IN CONTRACT
LIGHTING AND ELECTRICAL LEGEND

NEW TYPE 'A' LED DOUBLE HEAD GARDCO CAMPUS LIGHT STANDARD ON NEW POLE AND NEW CONCRETE FOUNDATION.

NEW TYPE 'B' LED GARDCO CAMPUS STANDARD LUMINAIRE ON NEW POLE AND NEW CONCRETE FOUNDATION.

NEW TYPE 'C' LED PEDESTRIAN POLE AND NEW CONCRETE FOUNDATION.

NEW TYPE 'SL' LED SOLAR LUMINAIRE OF EXISTING POLE AND NEW CONCRETE FOUNDATION

EXISTING HPS COBRAHEAD LIGHT STANDARD AND FOUNDATION TO BE REMOVED.

SCHEDULE 80 PVC IN 24" DEEP TRENCH, BURY AND COMPRESSION BACKFILL, UNLESS NOTED OTHERWISE ON PLANS.

3" SCHEDULE 80 PVC SLEEVE ACROSS ROADWAY TERMINATING IN SPLICE BOXES AT EACH END. BORE CONDUIT IF EXISTING ROADWAY IS TO REMAIN AND TRENCH IF NEW ROADWAY IS TO BE INSTALLED.

S2 S1 HEAVY DUTY, 24"x13"x12" DEEP FLUSH IN GRADE POLYMER CONCRETE SPLICE BOX WITH TRAFFIC RATED, TIER 22, BOLTED COVER LABELED "ELECTRIC"

LIGHTING CONTROL CENTER COMPLETE WITH METER, METER DISCONNECT, NEMA 4 ENCLOSURE, PANEL WITH LIGHTING CONTACTORS AND CONTROLS.

EXISTING ELECTRICAL PANEL AS LABELED.

NOT IN CONTRACT FOR INFORMATION ONLY
LIGHTING AND ELECTRICAL LEGEND

EXISTING HPS XCEL COBRAHEAD - SHOWN FOR INFORMATION ONLY.

EXISTING HPS XCEL COBRAHEAD TO BE REMOVED- SHOWN FOR INFORMATION ONLY.

EXISTING HPS DOUBLE HEAD LIGHT STANDARD-SHOWN FOR INFORMATION ONLY.

EXISTING MH DOUBLE HEAD LIGHT STANDARD AND FOUNDATION TO BE REMOVED.

EXISTING HPS COBRAHEAD LIGHT STANDARD TO REMAIN.

NEW LED COBRAHEAD LUMINAIRE, POLE AND CONCRETE FOUNDATION.

EXISTING MH GARDCO CAMPUS STANDARD- SHOWN FOR INFORMATION ONLY.

EXISTING GARDCO CAMPUS LIGHT STANDARD AND FOUNDATION TO BE REMOVED.

EXISTING TIMBER POLE FOR OVERHEAD ELECTRIC TO BE REMOVED.

EXISTING MH PEDESTRIAN POLE TO REMAIN.

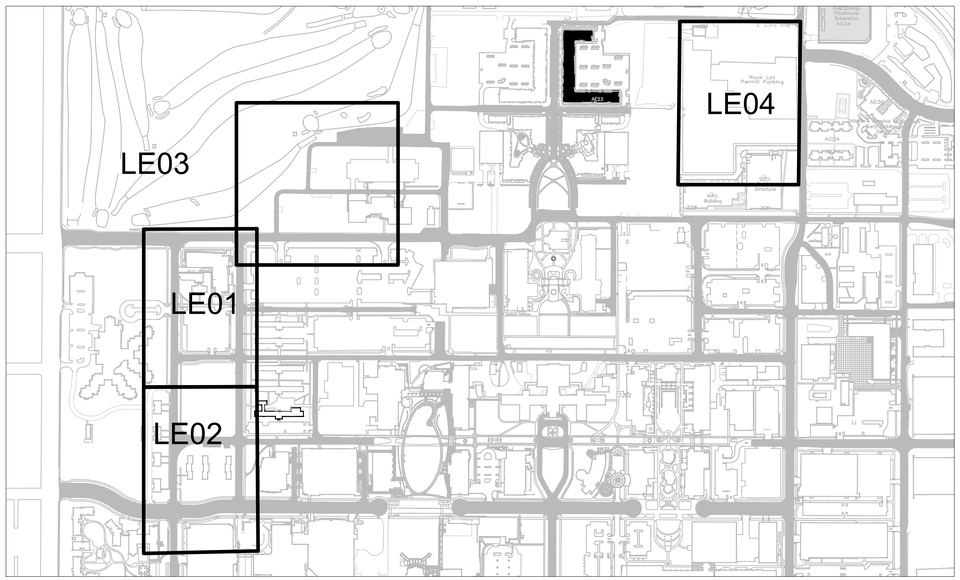
EXISTING MH PEDESTRIAN BOLLARD TO REMAIN.

EXISTING WALL MOUNTED MH LUMINAIRE TO REMAIN.

EXISTING STEP LIGHT TO REMAIN.

GENERAL NOTES:

1. LIGHT STANDARD LOCATIONS SHOWN ON PLANS ARE APPROXIMATE. REFER TO DETAILS FOR TYPICAL OFFSET DIMENSIONS FROM BACK OF CURB OR EDGE OF SIDEWALK. CONTRACTOR SHALL STAKE LOCATIONS FOR APPROVAL BY CAMPUS ARCHITECT AND ENGINEER PRIOR TO DRILLING FOUNDATIONS.
2. ALL LIGHT POLES AND LUMINAIRES REMOVED SHALL BE RETURNED TO OWNER.



ISSUE RECORD / REVISION:

PURPOSE:	DATE:
Red bid notes	12/6/2023

CLANTON & ASSOCIATES
LIGHTING DESIGN AND ENGINEERING

10-10-2023
DRAWN BY: ES
CHECKED BY: DS

COLORADO LICENSED
JANICE R. SANDERS
10/10/2023
41269
PROFESSIONAL ENGINEER

University of Colorado
Anschutz Medical Center
Aurora, Colorado

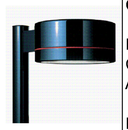
PREPARED FOR:

PROJECT NUMBER:
23-128743

SHEET NAME:
N.A.

