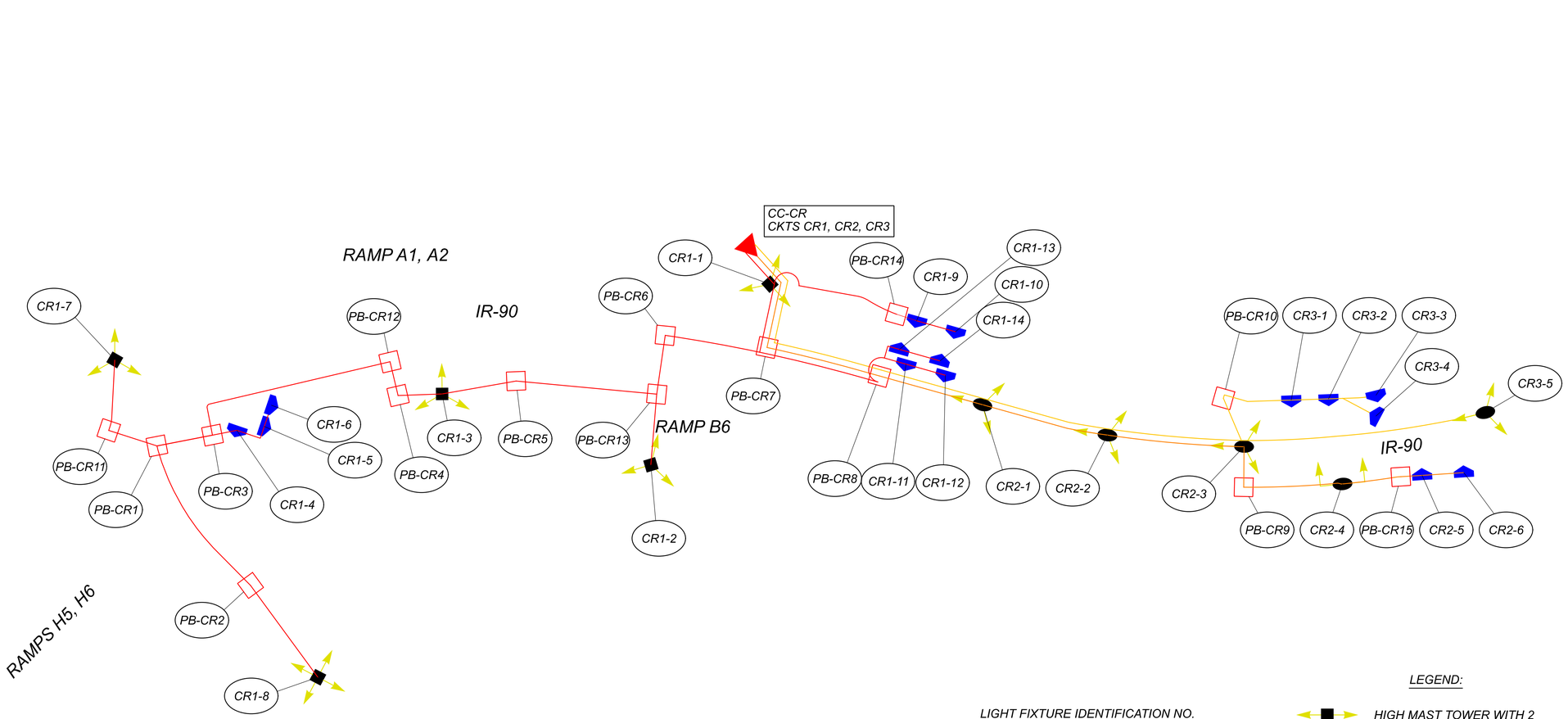
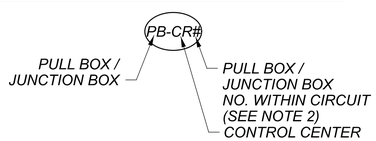
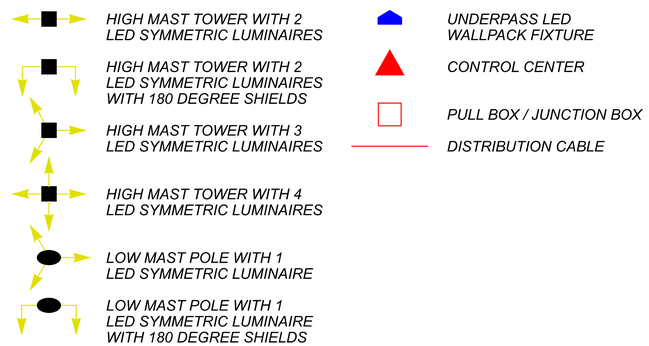


LEGEND:

LIGHT FIXTURE IDENTIFICATION NO.

