

18) **Purchase of 32 LED Lighting System for the Levee Walking Path Trail**

Approve and authorize the City Manager to execute a Purchase Order with Holophane for 32 LED Lighting Systems for the Levee Walking Path Trail in an amount not to exceed \$197,278.60 in such final form approved by the City Attorney and authorize the City Manager to execute change orders not to exceed a 10% contingency of \$19,727.00 for unanticipated costs.



REPORT TO CITY COUNCIL

To: Honorable Mayor and Members of the City Council

From: Jason Simpson, City Manager

Prepared by: Rick DeSantiago, Public Works Manager

Date: October 24, 2023

Subject: Purchase of 32 LED Lighting System for the Levee Walking Path Trail

Recommendation

Approve and authorize the City Manager to execute a Purchase Order with Holophane for 32 LED Lighting Systems for the Levee Walking Path Trail in an amount not to exceed \$197,278.60 in such final form approved by the City Attorney and authorize the City Manager to execute change orders not to exceed a 10% contingency of \$19,727.00 for unanticipated costs.

Background

The Levee Walking Path Trail is a popular recreational trail. The trail is situated along the levee that runs parallel to the lake's shoreline, providing scenic views of the lake and the surrounding landscape. The levee trail is approximately 3.5 miles long, making it a great option for walking, jogging, running, cycling and outdoor fitness equipment. The trail is flat and well-maintained, making it accessible for people of all fitness levels. It is a popular destination for locals and visitors alike, seeking outdoor activities and enjoying the natural beauty of the area.

Placing an LED lighting system along the levee walking path trail will offer important benefits; one of the primary reasons for installing LED lighting is enhance safety. By illuminating the walking path, it allows people to use the trail during the evening or low-light conditions, improving visibility and reducing the risk of accidents or falls. Installing an LED lighting system for the levee walking path trail improves safety, security, accessibility, aesthetics, and energy efficiency. It enhances the overall experience for trail users and contributes to the enjoyment of and utilization of this important community resource.

Purchase of 32 LED Lighting System for the Levee Walking Path Trail

Discussion

Evergen solar lights offer several benefits. **Energy Efficiency:** Evergen solar lights use renewable solar energy to power the lights, reducing reliance fossil fuels and lowering carbon emissions.

Features:

- 25 ft. pole
- Made in USA
- 170-Watt Polycrystalline Solar Panel
- Bluetooth and App for local configuration and testing
- Satellite modem for remote monitoring with insight remote monitoring platform subscription
- Solar panel and battery overvoltage protection
- LED short circuit protection and unconnected LED protection
- Internal PV disconnect
- Reverse battery polarity protection
- Self-calibration load, timing, and charging circuitry

Benefits:

- Flexible operating modes (dusk to dawn, split night, split night with dimming)
- Fully tested at the Sol factory before shipment to ensure reliable operation and trouble-free startup
- Programmed by Sol based on your project requirements eliminating confusing switch and knob setting
- Bluetooth and app for simple and secure setup
- Integrated MPPT charging and LED driving system reduces system failures, overall system complexity and cost
- Integrated surge protection and noise reduction
- Keyed connectors for simple and reliable assembly
- Temperature compensated and MPPT controlled battery charging to maximize battery life and energy collection
- High temperature charge compensation to ensure component longevity
- Memory averaging to ensure accurate turn on and turn off of lights to prevent false response due to weather variations
- 10 year limited warranty

Staff solicited three proposals for the purchase and installation of LED lighting systems for the Levee walking path trail. The amounts of each proposal are listed below:

Company Name	Quantity	Total Price
Holophane	32	\$197,278.60
Greenshine New Energy	63	\$198,960.44
Facily Solutions Group	63	\$341,476.31

Purchase of 32 LED Lighting System for the Levee Walking Path Trail

Holophane recommended 32 LED lights versus 63 as Holophane ensures the 32 LED lights will light the path with a brighter light rather than the other 2 companies and use half the number of lights. These lights are more expensive per unit (\$3,500.00), but due to the fewer number of lights that still provide the same amount of walkway lighting. The Holophane proposal has been determined responsive and is recommended.

