

**CITY OF MERCED PROJECT NO. CP220061
CHANGE ORDER NO. 3**

DATE: June 27, 2024

PROJECT NAME: Community Park 42

PROJECT LOCATION: Merced, California

CONTRACTOR: American Paving Company

ADDRESS: P.O. Box 27587, Fresno CA 93729

REASON FOR CHANGE ORDER:

Additional work to add 2 additional soccer fields, 2 basketball courts. Quantity adjustment for additional asphalt per the contract unit price. Add Musco Lights, and additional work.

THE NUMBER OF WORKING DAYS WILL BE ADJUSTED AS FOLLOWS: 35

SKETCH ATTACHED: Yes

DESCRIPTION OF CHANGE:

Quantity Adjustments

Item No	Item	Unit	Quantity	Unit Price	Amount
39	Concrete Flatwork (Site Finish 'A')	SF	-723	\$ 8.60	\$ (6,217.80)
49	Parking Lot Curbs - Vertical/Flush - (Site Feature '23')	LF	-46	\$ 20.00	\$ (920.00)
54	AC Dike	LF	-116	\$ 18.00	\$ (2,088.00)
69	ADA Ramp with Truncated Domes (Site Feature '18')	EA	-11	\$ 1,300.00	\$ (14,300.00)
94	1 Gallon Shrubs	EA	-18	\$ 19.40	\$ (349.20)

Total for Quantity Adjustments: \$ (23,875.00)

Extra Work

Item No	Item	Unit	Quantity	Unit Price	Amount
1	Chain Link Fence with concrete curb behind Soccer Goal(Site Feature '57')	LF	542	\$ 107.00	\$ 57,994.00
2	Field Marker Identification Signage (Site Feature '58')	EA	4	\$ 1,900.00	\$ 7,600.00
3	Bench (Site Feature '11')	EA	4	\$ 2,200.00	\$ 8,800.00
4	Soccer Goal and Net (Site Feature '16')	EA	4	\$ 6,800.00	\$ 27,200.00
5	Soil Preparation & Amendment	SF	226,609	\$ 0.23	\$ 52,120.07
6	Turf Hydroseed – Sports Field Blend	SF	226,609	\$ 1.15	\$ 260,600.35
7	1 Gallon Shrubs	EA	23	\$ 19.40	\$ 446.20
8	24" Box Trees	EA	20	\$ 448.00	\$ 8,960.00
9	Tree Root Barriers	LF	208	\$ 6.00	\$ 1,248.00
10	Landscape Maintenance Period (180 Days)	LS	1	\$ 15,000.00	\$ 15,000.00
11	Install Musco Lights (4 Soccer Fields)	LS	1	\$ 1,076,400.00	\$ 1,076,400.00
12	Dual Post Football Goal (Field 2,3 & 4) Price Adjustment	EA	6	\$ 11,000.00	\$ 66,000.00
13	Extra Work to Regrade Parking Lot, Move Irrigation & Demo Concrete Curb	LS	1	\$ 37,600.00	\$ 37,600.00
40	Asphalt Parking Lot with striping (Site Finish 'B')	SF	1420	\$ 2.10	\$ 2,982.00
102	BI #102 FDR-C Process	SY	1538	\$ 19.25	\$ 29,606.50

Total for Extra Work \$ 1,652,557.12

Total for Change Order No. 3 \$ 1,628,682.12

ORIGINAL CONTRACT AMOUNT:	\$	5,800,580.70
CHANGE ORDER #1 AMOUNT:	\$	1,365,524.40
CHANGE ORDER #2 AMOUNT:	\$	1,532,539.00
CHANGE ORDER #3 AMOUNT:	\$	1,628,682.12
TOTAL PROJECT COST TO DATE:	\$	<u>10,327,326.22</u>

256

FUNDS/ACCOUNTS VERIFIED:

#14 CP220061 ARPA Prk&CS CON CIPImp-Lnd \$ 1,626,596.00
 20114020-591006
 #15 CP220061-PrkR-CON-CIPInfr # 2,086.12
 50014000-591003

my [signature] - 8/20/24
 FINANCE OFFICE DATE v-1405

Funds available. *MC 8/19/24*
or 8/20/24

ACCEPTED *[Signature]* DATE: 7/2/24
 (CONTRACTOR) **Stephen J. Poindexter, President & CEO**

RECOMMENDED *[Signature]* DATE: 7/8/24
 (CITY ENGINEER)

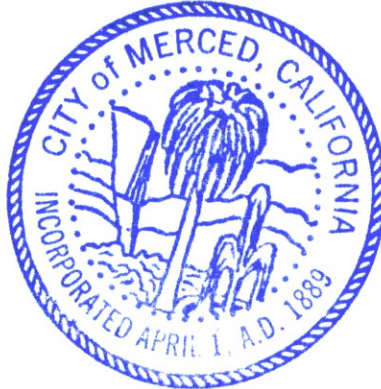
RECOMMENDED *[Signature]* DATE: 7/9/24
 (PROJECT CHAMPION)

APPROVED *[Signature]* DATE: 7/15/2024
As To Form (CITY ATTORNEY)

AUTHORIZED *[Signature]* DATE: 8/21/24
 (INTERIM CITY MANAGER)

ATTESTED *[Signature]* DATE: 8/22/2024
 (ASSISTANT/DEPUTY CITY CLERK)

(SEAL)



BID ITEM DESCRIPTIONS

BID ITEM DESCRIPTIONS

The descriptions below are general descriptions and do not include estimated quantities. See plans and bid summary for estimated quantities. Estimated quantities are provided as a courtesy only. Actual numbers and quantities of symbols on plans prevail.

Bid Item 1 -Chain Link Fence with concrete curb behind Soccer Goals (Site Feature '57'):

The linear foot price bid for this item shall include all costs for purchase and installation of chain link fence panels, rails, posts, footings, concrete curb, and all hardware and fasteners in locations indicated on the Drawings. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

Bid Item 2 - Field Marker Identification Signage (Site Feature '58'):

The unit price bid for this item shall include all costs for material purchase and installation of field location signage, and post and footing as indicated on the Drawings. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

Bid Item 3 - Bench (Site Feature '11'):

The unit price bid for this item shall include all costs for purchase and installation of benches, mounting hardware and adhesive, per plan details and in locations as indicated on the Drawings. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

Bid Item 4 - Soccer Goal and Net (Site Feature '16'):

The unit price bid for this item shall include all costs for purchase and installation of a dual soccer goal and net as indicated on the Drawings. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

Bid Item 5 -Soil Preparation & Amendment:

The square foot price bid for this item shall include all costs for soil testing, purchase and installation of fertilizers, organic material and soil conditioners as indicated by soil laboratory tests (contractor responsibility) and as indicated on the Drawings and Specifications. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

Bid Item 6 - Turf Hydroseed- Sports Field Blend:

The square foot price bid for this item shall include all costs for soil testing, purchase and installation of fertilizers, organic material and soil conditioners as indicated by soil laboratory tests (contractor responsibility), and turf hydroseed as indicated on the planting plans, details and specifications. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

Bid Item 7 -1 Gallon Shrubs:

The lump sum price bid for this item shall include all costs for purchase and installation of fertilizers, fertilizer packs, as indicated by soil laboratory tests (contractor responsibility), and purchase and installation of 1-gallon shrubs as indicated on the Drawings and Specifications. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

Bid Item 8 - 24" Box Trees:

The unit price bid for this item shall include all costs for purchase and installation of fertilizers, fertilizer packs, as indicated by soil laboratory tests (contractor responsibility), stakes, tree ties, and purchase and installation of 24" box trees as indicated on the Drawings and Specifications. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

Bid Item 9 - Tree Root Barriers:

The linear foot price bid for this item shall include all costs for purchase and installation of root barriers as indicated on planting plans and details. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

Bid Item 10 -Landscape Maintenance Period (180 Days):

The lump sum price bid for this item shall include all costs for maintaining installed landscape areas for a period of 180 days as indicated on the Drawings as well as replacements for plants and equipment. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

Bid Item 11 -Electrical with Musco Lights:

The lump sum price bid for this item shall include all costs for purchase and installation of a fully functional electrical power and lighting system, Musco field lights, including switchboard, panels, transformers, grounding, conduits, pullboxes, conductors, light fixtures (including poles), devices and equipment as indicated on the Drawings and Specifications within Division 26. For light poles and structures listed as bid alternate within this contract, the bidder shall provide a N16 pullbox at the termination point/location as part of base bid. This item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

END OF SECTION

315 North Thorne Avenue
 PO Box 27587
 Fresno, Ca 93729

American Paving Co.