SHEET NUMBER:
LT01

SCHEDULE OF LIGHTING DEVICES

TYPE	LUMINAIRE			
	PHOTO	MANUFACTURER	DESCRIPTION / NOTES	MOUNTING
A		**Gardco - Form 10 Round** LUMINAIRE: QTY (2) PER POLE CA22L-48L-900-WW-G3-3-UNV-DD-PC(MOD ANSI 7-PIN + SHORTING CAP)-RAL7038 POLE: NEW POLE TO MATCH EXISTING	New location, double 22" cylindrical spun aluminum LED, single streetlight. Luminaire shall have a type 3 distribution, 0-10V integral dimming driver, 7-pin ANSI Standard photocell receptacle with shorting cap (for future wireless control node). Provide Campus standard powdercoat paint finish in RAL7038. Luminaire to be UL listed for wet locations. 135W per lamp (270W)	30ft Pole with (2) 1ft Mast Arms
B		**Gardco - Form 10 Round** LUMINAIRE: QTY (1) PER POLE CA22L-48L-900-WW-G3-3-UNV-DD-PC(MOD ANSI 7-PIN + SHORTING CAP)-RAL7038 POLE: NEW POLE TO MATCH EXISTING	New location, single 22" cylindrical spun aluminum LED streetlight. Luminaire shall have a type 3 distribution, 0-10V integral dimming driver, 7-pin ANSI Standard photocell receptacle with shorting cap (for future wireless control node). Provide Campus standard powdercoat paint finish in RAL7038. Luminaire to be UL listed for wet locations. 135W consumption.	30ft Pole with 1ft Mast Arm
C		**Gardco - Form 10 Round** LUMINAIRE: MP17L-32L-450-WW-G2-5-UNV-DD-RAL7038 POLE: NEW POLE TO MATCH EXISTING	New location, 17" semi-spherical spun aluminum post top LED luminaire. Luminaire shall have a type 5 distribution, 0-10v integral dimming driver. Provide Campus Standard powdercoat paint finish in RAL7038. Luminaire to be UL listed for wet locations. 47W consumption.	10ft Post Top

TABULATION OF APPROXIMATE LIGHTING QUANTITIES

CDOT PAY ITEM	DESCRIPTION	UNIT	QUENTIN STREET	QUENTIN STREET PHASE 1	WRL	ERL	TOTAL
202-00700	REMOVAL OF LIGHT STANDARD	EA			7	14	21
202-00705	REMOVAL OF LIGHT STANDARD FOUNDATION	EA			2	8	10
613-01100	1 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	190	10			200
613-01200	1 1/4 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	1610	187	2110	3290	7197
613-00306	3 INCH ELECTRICAL CONDUIT (BORED)	LF	550	135			685
613-07001	TYPE ONE PULL BOX	EA			1	7	8
613-07002	TYPE TWO PULL BOX	EA	9	4	4		17
613-10000	WIRING	LS	1	1	1	1	4
613-13000	LUMINAIRE (LED) (SPECIAL)	EA				1	1
613-13006	LUMINAIRE (LED) (6,000 LUMENS)	EA	15	2			17
613-13016	LUMINAIRE (LED) (16,000 LUMENS)	EA	5	2	18	34	59
613-30300	LIGHT STANDARD ALUMINUM (10-FOOT)	EA	15	2			17
613-30300	LIGHT STANDARD ALUMINUM (30-FOOT)	EA	5	2	12	22	41
613-40010	LIGHT STANDARD FOUNDATION	EA	20	4	12	22	58
613-04100	ELECTRICAL SYSTEM MODIFICATIONS	LS	1		1	1	3
613-50375	SOLAR COLLECTION SYSTEM	EA				1	1

NOTES:
1. ACTUAL LUMEN OUTPUT IS 5,100 LUMENS.
2. ACTUAL LUMEN OUTPUT IS 15,500 LUMENS.
3. INCLUDES THE PV SOLAR PANELS AND BATTERIES PROVIDED BY MANUFACTURER.
4. THIS PAY ITEM IS FOR THE SOLAR-POWERED LUMINAIRE IN THE EAST ROCK LOT.

ISSUE RECORD / REVISION:

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Red bid notes	12/6/2023

CLANTON & ASSOCIATES
LIGHTING DESIGN AND ENGINEERING
4494 NAUTILUS COURT SOUTH STE. 102
BOULDER, CO 80301
303-530-7299

DRAWN BY: ES
CHECKED BY: DS
10-10-2023

COLORADO LICENSED
DANIEL R. SANDERS
10/10/2023
41269
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University of Colorado
Anschutz Medical Center
Aurora, Colorado

PREPARED FOR:

PROJECT NUMBER:
23-128743

SHEET NAME:
N.A.

SHEET NUMBER:
LT02

COMcheck Software Version COMcheckWeb

Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: CU Anschutz
Project Type: New Construction
Exterior Lighting Zone 3 (Other (LZ3))

Construction Site: Owner/Agent: Designer/Contractor:

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts /	D Tradable Wattage	E Allowed Watts (B X C)
Sidewalk (Walkway < 10 feet wide)	1338 ft of	0.6	Yes	803
West Rock A (Parking area)	95091 ft2	0.06	Yes	5705
West Rock B (Parking area)	28348 ft2	0.06	Yes	1701
West Rock C (Parking area)	41769 ft2	0.06	Yes	2506
East Rock (Parking area)	307608 ft2	0.06	Yes	18456
			Total Tradable Watts (a) =	29172
			Total Allowed Watts =	29172
			Total Allowed Supplemental Watts (b) =	500

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 500 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
Sidewalk (Walkway < 10 feet wide, 1338 ft of walkway length): Tradable Wattage				
LED: pedestrian: LED Roadway-Parking Unit 42W:	1	15	47	705
West Rock A (Parking area, 95091 ft2): Tradable Wattage				
LED: single: LED Roadway-Parking Unit 130W:	1	8	135	1080
LED: double: LED Roadway-Parking Unit 130W:	2	2	270	540
West Rock B (Parking area, 28348 ft2): Tradable Wattage				
LED: double: LED Roadway-Parking Unit 130W:	2	2	270	540
West Rock C (Parking area, 41769 ft2): Tradable Wattage				
LED: single: LED Roadway-Parking Unit 130W:	1	2	135	270
LED: double: LED Roadway-Parking Unit 130W:	2	2	270	540
East Rock (Parking area, 307608 ft2): Tradable Wattage				
LED: single: LED Roadway-Parking Unit 130W:	1	8	135	1080
LED: double: LED Roadway-Parking Unit 130W:	2	13	270	3510
			Total Tradable Proposed Watts =	8265

Exterior Lighting PASSES: Design 72% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2021 IECC requirements in COM*check* Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title Signature Date

COMcheck Software Version COMcheckWeb

Inspection Checklist

Energy Code: 2021 IECC

Requirements: 0.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR8][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.7 [EL28][1]	Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 30%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.7 [EL26][2]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.8 [EL27][2]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.9.1, C405.9.2 [EL28][2]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.10 [EL29][2]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.1.1 [EL30][2]	At least 90% of dwelling unit permanently installed lighting shall have lamp efficacy >= 65 lm/W or luminaires with efficacy >= 45 lm/W or comply with C405.2.4 or C405.3.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.11, C405.11.1 [EL31][2]	50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classrooms and workstations and > 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C405.5.1 [FI19][1]	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Exterior Lighting fixture schedule for values.*
C408.1.1 [FI57][1]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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CLANTON & ASSOCIATES
LIGHTING DESIGN AND ENGINEERING
1499 NAUTILUS COURT SOUTH STE. 202
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303-530-7299

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JAMES R. SANDERS
10/10/2023
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PREPARED FOR:

PROJECT NUMBER:
23-128743

SHEET NAME:
N.A.

