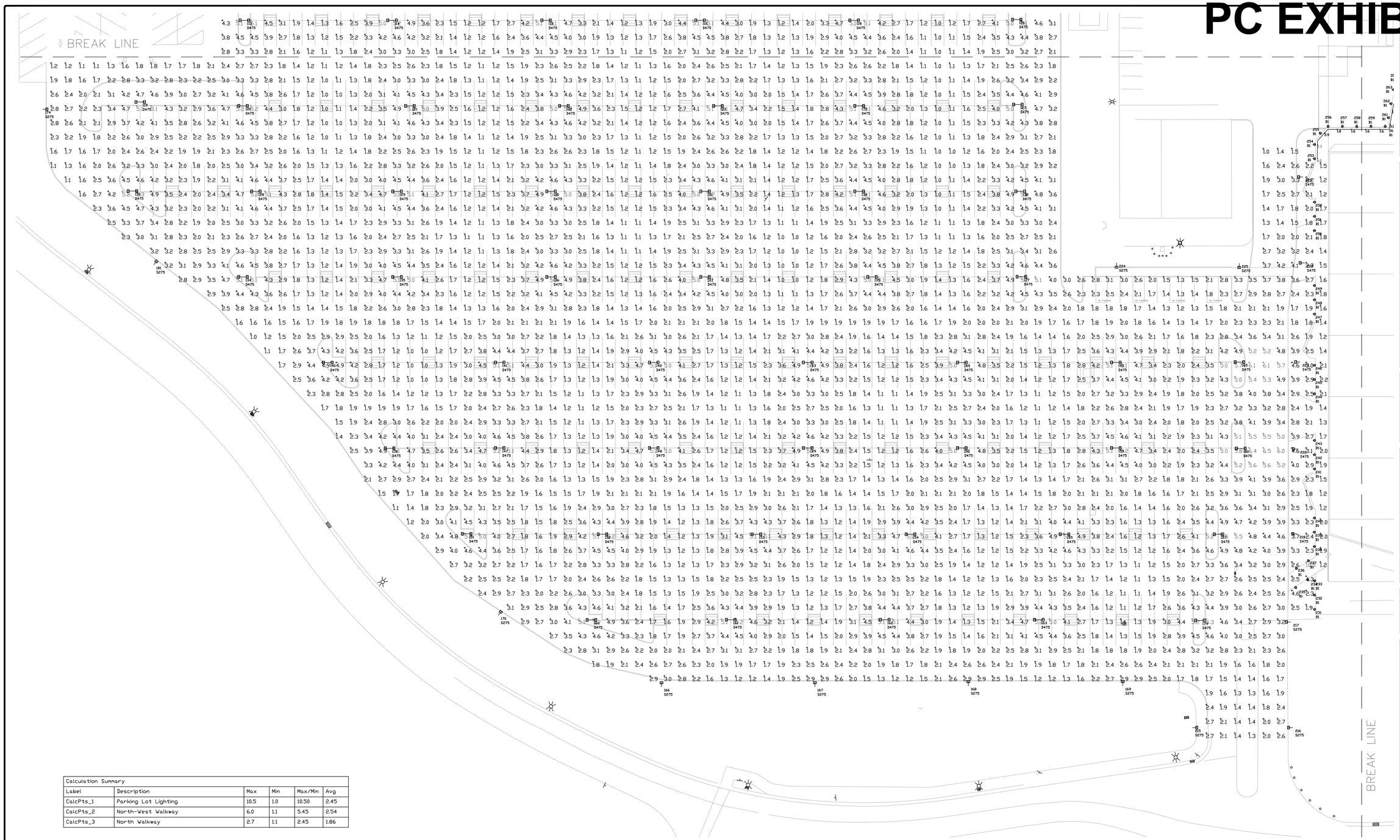
PC EXHIBIT J



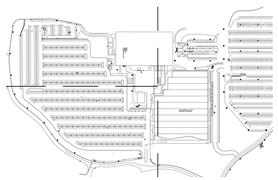
Calculation Summary					
Label	Description	Max	Min	Max/Min	Avg
CalcPts_1	Parking Lot Lighting	10.5	1.0	10.50	2.45
CalcPts_2	North-West Walkway	6.0	1.1	5.45	2.54
CalcPts_3	North Walkway	2.7	1.1	2.45	1.86

