Pole / Fixture Summary

Pole ID	Pole Height	Fixture Qty	Lamp Type	Group
A1	70'	5	1500W MZ	А
A2	70'	5	1500W MZ	А
A3	60'	4	1500W MZ	В
A4	60'	4	1500W MZ	В
B1	80'	10	1500W MZ	A
B2	80'	10	1500W MZ	А
B3	70'	6	1500W MZ	В
B4	70'	6	1500W MZ	В
C1	80'	8	1500W MZ	А
C2	80'	8	1500W MZ	A
10		66		



MY PROJECT

Name:Caiola Baseball ComplexLocation:Morrisville, PA

From Hometown to Professional



We Make It Happen®

ENGINEERED DESIGN By: A. Boersma File # / Date: 179022_glare 06-Apr-16

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Calculation Grid Summary

Grid Name	Calculation Metric		Light I	Level		Unifo	ormity	C	Fixture Qty
Grid Name	Calculation Metric	Туре	Ave	Min	Max	Max/Min	Ave/Min	Groups	Fixture Qty
Baseball-1 (Infield)	Horizontal Illuminance	Constant	50.4	38	58	1.54	1.34	В	20
Baseball-1 (Outfield)	Horizontal Illuminance	Constant	30	19	45	2.35	1.57	В	20
Baseball (Infield)	Horizontal Illuminance	Constant	50.3	34	62	1.82	1.47	Α	46
Baseball (Outfield)	Horizontal Illuminance	Constant	32.3	21	49	2.33	1.54	A	46
Oxford Valley Properties	Horizontal	Constant	0.02	0.01	0.04	5.34	2.92	A,B	66
Oxford Valley Properties	Max Vertical Illuminance Metric	Constant	0.15	0.07	0.23	3.58	2.26	A,B	66
Oxford Valley Road Spill	Horizontal	Constant	0.40	0.02	1.51	93.15	24.73	A,B	66
Oxford Valley Road Spill	Max Candela (by Fixture)	Constant	17490	6991	57718	8.26	2.50	A,B	66
Oxford Valley Road Spill	Max Vertical Illuminance Metric	Constant	0.91	0.14	2.86	19.91	6.31	A,B	66

Group Summary

	1		
Group	Description	Load	Fixture Qty
A	Baseball	71.94 kW	46
В	Baseball-1	31.28 kW	20

EQU	EQUIPMENT LIST FOR AREAS SHOWN										
	Pole Luminaires										
QTY	LOCATION	SIZE	GRADE ELEVATION	Mounting Height	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS			
2	A1-A2	70'	-	70'	1500W MZ	5	5	0			
2	B1-B2	80'	-	80'	1500W MZ	10	10	0			
2	C1-C2	80'	-	80'	1500W MZ	8	8	0			
6	TOTALS 46 46 0										

A2

160'

50'

SCALE IN FEET 1:80

0

80'



Location: Morrisville, PA

17-126' C1 346' 21 24 25 22 21 28 26 40 23 35 _35 ,34 ,33 ,36 ,31 25 21 0 0 28 ,39 ₄37 ,36 37 ,32 ,30 27 25 **4**1 21 *4*3 31 ,39 _33 27 27 <u>45</u> _35 28 26 25 22 27 ,30 ,31 **"**37 **"**32 29 26 24 40' <u>4</u>2 <u>4</u>4 26 B1 0 182' 25 **"**35 29 25 25 26 28 _32 ,36 28 <u>4</u>4 **4**6 346' C2 ,36 29 37 **4**0 37 44 ,30 25 25 ,33 126' **4**6 51 ,39 ,30 29 32 ,35 **.**36 ,33 22 40 **5**4 46 <u>62</u> <u>61</u> ,35 ,37 ,39 **"**37 **,**34 25 <u>4</u>5 **.**55 ,36 58' A1 _61 **5**1 46 **4**3 <u>4</u>1 **"**35 **5**7 **4**4 **2**4 **5**7 **.**54 **4**2 **4**5 ,39 ,35 21 <u>62</u> 44 6 44 45 40 J37 25 22 .31 28 23 000 40 B2

MY PROJECT	
 Name:	Caiola Baseball Complex

 GRID SUMMARY

 Name:
 Baseball

 Size:
 320'/385'/320' - basepath 90'