Telephone: 559-268-9886
 Fax: 559-268-2908

June 13, 2024

City of Merced
 678 W. 18th Street
 Merced, CA 95340

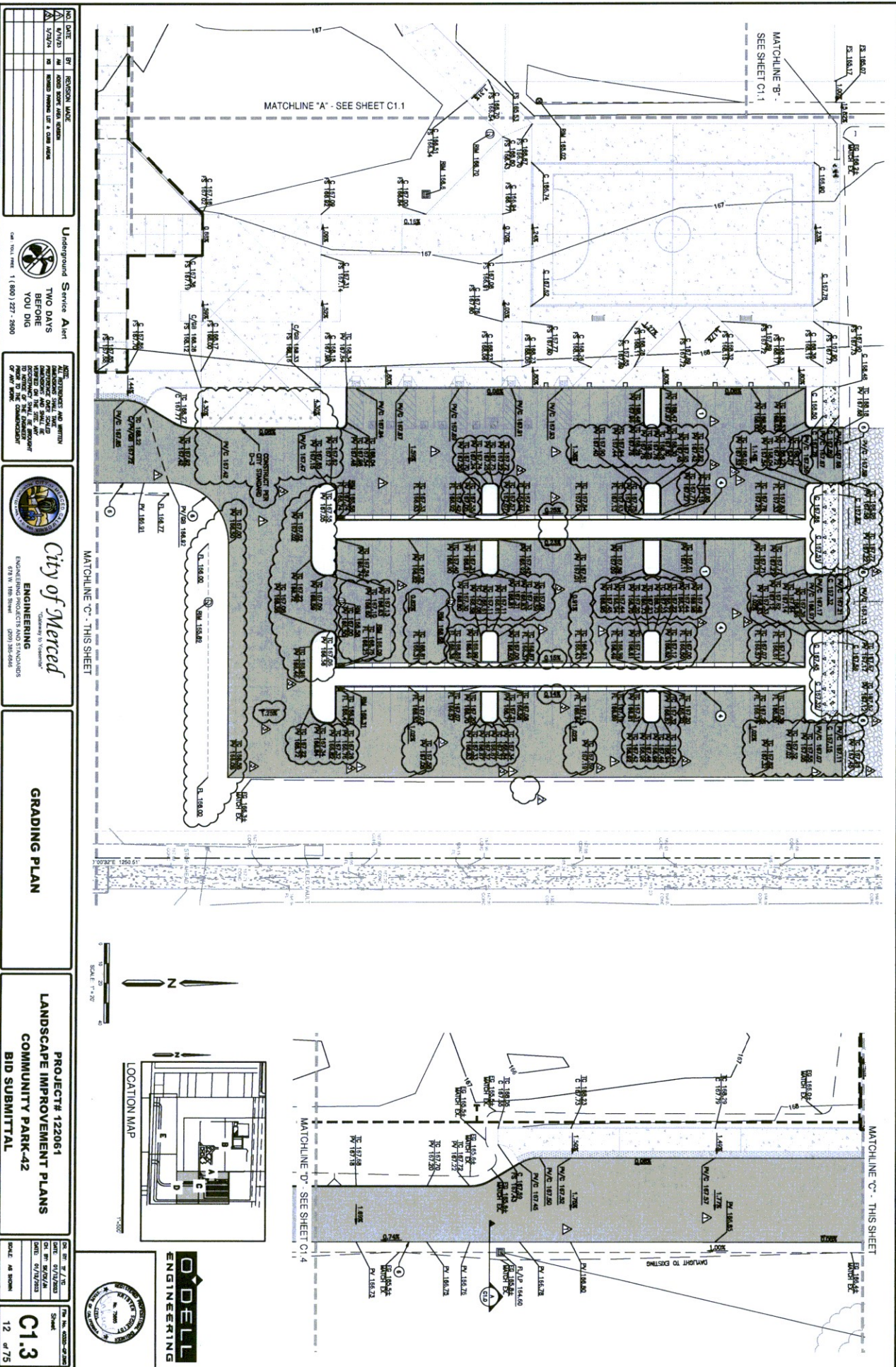
Attn: Joe Cardoso, PLS
 Project: Community Park 42
 Subject: PCO #5 – Revisions to Parking Lot & Curb Grades, & futsal court grades

Please find the below pricing. APC will provide all labor, equipment, materials, bonds, and incidentals to furnish and install the revisions to the parking lot, & grade changes at the curbs and futsal court.

Item	Description	QTY	U.M.	Unit Price	Total
	Project Manager Supervision - APC	5	DA	\$355.30	\$1,776.50
	Foremen Supervision - APC	5	DA	\$1,114.35	\$5,571.75
	Prime Bond - APC	1	LS	\$150.24	\$150.24
	Labor Escalation - APC	1	LS	\$319.65	\$319.65
	Overhead - APC	1	LS	\$2,556.01	\$2,556.01
	Profit – APC	1	LS	\$2,302.85	\$2,302.85
	Demo Concrete Curbs	1	LS	\$2,596.99	\$2,596.99
	Regrade Curbs, Parking lot, Drive Entrance, Futsal Court	1	LS	\$12,837.01	\$12,837.01
	Move Irrigation Conduit & Boxes in Parking Lot Planters (Fresno Landscape)	1	LS	\$7,000.00	\$7,000.00
	Re-Stake Drive Entrance & Planters (ESP)	1	LS	\$2,489.00	\$2,489.00
102	BI #102 FDR-C Process	1538	SY	\$19.25	\$29,606.50
40	Asphalt Parking Lot with striping (Site Finish 'B')	1420	SF	\$2.10	\$2,982.00
39	Concrete Flatwork (Site Finish 'A')	-723	SF	(\$8.60)	(\$6,217.80)
49	Parking Lot Curbs- Vertical/ Flush- (Site Feature '23')	-46	LF	(\$20.00)	(\$920.00)
54	AC Dike	-116	LF	(\$18.00)	(\$2,088.00)
94	1 Gallon Shrubs	-18	EA	(\$19.40)	(\$349.20)
				Total	\$60,613.50

APC will require an additional 5 working days be added to the contract duration in order to complete this work. Should you have any questions, please do not hesitate to contact us at (559) 268-9886.

American Paving Co.
Chris Williams
 Chris Williams
 Project Manager



NO.	DATE	BY	REVISION MADE
1	6/17/21	AM	ISSUED FOR BIDDING
2	7/27/21	AM	REVISED DRAWING SET & CADD MODEL

Underground Service Alert
 TWO DAYS
 BEFORE
 YOU DIG
 Call Toll Free: 1 (800) 227-5900

ALL SURVEYS AND ARCHITECTURAL DRAWINGS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS, LATEST EDITION, AS APPLICABLE TO THE COUNTY OF MERCED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE COUNTY OF MERCED.

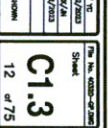


City of Merced
 ENGINEERING
 ENGINEERING PROJECTS AND STANDARDS
 619 S. 10TH STREET
 95354-5000

GRADING PLAN

**PROJECT # 122061
 LANDSCAPE IMPROVEMENT PLANS
 COMMUNITY PARK-42
 BID SUBMITTAL**

DATE: 6/17/21	BY: AM	SCALE: AS SHOWN
DATE: 6/17/2021	BY: AM	
DATE: 6/17/2021	BY: AM	



THE NO. 0035-02-2061
 SHEET
C1.3
 12 OF 75

315 North Thorne Avenue
PO Box 27587
Fresno, Ca 93729

American Paving Co.

Telephone: 559-268-9886
Fax: 559-268-2908

February 14, 2024

City of Merced
678 W. 18th Street
Merced, CA 95340

Attn: Joe Cardoso, PLS
Project: Community Park 42
Subject: PCO #4 – Musco field lighting package – R1

Please find the below pricing. APC will provide all labor, equipment, materials, bonds, and incidentals to furnish and install the Musco field lighting package. Including switchboard, panels, transformers, grounding, conduits, pull boxes, conductors, light fixtures (including poles), foundations, devices and equipment as indicated on the attached drawing.

