Appendix A Lighting Plans

Appendices

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Rancho Alamitos High School Athletic Fields

Garden Grove, CA

Lighting System

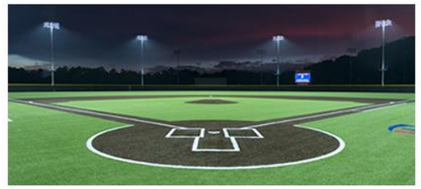
Pole / Fixture Summary

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
A1-A2	60'	60'	3	TLC-LED-1200	3.51 kW	B
		16'	1	TLC-BT-575	0.58 kW	B
A3-A4	70'	70'	3	TLC-LED-1500	4.29 kW	D
		70'	2	TLC-LED-900	1.78 kW	D
		16'	1	TLC-BT-575	0.58 kW	D
B1-B2	70'	70'	5	TLC-LED-1500	7.15 kW	B
		16'	1	TLC-BT-575	0.58 kW	B
B3-B4	80'	80'	6	TLC-LED-1500	8.58 kW	D
		80'	1	TLC-LED-900	0.89 kW	D
		16'	1	TLC-BT-575	0.58 kW	D
C1	70'	70'	1	TLC-LED-1200	1.17 kW	G
		70'	1	TLC-LED-1200	1.17 kW	F
		70'	4	TLC-LED-1500	5.72 kW	D
		70'	2	TLC-LED-900	1.78 kW	G
		70'	2	TLC-LED-900	1.78 kW	F
		16'	2	TLC-BT-575	1.15 kW	D
C2	70'	70'	4	TLC-LED-1500	5.72 kW	D
		16'	2	TLC-BT-575	1.15 kW	D
F1-F2	80'	80'	10	TLC-LED-1500	14.30 kW	A
		80'	1	TLC-LED-900	0.89 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
F3-F4	80'	80'	11	TLC-LED-1500	15.73 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
S1-S2	60'	60'	4	TLC-LED-1200	4.68 kW	C
S3-S4	80'	80'	5	TLC-LED-1500	7.15 kW	C
T1-T2	60'	60'	1	TLC-LED-1200	1.17 kW	E
		60'	2	TLC-LED-900	1.78 kW	E
T3	60'	60'	1	TLC-LED-1200	1.17 kW	E
		60'	1	TLC-LED-1200	1.17 kW	F
		60'	2	TLC-LED-900	1.78 kW	E
		60'	2	TLC-LED-900	1.78 kW	F
T4	60'	60'	1	TLC-LED-1200	1.17 kW	F
		60'	1	TLC-LED-1200	1.17 kW	E
		60'	2	TLC-LED-900	1.78 kW	F
		60'	2	TLC-LED-900	1.78 kW	E
T5	60'	60'	1	TLC-LED-1200	1.17 kW	F
		60'	1	TLC-LED-1200	1.17 kW	G
		60'	2	TLC-LED-900	1.78 kW	F
		60'	2	TLC-LED-900	1.78 kW	G
T6-T7	60'	60'	1	TLC-LED-1200	1.17 kW	G
		60'	2	TLC-LED-900	1.78 kW	G
25			***166***		***196.24 kW***	

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Football	66.44 kW	52
B	Softball	23.62 kW	20
C	Practice	23.66 kW	18
D	Baseball	47.12 kW	40
E	Tennis 1-3	11.8 kW	12
F	Tennis 4-6	11.8 kW	12
G	Tennis 7-9	11.8 kW	12

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Rancho Alamitos High School Athletic Fields

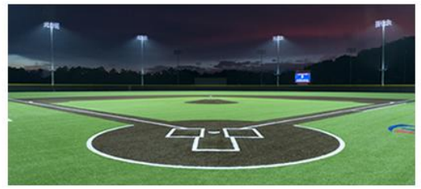
Garden Grove, CA

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1500	LED 5700K - 75 CRI	1430W	160,000	>120,000	>120,000	>120,000	88
TLC-LED-1200	LED 5700K - 75 CRI	1170W	136,000	>120,000	>120,000	>120,000	26
TLC-LED-900	LED 5700K - 75 CRI	890W	89,600	>120,000	>120,000	>120,000	32
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	20

Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
BB RF Bull Pen	Horizontal	52.4	36	68	1.87	1.46	D	40
BB LF Bull Pen	Horizontal	56.9	43	68	1.60	1.32	D	40
Track	Horizontal Illuminance	28.5	13	42	3.14	2.19	A	52
Baseball (Infield)	Horizontal Illuminance	52	36	66	1.83	1.44	D	40
Baseball (Outfield)	Horizontal Illuminance	32	21	46	2.24	1.52	D	40
Football	Horizontal Illuminance	51.3	40	61	1.52	1.28	A	52
Soccer	Horizontal Illuminance	50.9	40	62	1.54	1.27	A	52
Softball (Infield)	Horizontal Illuminance	53	37	65	1.76	1.43	B	20
Softball (Outfield)	Horizontal Illuminance	34.7	22	49	2.22	1.58	B	20
Soccer Practice	Horizontal Illuminance	32.9	25	41	1.63	1.32	C	18
Property Line Spill	Horizontal	0.08	0	1.23	0.00		A,B,C,D,E, F,G	166
Property Line Spill	Max Vertical Illuminance Metric	0.13	0	1.70	0.00		A,B,C,D,E, F,G	166
Property Line Spill	Max Candela (by Fixture)	1422	0	6882	0.00		A,B,C,D,E, F,G	166
Tennis 1-3	Horizontal Illuminance	52.8	43	64	1.50	1.23	E	12
Tennis 4-6	Horizontal Illuminance	51.1	39	63	1.62	1.31	F	12
Tennis 7-9	Horizontal Illuminance	53.2	38	64	1.70	1.40	G	12

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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
1	F1	80'	-	80'	TLC-LED-1500	10	10	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-900	1	1	0
1	F2	80'	-	80'	TLC-LED-900	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	10	10	0
2	F3-F4	80'	-	15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	11	11	0
4	TOTALS					52	52	0



SCALE IN FEET 1 : 60

0' 60' 120'

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

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Rancho Alamitos High School Athletic Fields
Garden Grove, CA

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:	51.31
Maximum:	61
Minimum:	40
Avg / Min:	1.27
Guaranteed Max / Min:	**2**
Max / Min:	1.52
UG (adjacent pts):	1.20
No. of Points:	72

LUMINAIRE INFORMATION

Applied Circuits:	A
No. of Luminaires:	**52**
Total Load:	66.44 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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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	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
				80'	TLC-LED-900	1	1	0
1	F2	80'	-	80'	TLC-LED-900	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	10	10	0
2	F3-F4	80'	-	15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	11	11	0
4	TOTALS					52	52	0



SCALE IN FEET 1 : 60

0' 60' 120'

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

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Rancho Alamitos High School Athletic Fields
Garden Grove, CA

GRID SUMMARY

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

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**50**
Scan Average:	50.92
Maximum:	62
Minimum:	40
Avg / Min:	1.27
Guaranteed Max / Min:	**2**
Max / Min:	1.54
UG (adjacent pts):	1.23
No. of Points:	84

LUMINAIRE INFORMATION

Applied Circuits:	A
No. of Luminaires:	**52**
Total Load:	66.44 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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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	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
				80'	TLC-LED-900	1	1	0
1	F2	80'	-	80'	TLC-LED-900	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	10	10	0
2	F3-F4	80'	-	15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	11	11	0
4	TOTALS					52	52	0



SCALE IN FEET 1 : 60

0' 60' 120'

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

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Rancho Alamitos High School Athletic Fields
Garden Grove, CA

GRID SUMMARY

Name:	**Track**
Size:	Irregular
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**25**
Scan Average:	28.47
Maximum:	42
Minimum:	13
Avg / Min:	2.15
Guaranteed Max / Min:	**4**
Max / Min:	3.14
UG (adjacent pts):	0.00
No. of Points:	48