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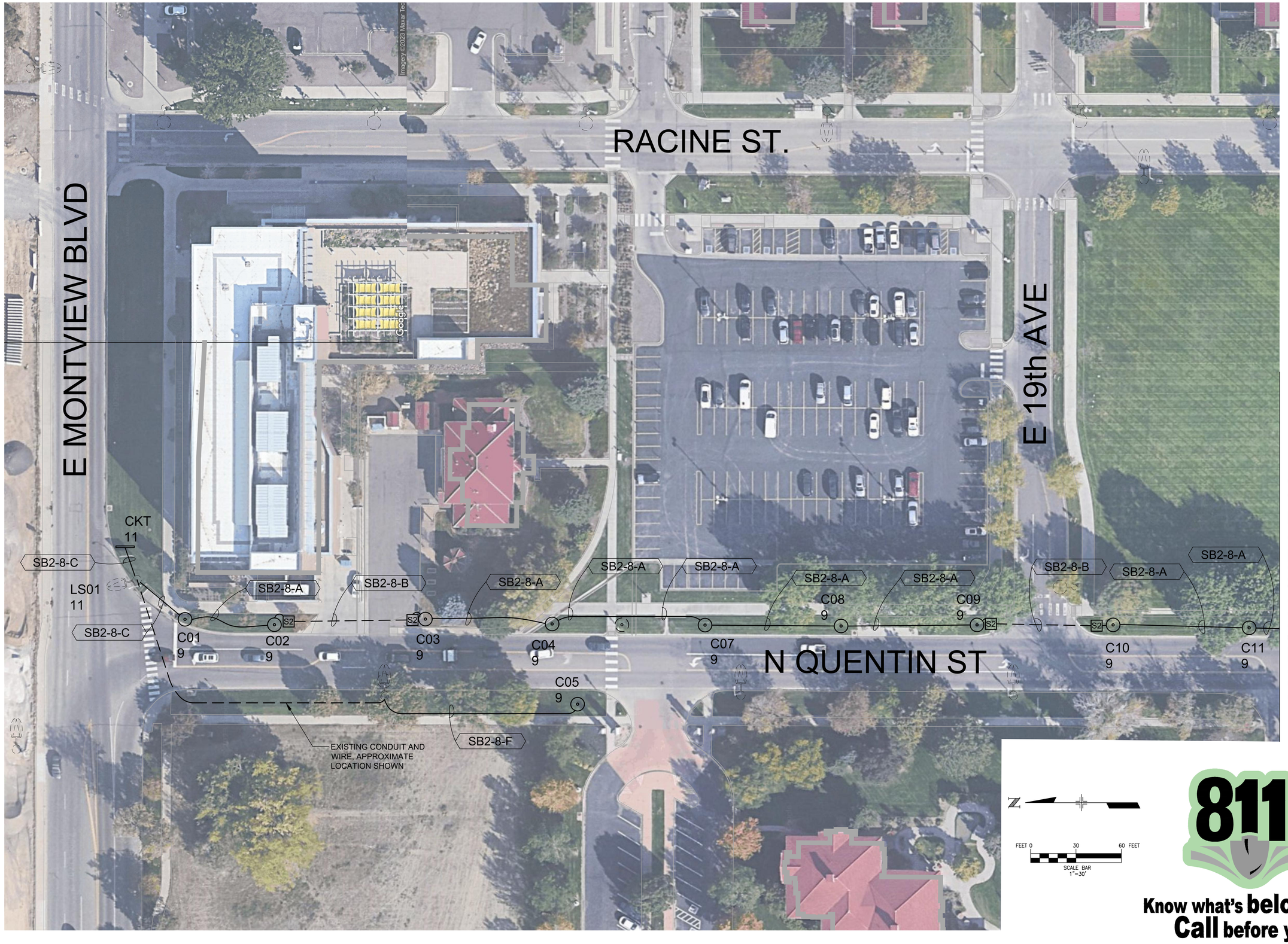
LT03



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CLANTON & ASSOCIATES
LIGHTING DESIGN AND ENGINEERING
4999 NAUTILUS COURT SOUTH STE. 202
BOULDER, CO 80301
303-530-7299

10-10-2023

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N.A.

SHEET NUMBER:
LE.01

RACINE ST.

E 17th PL

E 17TH AVE

N QUENTIN ST

MATCH LINE LE.01

B05
11

B04
11

B02
11

B01
11

B03
11

C12
9

C13
9

C14
9

C15
9

SB2-8-A

SB2-8-B

SB2-8-C

SB2-8-F

SB2-8-C

EX

S2

EXISTING LIGHTING
CONTROL PANEL 'SB2-8'
80A, 277/480V-3PH-4W

EXISTING CONDUIT,
APPROXIMATE LOCATIONS
SHOWN

Light poles to be Alternate 1 in bid request.
Pull boxes included in base bid.

Imagery ©2023 Maxar Technologies, Sanborn, U.S. Geological Survey

PLAN NOTES

1. PULL NEW CONDUCTORS FOR NEW CIRCUITS IN EXISTING 3" CONDUIT FROM SB2-8 TO SPLICE BOX IN MEDIAN.

2. PULL NEW CONDUCTORS FOR NEW CIRCUITS IN EXISTING CONDUIT.

FEET 0 30 60 FEET
SCALE BAR
1" = 30'

Know what's **below.**
Call before you dig.

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4999 NAUTILUS COURT SOUTH STE. 202
BOULDER, CO 80301
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23-128743

SHEET NAME:
N.A.

SHEET NUMBER:
LE.02

FEET 0 30 60 FEET
SCALE BAR
1"=30'

811

Know what's **below.**
Call before you dig.