Luminaire Schedule				
Symbol	Label	Lum. Watts	BUG Rating	Description
	B1	9	B0-U0-G0	Bega - 77218 - Direct Burial Bollard
	D475	75	B2-U0-G1	Landscape Forms - RM-048L4-FRS-05C-40K - 26' Pole on 3' Base
	S275	75	B2-U0-G2	Landscape Forms - RM-048L2-FRS-05C-40K - 26' Pole on 3' Base
	S475	75	B2-U0-G1	Landscape Forms - RM-048L4-FRS-05C-40K - 26' Pole on 3' Base

N

30 0 15 30 60

1 inch = 30 ft.



KEY PLAN

REV NO.	DATE	DESCRIPTION	DWG NO.	BY	DATE
				CITY APPROVED	

REGISTERED PROFESSIONAL ENGINEER
No.9668
Exp.9-30-20
ELECTRICAL
STATE OF CALIFORNIA
1/14/20

RSC ENGINEERING
2250 Douglas Blvd Suite 150
Roseville, CA 95661
Ph:916.788.2884 Fax:916.788.4408

PROJECT NO:	19092
DRAWN BY:	RSC Eng
CHECKED BY:	RSC Eng
DESIGNED BY:	RSC Eng

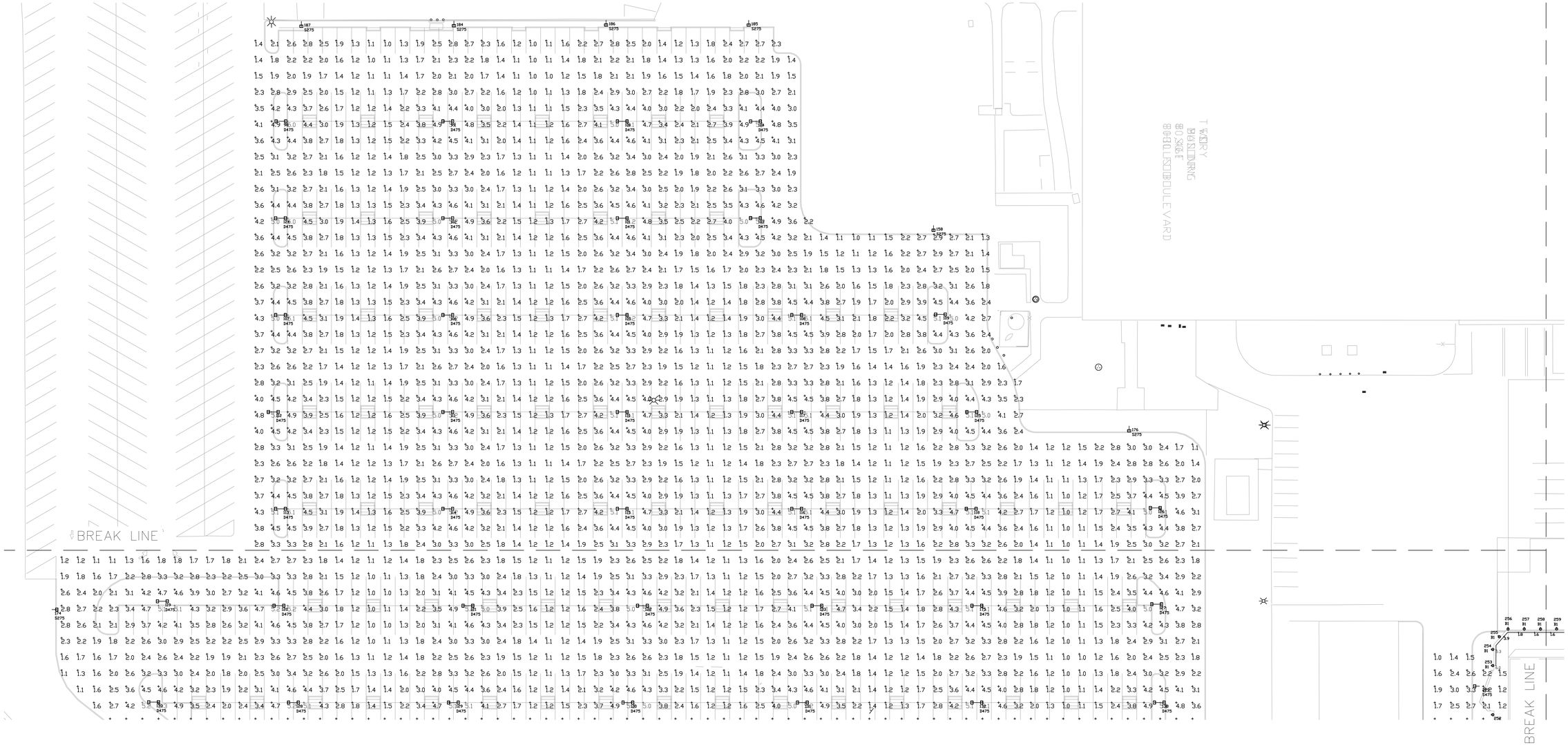
PHOTOMETRIC PLAN
ROSEVILLE INNOV PARK, UNIT 4

8020 FOOTHILLS BLVD
ROSEVILLE, CA

SHEET TITLE
PHOTOMETRIC PLAN SOUTH-WEST

SHEET NO.
PP1
1 OF 3

DATE: JANUARY 14, 2020



landscape forms

RAMA AREA LIGHT

Product Data Sheet

Designed by Gonzalo Mila, Rama offers a minimalist design, universal aesthetic, and broad versatility. Directional lighting reduces light pollution and puts light where it is needed, and energy-efficient, warm white LEDs with a clear or frosted lens provide excellent performance and a great visual experience. Single or multiple luminaires that can be mounted in different positions on three standard pole heights make Rama suitable for any outdoor