PULL BOX / JUNCTION BOX IDENTIFICATION NO.





CONTROL CENTER DATA									
CONTROL CENTER	LINE VOLTAGE (VOLTS)	CONNECTED LOAD (KVA)	SERVICE ENTRANCE CABLE (AWG)	ENCLOSURE RATING (AMPS)	CIRCUIT NO.	CIRCUIT LOAD (AMPS)	CIRCUIT FUSE SIZE (AMPS)	CIRCUIT CABLE SIZE (AWG)	MAINTAINING AGENCY
CR	240V / 480V (SINGLE PHASE, 3-WIRE)	12.59	4	60	1	19.57	25	4	ODOT
					2	4.85	20	4	
					3	1.81	20	4	

NOTES:

1) "CIRCUIT CABLE SIZE" REFERS TO THE WIRE AWG COMING OUT OF THE CONTROL CENTER FOR EACH CIRCUIT.

HORIZONTAL SCALE IN FEET
0 NTS

CIRCUIT SCHEMATIC & CONTROL CENTER DATA - CONTROL CENTER CR

DESIGN AGENCY
Michael Baker INTERNATIONAL

DESIGNER ---
REVIEWER --- ---
PROJECT ID 82382
SHEET SLC1001 TOTAL $TOTAL

CUY-90-16.28 (CCG3A)

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 11/9/2023 TIME: 5:12:36 PM USER: Jennifer.DoVale
pw:\\mb-us-pw.bentley.com:mb-us-pw-03\Documents\Cleveland_OH01_Projects\ODOT\District12\82382\400-Engineering\Lighting\Sheets\82382_LC1001.dgn

HIGH & LOW MAST FIXTURE:	Holophane HMLED4	
Input Operating Current (amps)	240V Circuit	480V Circuit
	1.8	0.9
1.25 Contingency	2.25	1.125

Series	Performance Package	Color temperature	Voltage	Housing Color	Optical
HMLED4	P1 31,000 Lumens	30K 3000K CCT	MVOLT Auto-Sensing Voltage (120 - 277 V)	HAS As Specified	LN Long and Narrow
	P2 42,000 Lumens	40K 4000K CCT	HVOLT Auto-Sensing Voltage (347 - 480 V)	HGR Gray	MAS Medium, Asymmetric
	P3 63,000 Lumens	50K 5000K CCT	XVOLT Auto-Sensing Voltage (277 - 480 V)	HGH Graphite	MAW Medium, Asymmetric Wide
	P4 85,000 Lumens			HBK Black	NAS Narrow, Asymmetric
	P5 105,000 Lumens			HBZ Bronze	FTA Forward Throw, Asymmetric
	P6 112,000 Lumens			HWH White	AN Area Narrow
	P7 120,000 Lumens				AW Area Wide
					AWS Area Wide Square

	Input Operating Amps					
	120V	208V	240V	277V	347V	480V
P1	1.69	0.97	0.84	0.73	0.58	0.42
P2	2.48	1.43	1.24	1.08	0.86	0.62
P3	3.59	2.07	1.80	1.56	1.24	0.90
P4	4.87	2.81	2.44	2.11	1.69	1.22
P5	5.85	3.38	2.93	2.53	2.02	1.46
P6	6.28	3.62	3.14	2.72	2.17	1.57
P7	6.97	4.02	3.48	3.02	2.65	1.92

HIGH & LOW MAST FIXTURE:	Wallpack LED	
Input Operating Current (amps)	240V Circuit	480V Circuit
	0.28	0.14
1.25 Contingency	0.35	0.17