Fiscal Impact

Funds are available in the City's Fiscal Year 23/24 Capital Improvement Plan (CIP).

Attachments

Attachment 1- Proposal



Job Name: City of Lake Elsinore Levee- Solar
Quote #: 2337-23-13093-2
Quote Label: Less fixtures
Job Location: Lake Elsinore, California
Issue Date: 9/7/2023
Good Through: 10/6/2023
Bid Date: 9/7/2023

Quoted By: Cheryl Kite
NA
cxn02@acuitysso.com

Type	Qty	Catalog #	Unit \$	Ext \$
	32	ATB0 P202 SOLAR R2 GY NR		
		Autobahn Cobra Head, Performance package, Only compatible with Sol by Sunna Design's Solar Lighting Solutions, Roadway Type II, Gray, No photocontrol receptacle		
POLE/ARM	32	RTS25 35T6 S4 HG NCV SOLAR ABSET RFD334434		
SOLAR PANEL	32	EVERGEN STANDARD NF1170-2-GEL5		
	1	SHIPPING FOR SOLAR		

Estimated Lead Time: 0 days

Grand Total: \$197,278.60

Notes

- * Customer Service Contact Information:
Toll Free Phone #: 1-855-209-6363
Fax:
1-800-345-4471
Email: westernsalesupport@holophane.com
- * Quote number must be written on Purchase Order.
- * All quotes subject to standard terms and conditions unless specifically noted.
- * Quote is based on quantities and types indicated. Changes in counts or types may affect prices.
- * Spare or replacement parts (including lamps) are only included if noted specifically within the quotation above.
- * Please refer any questions concerning this quotation to Cheryl Kite at 951-236-0740 or customer service at 1855-209-6363.
- * Price is for above Bill of Material, no other material is offered or implied.
- * Quotation is based on information available at bid time. All material subject to approval.
- * Quote is based on our interpretation of information provided. It is not intended as a guarantee of the acceptance.

Terms



Job Name: City of Lake Elsinore Levee- Solar
Quote #: 2337-23-13093-2
Quote Label: Less fixtures
Job Location: Lake Elsinore, California
Issue Date: 9/7/2023
Good Through: 10/6/2023
Bid Date: 9/7/2023

Quoted By: Cheryl Kite
NA
cxn02@acuitysso.com

Please reference the Acuity Brands Terms & Conditions at: <https://www.acuitybrands.com/support/warranty/terms-and-conditions>. Shipment lead times begin the day after the order is released and are based on working days only. Shipments are FOB Shipping Point on all orders. Holophane shall pay freight on orders of \$3,000 or more (\$750 for replacement ballast kits) to all points in the continental United States and Canada. Upon release of your order, poles and non-standard material cannot be canceled or returned. Terms are subject to revision.

Estimate ID #	2-22678-1
Date	2023/09/07 8:35:19
Project Name	Lake Elsinore Levee-EverGEN-M 1 panel 2 battery ATB0 P202 5dim2
Location	Lake Elsinore, CA, USA
Dimensions	100 ft
Application	Pathway

Engineered smart. Built tough. Accurately sized.
Guaranteed reliability for 10 years.

At Sol, we develop products that we believe in: our EverGen solar light will perform exactly as promised—throughout its lifespan.

This detailed overview combines the complex algorithms of our sizing engine with the experience of our in-house lighting experts to give you the most reliable and cost-effective product for your location. Your EverGen model includes standard features such as a 12-month subscription to Sol's Insight remote monitoring platform, a warm light color temperature, and dark-sky lighting controls.