 Spacing:
 30.0' x 30.0'

 Height:
 3.0' above grade

 CONSTANT ILLUMINATION

 SUMMARY
 HORIZONTAL FOOTCANDLES

 Infield
 Outfield

 Guaranteed Average:
 50
 30

 Scan Average:
 50.25
 32.27

 Maximum:
 62
 49

 Minimum:
 34
 21

50101101/1111		HORIZOITHAL	10010/UNDELD
	Infield	Outfield	
Guaranteed Average:	50	30	
Scan Average:	50.25	32.27	
Maximum:	62	49	
Minimum:	34	21	
Avg / Min:	1.47	1.54	
Guaranteed Max / Min:	2	2.5	
Max / Min:	1.82	2.33	
UG (adjacent pts):	1.38	1.93	
CU:	0.70		
No. of Points:	25	109	
LUMINAIRE INFORMATIC	N		
Luminaire Type:	Green Gene	ration	
Design Usage Hours:	5,000 hours		
Design Lumens:	134,000		
Avg Lamp Tilt Factor:	1.000		
No. of Luminaires:	46		
Avg KW:	71.94 (78.2	max)	

Guaranteed Performance: The Guaranteed Average CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA RP-6-15 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

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

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

ENGINEERED DESI	GN	
By:	A. Boersma	
File # / Date:	179022_glare	06-Apr-16

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E	EQUIPMENT LIST FOR AREAS SHOWN								
		Р	ole			Luminaires			
G	YTC	LOCATION	SIZE	GRADE ELEVATION	Mounting Height	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
	2	A3-A4	60'	-	60'	1500W MZ	4	4	0
	2	B3-B4	70'	-	70'	1500W MZ	6	6	0
	4	TOTALS 20 20 0							



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A3	45	<u>4</u> 6	. ₅56	. 54	<u></u> 48	.42	, 36	, 33	, 32	, 33	<u>4</u> 0		<i>4</i> 0				
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		. 57	. 58	,58	. 56	.50	<u></u> 43	₇ 34	, 29	, 29	" 32	_ 30	, 21	S			
		A9	, 57	. 53	.46 r	4 2	, 32	<u>2</u> 7	22	21	22	, 20	230	B4			
					<u>45</u>				0	\bigcirc						-	

	Caiola Baseball Complex Morrisville, PA
SUMMARY	
Name:	Baseball-1

MY PROJECT

GRID

Pole location(s) \oplus dimensions are relative

to 0,0 reference point(s) \otimes

Height: 3.0' above grade CONSTANT ILLUMINATION	
CONSTANT ILLUMINATION	
SUMMARY HORIZONTAL FOOTCAN	DLES
Infield Outfield	
Guaranteed Average: 50 30	
Scan Average: 50.37 30.03	
Maximum: 58 45	
Minimum: 38 19	
Avg / Min: 1.34 1.57	
Guaranteed Max / Min: 2 2.5	
Max / Min: 1.54 2.35	
UG (adjacent pts): 1.21 1.61	
CU: 0.65	
No. of Points: 25 102	
LUMINAIRE INFORMATION	
Luminaire Type: Green Generation	
Design Usage Hours: 5,000 hours	
Design Lumens: 134,000	
Avg Lamp Tilt Factor: 1.000	
No. of Luminaires: 20	
Avg KW: 31.28 (34.0 max)	

Guaranteed Performance: The Guaranteed Average CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA RP-6-15 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

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

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

ENGINEERED DESI	GN	
By:	A. Boersma	
File # / Date:	179022_glare	06-Apr-16

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ILLUMINATION SUMMARY



0

50'

100'

SCALE IN FEET 1:50

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EQU	IPMENT L		K AREAS SP			_	-			
		Pole	GRADE	MOUNTING	Laminaires LAMP TYPE 1500W MZ	QTY /	THIS	OTHER	4	
QTY	LOCATION	SIZE	GRADE ELEVATION	Mounting Height 70'	ТҮРЕ	QTY / POLE	THIS GRID	OTHER GRIDS	-	
2	A1-A2	70'	-	70'	1500W MZ	5	5	0	-	
2	A3-A4	60'	-	60'	1500W MZ	4	4	0	-	
2	B1-B2	80'	-	80' 70'	1500W MZ	10	10	0	-	
2	B3-B4	70' 80'	-	70 [°] 80'	1500W MZ	6	6	0	-	
2 10	C1-C2	80	TOTALS	80	1500W MZ	8 66	8 66	0		
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MY PROJECT