LUMINAIRE INFORMATION

Applied Circuits:	A
No. of Luminaires:	**52**
Total Load:	66.44 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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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A1-A2	60'	-	15.5'	TLC-BT-575	1	1	0
				60'	TLC-LED-1200	3	3	0
2	B1-B2	70'	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	5	5	0
4	TOTALS					20	20	0



SCALE IN FEET 1 : 40

0' 40' 80'

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

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Rancho Alamitos High School Athletic Fields
Garden Grove, CA

GRID SUMMARY

Name:	**Softball**
Size:	Irregular 204' / 223' / 206'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Guaranteed Average:	**50**	**30**
Scan Average:	53.00	34.69
Maximum:	65	49
Minimum:	37	22
Avg / Min:	1.44	1.59
Guaranteed Max / Min:	**2**	**2.5**
Max / Min:	1.76	2.22
UG (adjacent pts):	1.20	1.58
No. of Points:	25	82

LUMINAIRE INFORMATION

Applied Circuits:	B
No. of Luminaires:	**20**
Total Load:	23.62 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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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	60'	-	60'	TLC-LED-1200	4	4	0
2	S3-S4	80'	-	80'	TLC-LED-1500	5	5	0
4	TOTALS					18	18	0



SCALE IN FEET 1 : 50

0' 50' 100'

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

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Rancho Alamitos High School Athletic Fields
Garden Grove, CA

GRID SUMMARY

Name:	**Soccer Practice**
Size:	305' x 150'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**30**
Scan Average:	32.94
Maximum:	41
Minimum:	25
Avg / Min:	1.30
Guaranteed Max / Min:	**2.5**
Max / Min:	1.63
UG (adjacent pts):	1.29
No. of Points:	50

LUMINAIRE INFORMATION

Applied Circuits:	C
No. of Luminaires:	**18**
Total Load:	23.66 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.

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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	A3-A4	70'	-	70'	TLC-LED-1500	3	3	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-900	2	2	0
2	B3-B4	80'	-	80'	TLC-LED-900	1	1	0
				15.5'	TLC-BT-575	1	1	0
				80'	TLC-LED-1500	6	6	0
1	C1	70'	-	70'	TLC-LED-1200	2*	0	2
				70'	TLC-LED-900	4*	0	4
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	4	4	0
1	C2	70'	-	15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	4	4	0
6	TOTALS					46	40	6

* This structure utilizes a back-to-back mounting configuration



SCALE IN FEET 1 : 60

0' 60' 120'

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

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Rancho Alamitos High School Athletic Fields
Garden Grove, CA

GRID SUMMARY

Name:	**Baseball**
Size:	Irregular 291' / 343' / 292'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Guaranteed Average:	**50**	**30**
Scan Average:	51.97	31.99
Maximum:	66	46
Minimum:	36	21
Avg / Min:	1.44	1.54
Guaranteed Max / Min:	**2**	**2.5**
Max / Min:	1.83	2.24
UG (adjacent pts):	1.20	1.58
No. of Points:	25	81

LUMINAIRE INFORMATION

Applied Circuits:	D
No. of Luminaires:	**40**
Total Load:	47.12 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.

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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	A3-A4	70'	-	70'	TLC-LED-1500	3	3	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-900	2	2	0
2	B3-B4	80'	-	80'	TLC-LED-900	1	1	0
				15.5'	TLC-BT-575	1	1	0
				80'	TLC-LED-1500	6	6	0
1	C1	70'	-	70'	TLC-LED-1200	2*	0	2
				70'	TLC-LED-900	4*	0	4
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	4	4	0
1	C2	70'	-	15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	4	4	0
6	TOTALS					46	40	6

* This structure utilizes a back-to-back mounting configuration



SCALE IN FEET 1 : 30

0' 30' 60'

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

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Rancho Alamitos High School Athletic Fields
Garden Grove, CA