space. A simple clamping mechanism allows Rama luminaires to be retrofitted to existing 3" poles. With multiple distribution types and drive currents, Rama provides appropriate light levels for a variety of outdoor spaces and lighting requirements.

General Description

- Single, double, or spiral configurations
- Offered in 3 standard pole heights (4.5m, 6m, 8m)
- Optional ANSI/IES 4 x 7 pin twist lock receptacle
- Available in 24 and 48 LED configurations
- Multiple drive currents and distribution types
- Mounting template and anchor hardware included
- Zero up-light, International Dark-Sky approved
- UL Listed, suitable for wet locations

Electrical

120V-277V 50/60 Hz, Class 2 integrated dimmable driver. 1-10V dimming interface is standard. DALI compatible dimming interface available upon request. Rama ships pewered and fully assembled.

Rama R4
Type 2, Type 3, Type 4
Housing: Aluminum extrusion
Lamp: 24 Cree XP20 LEDs
CCT: 3000K, 4000K
Drive Current: 350mA or 500mA
Lens: Clear / Frosted Glass
Power Supply: 120V-277V
Dimmable: 1-10V or DALI
Protection Rating: IP66

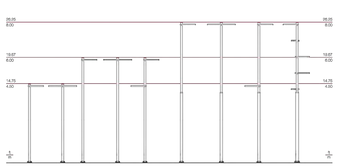
Rama R8
Type 2, Type 3, Type 4
Housing: Aluminum extrusion
Lamp: 48 Cree XP20 LEDs
CCT: 3000K, 4000K
Drive Current: 350mA or 500mA
Lens: Clear / Frosted Glass
Power Supply: 120V-277V
Dimmable: 1-10V or DALI
Protection Rating: IP66

Landscape Forms, Inc. | 800.521.2546 | F 269.381.3455 | 7800 E. Michigan Ave., Kalamazoo, MI 49048