Item	Description	QTY	U.M.	Unit Price	Total
1	Furnish and install Musco field lighting package	1	LS	\$1,076,400.00	\$1,076,400.00
Total					\$1,076,400.00

Please note that APC requires an executed change order by April 1st 2024 in order to guarantee this pricing. Pricing is subject to change after April 1st 2024.

APC will require an additional 30 working days be added to the contract duration in order to complete this work.

Should you have any questions, please do not hesitate to contact us at (559) 268-9886.

American Paving Co.

Chris Williams

Chris Williams
Project Manager

Portion of Bid Item 8 – Electrical with Musco Lights

SECTION 26 56 68 SPORTS FIELD LIGHTING

PART I - GENERAL

1.01 Related Documents

Drawings and general provisions of the bid documents, including general and supplementary conditions apply to this section.

1.02 Description of Work

A. The Sports Lighting section includes:

1. Galvanized steel pole and luminaire mounting crossarms
2. LED Luminaires, with appropriate glare/spill light control
3. Remote driver enclosure
4. Pole Foundations
5. Control System

B. The purpose of this specification is to define the performance standards, product values and features, required manufacturer's service responsibilities, and design standards for City of Merced Park (CP42) in Merced, CA.

1.03 Submittals

- A. It has been predetermined that these project specifications are the minimum acceptable criteria for this project. Musco Sports Lighting LLC, Total Light Control – TLC for LED™ technology is the only pre-approved equipment supplier.
- B. Manufacturers requesting approval shall provide submittal information as per Section 1.03 D. Submittal information must be received 10 days prior to bid opening, approved manufacturers will be notified by addendum.
- C. Submit each item in this article according to the conditions of the contract and specification section. Any deviations to the specification require the manufacturer to list and describe in detail such deviations. Failure to provide this information shall be grounds for immediate rejection.
- D. Submittal information required:
1. Light scans as per Section 1.04 of the specification.
 2. Spill scans as per Section 1.05 of the specification.
 3. Detailed warranty information as per Section 3.01 of the specification.
 4. Detail foundation design as described in Section 2.01
 5. Provide written information for the automated control system to include monitoring. Also provide examples of system reporting and access for numbers for personal contact to operate the system.
 6. The manufacturer must submit evidence in the form of a letter from a California Licensed structural engineer that the manufacturer has the ability to confirm to the California Title 24 structural design requirements. The manufacturer must provide five (5) similar pole submittal project reviews approved by the California Division of State Architecture's office in the past two (2) years. The examples are to include the D.S.A. file numbers.
 7. Lighting Manufacturer will supply certified photometric reports from Independent Testing Lab (ITL) or a Certified Lab along with an aiming angle summary for verification.

1.04 Sports Lighting Performance

- A. Illumination Levels and Design Factors: The illumination levels specified shall be based on light levels for 25 years. Light levels shall not drop below specified targeted lighting levels during the specified warranty period. Appropriate light loss factors shall be applied and submitted for the basis of design.

Area of Lighting	Light Levels	Uniformity	# of Points	Size of Area	Grid Spacing
Soccer Fields 1-3	30 footcandles	2.5:1	88	330' x 225'	30' x 30'

1.05 Spill And Glare Analysis

- A. Submitted spill/glare computer models shall depict the field test stations at **the property line**. The test stations shall be shown every 30' along the line with the field lights on. Bidder shall submit, as described below:
 1. Horizontal footcandles: No single point shall exceed 2.5 footcandles. Models shall represent readings taken with the meter positioned horizontal 36 inches above grade.
 2. Vertical footcandles: No single point shall exceed 2.75 footcandles. Models shall represent readings taken with the test cell positioned 36 inches above grade and aimed at the brightest light source.
 3. Candela Readings: At 150' from the field line at 3' above grade, the max candela reading (by fixture) shall not exceed 9,100(candela). Readings taken with all fields illuminated.

B. MATERIALS

A. Pole Structural Steel

1. The pole shafts shall be high strength low alloy tapered tubular steel that is equal to current ASTM A595 standards, with galvanized coating inside and out. All connections of pole sections shall be by slip fitting the top section over the lower section by a length of at least 1.5 times the diameters.
2. Steel components of the poles shall be hot dip galvanized to current ASTM A-123. Steel portions of the pole shall be constructed such that all segments of the pole can be readily heated to like temperatures in commercially available galvanizing methods.
3. To avoid problems of galvanize adherence to differing steel alloys, all steel components used for the pole must be of the same type steel.
4. All exposed steel components of the pole shall be at least 18" above the surface of the ground to avoid exposure of the steel to the heavily moisture and oxygen laden air, both above and below the surface. There shall be a cap to cover the top of the pole so that rain will not enter the interior of the pole.
5. To avoid stress corrosion of the pole, there shall be no weld points of the steel portion of the pole within 18" of the ground. The pole shall be galvanized steel.
6. The poles for this project have been designed to withstand 95 mph winds based upon CBC-C standards. The premise of the wind speed criteria will be the 50 year mean recurrent isotach wind map. Applicable gust factors to be applied per code.

B. Foundation Design

1. The Manufacturer shall provide a stamped foundation design, prepared by a Structural Engineer, licensed in the State of California.

2. The foundation design shall be based upon recommendations contained in the Geotechnical Report furnished by the Owner. If a Geotechnical Report is not provided by the Owner, the foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by the 2022 CBC Table 1806.2.

3. It is the contractor's responsibility to notify the owner of soil conditions other than the design criteria. The owner shall then be responsible and absorb the additional costs associated with: Providing engineered foundation embedment design by a registered engineer in the State of California for soils other than specified soil conditions. Additional materials required to achieve alternate foundation. No direct burial steel poles allowed.

4. Lightning Protection: Manufacturer shall provide integrated lightning grounding via concrete encased electrode grounding system as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A. If grounding is not integrated into the structure, the Manufacturer shall supply grounding electrodes, copper down conductors and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780. The grounding electrode shall be not less than 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

C. LED Sports Lighting Fixtures:

The lens is permanently sealed to keep optics away from harmful environmental elements. Fixture is vented and filtered to adapt to environmental elements. Heat sink with a unique convective air cooling design with high thermal conductivity and corrosion resistant construction. Machine mounted surface for maximum heat transfer of diode assembly and maintains low LED junction temperature during high wattage operation. Custom high power diode package with a metal core printed circuit board. The light control visors are factory aimed. Controls and directs more light onto the field which reduced glare and spill and enhances the on-field playability. Fixture is powder coated gray.

D. Remote Electrical Enclosure:

Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. Drivers are remote for ease of installation and servicing. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure.

E. Wire Harness: Spiral wound, abrasion protection sleeve, strain relief, plug-in connections

F. Energy Consumption: The average kWh consumption for the entire facility shall not exceed 76.33kW for the lighting system.

G. Controls and Monitoring System:

1. Factory assembled lighting control cabinet (LCC) – The LCC shall be assembled and wired by a UL listed panel builder. The LCC shall contain Contactors, Monitoring and Control System and door mounted Manual off-on-auto selector switches. The LCC shall arrive at the job site ready to attach to an existing wall, switchgear, or a free standing enclosure.

a. Control Wire Terminations - The Control Wire Terminations shall include UL listed terminal blocks mounted on a DIN rail and 250 volt, 16 amp, touch safe type fuse holders.

b. The ECE shall be constructed of aluminum and shall be powder coated gray. The cabinet door shall utilize a lockable, 3 point latching assembly that provides a NEMA 4 rated seal.

- c. Contactor Modules – Contactors shall be UL listed for lighting applications. They shall be rated at full capacity, be electrically held, utilize a 120 volt coil and be rated for operation in a ambient temperature range from -40 degrees C to +70 degrees C.
- d. Manual off-on-auto Selector Switches – For on site manual control, three position selector switches shall be factory mounted to the ECE door. The switches shall be keyed and maintain position, with make before break contacts. The switches shall be factory wired to control terminal blocks.
- e. Warranty – The LCC shall be covered under the standard warranty for the accompanying lighting equipment.

- 2. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The manufacturer shall notify the owner of outages within 24 hours, or the next business day. The controller shall determine switch position (manual or auto) and contactor status (open or closed). The Monitoring System shall be factory wired to control terminal blocks.
- 3. Remote Lighting Control System: The Lighting Control System shall allow owners and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs. The Light Control System shall be factory wired to control terminal blocks.

