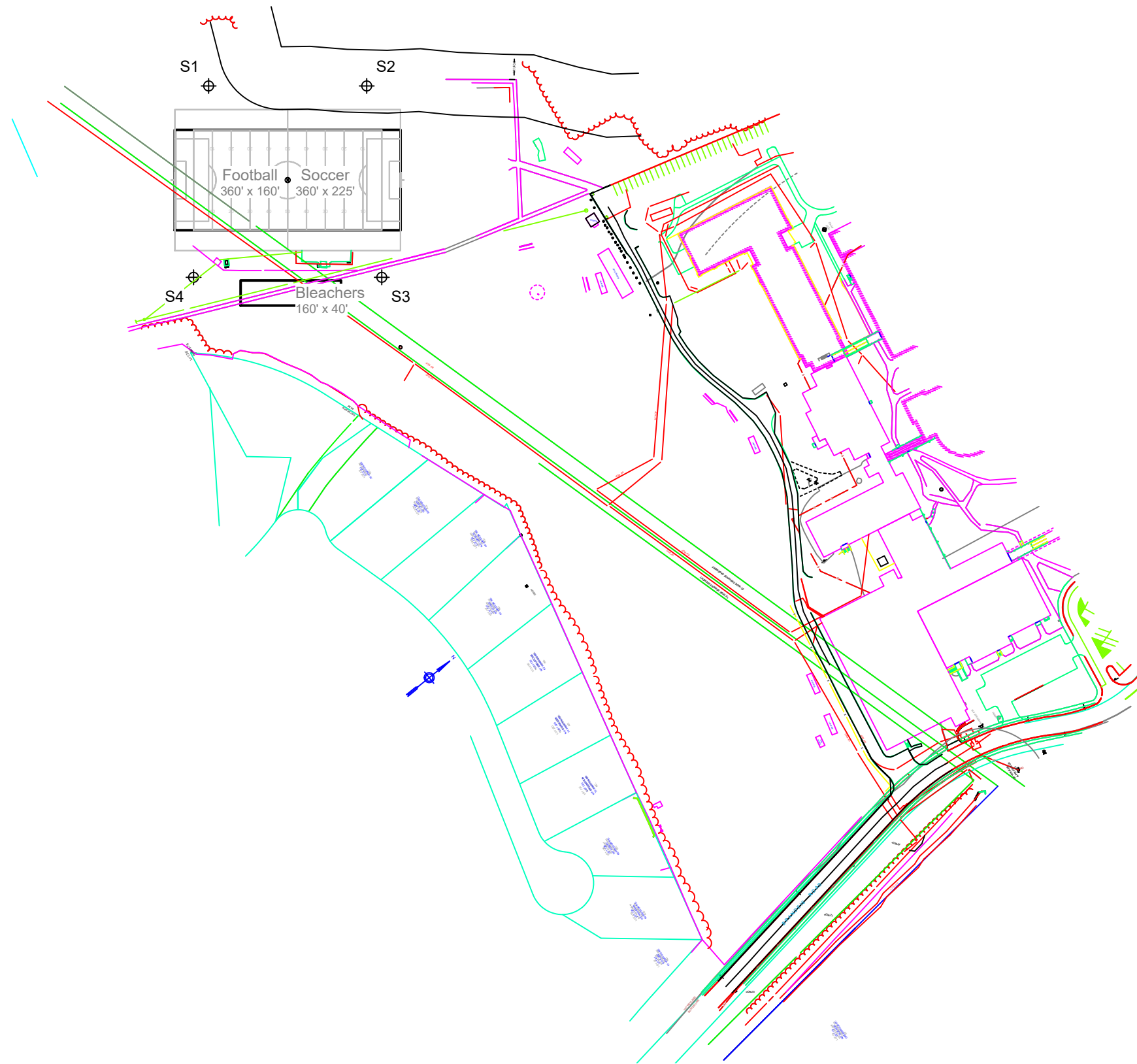


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EQUIPMENT LAYOUT

INCLUDES:

- Bleachers
- Football
- Soccer

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

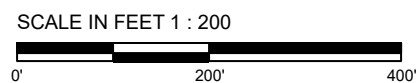
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EQUIPMENT LIST FOR AREAS SHOWN

QTY	Pole			Luminaires		
	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
2	S1-S2	80'	-	15.5' 80'	TLC-BT-575 TLC-LED-1500	2 9
2	S3-S4	80'	-	15.5' 70' 80'	TLC-BT-575 TLC-LED-400 TLC-LED-1500	2 1 9
4	TOTALS					46

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)	380 (60)	480 (60)
Single Phase Voltage	8.5	8.1	7.4	6.4	5.1	4.7	3.7
TLC-LED-1500	2.3	2.2	2.0	1.7	1.4	1.3	1.0
TLC-LED-400-A	3.4	3.2	2.9	2.5	2.0	1.8	1.5



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