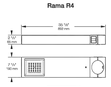
landscape forms

RAMA AREA LIGHT

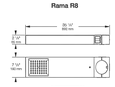
Product Data Sheet



Rama R4



Rama R8



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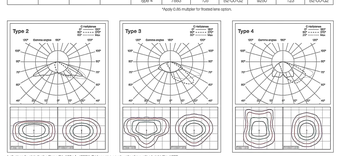
RAMA AREA LIGHT

Product Data Sheet

Performance Data

Models	LED Quantity	Drive Current	System Watts	DistributionLens Type	Type 2 Performance Per Unit		Type 3 Performance Per Unit		Type 4 Performance Per Unit	
					Lumens	BUG	Lumens	BUG	Lumens	BUG
Rama R4	24	350	28	Type 2	2778	M	B1-U0-G1	2034	106	B1-U0-G1
				Type 3	3221	113	B1-U0-G1	3041	127	B1-U0-G1
				Type 4	3033	107	B1-U0-G1	3002	111	B1-U0-G1
		500	40	Type 2	3926	98	B1-U0-G1	4318	108	B1-U0-G1
				Type 3	4553	114	B1-U0-G1	5006	125	B1-U0-G1
				Type 4	4248	106	B1-U0-G1	4899	118	B1-U0-G1
Rama R8	48	350	53	Type 2	5552	103	B1-U0-G1	6246	116	B2-U0-G2
				Type 3	6180	117	B1-U0-G1	7241	137	B1-U0-G1
				Type 4	6765	108	B1-U0-G1	6702	107	B1-U0-G1
		500	75	Type 2	7202	97	B2-U0-G2	8557	114	B2-U0-G2
				Type 3	8464	113	B1-U0-G1	9919	132	B1-U0-G1
				Type 4	7893	105	B2-U0-G2	9250	123	B2-U0-G2

*Note 0.85 multiplier for frosted lens specs.



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RAMA AREA LIGHT

Product Data Sheet

To Order Rama

Specify: Product, Lamp, Lens, Drive Current, Color Temperature, Input Voltage, Mounting Option and Finish.

Product	Lamp	Lens	Drive Current	Color Temperature	Input Voltage	Mounting	Finish
RM Rama	G24L2 (1N, 24 LED, Type 2)	CLR (Clear Glass)	020C (350mA)	30K (3000K)	UV1 (120-277VAC)	5A (w/ clamp, single mount)	AL (Aluminum Silver)
	G48L2 (1R, 48 LED, Type 2)	FRS (Frosted Glass)	050C (500mA)	40K (4000K)		5B (w/o clamp, double mount)	
	G24L3 (1N, 24 LED, Type 3)						
	G48L3 (1R, 48 LED, Type 3)						
	G24L4 (1N, 24 LED, Type 4)						
	G48L4 (1R, 48 LED, Type 4)						

EXAMPLE: RM – G48L2 – CLR – 050C – 30K – UV1 – 5A – AL

*Driver has an optional Constant Light Output (CLO) setting, which compensates for lumen depreciation by adjusting the power given to the LEDs, allowing light output to remain constant throughout the lifespan of the luminaire. Contact factory for additional details.

To Order Aluminum Rama Pole

Specify: Rama pole with optional 7 pin (ANSI / 38.41) Twist Lock Receptacle and Powdercoat Color.

Pole Height	Part Number	Tenon Angle	Receptacle	Twist Lock
4.5 meters	RM0021S-01 RM0021S-02	(1) or (2) Rama Luminaires at top: (1) or (2) Rama Luminaires at top:	0° 0°	.125" .125"	No Yes
6 meters	RM0022C-01 RM0022C-02 RM0022C-03 RM0022C-04	(1) or (2) Rama Luminaires at top: (1) or (2) Rama Luminaires at top: (2) Rama Luminaires at different heights: (2) Rama Luminaires at different heights:	0° 0° 0° 0°	.188" .188" .188" .188"	No Yes No Yes
8 meters	RM0023C-01 RM0023C-02 RM0023C-03 RM0023C-04	(1) or (2) Rama Luminaires at top: (1) or (2) Rama Luminaires at top: (2) Rama Luminaires at different heights: (2) Rama Luminaires at different heights:	0° / 0° 0° / 0° 0° / 0° 0° / 0°	.188" .188" .188" .188"	No Yes No Yes
	RM0026-01 RM0026-02	(5) Rama Luminaires in spiral configuration: (5) Rama Luminaires in spiral configuration:	0° / 7° 0° / 7°	.188" .188"	No Yes