3.01 Warranty

- A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering materials and labor for the entire system for 25 years from the date of shipment. Warranty shall specify light levels, system energy consumption, monitoring, maintenance and control services, spill light control, and structural integrity. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.

3.02 Field Technician

- A. Manufacturer shall have available a local factory trained technician to provide project support including but not limited to: Lamp replacement, confirm luminaire, aiming points, troubleshoot, and educate customer maintenance personnel.

Lighting System

Pole / Fixture Summary	Pole Height	Min Height	Fixture Qty	Luminaire Type	Load	Circuit
S1-S4	70'	70'	3	TLC-LED-1500	4.23 kW	A
S5-S6 S8	70'	70'	2	TLC-LED-900	1.76 kW	A
				TLC-LED-1500	4.23 kW	B
S7	70'	70'	2	TLC-LED-900	1.76 kW	B
				TLC-LED-1200	1.17 kW	B
				TLC-LED-1500	4.23 kW	B
S9, S12	70'	70'	1	TLC-LED-900	0.88 kW	B
				TLC-LED-1500	4.23 kW	C
S10-S11	70'	70'	2	TLC-LED-900	1.76 kW	C
				TLC-LED-1500	4.23 kW	C
				TLC-LED-900	4.23 kW	F
S13-S14	70'	70'	2	TLC-LED-900	1.76 kW	C
				TLC-LED-1500	1.76 kW	F
				TLC-LED-900	1.76 kW	F
14			80		96.13 kW	

Circuit Summary	Description	Load	Fixture Qty
A	Soccer 1	23.96 kW	20
B	Soccer 2	24.25 kW	20
C	Soccer 3	23.96 kW	20
F	Soccer 4	23.96 kW	20

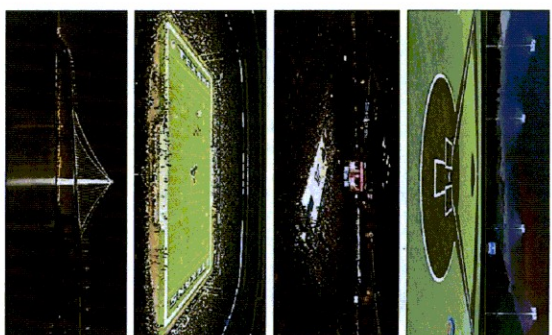
Fixture Type Summary	Type	Source	Wattage	Lumens	L80	L80	L70	Quantity
	TLC-LED-900	LED 5700K - 75 CRI	880W	104,000	>120,000	>120,000	>120,000	31
	TLC-LED-1500	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	48
	TLC-LED-1200	LED 5700K - 75 CRI	1170W	150,000	>120,000	>120,000	>120,000	1

Single Luminaire Amperage Draw Chart	Max Line Amperage Per Luminaire
Driver (90 min power factor)	238 (60) 247 (60) 257 (60) 267 (60)
Single Phase Voltage	5.2 4.9 4.5 3.9 3.1 2.9 2.3
TLC-LED-900	8.4 7.9 7.3 6.3 5.0 4.8 3.8
TLC-LED-1500	6.9 6.5 6.0 5.2 4.2 3.8 3.0

Light Level Summary

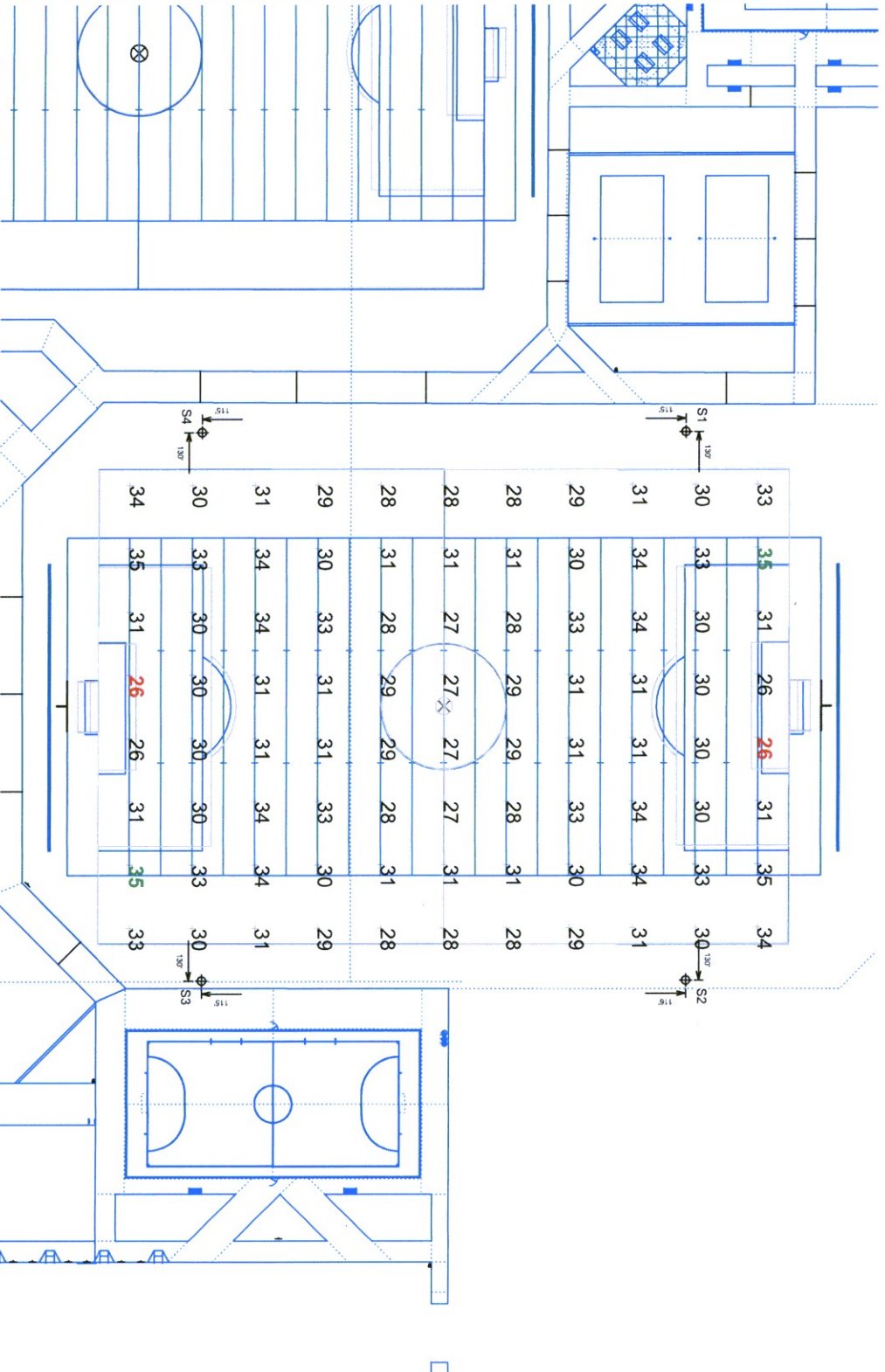
Grid Name	Calculation Metric	Illumination				Circuits	Fixture Qty
		Avg	Min	Max	Max/Min		
Property Line Spill	Horizontal	0	0	0.09	0.00	A,B,C,D,E,F	80
Property Line Spill	Max Candela (by Fixture)	321	0	3734	0.00	A,B,C,D,E,F	80
Property Line Spill	Max Vertical Illuminance Metric	0.01	0	0.12	0.00	A,B,C,D,E,F	80
Soccer 1	Horizontal Illuminance	30.6	26	35	1.36	A	20
Soccer 2	Horizontal Illuminance	30.7	23	36	1.54	B	20
Soccer 3	Horizontal Illuminance	30.8	25	37	1.52	C	20
Soccer 4	Horizontal Illuminance	30.3	23	35	1.54	F	20

From Hometown to Professional



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EQUIPMENT LIST FOR AREAS SHOWN					
QTY	LOCATION	SIZE	GRADE	Luminaires	
				QTY /	TYPE
4	5154	70"	ELEVATION	TLC-LED-1500	2
			70"	TLC-LED-900	2
4			TOTALS		4



City of Merced Park

Merced, CA

GRID SUMMARY

Name: Soccer 1
 Size: 330' x 225'
 Spacing: 30.0' x 30.0'
 Height: 3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES	
Crime Grid	Score Grid
Guaranteed Average: 30	30
Scalp Average: 35	35
Minimum: 26	26
Avg / Min: 1.19	1.19
Guaranteed Max / Min: 2.5	2.5
Max / Min: 1.36	1.36
UG (adjacent intl): 1.20	1.20
CU: 0.82	0.82
No. of Points: 88	88
LUMINAIRE INFORMATION	
Applied Circuits: A	
No. of Luminaires: 20	
Total Load: 23.96 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 Ampage Draw Chart and/or the "Musco Control System Summary" for electrical string.