WRL.1-A
A03
1,3,
2,4
A04
1,3,
2,4
WRL.1-A
WRL.1-B
S2
A05
1,3,
2,4
B11
2,4
WRL.1-A
B09
1,3
WRL.1-C
WRL.1-A
WRL.1-B
WRL.1-D
WRL.1-A
A02
1,3,
2,4
A06
1,3,
2,4
WRL.1-D
B10
2,4
WRL.1-A
B08
2,4
A01
1,3,
2,4
REMOVE EXISTING
OVERHEAD ELECTRIC
TIMBER ROLE
S1
EX
WRL.1-A
WRL.1-C
WRL.1-C
EXISTING LIGHTING
CONTROL PANEL 'WRL.1'
225A, 120/208V-3PH-4W
B06
1,3
B07
1,3
WRL.1-D
WRL.1-D
WRL.1-D
E MONTVIEW BLVD

PLAN NOTES

1. RE-FEED EXISTING LIGHTS WITH NEW CONDUCTORS IN NEW, UNDERGROUND CONDUIT.

West Rock Lot as Alternate 02

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4999 NAUTILUS COURT SOUTH STE. 202
BOULDER, CO 80301
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SHEET NAME:
N.A.

SHEET NUMBER:
LE.03

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CLANTON & ASSOCIATES
LIGHTING DESIGN AND ENGINEERING
1499 NAUTILUS COURT SOUTH STE. 102
BOULDER, CO 80301
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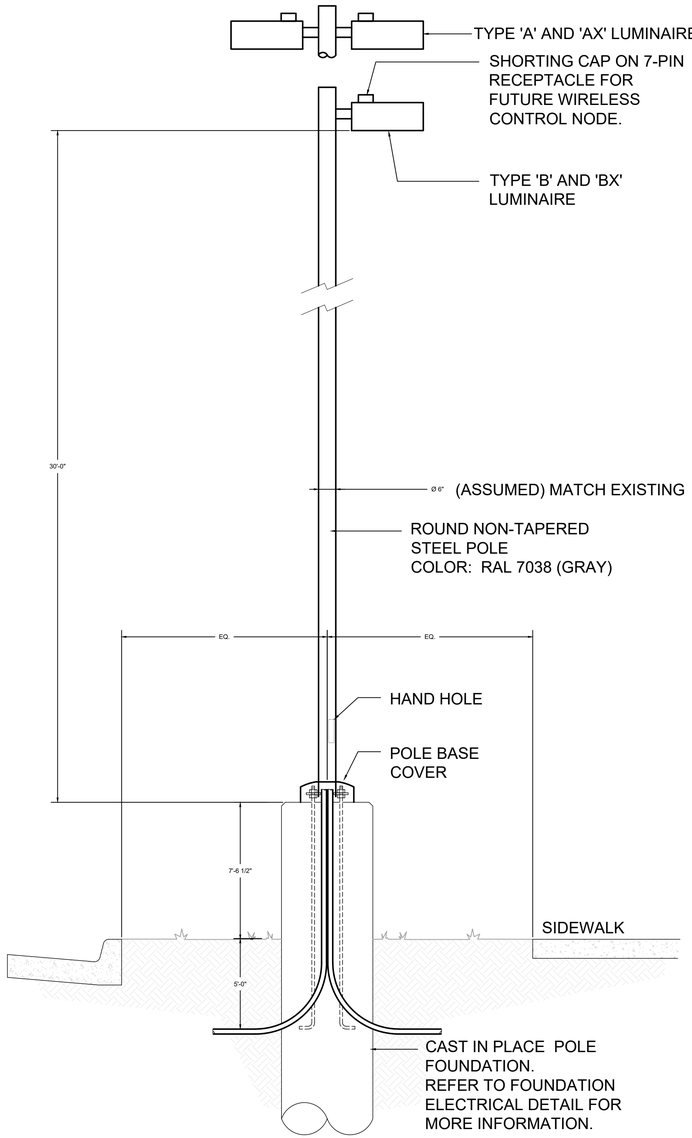
23-128743

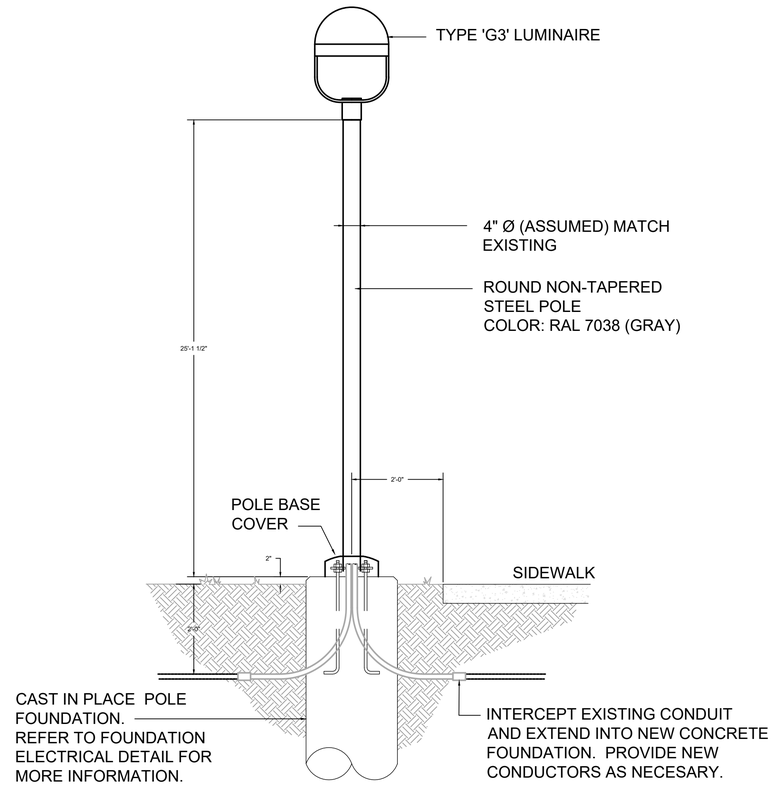
SHEET NAME:
N.A.