EXAMPLE: RM0023C-01 = Powdercoat Color

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landscape forms

RAMA AREA LIGHT

Product Data Sheet

Finish

The Rama luminaire is aluminum extrusion with a natural aluminum powdercoat finish offered by Santa & Cole. The Pangaea IP powdercoat finish on poles is offered exclusively by Landscape Forms.

Product Modifications

Don't see what you are looking for? Our goal is to partner with you as the designer to manufacture solutions needed for the space you are creating. We offer the option to modify our standard product to meet certain design specifications or needs. Contact your local Landscape Forms representative to learn more about these offerings.

Warranty

Santa & Cole guarantees the composition and performance features of all material that shape the product for a period of three years. Electrical components including LED boards and electronic drivers are guaranteed for a period of five years.

Other

UL Listed, CE, RoHS Compliant, Dark-Sky Approved

Rama is designed by Santa & Cole
Rama design is protected by Spanish Industrial Design #147,594 and International Industrial Model #76912

Visit landscapeforms.com for more information. Specifications are subject to change without notice.
Landscape Forms supports the Landscape Architecture Foundation at the Second Century level.
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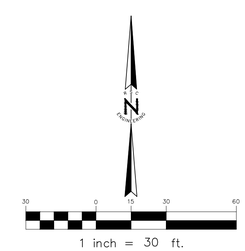

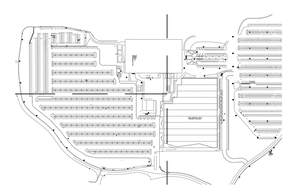

KEY PLAN

REV NO.	DATE	DESCRIPTION	ENG MT.	BY	CITY APPROVED	DATE
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△						
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△						

1/14/20

RSC ENGINEERING
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Ph: 916.788.2884 Fax: 916.788.4408

PROJECT NO:	19092
DRAWN BY:	RSC Eng
CHECKED BY:	RSC Eng
DESIGNED BY:	RSC Eng

PHOTOMETRIC PLAN
ROSEVILLE INNOV PARK, UNIT 4

8020 FOOTHILLS BLVD
ROSEVILLE, CA

SHEET TITLE
PHOTOMETRIC PLAN NORTH

SHEET NO.
PP2
2 OF 3

DATE: JANUARY 14, 2020

LED garden and pathway bollard

Type:
BEGA Product:
Project:
Voltage:
Color:
Options:
Modified:

Post construction: One piece extruded aluminum. All aluminum in the construction is marine grade and copper free.

Lamp Enclosure: One piece die cast aluminum housing attached to post by two (2) internal stainless steel screws. Polycarbonate lens with optical texture attached to housing with captive stainless steel screw threaded into stainless steel insert. Fully gasketed using a one piece molded silicone gasket.

Electrical: 6.4W LED luminaire, 6.5 total system watts, -30°C start temperature. Integral 12V AC driver provided must be operated using remote, integrated transformer. Standard LED color temperature is 3000K with an 85 CRI.

Note: LEDs supplied with luminaire. Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

Anchor base: Direct burial anchor post provided made of galvanized steel. Bollards are secured to post using two (2) stainless steel set screws.

Finish: Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

Please note: BEGA's approach to product design is to innovate, not follow. With a commitment to quality, we design our product to be installed in a generic or common fitting. The fitting was defined by our engineers based on manor findings. The Accent and Garden Collection is designed specifically for use in Residential and Light Commercial applications. Please reference our standard BEGA portfolio when mounting provisions for the rigorous demands of high-use commercial and/or vandal prone settings are required.

CSA certified to U.S. and Canadian standards, suitable for wet locations. Protection class IP65

Weight: 6.5 lbs.