Name: Caiola Baseball Complex Location: Morrisville, PA **GRID SUMMARY** Name: Oxford Valley Road Spill Spacing: 30.0' Height: 3.0' above grade **CONSTANT ILLUMINATION** HORIZONTAL FOOTCANDLES SUMMARY Entire Grid 0.4005 Scan Average: Maximum: 1.51 Minimum: 0.02 26 No. of Points: LUMINAIRE INFORMATION Luminaire Type: Green Generation Design Usage Hours: 5,000 hours Design Lumens: 134,000 Avg Lamp Tilt Factor: 1.000 No. of Luminaires: 66 Avg KW: 103.22 (112.2 max)

Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA RP-6-15 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

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

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

ENGINEERED DESIGN					
	By:	A. Boersma			
	File # / Date:	179022_glare	06-Apr-16		

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ILLUMINATION SUMMARY

₿ ,=

SCALE IN FEET 1:150

150'

300'

Pole location(s) \bigoplus dimensions are relative to 0,0 reference point(s) \otimes

					_				1	
EQU			R AREAS SH	IOWN						
		Pole	00405	MOUNTING	Lamp LAMP TYPE 1500W MZ	OTY	TUIO	OTUED		
QTY	LOCATION	SIZE	GRADE ELEVATION	Mounting Height 70'	TYPE	QTY / POLE	THIS GRID	OTHER GRIDS 0		
2	A1-A2	70'	-	70'	1500W MZ	5	5	0		
2	A3-A4	60'	-	60'	1500W MZ	4	4	0		
2	B1-B2	80'	-	80'	1500W MZ	10	10	0		
2	B3-B4	70'	-	70'	1500W MZ	6	6	0		
2	C1-C2	80'	-	80'	1500W MZ	8	8	0		
10			TOTALS			66	66	0]	
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6.00							COL	X		and a

SCALE IN FEET 1:150

150'

300'



MY PROJECT

Name:Caiola Baseball ComplexLocation:Morrisville, PA

GRID SUMMARY

Name:Oxford Valley Road SpillSpacing:30.0'Height:3.0' above grade

CONSTANT ILLUN	CONSTANT ILLUMINATION					
SUMMARY	MAX VERTICAL FOOTCANDLES					
	Entire Grid					
Scan Average:	0.9061					
Maximum:	2.86					
Minimum:	0.14					
No. of Points:	26					
LUMINAIRE INFORMATIO	N					
Luminaire Type:	Green Generation					
Design Usage Hours:	5,000 hours					
Design Lumens:	134,000					
Avg Lamp Tilt Factor:	1.000					
No. of Luminaires:	66					
Avg KW:	103.22 (112.2 max)					

Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA RP-6-15 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

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

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

ENGINEERED DESIGN						
By:	A. Boersma					
File # / Date:	179022_glare	06-Apr-16				

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Pole location(s) \oplus dimensions are relative

to 0,0 reference point(s) \otimes

ILLUMINATION SUMMARY

200'

0

400'



MY PROJECT

Name:Caiola Baseball ComplexLocation:Morrisville, PA

GRID SUMMARY

GRID SOMMARY		
Name:	Oxford Valley Properties	
Spacing:	30.0'	
Height:	3.0' above grade	
CONSTANT ILLUN	AINATION	
SUMMARY	HORIZONTAL FOOTCANDLES	
	Entire Grid	
Scan Average:	0.0194	
Maximum:	0.04	
Minimum:	0.01	
No. of Points:	32	
LUMINAIRE INFORMATIO	N	
Luminaire Type:	Green Generation	
Design Usage Hours:	5,000 hours	
Design Lumens:	134,000	
Avg Lamp Tilt Factor:	1.000	
No. of Luminaires:	66	
Avg KW:	103.22 (112.2 max)	

Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA RP-6-15 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