SHEET NUMBER:
LE.04



1 PARKING LOT LIGHT STANDARD ELEVATION
NOT TO SCALE

TYPE 'A'
TYPE 'B'



2 TYPE 'C' PEDESTRIAN LIGHT STANDARD DETAIL
NOT TO SCALE

SYMBOL = ⊙

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LIGHTING DESIGN AND ENGINEERING
4699 NAUTILUS COURT SOUTH STE. 102
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10-10-2023

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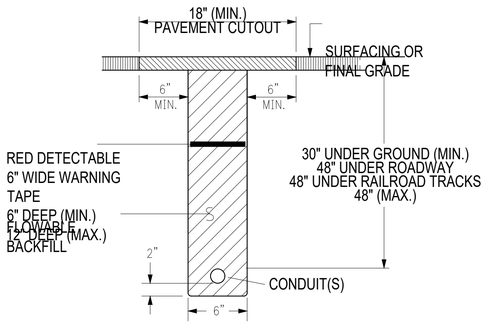
Aurora, Colorado

PREPARED FOR:

PROJECT NUMBER:
23-128743

SHEET NAME:
AS NOTED

SHEET NUMBER:
LD.01



TYPICAL CONDUIT BURIAL – SECTION

CONDUIT BURIAL NOTES

1. CONTRACTOR SHALL COORDINATE TRENCHING WITH OTHER UNDERGROUND UTILITIES, RAMP METERING AND IRRIGATION. CONTRACTOR SHALL USE COMMON TRENCHES AT ALL ROAD CROSSINGS WHERE POSSIBLE.

2. ONE CONDUIT PER BUNDLE SHALL HAVE ONE #12 AWG LOCATE WIRE AND A NYLON OR POLYESTER PULL TAPE WITH 1,250 LBS TEST STRENGTH AND FOOTAGE MARKINGS IN ALL EMPTY CONDUITS. LOCATE WIRES SHALL NOT BE INSTALLED IN FIBER OPTIC CONDUITS.

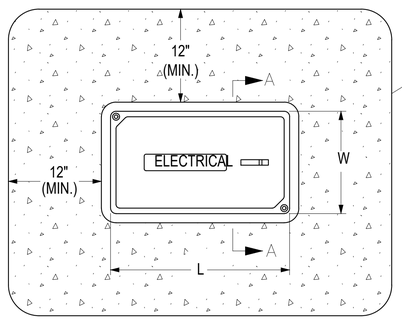
3. ELECTRICAL CONDUIT (BORED) SHALL BE UL LISTED HDPE AND INSTALLED USING TRENCHLESS TECHNOLOGY OR EITHER JACKED CONDUIT OR DIRECTIONAL BORING. IF TRENCHED CONDUIT IS SPECIFIED ON PLANS, BORED CONDUIT OF EQUAL OR GREATER SIZE MAY BE SUBSTITUTED FOR TRENCHED CONDUIT IF PAID FOR UNDER THE ORIGINALLY DESIGNED TRENCHED CONDUIT PAY ITEM AND AT NO ADDITIONAL COST TO THE PROJECT. ELECTRICAL CONDUIT (BORED) SHALL CONFORM TO THE SAME MINIMUM DEPTH REQUIREMENTS.

4. INSTALLING CONDUIT IN ANY METHOD OTHER THAN TRENCHING OR DIRECTIONAL BORE, THAT MAY CAUSE DAMAGE TO THE EMBANKMENT OR HIGHWAY AREA, OR BE HAZARDOUS TO THE TRAVELING PUBLIC WILL NOT BE PERMITTED. WHEN JACKING IS SPECIFIED, DISRUPTION OF HIGHWAY TRAFFIC WILL NOT BE PERMITTED.

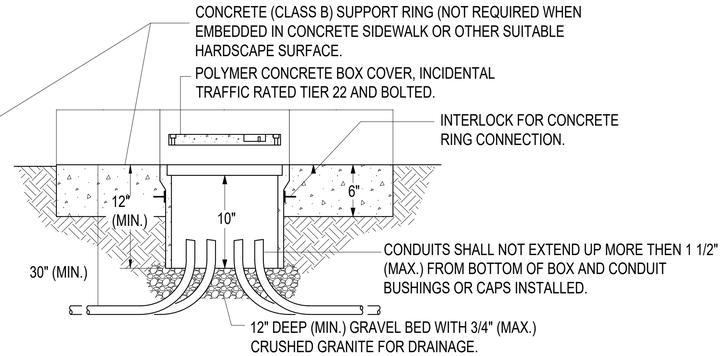
5. FOR ALL SCHEDULE 80 PVC CONDUIT, PROVIDE SLIP FIT EXPANSION FITTINGS AT 100 FOOT INTERVALS AND 6 FEET (MAXIMUM) FROM EACH ELBOW. EXPANSION FITTINGS WILL BE INSTALLED PER N.E.C. REQUIREMENTS FOR 65 DEGREE FAHRENHEIT TEMPERATURE CHANGE.

6. FOR ALL TRENCHED CONDUIT, ELBOWS SHALL BE WIDE SWEEPS (36-INCHES MINIMUM) WITH PVC COATED GRC ON THE OUTSIDE AND THREADED COUPLINGS.

7. ALL PVC CONDUIT ENDS IN PULL BOXES SHALL HAVE END BELLS OR MALE ADAPTOR, THREADED TERMINAL ENDS WITH SCREW ON BUSHING.