GRID SUMMARY

Name:	**BB LF Bull Pen**
Size:	Irregular 291' / 343' / 292'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES	Entire Grid
Scan Average:	**56.91**
Maximum:	68
Minimum:	43
Avg / Min:	1.34
Max / Min:	**1.60**
UG (adjacent pts):	1.24
No. of Points:	14
LUMINAIRE INFORMATION	
Applied Circuits:	D
No. of Luminaires:	**40**
Total Load:	47.12 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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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A3-A4	70'	-	70'	TLC-LED-1500	3	3	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-900	2	2	0
2	B3-B4	80'	-	80'	TLC-LED-900	1	1	0
				15.5'	TLC-BT-575	1	1	0
				80'	TLC-LED-1500	6	6	0
1	C1	70'	-	70'	TLC-LED-1200	2*	0	2
				70'	TLC-LED-900	4*	0	4
				15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	4	4	0
1	C2	70'	-	15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	4	4	0
6	TOTALS					46	40	6

* This structure utilizes a back-to-back mounting configuration



SCALE IN FEET 1 : 30

0' 30' 60'

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

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Rancho Alamitos High School Athletic Fields
Garden Grove, CA

GRID SUMMARY

Name:	**BB RF Bull Pen**
Size:	Irregular 291' / 343' / 292'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**52.42**
Maximum:	68
Minimum:	36
Avg / Min:	1.45
Max / Min:	**1.87**
UG (adjacent pts):	1.23
No. of Points:	16

LUMINAIRE INFORMATION

Applied Circuits:	D
No. of Luminaires:	**40**
Total Load:	47.12 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.

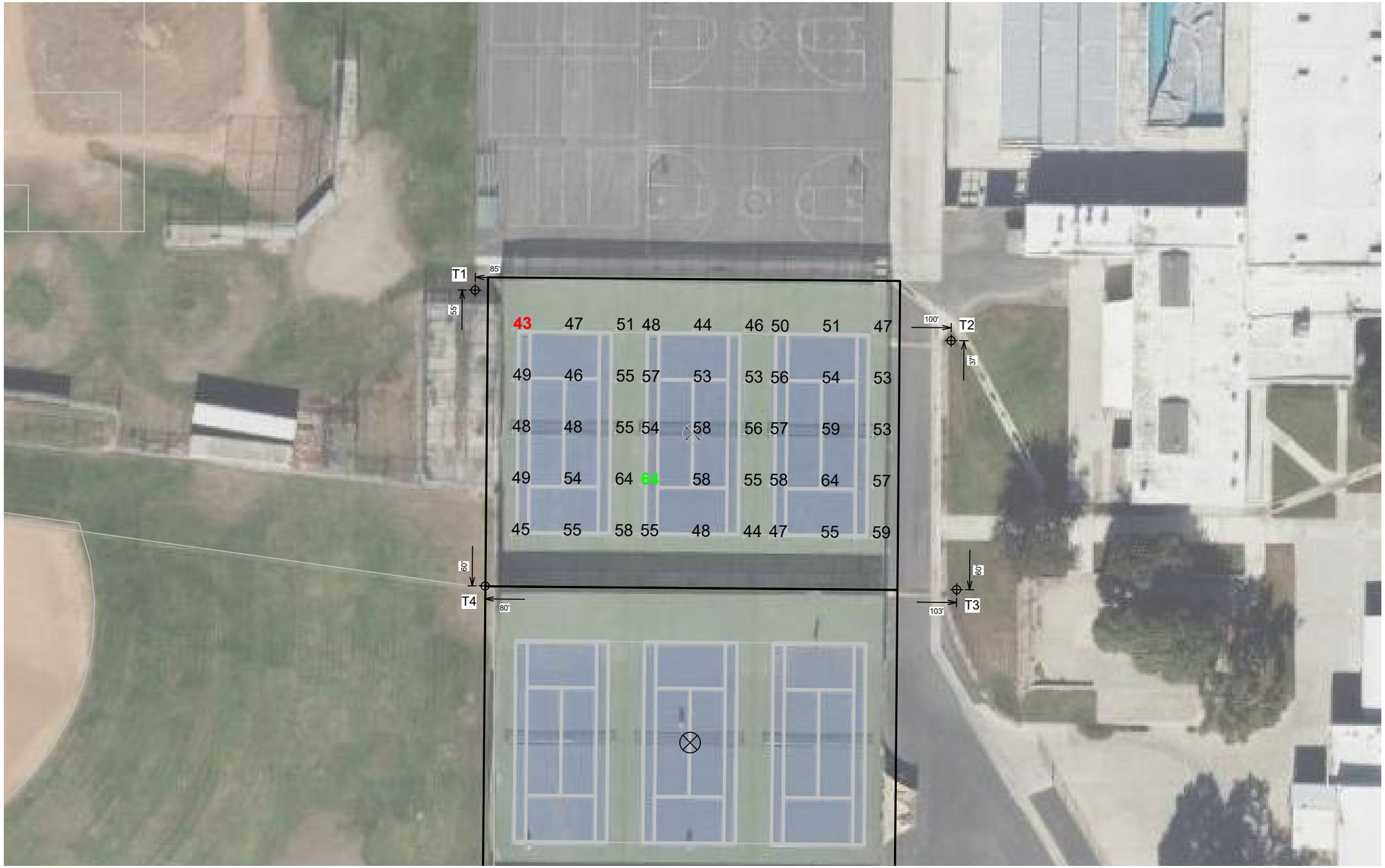
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	T1-T2	60'	-	60'	TLC-LED-900	2	2	0
				60'	TLC-LED-1200	1	1	0
2	T3-T4	60'	-	60'	TLC-LED-900	4	2	2
				60'	TLC-LED-1200	2	1	1
4	TOTALS					18	12	6