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

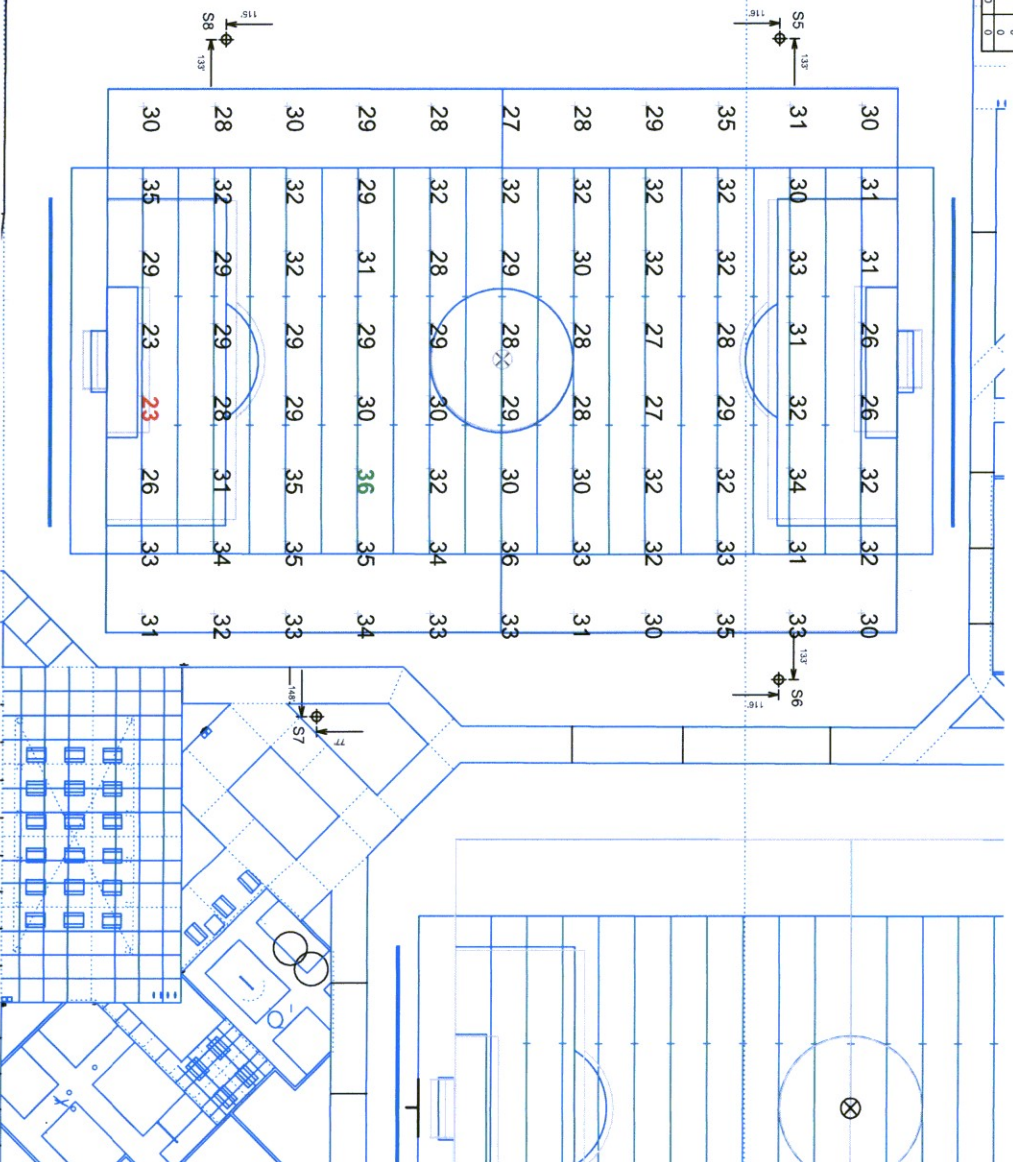


ILLUMINATION SUMMARY

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SCALE IN FEET 1 : 50
 0 50' 100'
 ENGINEERED DESIGN By: Aaron Rose - File #218073C - 06-Feb-24

EQUIPMENT LIST FOR AREAS SHOWN									
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE		QTY	HSA	OTHER
					TYPE	WATTAGE			
2	S5-S6	70"	70"	70"	TLC-LED 900	2	2	0	0
1	S7	70"	70"	70"	TLC-LED 1500	3	3	0	0
1	S8	70"	70"	70"	TLC-LED 1200	1	1	0	0
					TLC-LED 1500	3	3	0	0
					TLC-LED 900	2	2	0	0
TOTALS						20	20	0	0



City of Merced Park
Merced, CA

GRID SUMMARY

Name: Soccer 2
 Size: 330' X 225'
 Spacing: 30.0' X 30.0'
 Height: 3.0' Above Grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOT-CANDLES	
Enter @	Exit @
Guaranteed Average:	30.70
Scale:	35
Minimum:	23
Guaranteed Max / Min:	1.37
Max / Min:	1.54
UG (adjacent psi):	1.24
CU:	0.80
No. of Points:	88
LUMINAIRE INFORMATION	
Applied Circuits:	B
No. of Luminaires:	20
Total Load:	24.25 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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ILLUMINATION SUMMARY

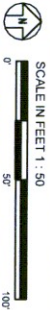
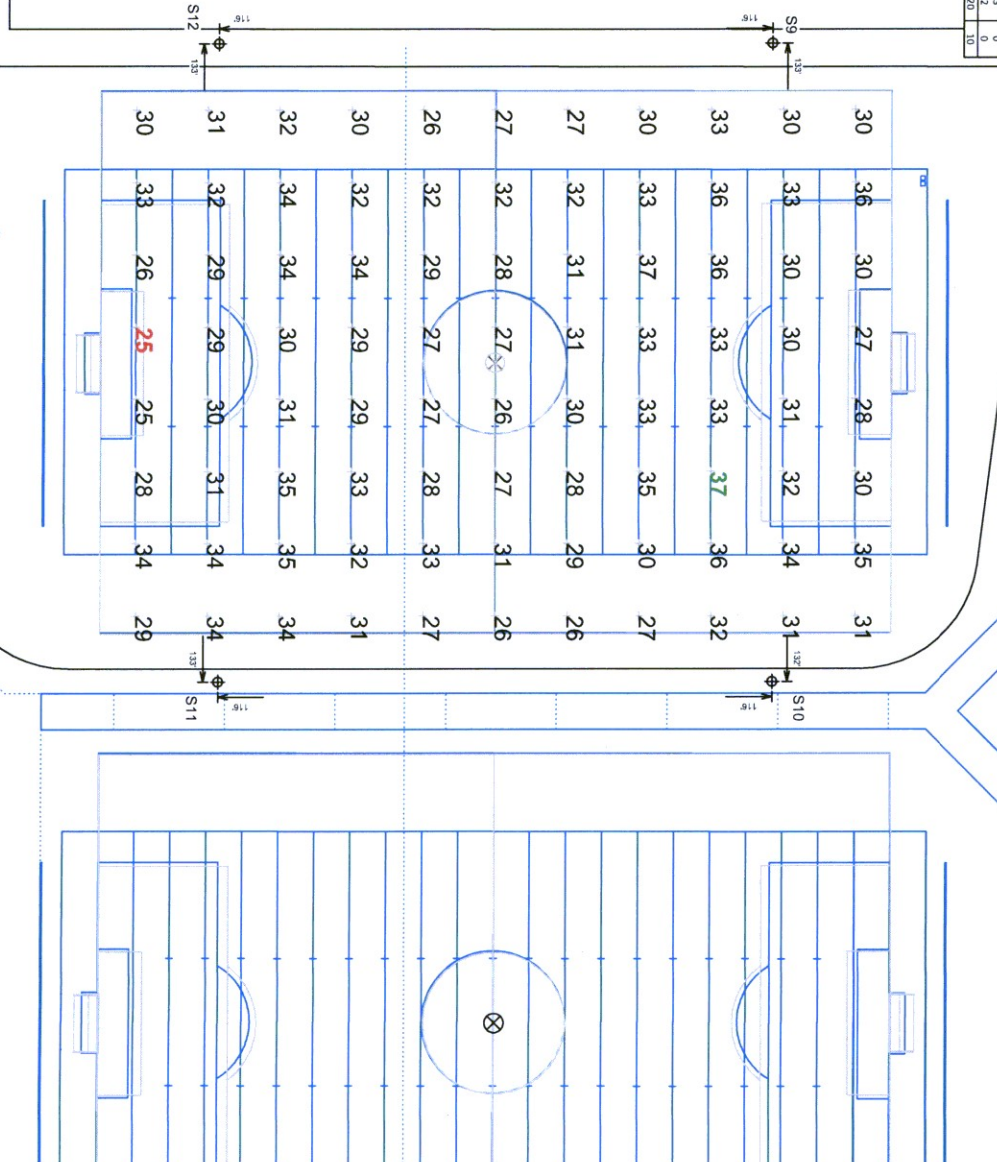
ENGINEERED DESIGN By: Aaron Rose - File #218073C - 06-Feb-24