PLAN VIEW



SECTION A–A

TYPICAL PULL OR SPLICE BOX

SPLICE BOX NOTES

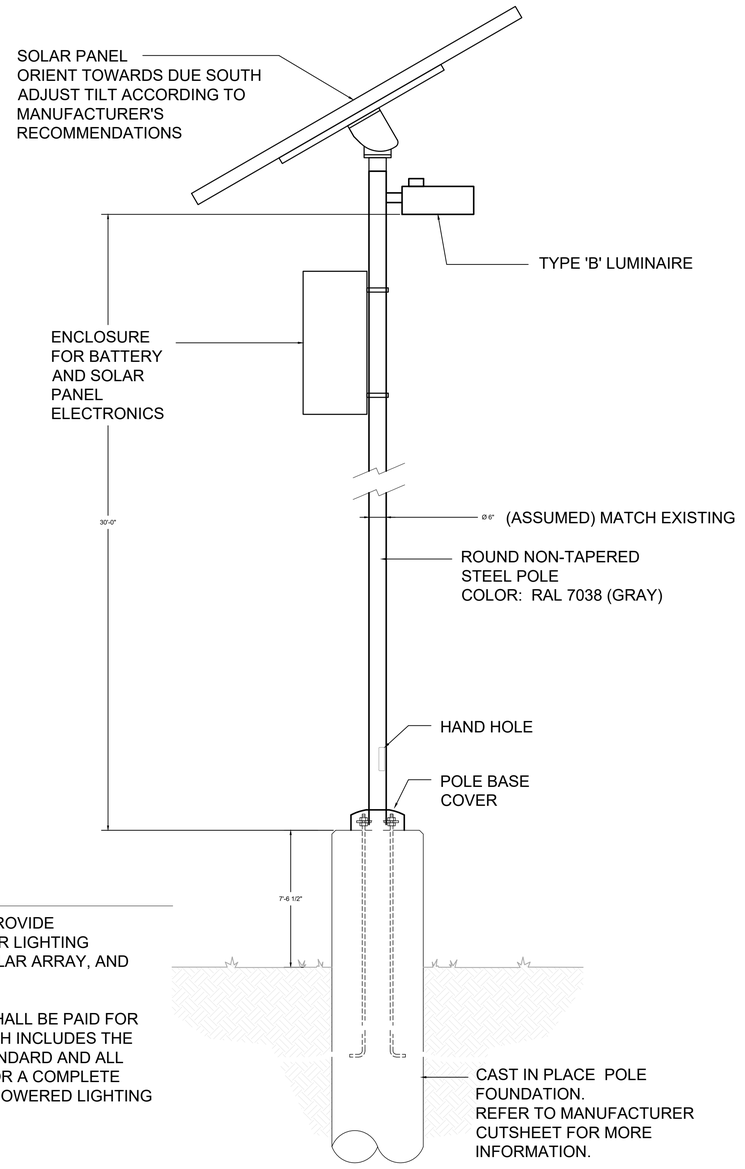
1. BOX COVERS MUST BE POLYMER CONCRETE WITH FIBERGLASS REINFORCEMENT, INCIDENTAL TRAFFIC RATED TO TIER 22 AND BOLTED WITH AN HS LOAD RATING OF 22,500 PSI (MINIMUM).

2. BOX COVERS SHALL BE LABELED AS FOLLOWS:
"ELECTRIC" OR "STREET LIGHTING" ON ALL PULL BOXES CONTAINING CDOT OWNED ELECTRICAL SERVICE.
"UTILITY ELECTRIC" ON ALL PULL BOXES CONTAINING UTILITY OWNED ELECTRICAL SERVICE.
LABELING MUST BE CAST INTO THE COVER AND NOT AS A SEPARATE INDEPENDENT TAG.

3. REFER TO CDOT STANDARD PLAN No. S-613-3 FOR TYPICAL PULL BOX SIZES.

4. REFER TO N.E.C. ARTICLE 314 "PULL AND JUNCTION BOXES AND CONDUIT BODIES MINIMUM SIZE" FOR BOX SIZE REQUIREMENTS. REFER TO CDOT SPECIFICATION 601 FOR CAST-IN-PLACE CONCRETE SPECIFICATION.

5. THE WIRE TERMINATIONS IN PULL BOXES SHALL BE MADE USING URG, SUBMERSIBLE INSULATED PEDESTAL LUG CONNECTIONS. PROVIDE ONE MULTI-LUG CONNECTOR FOR EACH PHASE, NEUTRAL AND GROUND CONDUCTOR TO BE SPLICED IN THE IN-GRADE PULL BOX.



DETAIL NOTES

1. THE CONTRACTOR SHALL PROVIDE INSTALLATION, OF ALL SOLAR LIGHTING EQUIPMENT: LUMINAIRE, SOLAR ARRAY, AND BATTERY ENCLOSURE.

2. SOLAR LIGHTING SYSTEM SHALL BE PAID FOR ON A LUMP SUM BASIS WHICH INCLUDES THE LUMINAIRE, ARM, LIGHT STANDARD AND ALL NECESSARY ELECTRICAL FOR A COMPLETE AND OPERATIONAL SOLAR-POWERED LIGHTING SYSTEM.

1 SOLAR PARKING LOT LIGHT DETAIL
NOT TO SCALE

SYMBOL =

ISSUE RECORD / REVISION:

PURPOSE:	DATE:
Red bid notes	12/6/2023

CLANTON & ASSOCIATES
LIGHTING DESIGN AND ENGINEERING
4699 NAUTILUS COURT SOUTH STE. 102
BOULDER
303-530-7229

10-10-2023

DRAWN BY: ES
CHECKED BY: DS

COLORADO LICENSED
JAMES R. SANDERS
10/10/2023
41269
PROFESSIONAL ENGINEER

University of Colorado
Anschutz Medical Center
Aurora, Colorado

PREPARED FOR:

PROJECT NUMBER:
23-128743

SHEET NAME:
AS NOTED

SHEET NUMBER:
LD.02

SB2-8 FEEDER SCHEDULE

KEY	CIRCUIT NUMBERS	VOLTAGE	WIRE SIZE	COLOR	CONDUIT SIZE & TYPE
SB2-8-A	SB2-8-9	277-HOT,NEU	2#6-THWN-2 CU	ORG, GRY	1 1/4" PVC 24" BELOW GRADE
	SB2-8-11	277-HOT,NEU	2#6-THWN-2 CU	YEL, GRY	
	GROUND	277/480V-GND	1#6-THWN-2 CU	GREEN	
SB2-8-B	SB2-8-9	277-HOT,NEU	2#6-THWN-2 CU	ORG, GRY	3" HDPE BORE 48" BELOW GRADE
	SB2-8-11	277-HOT,NEU	2#6-THWN-2 CU	YEL, GRY	
	GROUND	277/480V-GND	1#6-THWN-2 CU	GREEN	
SB2-8-C	SB2-8-11	277-HOT,NEU	2#6-THWN-2 CU	YEL, GRY	1 1/4" PVC 24" BELOW GRADE
	GROUND	277/480V-GND	1#6-THWN-2 CU	GREEN	
SB2-8-D	SB2-8-9	277-HOT,NEU	2#6-THWN-2 CU	ORG, GRY	1 1/4" PVC 24" BELOW GRADE
	GROUND	277/480V-GND	1#6-THWN-2 CU	GREEN	
SB2-8-E	SB2-8-9	277-HOT,NEU	2#6-THWN-2 CU	ORG, GRY	3" HDPE BORE 48" BELOW GRADE
	GROUND	277/480V-GND	1#6-THWN-2 CU	GREEN	
SB2-8-F	SB2-8-9	277-HOT,NEU	2#6-THWN-2 CU	ORG, GRY	1" PVC 24" BELOW GRADE
	GROUND	277/480V-GND	1#6-THWN-2 CU	GREEN	