SCALE IN FEET 1 : 40

0' 40' 80'

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

ENGINEERED DESIGN By: Vashon Alexander · File #216618A · 09-Feb-22

Rancho Alamitos High School Athletic Fields
Garden Grove, CA

GRID SUMMARY

Name:	**Tennis 1-3**
Size:	3 Court - 14' Spacing
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**50**
Scan Average:	52.79
Maximum:	64
Minimum:	43
Avg / Min:	1.23
Guaranteed Max / Min:	**2**
Max / Min:	1.50
UG (adjacent pts):	0.00
No. of Points:	45

LUMINAIRE INFORMATION

Applied Circuits:	E
No. of Luminaires:	**12**
Total Load:	11.8 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.

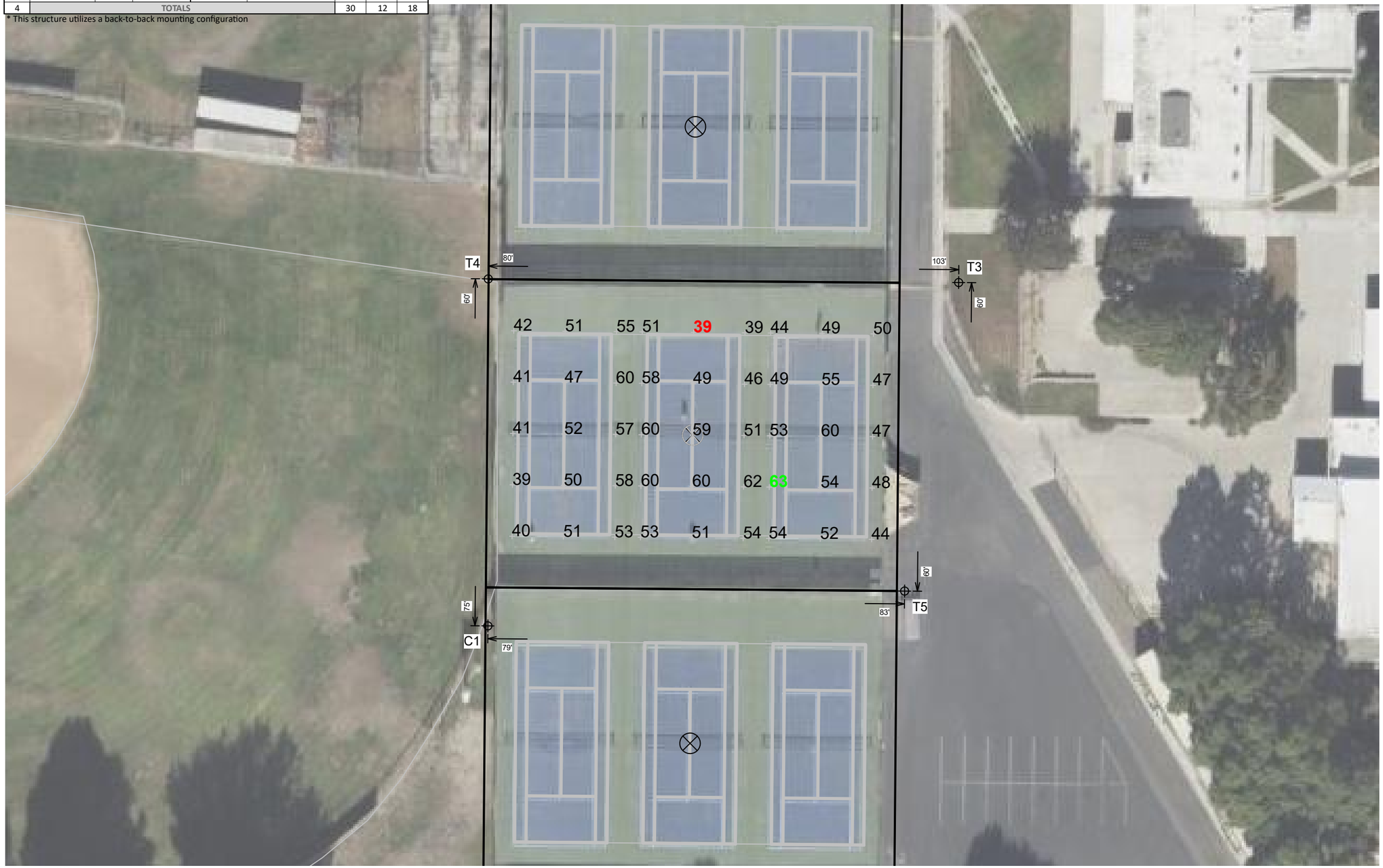
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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	C1	70'	-	70'	TLC-LED-1200	2*	1	1
				70'	TLC-LED-900	4*	2	2
				15.5'	TLC-BT-575	2	0	2
				70'	TLC-LED-1500	4	0	4
3	T3-T5	60'	-	60'	TLC-LED-900	4	2	2
				60'	TLC-LED-1200	2	1	1
4	TOTALS					30	12	18

* This structure utilizes a back-to-back mounting configuration



SCALE IN FEET 1 : 40

0' 40' 80'

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

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Rancho Alamitos High School Athletic Fields
Garden Grove, CA

GRID SUMMARY

Name:	**Tennis 4-6**
Size:	3 Court - 14' Spacing
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**50**
Scan Average:	51.10
Maximum:	63
Minimum:	39
Avg / Min:	1.32
Guaranteed Max / Min:	**2**
Max / Min:	1.62
UG (adjacent pts):	0.00
No. of Points:	45

LUMINAIRE INFORMATION

Applied Circuits:	F
No. of Luminaires:	**12**