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EQUIPMENT LIST FOR AREAS SHOWN

QTY	LOCATION	POLE SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	LUMINAIRE		LUM. QTY	LUM. QTY
						POLE	QTY		
1	S9	70'	-	70'	TLC-LED 900	2	2	2	0
1	S10	70'	-	70'	TLC-LED 1500	2/2*	2	2	2
1	S11	70'	-	70'	TLC-LED 1500	3/3*	3	3	2
1	S12	70'	-	70'	TLC-LED 900	2/2*	2	2	0
TOTALS						2	2	2	10

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



SCALE IN FEET 1" = 50'

ENGINEERED DESIGN By: Aaron Rose - File #218073C - 06-Feb-24

City of Merced Park

Merced, CA

GRID SUMMARY

Name:	Segment 3
Size:	330' x 235'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Guaranteed Average:	30 fcd
Scan Average:	30.84
Maximum:	37
Minimum:	25
Avg. / Min.:	1.26
Guaranteed Max. / Min.:	2.5
Max. / Min.:	1.52
UG (adjacent pts):	1.24
CU:	0.83
No. of Points:	88
LUMINAIRE INFORMATION	
Applied Circuits:	C
No. of Luminaires:	20
Total Load:	23.96 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.35 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 Ampereage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

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

Pole locations (⊕) & dimensions are relative to 0.0 reference point(s) ⊗

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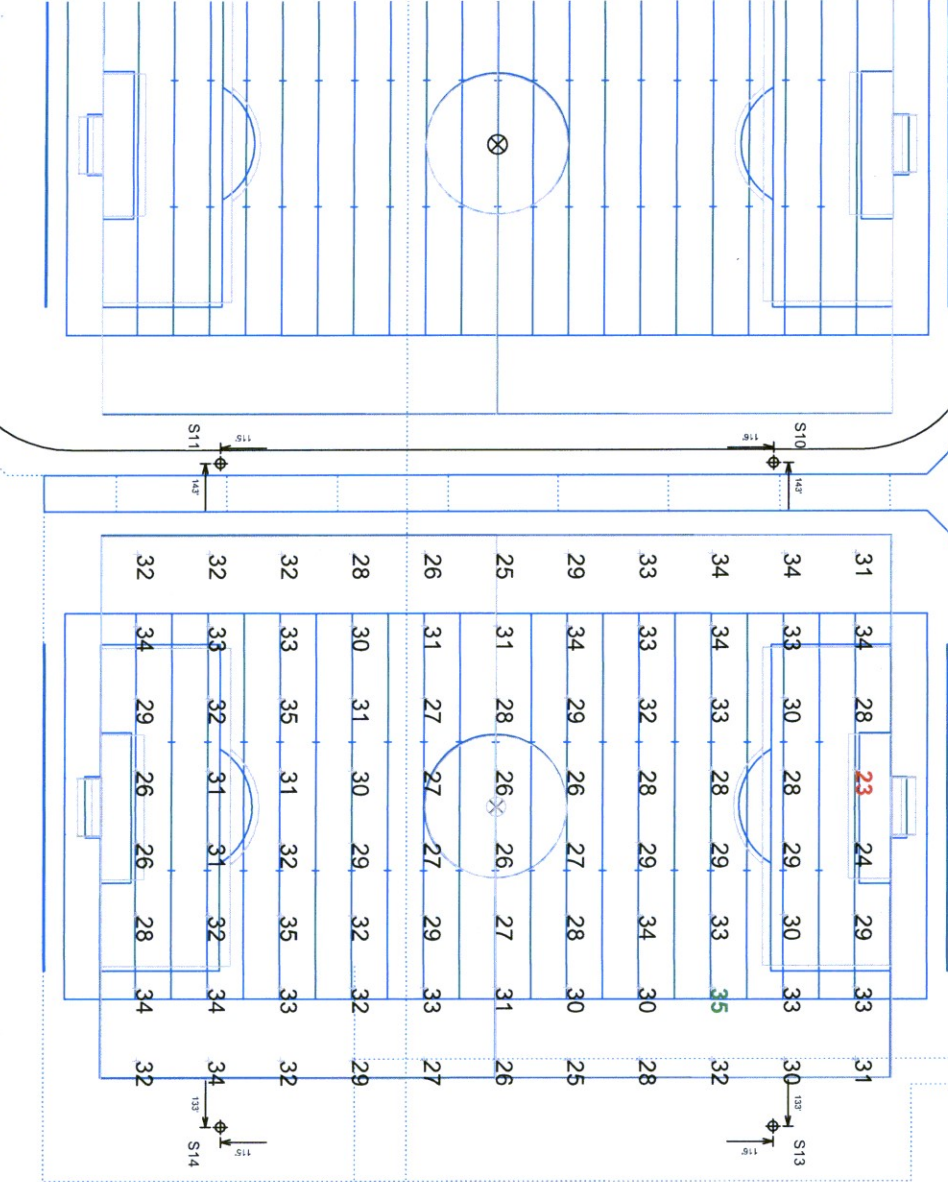
ILLUMINATION SUMMARY

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EQUIPMENT LIST FOR AREAS SHOWN

QTY	LOCATION	POLE	SIZE	GRADE	ELEVATION	HOISTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	150' CHALK	OTHER	
1	S10	70'	70'	-	70'	70'	TLC-LED 900	3/3*	3	3	
1	S11	70'	70'	-	70'	70'	TLC-LED 1500	3/3*	3	3	
1	S13	70'	70'	-	70'	70'	TLC-LED 900	2/2*	2	2	
1	S14	70'	70'	-	70'	70'	TLC-LED 900	3	3	0	
TOTALS									30	20	10

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



ENGINEERED DESIGN By: Aaron Rose - File #218073C - 06-Feb-24

City of Merced Park
Merced, CA

GRID SUMMARY

Name: Soccer 4
Size: 350' x 225'
Spacing: 30.0' x 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

Guaranteed Average:	30
Scan Average:	30.27
Maximum:	35
Minimum:	23
Avg / Min:	1.52
Guaranteed Max / Min:	1.54
UG (adjacent path):	1.73
UG (adjacent CU):	0.81
No. of Points:	88
LUMINAIRE INFORMATION	
Applied Circuits:	F
No. of Luminaires:	20
Total Load:	23.96 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 Appendix Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% normal (within ± 6" side of the drive and structures located within 3 feet (1m) of design locations.