SOLAR ENGINE DETAILS

Model	EverGen™ M Series
System Color	NF
Tilt Angle	30 Degrees
Solar Panel Wattage	170W



BATTERY DETAILS

Battery Type	GEL
Battery Quantity	2
Battery Capacity	95.0
Battery Location	HIGH

FIXTURE DETAILS

LED Fixture	ATB0P20X
Fixture Color	SV
Optical Distribution Type	R2
Individual Fixture Wattage	44 W
Light Color Temp.	4000 K
Lumens per Fixture (approx.)	7266 Lumens
Fixtures per System	1

OPERATING DETAILS

Latitude	34N
Longitude	117W
Solar Insolation	4.45 kWh/m ² /day
Longest Night	14.07 hrs
Day/Night Transitioning	Solar panel voltage
Autonomy	4.42
Array-to-Load Ratio	1.23

REMOTE MONITORING

Insight Platform	Cloud-based dashboard and automatic notifications
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EVERGEN-NF-1-170-2-GEL5-HIGH-N-30-1-ATB0P20X-R2-40K-SV-EXCLUDE-NONE-NONE-NONE-44-5D2-NONE

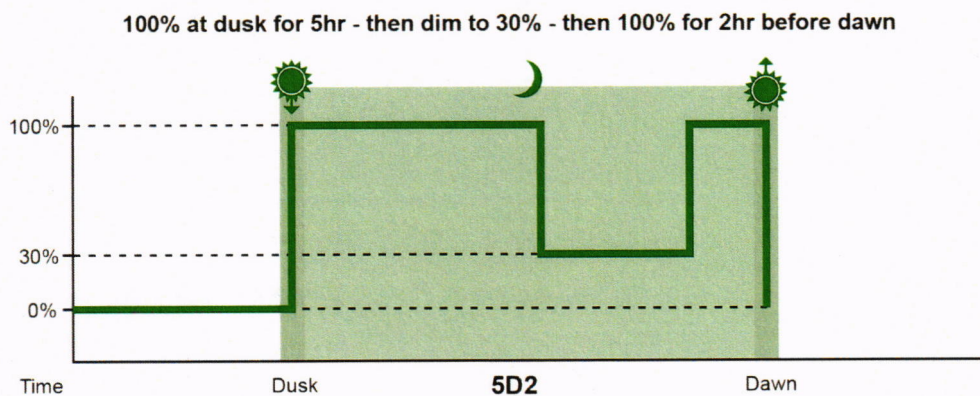
Warranty Details

Battery	5 Years
Solar PV Panel Output Power	Manufacturer's Warranty — Minimum 20 Years
Mounting Hardware	10 Years
Pole (if provided)	Lifetime Excluding Finish
LED Fixture	Manufacturer's Warranty
Electronics (Charge Controller, LED Driver)	10 Years

Additional Details

Weight (with Batteries)	213 lb (96.7 kg)	Pole Type	No Pole Provided
EPA	9.0 Sq Ft (0.84 Sq m)	Pole Length	NONE
Tenon Requirements	3.5" OD x 6" long (88.9mm OD x 152.4mm long)	Wind Zone	NONE
		Arm Type	NONE

Operating Profile



System Certifications

Solar Engine	CE 2004-108-CE, EN 55015, EN 61547 for emissions and immunity.
Panels	UL 1703, IEC 61215, IEC 61730, conformity to CE.
Fixture	cULus Listed, suitable for wet locations, CALTrans 611 Vibration testing. Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards. RoHS
	Represented in your region by:

Specifications subject to local environmental conditions.
Specifications may be subject to change.
US and International patents apply. Other patents pending.
"Sol" logo is a trademark of Sunna Design.