Operating Characteristics

Series	LED Package	System Watts	Distribution Tyoe	30K (3000K, 70 CRI)				
				Lumens	LPW	B	U	G
W4G	10C1000	39	T3M	3140	81	0	3	3
	20C1000	72		6495	90	1	3	4
	30C1000	104		7789	75	1	3	4
W4P	10C700	26		2030	78	0	3	2
	20C700	45		3912	87	0	3	3
	30C700	67		4813	72	1	3	3
W4G	10C1000	28	T3S	3206	115	0	3	2
	20C1000	57		6507	114	1	3	2
	30C1000	77		8477	110	1	3	3
W4P	10C700	27		2709	100	0	3	2
	20C700	38		3299	87	0	3	3
	30C700	49		4203	86	1	3	3

Operating Amps = 28/480 = 0.06 amps
(Use 67/480*1.25=0.17 amps to be conservative)

PHOTOMETRIC DISTRIBUTIONS

VOLTAGE DROP CALCULATIONS

Control Center CR - Circuit 1 — No. of Wires for Calculation Purposes: 3

Power Service: Circuit: 1

Supply Voltage: 480

Wire Resistance Us(No. 4 AWG. 0.310

No. AWG.

Voltage: 480

Wire Factor Used (Two - No. 10 AWG Wires):	2.40	ohms/mft/1000	Circuit: 'X'
Wire Factor Used (Two - No. 8 AWG Wires):	1.56	ohms/mft/1000	
Wire Factor Used (Two - No. 6 AWG Wires):	0.98	ohms/mft/1000	
Wire Factor Used (Two - No. 4 AWG Wires):	0.62	ohms/mft/1000	
Wire Factor Used (Two - No. 2 AWG Wires):	0.38	ohms/mft/1000	

Section			Amperes		Ampere-Feet	AWG	Voltage Drop		% Drop	At Point
From	To	Design Feet	At Point	Accum.			In Section	Accum.		
CR1-7	PB-CR1	210	3.38	3.38	709	4	0.439	11.00		CR1-7
CR1-8	PB-CR1	470	4.50	4.50	2,115	4	1.311	11.87	**2.47**	CR1-8
PB-CR1	PB-CR3	110	0.00	7.88	866	4	0.537	10.56		PB-CR1
CR1-6	CR1-5	40	0.17	0.17	7	4	0.004	10.04		CR1-6
CR1-5	CR1-4	20	0.17	0.35	7	4	0.004	10.04		CR1-5
CR1-4	PB-CR3	30	0.17	0.52	16	4	0.010	10.03		CR1-4
PB-CR3	CR1-3	470	0.00	8.40	3,947	4	2.447	10.02		PB-CR3
CR1-3	PB-CR13	360	3.38	11.77	4,238	4	2.628	7.58		CR1-3
CR1-2	PB-CR13	125	3.38	3.38	422	4	0.262	5.21		CR1-2
PB-CR13	PB-CR7	285	0.00	15.15	4,317	4	2.677	4.95		PB-CR13
CR1-14	CR1-13	80	0.17	0.17	14	4	0.009	2.38		CR1-14
CR1-13	PB-CR8	45	0.17	0.35	16	4	0.010	2.37		CR1-13
CR1-12	CR1-11	60	0.17	0.17	10	4	0.006	2.37		CR1-12
CR1-11	PB-CR8	35	0.17	0.35	12	4	0.008	2.37		CR1-11
PB-CR8	PB-CR7	200	0.00	0.70	140	4	0.087	2.36		PB-CR8
PB-CR7	CR1-1	120	0.00	15.85	1,902	4	1.179	2.27		PB-CR7
CR1-10	CR1-9	70	0.17	0.17	12	4	0.008	1.16		CR1-10
CR1-9	CR1-1	260	0.17	0.35	91	4	0.056	1.15		CR1-9
CR1-1	CC-CR	90	3.38	19.57	1,761	4	1.092	1.09		CR1-1

CIRCUIT FUSE SIZE (AMPS):

Size Breakers to 125% of maximum input current (20 AMP MINIMUM):

19.57 / 0.8 = 24.46 **USE 25 AMP CIRCUIT BREAKER (CIRCUIT FUSE SIZE)**

CIRCUIT LOAD (AMPS):

Equal to the cumlative total input current for the circuit

19.57 Amps

CONNECTED LOAD (KVA):

Circuit load * line voltage / 1000

9.39 KVA

VOLTAGE DROP CALCULATIONS

Control Center CR - Circuit 2 — No. of Wires for Calculation Purposes: 3

Power Service: Circuit: 2

Supply Voltage: 480

Wire Resistance Us‹ No. 4 AWG. 0.310

No. AWG.