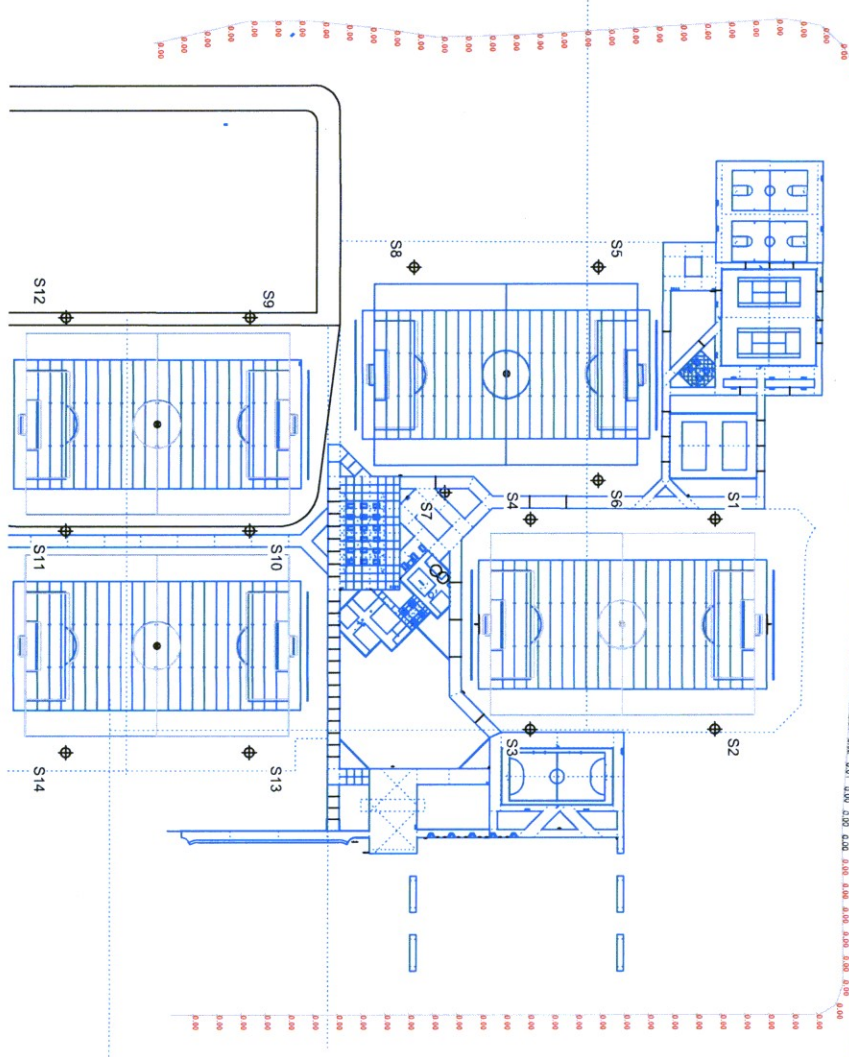


ILLUMINATION SUMMARY

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Qty	Location	Size	Grade	Mounting	Luminaires		Qty	Htg	Center
					Model	Beam			
7	S1, S4, S8	70"	-	70"	TIC-LED-900	2	2	0	0
7	S12, S13	70"	-	70"	TIC-LED-1500	3	3	0	0
1	S7	70"	-	70"	TIC-LED-1500	1	1	0	0
1	S10	70"	-	70"	TIC-LED-1200	1	1	0	0
1	S11	70"	-	70"	TIC-LED-800	2/2*	4	0	0
1	S11	70"	-	70"	TIC-LED-1500	3/3*	6	0	0
4	S14	70"	-	70"	TIC-LED-900	Z/2*	4	0	0
4	S5, S5, S9	70"	-	70"	TIC-LED-900	Z/2*	2	2	0
4	S5, S5, S9	70"	-	70"	TIC-LED-1500	Z/2*	2	2	0
					TOTALS		80	80	0

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



ENGINEERED DESIGN By: Aaron Rose - File #218073C - 06-Feb-24

City of Merced Park

Merced, CA

GRID SUMMARY

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

ILLUMINATION SUMMARY

Scan Average: 0.0037
Maximum: 0.05
No. of Points: 97

Applied Circuits: A, B, C, D, E, F
No. of Luminaires: 80
Total Load: 96.13 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 single.

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



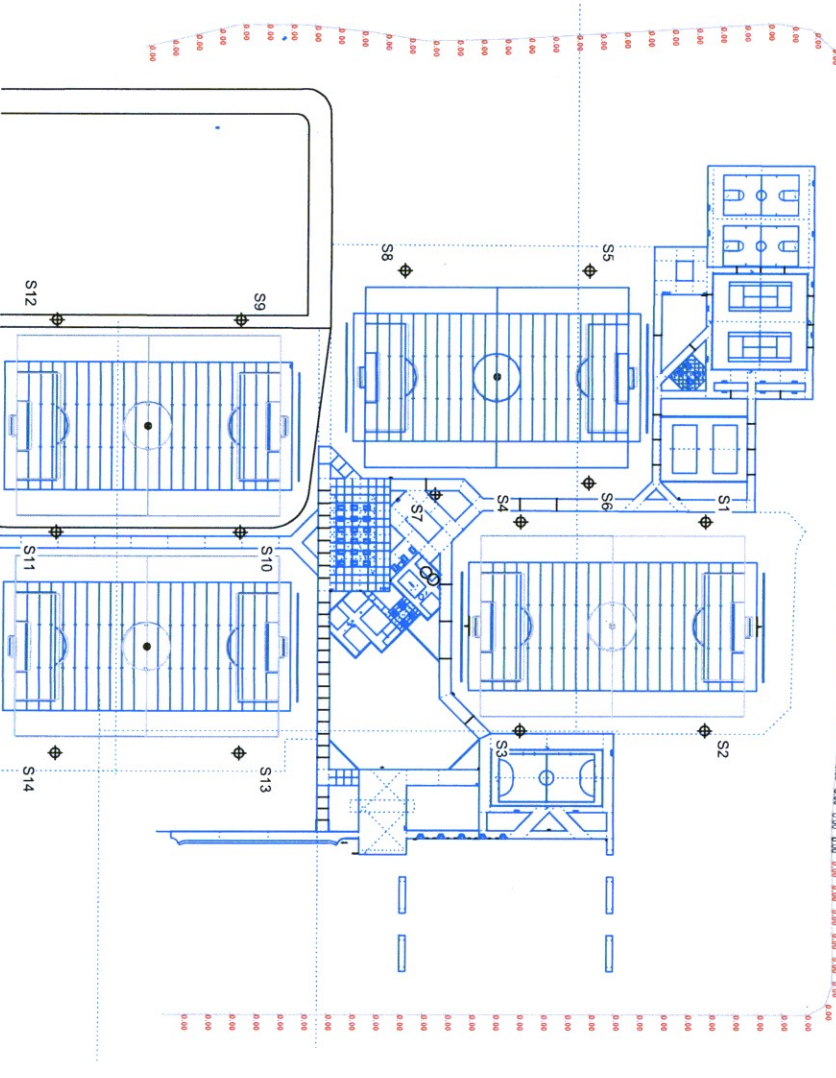
ILLUMINATION SUMMARY

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EQUIPMENT LIST FOR AREAS SHOWN

QTY	LOCATION	SIZE	GRADE ELEVATION	POSITION HEIGHT	LUMINAIRE TYPE	FOOT COUNTS	TYPE	TYPE	TYPE
7	S1-S4, S8	70"	-	70"	TLC-CLED-900	2	2	2	0
1	S12-S13	70"	-	70"	TLC-CLED-1500	3	3	0	0
1	S7	70"	-	70"	TLC-CLED-1200	1	1	0	0
1	S10	70"	-	70"	TLC-CLED-900	2/2*	4	0	0
1	S11	70"	-	70"	TLC-CLED-1500	3/3*	6	0	0
4	S5-S6, S9	70"	-	70"	TLC-CLED-900	2	2	2	0
					TLC-CLED-1500	3	3	0	0
TOTALS						80	80	0	0

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



Pole location(s) \blacklozenge dimensions are relative to 0.00 reference point(s) \otimes



SCALE IN FEET 1" = 150'

ENGINEERED DESIGN By Aaron Rose - File #218073C - 06-Feb-24

City of Merced Park

Merced, CA

GRID SUMMARY

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

LUMINATION SUMMARY

MAX VERTICAL FOOTCOUNTS
 Span Average: Entira Grid
 Maximum: 0.12
 Minimum: 0.00
 No. of Points: 97

Applied Circuits: A, B, C, D, E, F
 No. of Luminaires: 80
 Total Load: 96.13 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 wiring.