All Sol products are manufactured in facilities that are certified to ISO quality standards.
Document: System-Overview_RevD

Programmed or custom run modes include:

- Hrs after Dusk: 03, 05, 07, 09 or All Night
- Dimming Percentage: None, 30%,
- Hours Before Dawn: 02, or All Night

FEATURES

- Bluetooth and App for local configuration and testing
- Satellite modem for remote monitoring with Insight Remote Monitoring Platform Subscription
- Solar panel and battery overvoltage protection
- LED short circuit protection and unconnected LED protection
- Internal PV disconnect (no external diodes required)
- Reverse battery polarity protection
- Self calibrating load, timing, and charging circuitry



BENEFITS

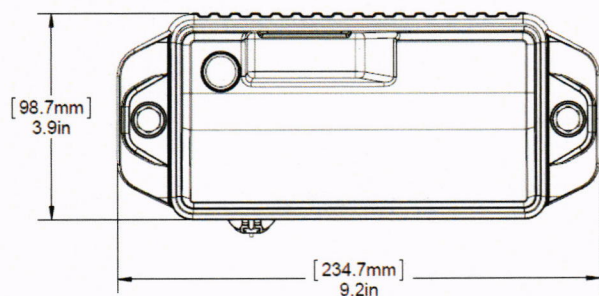
- Flexible operating modes (dusk-to-dawn, split night, split night with dimming)
- Fully tested at the Sol factory before installation and shipment to ensure reliable operation and trouble-free startup
- Programmed by Sol based on your project requirements eliminating confusing switch and knob setting
- Bluetooth and app for simple and secure setup
- Integrated MPPT charging and LED driving system reduces system failures, overall system complexity and cost
- Integrated surge protection and noise reduction
- Keyed connectors for simple and reliable assembly
- Temperature compensated and MPPT controlled battery charging to maximize battery life and energy collection
- High temperature charge compensation to ensure component longevity
- Ruggedized solid state design ensures long life and no maintenance
- Memory averaging to ensure accurate turn on and turn off of lights to prevent false response due to weather variations
- Ten-year limited warranty



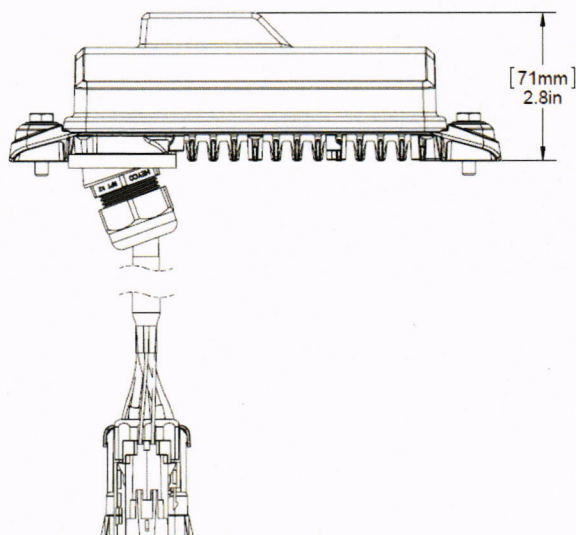
TECHNICAL

FEATURE	VALUE
ELECTRICAL	
Operating Voltage	12/24 VDC
Operating Current	25A max
LED Drive Current	3.5A max. 100W
Lamp Drive Voltage	65 VDC max.
PV Voltage Input	55 VDC max.
Low Voltage Disconnect (LVD)	11.6 / 23.2 VDC
Low Voltage Reconnect (LVR)	12.1 / 24.2 VDC
CHARGING	
Self-consumption	< 5 mA
Charging Method	Maximum Power Point Tracking (MPPT)
Battery Fuse, External	30A max.
COMMUNICATION	
Local Control	Bluetooth and app
Remote Monitoring	Satellite modem to Insight remote monitoring platform
PHYSICAL	
Operating Temperature	-40 to +60 °C (-40 to +140 °F)
Humidity	100% Condensing
Packaging	Aluminum heatsink, polycarbonate cover, gasket and vent, IP68
Weight	0.74 kg (26 oz.)
Size (L x W x H)	234.7 x 98.7 x 71.0 mm (9.2 x 3.9 x 2.8 in)

Top View



Side View



Specifications subject to local environmental conditions.
Specifications may be subject to change.
US and International patents apply. Other patents pending.
"Sol" logo is a trademark of Sunna Design.