		Lamp	A	B	C	D
77 218	with direct burial anchorage	6.4W LED	6¼	27⅞	9	-

BEGA–US 1000 BEGA Way, Carpinteria, CA 93013 (800) 684-0533 FAX (805) 566-9474 www.bega-us..com
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BEGA Installation and Technical Information

Garden luminaire - low voltage **77 218**

Tools Required:
3mm has key!
Standard small slotted screwdriver
Digging tool

Replacement Parts:

LED Module	LED-0181/830
LED Driver	75946
Lens	150383
Cable (8 ft.)	86067

Dimensions
A: 6 1/4"
B: 27 1/2"
C: 9"
D: 2 3/4"

CSA certified to U.S. and Canadian standards. Suitable for wet locations.

Protection Class: IP64

Weight: 6.5 lbs.

Luminaire 77 218:

Housings: Garden bollard housing made of aluminum alloy with matte safety glass. Anchorage post (supplied) made of galvanized steel.
Electrical: 7.8W LED luminaire, 9 total system watts, -30°C start temperature. Integral 12V AC driver provided. Standard LED color temperature is 3000K with an 85 CRI.

IMPORTANT: For use with magnetic landscape transformers ONLY.

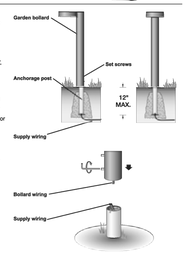
Warranty: 3 year manufacturer warranty

Notice to Installer for 77 218:
WARNING: LEDs are high-quality electrical components. Please avoid opening upper electrical compartment and do NOT touch LED module.

WARNING: RISK OF ELECTRIC SHOCK. Install all luminaires 10 feet or more from pool, spa or fountain.

1. Compatible for use with 12-24V AC input voltage.
2. Voltage must NOT drop below 10V.
3. Turn main power OFF before start of installation.
4. Low voltage wiring is intended for shallow burial - no more than 6 in.

77 218 Installation:
1. Establish area for fixture placement and prepare soil for anchorage by digging a hole (12" maximum depth).
2. Dig a trench from the anchorage hole to the power source. Depth of the trench will be determined by national, state, and local codes.
3. Install at least 3" of pea gravel or similar in the bottom of the anchorage hole for drainage.
4. Loosen (2) set screws on garden bollard to release anchorage post.
5. Bring 12V-24V supply wiring into the bottom of the anchorage post and feed through to the top until there is 12" of cable coming up through the top of the anchorage post.
6. Bury supply wiring cable in trench.
7. Place anchorage post into hole and fill in hole with packed soil, making sure that the post is vertical and secure.
8. Make wire splices from supply wiring coming out of anchorage post to bollard wiring coming down from bollard shaft. For maximum wire run lengths, see table to the right.
9. Push splices into bollard shaft.
10. Mount bollard onto anchorage post until the bottom of the bollard hits the ground. Tighten (2) set screws to secure bollard to anchorage shaft.
11. Connect supply wiring to main power. Turn main power on.



Connected LED Watts	Max. Run Length (ft) For Wire Size 2 Volt drop				
	Wire Size (AWG)				
	18	16	14	12	10
60	46	73	116	185	294
30	61	97	155	246	392
20	92	146	232	369	588
15	122	195	309	492	784
10	183	292	464	738	1176
5	366	585	928	1477	2353

Lamp: Integral 7.8W LED Module
(No replacement necessary)