Total Load:	11.8 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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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	C1	70'	-	70'	TLC-LED-1200	2*	1	1
				70'	TLC-LED-900	4*	2	2
				15.5'	TLC-BT-575	2	0	2
				70'	TLC-LED-1500	4	0	4
1	T5	60'	-	60'	TLC-LED-900	4	2	2
				60'	TLC-LED-1200	2	1	1
2	T6-T7	60'	-	60'	TLC-LED-900	2	2	0
				60'	TLC-LED-1200	1	1	0
4	TOTALS					24	12	12

* This structure utilizes a back-to-back mounting configuration



SCALE IN FEET 1 : 40

0' 40' 80'

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

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Rancho Alamitos High School Athletic Fields
Garden Grove, CA

GRID SUMMARY

Name:	**Tennis 7-9**
Size:	3 Court - 14' Spacing
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**50**
Scan Average:	53.16
Maximum:	64
Minimum:	38
Avg / Min:	1.41
Guaranteed Max / Min:	**2**
Max / Min:	1.70
UG (adjacent pts):	0.00
No. of Points:	45

LUMINAIRE INFORMATION

Applied Circuits:	G
No. of Luminaires:	**12**
Total Load:	11.8 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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Rancho Alamitos High School Athletic Fields
Garden Grove, CA

GRID SUMMARY

Name:	**Property Line Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	0.0810
Maximum:	1.23
Minimum:	0.00
No. of Points:	206

LUMINAIRE INFORMATION

Applied Circuits:	A, B, C, D, E, F, G
No. of Luminaires:	**166**
Total Load:	196.24 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

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.