All Sol products are manufactured in facilities that are certified to ISO quality standards.
Document: SPEC_SOL-Sunna_EverGen-EMS_RevB

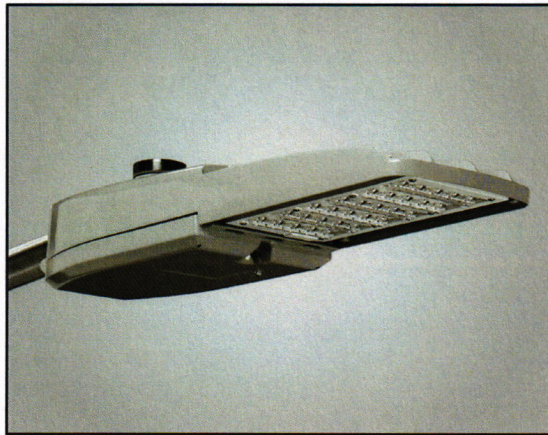


Consistent with LEED® goals
& Green Globes® criteria
for light pollution reduction



Autobahn Series ATB0 - Solar Roadway Lighting

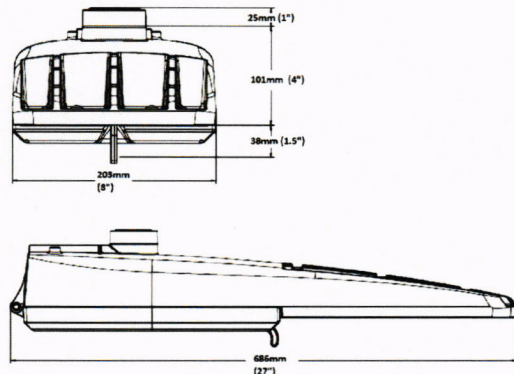
PRODUCT OVERVIEW



Applications:

Roadways
Off ramps
Residential streets
Parking lots

DIMENSIONS



Effective Projected Area (EPA): The EPA for the ATB0 is 0.76 sq. ft.
Approx. Wt. = 14 lbs.

STANDARDS

Color temperatures of $\leq 3000\text{K}$ must be specified for International Dark-Sky Association certification.

Rated for -40°C to 40°C ambient

Complies with ANSI: C136.2, C136.10, C136.14, C136.31, C136.15, C136.37

BUY AMERICAN ACT — Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/buyamerican for additional information.

Features:

OPTICAL

The Autobahn's new molded silicone optics provide exceptional performance. Silicone optics are superior to other polymeric materials in the areas of; optical efficiency, thermal performance, and reduction in dirt accumulation, all of which can lead to long term lumen degradation and a shift in optical distribution. Also, because silicone allows for the molding of fine details as well as thick sections, it produces the most crisp, clean and well-defined lighting distributions available. Silicone optics paired with modern LED's allow the Autobahn to take full advantage of both technologies.

Same Light: Performance is comparable to 100 - 400W HPS roadway luminaires.

White Light: Correlated color temperature - 4000K, or optional 2700K, 3000K or 5000K, all 70 CRI minimum.

Unique IP66 rated LED light engines provided 0% uplight and restrict backlight to within sidewalk depth, providing optimal application coverage and optimal pole spacing. Available in Type II, III, IV, and V roadway distributions.

ELECTRICAL

Expected Life: LED light engines are rated $>100,000$ hours at 25°C , L70.

Lower Energy: Saves an expected of 40-60% over comparable HID luminaires.

MECHANICAL

Includes standard AEL lineman-friendly features such as tool-less entry, 3 station terminal block and quick disconnects. Bubble level located inside the electrical compartment for easily leveling at installation.

Rugged die-cast aluminum housing and door are polyester powder-coated for durability and corrosion resistance. Rigorous five-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 7 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117).