In the interest of product improvement, BEGA reserves the right to make technical changes without notice.
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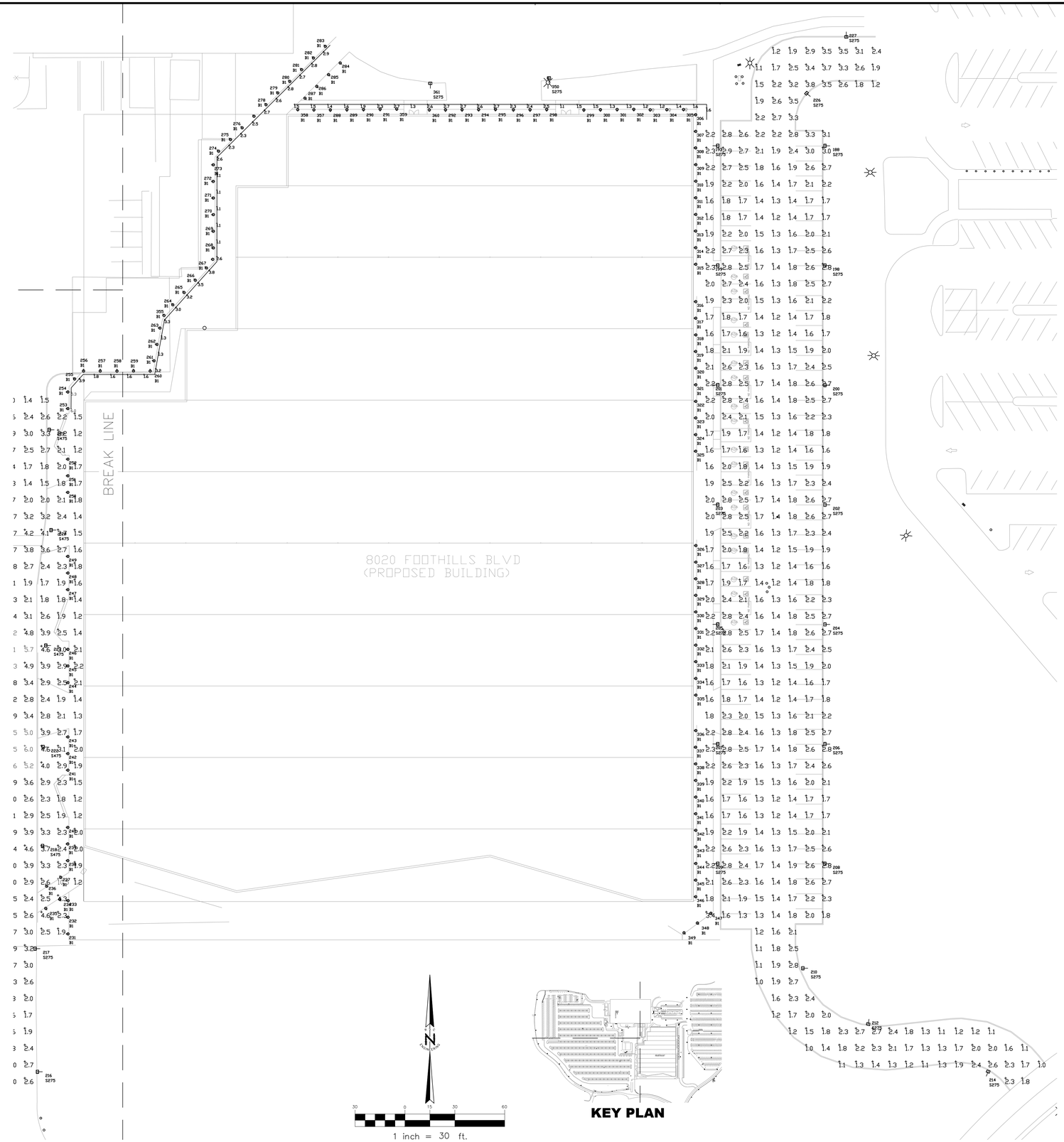
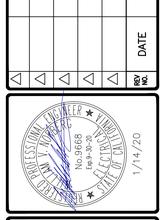
77 218
8/5/2015



KEY PLAN

1 inch = 30 ft.

REV NO.	DATE	DESCRIPTION	ENG MT.	BY	CITY APPROVED	DATE



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PHOTOMETRIC PLAN
ROSEVILLE INNOV PARK, UNIT 4

8020 FOOTHILLS BLVD
ROSEVILLE, CA

SHEET TITLE
PHOTOMETRIC PLAN EAST

SHEET NO.
PP3
3 OF **3**

DATE: JANUARY 14, 2020