SCALE IN FEET 1 : 200

0' 200' 400'

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

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Rancho Alamitos High School Athletic Fields
Garden Grove, CA

GRID SUMMARY

Name:	**Property Line Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAX VERTICAL FOOTCANDLES

	Entire Grid
Scan Average:	0.1264
Maximum:	1.70
Minimum:	0.00
No. of Points:	206

LUMINAIRE INFORMATION

Applied Circuits:	A, B, C, D, E, F, G
No. of Luminaires:	**166**
Total Load:	196.24 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

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.

SCALE IN FEET 1 : 200

0' 200' 400'

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

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Rancho Alamitos High School Athletic Fields
Garden Grove, CA

GRID SUMMARY

Name:	**Property Line Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

CANDELA (PER FIXTURE)

	Entire Grid
Scan Average:	1422.1700
Maximum:	6881.72
Minimum:	0.00
No. of Points:	206

LUMINAIRE INFORMATION

Applied Circuits:	A, B, C, D, E, F, G
No. of Luminaires:	**166**
Total Load:	196.24 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

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.

SCALE IN FEET 1 : 200

0' 200' 400'

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

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SCALE IN FEET 1 : 200

0' 200' 400'

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

Rancho Alamitos High School Athletic Fields
Garden Grove, CA

EQUIPMENT LAYOUT

INCLUDES:
- Baseball
- Football
- Soccer
- Soccer Practice
- Softball
- Tennis 1-3
- Tennis 4-6
- Tennis 7-9
- 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

Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
2	A1-A2	60'	-	15.5' 60'	TLC-BT-575 TLC-LED-1200	1 3
2	A3-A4	70'	-	70' 15.5' 70'	TLC-LED-1500 TLC-BT-575 TLC-LED-900	3 1 2
2	B1-B2	70'	-	15.5' 70'	TLC-BT-575 TLC-LED-1500	1 5
2	B3-B4	80'	-	80' 15.5' 80'	TLC-LED-900 TLC-BT-575 TLC-LED-1500	1 1 6
1	C1	70'	-	70' 70' 15.5' 70'	TLC-LED-1200 TLC-LED-900 TLC-BT-575 TLC-LED-1500	2* 4* 2 4
1	C2	70'	-	15.5' 70'	TLC-BT-575 TLC-LED-1500	2 4
1	F1	80'	-	80' 15.5' 80'	TLC-LED-1500 TLC-BT-575 TLC-LED-900	10 2 1
1	F2	80'	-	80' 15.5' 80'	TLC-LED-900 TLC-BT-575 TLC-LED-1500	1 2 10
2	F3-F4	80'	-	15.5' 80'	TLC-BT-575 TLC-LED-1500	2 11
2	S1-S2	60'	-	60'	TLC-LED-1200	4
2	S3-S4	80'	-	80'	TLC-LED-1500	5
2	T1-T2	60'	-	60' 60'	TLC-LED-900 TLC-LED-1200	2 1
3	T3-T5	60'	-	60' 60'	TLC-LED-900 TLC-LED-1200	4 2
2	T6-T7	60'	-	60' 60'	TLC-LED-900 TLC-LED-1200	2 1
25	TOTALS					166

* This structure utilizes a back-to-back mounting configuration

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast 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-LED-1500	8.5	8.1	7.4	6.4	5.1	4.7	3.7
TLC-LED-1200	7.0	6.6	6.1	5.2	4.2	4.0	3.0
TLC-LED-900	5.3	5.0	4.6	4.0	3.2	2.9	2.3
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8	1.5

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