Mast arm mount is adjustable for arms from 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter. Provides a 3G vibration rating per ANSI C136.31

Wildlife shield is cast into the housing (not a separate piece).

Note: Specifications subject to change without notice. Actual performance may differ as a result of end-user environment and application.

Autobahn Series ATB0 - Solar Roadway Lighting

ORDERING INFORMATION

Series	Performance Packages	Solar	Optics
ATB0 Autobahn LED Roadway	P201 5,369 lumens nominal P202 6,943 lumens nominal P203 10,056 lumens nominal P204 12,176 lumens nominal P205 13,767 lumens nominal	Solar Only Compatible with Sol By Sunna Design's Solar Lighting Solutions ¹	R2 Roadway Type II R3 Roadway Type III R4 Roadway Type IV R5 Roadway Type V
Options			
<u>Color Temperature (CCT)</u> (Blank) 4000K CCT, 70 CRI Min. 27K 2700K CCT, 70 CRI Min. 3K 3000K CCT, 70 CRI Min. 5K 5000K CCT, 70 CRI Min. <u>Paint</u> (Blank) Gray (Standard) BK Black BZ Bronze DDB Dark Bronze WH White <u>Terminal Block</u> (Blank) Terminal Block (Standard)	<u>Misc.</u> BL External Bubble Level HSS House-Side Shield NL Nema Label XL Not CSA Certified UMR-XX 8" Horizontal Arm for Round Pole, Painted to match Fixture UMS-XX 8" Horizontal Arm for Square Pole, Painted to match Fixture UMR-GALV 8" Horizontal Arm for Round Pole, Galvanized UMS-GALV 8" Horizontal Arm for Square Pole, Galvanized BAA Buy America(n) Act Compliant <u>Packaging</u> (Blank) Single Unit (Standard) JP Job Pack (42/Pallet)	<u>Accessories:</u> House Side Shields for field installation ATB0P20XR2/R5HSS for use with P201 - P205, R2 & R5 distributions ATB0P20XR3/R4HSS for use with P201 - P205, R3 & R4 distributions ATB0P30XR2/R5HSS for use with P301 - P305, R2 & R5 distributions ATB0P30XR3HSS for use with P301 - P305, R3 distribution ATB0P30XR4HSS for use with P301 - P305, R4 distribution ATB0P45XR2/R5HSS for use with P451 - P457, R2 & R5 distributions ATB0P45XR3HSS for use with P451 - P457, R3 distribution	

Notes:

1. No Driver included, input power managed via Sol By Sunna's Solar Engine. Wattage depends on project location and Solar Engine size.



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 www.americanelectriclighting.com Phone: 1-866-HOLOPHANE
 Email: TechSupportINF@AcuityBrands.com

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Warranty Five-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Please contact your sales representative for the latest product information.

Autobahn Series ATB0 - Solar Roadway Lighting

PERFORMANCE PACKAGE

ATB0	Distribution	Input Watts	2700K	3000K	4000K/5000K
			Lumens	Lumens	Lumens
P201	R2	*	4,983	5,473	5,488
	R3		4,952	5,107	5,553
	R4		5,045	5,130	5,346
	R5		5,084	5,384	5,387
P202	R2	*	6,429	7,100	7,203
	R3		6,390	6,679	7,237
	R4		6,517	6,749	6,906
	R5		6,560	6,988	6,951
P203	R2	*	9,005	10,050	10,150
	R3		8,951	9,471	10,260
	R4		9,494	9,673	10,060
	R5		9,188	9,784	9,736
P204	R2	*	11,007	11,800	12,410
	R3		10,940	11,490	12,470
	R4		11,485	11,900	12,170
	R5		11,230	11,780	11,900
P205	R2	*	12,339	12,650	13,920
	R3		12,264	13,110	14,130
	R4		13,051	13,680	13,830
	R5		12,589	13,080	13,340

*Wattage depends on project location and Solar Engine size. Contact the Sol By Sunna Design's Sales Team for quoting your Acuity Solar Lighting Solutions.
Email: sales@solarlighting.com or Call: 1-800-959-1329

ATB0	15C	20C	25C	30C	35C	40C
LLD Multiplier	1.02	1.01	1.00	0.99	0.98	0.97

To calculate the LLD for a temperature other than 25°C, multiply the LLD @ 25°C (shown in the performance package table) by the LLD multiplier for the selected temperature.