ERL.1 FEEDER SCHEDULE

KEY	CIRCUIT NUMBERS	VOLTAGE	WIRE SIZE	COLOR	CONDUIT SIZE & TYPE
ERL.1-A	ERL.1-11,13	208-HOT,HOT	2#4-THWN-2 CU	BLK,BLU	1 1/4" PVC 24" BELOW GRADE
	ERL.1-15,17	208-HOT,HOT	2#4-THWN-2 CU	RED,BLU	
	GROUND	120/208V-GND	1#4-THWN-2 CU	GREEN	
ERL.1-B	ERL.1-11,13	208-HOT,HOT	2#4-THWN-2 CU	BLK,BLU	1 1/4" PVC 24" BELOW GRADE
	GROUND	120/208V-GND	1#4-THWN-2 CU	GREEN	
ERL.1-C	ERL.1-15,17	208-HOT,HOT	2#4-THWN-2 CU	RED,BLU	1 1/4" PVC 24" BELOW GRADE
	GROUND	120/208V-GND	1#4-THWN-2 CU	GREEN	

WRL.1 FEEDER SCHEDULE

KEY	CIRCUIT NUMBERS	VOLTAGE	WIRE SIZE	COLOR	CONDUIT SIZE & TYPE
WRL.1-A	WRL.1-1,3	208-HOT,HOT	2#6-THWN-2 CU	BLK,RED	1 1/4" PVC 24" BELOW GRADE
	WRL.1-2,4	208-HOT,HOT	2#8-THWN-2 CU	BLK,RED	
	GROUND	120/208V-GND	1#8-THWN-2 CU	GREEN	
WRL.1-B	WRL.1-1,3	208-HOT,HOT	2#6-THWN-2 CU	BLK,RED	3" HDPE BORE 48" BELOW GRADE
	WRL.1-2,4	208-HOT,HOT	2#8-THWN-2 CU	BLK,RED	
	GROUND	120/208V-GND	1#8-THWN-2 CU	GREEN	
WRL.1-C	WRL.1-1,3	208-HOT,HOT	2#6-THWN-2 CU	BLK,RED	1 1/4" PVC 24" BELOW GRADE
	GROUND	120/208V-GND	1#8-THWN-2 CU	GREEN	
WRL.1-D	WRL.1-2,4	208-HOT,HOT	2#8-THWN-2 CU	BLK,RED	1 1/4" PVC 24" BELOW GRADE
	GROUND	120/208V-GND	1#8-THWN-2 CU	GREEN	

MOUNTING: PEDESTAL — **EXISTING PANEL "SB2-8 IFS-1" / CABINET LABEL "LCP-K08"** — 480Y/277V-3PH-4W
NEMA 3R ENCLOSURE
FEEDER: BOTTOM — Minimum A.I.C.= 14000 AMPS — 125 AMP MAIN CIRCUIT BREAKER
BRANCH BREAKER

DESCRIPTION	Size	P	Ckt#	LEFT PHASE LOAD A-PH	LEFT PHASE LOAD B-PH	LEFT PHASE LOAD C-PH	RIGHT PHASE LOAD A-PH	RIGHT PHASE LOAD B-PH	RIGHT PHASE LOAD C-PH	Ckt#	Size	P	DESCRIPTION
SPACE		1	1							2			SPACE
SPACE		1	3							4			SPACE
SPACE		1	5							6			SPACE
SPACE		1	7				6648			8	40		LIFT STATION AT 16TH AND QUENTIN
SPACE		1	9					6648		10			LIFT STATION AT 16TH AND QUENTIN
SPACE		1	11						6648	12		3	LIFT STATION AT 16TH AND QUENTIN
SB2-8 IFS2	80		13	4150			9972			14	60		STEAM VAULTS 9 THRU 13
SB2-8 IFS2			15		2625			9972		16			STEAM VAULTS 9 THRU 13
SB2-8 IFS2		3	17			3015			9972	18		3	STEAM VAULTS 9 THRU 13
				4150	2625	3015	16620	16620	16620				
				20770	19245	19635	Total Connected V.A.						
				59650	=Total Connected VA all (3) Phases								

LOAD	CONNECTED	D.FACT.	Est. KVA	AMPS
LIGHTING	0 VA	1.25	0.00	
RECEPTACLES (1ST 10000)	0 VA	1.00	0.00	
RECEPTACLES (REMAINING)	VA	0.50	0.00	
MOTOR (LARGEST)	19944 VA	1.25	24.93	
MOTORS (REMAINING)	0 VA	1.00	0.00	
ELECTRICAL HEATING	29916 VA	1.25	37.40	
ELECTRICAL MISC.	9790 VA	1.00	9.79	
TOTAL ESTIMATED LOAD	59650 VA		72.12	87

0 VA=Total Receptacle Load

NOTE:

MOUNTING: PEDESTAL — **EXISTING PANEL "SB 2-8 IFS SEC.-2" / CABINET LABEL "LCP-K08"** — 480Y/277V-3PH-4W
FED FROM PANEL 'SB 2-8 SEC.-1' — NEMA 3R ENCLOSURE
FEEDER: BOTTOM — Minimum A.I.C.= 14000 AMPS — 80 AMPS MAIN LUGS ONLY
BRANCH BREAKER

	DESCRIPTION	Size	P	Ckt#	LEFT PHASE LOAD A-PH	LEFT PHASE LOAD B-PH	LEFT PHASE LOAD C-PH	RIGHT PHASE LOAD A-PH	RIGHT PHASE LOAD B-PH	RIGHT PHASE LOAD C-PH	Ckt#	Size	P	DESCRIPTION
	LIGHTS 17TH AVE	20	1	1	825			825			2	20	1	LIGHTS 17TH AVE
	LIGHTS 17TH AVE	20	1	3		825			1100		4	20	1	LIGHTS 17TH AVE
	LIGHTS 17TH AVE	20	1	5			825			1100	6	20	1	LIGHTS 17TH AVE
	CONTACTOR	20	1	7	300			2200			8	20	1	LOT 700 LIGHTS
1,2	**QUENTIN PED. LIGHTS (14)**	20	1	9		**700**					10	20	1	SPARE
1,2	**QUENTIN ST. LGTS (6), SIGN**	20	1	11			**1090**				12	20	1	SPARE
	SPARE	20	1	13							14			SPACE ONLY
	SPARE	20	1	15							16			SPACE ONLY
	SPARE	20	1	17							18			SPACE ONLY
	SPARE	20	1	19							20			SPACE ONLY
	SPARE	20	1	21							22			SPACE ONLY
	SPARE	20	1	23							24			SPACE ONLY
	SPACE ONLY			25							26			SPACE ONLY
	SPARE	45	1	27							28			SPACE ONLY
	SPACE ONLY			29							30			SPACE ONLY
					1125	1525	1915	3025	1100	1100				
					4150	2625	3015	Total Connected V.A.						
					9790	=Total Connected VA all (3) Phases								