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



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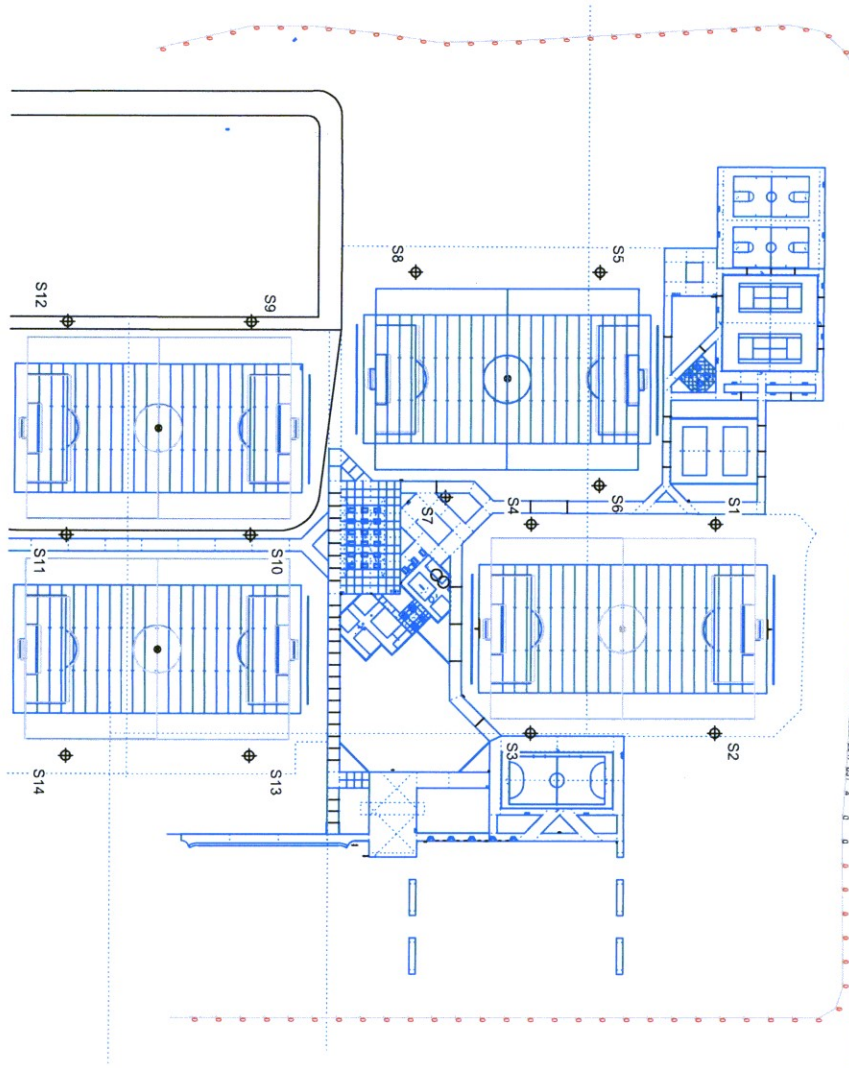
ILLUMINATION SUMMARY

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EQUIPMENT LIST FOR AREAS SHOWN

QTY	LOCATION	SIZE	ELECT. EMISSION	MOUNTING HEIGHT	Luminaires		QTY	WATT	OTHER
					TYPE	QTY			
7	S1-S4, S8	70"	70"	70"	TLC-LED-900	2	2	0	0
1	S12-S13	70"	70"	70"	TLC-LED-1500	3	3	0	0
1	S7	70"	70"	70"	TLC-LED-1500	3	3	0	0
1	S10	70"	70"	70"	TLC-LED-900	2	2	0	0
1	S11	70"	70"	70"	TLC-LED-1500	3/3*	6	0	0
4	S5-S6, S9	70"	70"	70"	TLC-LED-900	2/2*	4	0	0
TOTALS							30	30	0

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



SCALE IN FEET 1" = 150'

ENGINEERED DESIGN By: Aaron Rose - File #218073C - 06-Feb-24

City of Merced Park
Merced, CA

GRID SUMMARY

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

ILLUMINATION SUMMARY

CHANDLER (PER FIXTURE)
Entire Grid
Scan Average: 321.0423
Maximum: 3733.76
Minimum: 0.00
No. of Points: 97
LUMINAIRE DIMENSION
Applied Circuits: A, B, C, D, E, F
No. of Luminaire
Total Load: 96.13 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 pp-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.



ILLUMINATION SUMMARY

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City Of Merced Park
Merced, CA

EQUIPMENT LAYOUT

INCLUDES:

- Soccer 1
- Soccer 2
- Soccer 3
- Soccer 4

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.

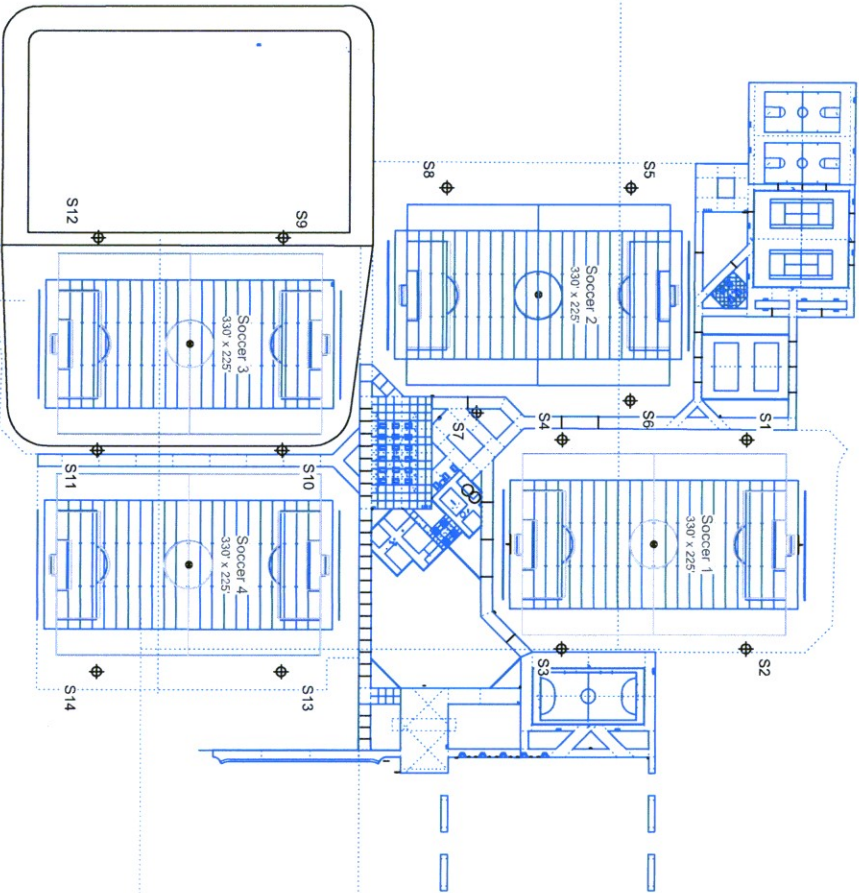
EQUIPMENT LIST FOR AREAS SHOWN

QTY	LOCATION	POLE SIZE	GRADE ELEVATION	HEIGHT	WATTAGE	LUMINAIRE TYPE	QTY/POLE
7	S1-S4, S8	70'	-	70'	70'	TTC-LED-1500	2
1	S13, S13	70'	-	70'	70'	TTC-LED-1500	3
1	S7	70'	-	70'	70'	TTC-LED-1000	1
1	S10	70'	-	70'	70'	TTC-LED-900	1
1	S11	70'	-	70'	70'	TTC-LED-900	2
4	S14	70'	-	70'	70'	TTC-LED-900	2
TOTALS							
14				70'	70'	TTC-LED-1500	80

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

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Line Amperage Per Luminaire	LED luminaire (per luminaire)	
Single Phase Voltage	208	240
TTC-LED-900	8.4	4.9
TTC-LED-1000	8.4	4.9
TTC-LED-1500	8.4	4.9



SCALE IN FEET 1" = 150'

ENGINEERED DESIGN By: Aaron Rose - File #218073C - 06-Feb-24

Pole location(s) ◉ dimensions are relative to Old reference point(s) ◻

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EQUIPMENT LAYOUT