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Autobahn Series ATB0 - Solar Roadway Lighting

PERFORMANCE PACKAGE

LLD @ 25°C

ATB0	R2, R3 Distributions 3000K & 4000K CCT			R2, R3 Distributions 2700K & 5000K CCT*			R4 & R5 Distributions Any CCT		
	50k Hours	75k Hours	100k Hours	50k Hours	75k Hours	100k Hours	50k Hours	75k Hours	100k Hours
P201	0.96	0.95	0.94	0.92	0.88	0.85	0.92	0.88	0.85
P202	0.96	0.95	0.94	0.92	0.88	0.85	0.92	0.88	0.85
P203	0.96	0.95	0.93	0.91	0.88	0.85	0.91	0.88	0.85
P204	0.96	0.95	0.93	0.91	0.88	0.84	0.91	0.88	0.84
P205	0.96	0.95	0.93	0.91	0.87	0.83	0.91	0.87	0.83

* Also includes any custom (non-catalog) CCT



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Autobahn Series ATB0 - Solar Roadway Lighting

B.U.G. Ratings

ATB0	Distribution	2700K			3000K			4000/5000K		
		B	U	G	B	U	G	B	U	G
P201	R2	1	0	1	2	0	2	2	0	2
	R3	1	0	1	1	0	1	1	0	1
	R4	1	0	2	1	0	2	1	0	2
	R5	3	0	1	3	0	1	3	0	1
P202	R2	2	0	2	2	0	2	2	0	2
	R3	1	0	2	1	0	2	1	0	2
	R4	1	0	2	1	0	2	1	0	2
	R5	3	0	1	3	0	2	3	0	2
P203	R2	2	0	2	2	0	2	2	0	2
	R3	2	0	2	2	0	2	2	0	2
	R4	2	0	3	2	0	3	2	0	3
	R5	3	0	2	4	0	2	4	0	2
P204	R2	3	0	3	3	0	3	3	0	3
	R3	2	0	2	2	0	2	2	0	2
	R4	2	0	3	2	0	3	2	0	3
	R5	4	0	2	4	0	2	4	0	2
P205	R2	3	0	3	3	0	3	3	0	3
	R3	2	0	2	2	0	2	2	0	2
	R4	2	0	3	2	0	3	2	0	3
	R5	4	0	2	4	0	2	4	0	2



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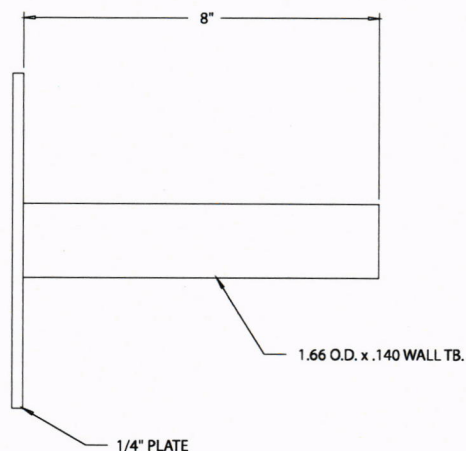
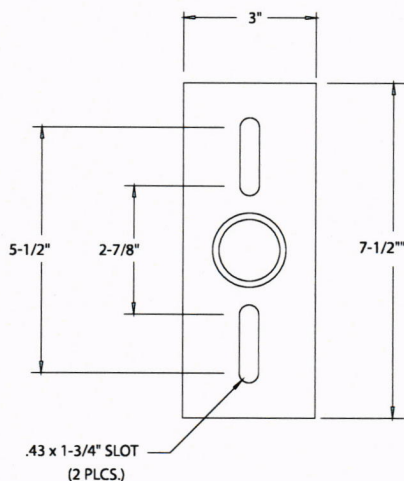
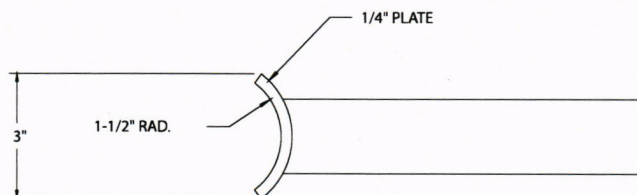
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Autobahn Series ATB0 - Solar Roadway Lighting