Voltage:	480	Wire Factor Used (Two - No. 10 AWG Wires):	2.40	ohms/mft/1000	Circuit: 'X'
		Wire Factor Used (Two - No. 8 AWG Wires):	1.56	ohms/mft/1000	
		Wire Factor Used (Two - No. 6 AWG Wires):	0.98	ohms/mft/1000	
		Wire Factor Used (Two - No. 4 AWG Wires):	0.62	ohms/mft/1000	
		Wire Factor Used (Two - No. 2 AWG Wires):	0.38	ohms/mft/1000	

Section			Amperes		Ampere-Feet	AWG	Voltage Drop		% Drop	At Point
From	To	Design Feet	At Point	Accum.			In Section	Accum.		
CR2-6	CR2-5	80	0.17	0.17	14	4	0.009	2.85	**0.59**	CR2-6
CR2-5	PB-CR15	50	0.17	0.35	17	4	0.011	2.84		CR2-5
PB-CR15	CR2-4	105	0.00	0.35	37	4	0.023	2.70		PB-CR15
CR2-4	PB-CR9	170	1.13	1.47	251	4	0.155	2.83		CR2-4
PB-CR9	CR2-3	80	0.00	1.47	118	4	0.073	2.67		PB-CR9
CR2-3	CR2-2	235	1.13	2.60	611	4	0.379	2.60		CR2-3
CR2-2	CR2-1	220	1.13	3.72	819	4	0.508	2.22		CR2-2
CR2-1	PB-CR8	185	1.13	4.85	897	4	0.556	1.71		CR2-1
PB-CR8	CC-CR	385	0.00	4.85	1,867	4	1.157	1.16		PB-CR8

CIRCUIT FUSE SIZE (AMPS):

Size Breakers to 125% of maximum input current (20 AMP MINIMUM):

4.85 / 0.8 = 6.06 **USE 20 AMP CIRCUIT BREAKER (CIRCUIT FUSE SIZE)**

CIRCUIT LOAD (AMPS):

Equal to the cumlative total input current for the circuit

4.85 Amps

CONNECTED LOAD (KVA):

Circuit load * line voltage / 1000

2.33 KVA

VOLTAGE DROP CALCULATIONS

Control Center CR - Circuit 3 — No. of Wires for Calculation Purposes: 3

Power Service: Circuit: 3

Supply Voltage: 480

Wire Resistance Us(No. 4 AWG. 0.310

No. AWG.

Voltage: 480

Wire Factor Used (Two - No. 10 AWG Wires):	2.40	ohms/mft/1000	Circuit: 'X'
Wire Factor Used (Two - No. 8 AWG Wires):	1.56	ohms/mft/1000	
Wire Factor Used (Two - No. 6 AWG Wires):	0.98	ohms/mft/1000	
Wire Factor Used (Two - No. 4 AWG Wires):	0.62	ohms/mft/1000	
Wire Factor Used (Two - No. 2 AWG Wires):	0.38	ohms/mft/1000	

Section			Amperes		Ampere-Feet	AWG	Voltage Drop		% Drop	At Point
From	To	Design Feet	At Point	Accum.			In Section	Accum.		
CR3-3	CR3-2	90	0.17	0.17	15	4	0.009	1.24		CR3-3
CR3-4	CR3-2	150	0.17	0.17	26	4	0.016	1.24		CR3-4
CR3-2	CR3-1	70	0.17	0.51	36	4	0.022	1.23		CR3-2
CR3-1	PB-CR10	135	0.17	0.69	93	4	0.058	1.21		CR3-1
PB-CR10	CR2-3	95	0.00	0.69	65	4	0.041	1.15		PB-CR10
CR3-5	CR2-3	410	1.13	1.13	461	4	0.286	1.39	**0.29**	CR3-5
CR2-3	CC-CR	985	0.00	1.81	1,787	4	1.108	1.11		CR2-3

CIRCUIT FUSE SIZE (AMPS):

Size Breakers to 125% of maximum input current (20 AMP MINIMUM):

1.81 / 0.8 = 2.27 **USE 20 AMP CIRCUIT BREAKER (CIRCUIT FUSE SIZE)**

CIRCUIT LOAD (AMPS):

Equal to the cumlative total input current for the circuit

1.81 Amps

CONNECTED LOAD (KVA):

Circuit load * line voltage / 1000

0.87 KVA