LOAD	CONNECTED	D.FACT.	Est. KVA	AMPS
LIGHTING	9490 VA	1.25	11.86	
RECEPTACLES (1ST 10000)	0 VA	1.00	0.00	
RECEPTACLES (REMAINING)	VA	0.50	0.00	
MOTOR (LARGEST)	0 VA	1.25	0.00	
MOTORS (REMAINING)	0 VA	1.00	0.00	
ELECTRICAL HEATING	0 VA	1.25	0.00	
ELECTRICAL MISC.	300 VA	1.00	0.30	
TOTAL ESTIMATED LOAD	9790 VA		12.16	15

0 VA=Total Receptacle Load

NOTE:

1. ROUTE THIS CIRCUIT THROUGH A CONTACTOR WITH PHOTOCELL CONTROL LOCATED AT THE PANEL.
2. CONNECT THESE NEW LOADS TO THE EXISTING 20A-1P CIRCUIT BREAKERS.

MOUNTING: SURFACE — **PANEL "WRL.1"** — 208Y/120V-3PH-4W
NEMA 3R ENCLOSURE
FEEDER: BOTTOM — Minimum A.I.C.= 22,000 AMPS — 225 AMPS MAIN BREAKER
BRANCH BREAKER

DESCRIPTION	Size	P	Ckt#	LEFT PHASE LOAD A-PH	LEFT PHASE LOAD B-PH	LEFT PHASE LOAD C-PH	RIGHT PHASE LOAD A-PH	RIGHT PHASE LOAD B-PH	RIGHT PHASE LOAD C-PH	Ckt#	Size	P	DESCRIPTION
PARKING LOT LIGHTS (11)	20	1	1	825			900			2	20	1	PARKING LOT LIGHTS (8)
		2	3		825			900		4		2	
SPARE	20	1	5						180	6	20	1	PRL? RECEPTACLE
			7							8	20	1	SPARE
			9							10			
			11							12			
			13							14			
			15							16			
			17							18			
			19							20			
			21							22			
			23							24			
			25							26			
			27							28			
			29							30			
			31							32			
			33							34			
			35							36			
			37							38			SURGE PROTECTOR
			39							40	30	2	
			41							42			
				825	825	0	900	900	180				
				1725	1725	180	Total Connected V.A.						
				3630	=Total Connected VA all (3) Phases								

LOAD	CONNECTED	D.FACT.	Est. KVA	AMPS
LIGHTING	3450 VA	1.25	4.31	
RECEPTACLES (1ST 10000)	180 VA	1.00	0.18	
RECEPTACLES (REMAINING)	VA	0.50	0.00	
MOTOR (LARGEST)	0 VA	1.25	0.00	
MOTORS (REMAINING)	0 VA	1.00	0.00	
ELECTRICAL HEATING	0 VA	1.25	0.00	
ELECTRICAL MISC.	0 VA	1.00	0.00	
TOTAL ESTIMATED LOAD	3630 VA		4.49	12

180 VA=Total Receptacle Load

NOTE:
ALL LIGHTING CONTROL CENTERS AND ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH "ARC-FLASH HAZARD WARNING" LABELS PER THE NATIONAL ELECTRIC CODE NEC 110.16 AND NFPA 70E, AND ALL OTHER LABELS REQUIRED BY NFPA 70.

MOUNTING: SURFACE — **PANEL "ERL.1"** — 208Y/120V-3PH-4W
NEMA 3R ENCLOSURE
FEEDER: BOTTOM — Minimum A.I.C.= EXISTING — 100 AMPS MAIN BREAKER
BRANCH BREAKER

DESCRIPTION	Size	P	Ckt#	LEFT PHASE LOAD A-PH	LEFT PHASE LOAD B-PH	LEFT PHASE LOAD C-PH	RIGHT PHASE LOAD A-PH	RIGHT PHASE LOAD B-PH	RIGHT PHASE LOAD C-PH	Ckt#	Size	P	DESCRIPTION
EXISTING LOAD	30		1	2880			4800			2	50		EXISTING LOAD
		2	3		2880			4800		4		2	
EXISTING LOAD	20	1	5			1920			1920	6	20	1	EXISTING LOAD
EXISTING LOAD	20	1	7	1920			1920			8	20	1	EXISTING LOAD
			9						4800	10	50		EXISTING LOAD
PARKING LOT LIGHTS (17)	**20**		11			**1275**			4800	12		2	
		2	13	**1275**						14			
PARKING LOT LIGHTS (17)	**20**		15		**1275**					16			
		2	17			**1275**				18			
				6075	4155	4470	6720	9600	6720				
				12795	13755	11190	Total Connected V.A.						
				37740	=Total Connected VA all (3) Phases								

LOAD	CONNECTED	D.FACT.	Est. KVA	AMPS
LIGHTING	0 VA	1.25	0.00	
RECEPTACLES (1ST 10000)	10000 VA	1.00	10.00	
RECEPTACLES (REMAINING)	22640 VA	0.50	11.32	
MOTOR (LARGEST)	0 VA	1.25	0.00	
MOTORS (REMAINING)	0 VA	1.00	0.00	
ELECTRICAL HEATING	0 VA	1.25	0.00	
ELECTRICAL MISC.	0 VA	1.00	0.00	
TOTAL ESTIMATED LOAD	32640 VA		21.32	59

32640 VA=Total Receptacle Load

NOTE:
ALL LIGHTING CONTROL CENTERS AND ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH "ARC-FLASH HAZARD WARNING" LABELS PER THE NATIONAL ELECTRIC CODE NEC 110.16 AND NFPA 70E, AND ALL OTHER LABELS REQUIRED BY NFPA 70.

ISSUE RECORD / REVISION:

PURPOSE:	DATE:
Red bid notes	12/6/2023

CLANTON & ASSOCIATES
LIGHTING DESIGN AND ENGINEERING
1499 NAUTILUS COURT SOUTH STE. 102
BOULDER, CO 80301
303-530-7229

10-10-2023

DRAWN BY: ES
CHECKED BY: DS

COLORADO LICENSED
JAMES R. SANDERS
10/10/2023
41269
PROFESSIONAL ENGINEER

University of Colorado
Anschutz Medical Center
Aurora, Colorado

PREPARED FOR:

PROJECT NUMBER:
23-128743

SHEET NAME:
AS NOTED

SHEET NUMBER:
LD.03