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

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

ENGINEERED DESIGN					
By:	A. Boersma				
File # / Date:	179022_glare	06-Apr-16			

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to 0,0 reference point(s) \otimes

ILLUMINATION SUMMARY

200'

0

400'



MY PROJECT

Name:Caiola Baseball ComplexLocation:Morrisville, PA

GRID SUMMARY

GRID SUIVIIVIART	
Name: Spacing: Height:	Oxford Valley Properties 30.0' 3.0' above grade
CONSTANT ILLUN	NINATION
SUMMARY	MAX VERTICAL FOOTCANDLES
	Entire Grid
Scan Average:	0.1479
Maximum:	0.23
Minimum:	0.07
No. of Points:	32
LUMINAIRE INFORMATIO	N
Luminaire Type:	Green Generation
Design Usage Hours:	5,000 hours
Design Lumens:	134,000
Avg Lamp Tilt Factor:	1.000
No. of Luminaires:	66
Avg KW:	103.22 (112.2 max)

Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA RP-6-15 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

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

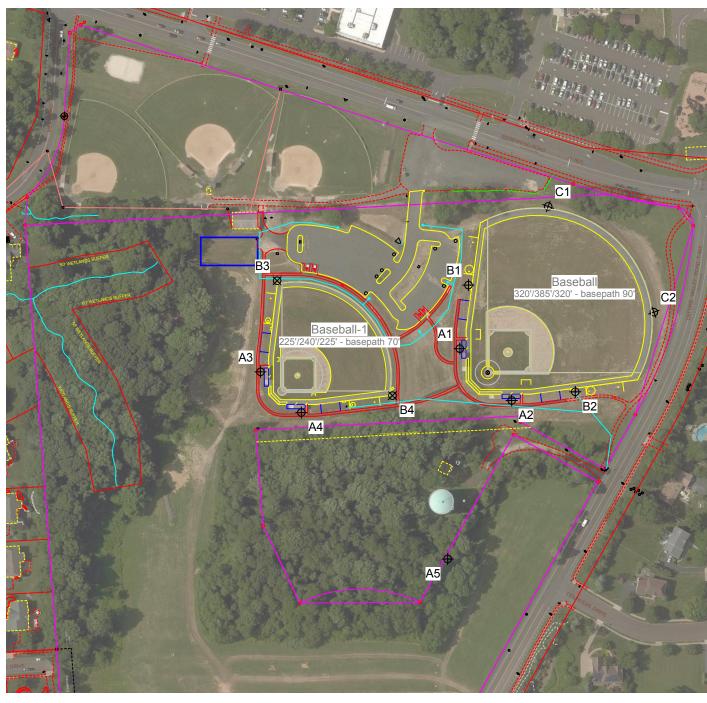
Installation Requirements: Results assume +/- 3% nominal voltage at line side of the ballast and structures located within 3 feet (1m) of design locations.

ENGINEERED DESIGN						
By:	A. Boersma					
File # / Date:	179022_glare	06-Apr-16				

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to 0,0 reference point(s) \otimes

ILLUMINATION SUMMARY





MY PROJECT

Name: Caiola Baseball Complex Location: Morrisville, PA

EQUIPMENT LAYOUT

INCLUDES:

· Baseball · Baseball-1

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

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

1	EQUIPMENT LIST FOR AREAS SHOWN								
		P	ole		Luminaires				
1	QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE		
/	2	A1-A2	70'	-	70'	1500W MZ	5		
	2	A3-A4	60'	-	60'	1500W MZ	4		
	1	A5	60'	-					
E	2	B1-B2	80'	-	80'	1500W MZ	10		
	2	B3-B4	70'	-	70'	1500W MZ	6		
	2	C1-C2	80'	-	80'	1500W MZ	8		
	11	11 TOTALS							

	SINGLE LUMINAIRE AMPERAGE DRAW CHART									
4.10	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)		
*	1500 watt MZ	8.6	8.3	7.5	6.5	5.1	4.7	3.7		

ENGINEERED DESIGN

By:	A. Boersma						
File # / Date:	179022_glare	06-Apr-16					

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SCALE IN FEET 1 : 200

400'

Pole location(s) \bigoplus dimensions are relative to 0,0 reference point(s) \bigotimes

EQUIPMENT LAYOUT