UMR POLE ADAPTOR

RECOMMENDED FOR USE WITH POLES OF 4" DIAMETER OR SMALLER



UMS POLE ADAPTOR



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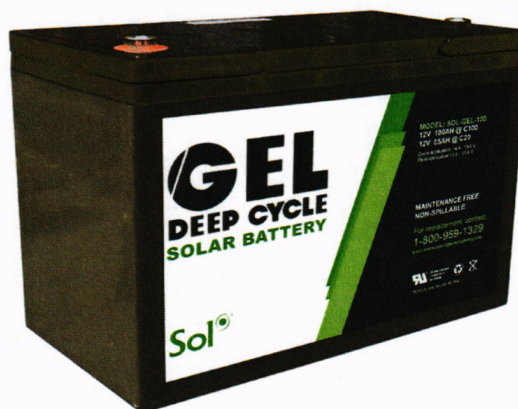
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FEATURES

- Gel deep cycle battery
- Ideal for solar applications
- Maintenance-free, sealed construction
- Spill proof / leak proof
- ABS case and cover
- UL recognized
- 100% recyclable
- 5-year warranty*



SOL-GEL-100

SPECIFICATIONS

Nominal Voltage	12V
Nominal Capacity	95.0Ah
Rated Capacity (at 77°F /25°C)	100.0Ah/1.00A (100hr,1.80V/cell) 85.0Ah/4.25A (20hr,1.80V/cell)
Nominal Operating Temperature	77 ±5° F (25 ±3° C)
Operating Temperature Range	Discharge: -4~140°F (-20~60°C) Charge: 32~122°F (0~50°C)
Maximum Discharge Current	850A (5s)
Internal Resistance	Approx 6.0mΩ
Cycle Use	Initial Charging Current less than 25.0A. Voltage: 14.4V~15.0V at 77°F (25°C) Temp. Coefficient -30mV/°C
Standby Use	No limit on Initial Charging Current Voltage: 13.5V~13.8V at 77°F (25°C) Temp. Coefficient -20mV/°C
Self Discharge	Batteries can be stored for up to 6 months at 77°F (25°C) before a freshening charge is required. <i>*Batteries stored at temperatures greater than 77°F (25°C) will require a recharge sooner.</i>
Certifications	UL; CE; IEC60896-21 & 22

MATERIALS AND MECHANICAL

Case and Cover	ABS
Separator	PVC-SiO ₂
Active	PbO ₂ + Pb
Electrolyte	LPG Sulfuric Acid Gel
Venting Valve	Rubber, opening pressure 8-20kPa
BCI Group #	27
Terminals	T6
Carrying	Integrated Flush Mount Handle

DIMENSIONS

Length	12.01 in / 305 mm
Width	6.61 in / 168 mm
Height	8.15 in / 207 mm
Total Height (including terminals)	8.38 in / 213 mm
Weight	59.8 lbs / 26.7 kg



Specifications subject to local environmental conditions.
Specifications may be subject to change.
US and International patents apply. Other patents pending.
"Sol" logo is a trademark of Sunna Design.

All Sol products are manufactured in facilities that are certified to ISO quality standards.
Document: SPEC_SOL-Sunna_SOL-GEL-100_RevA

RELIABLE

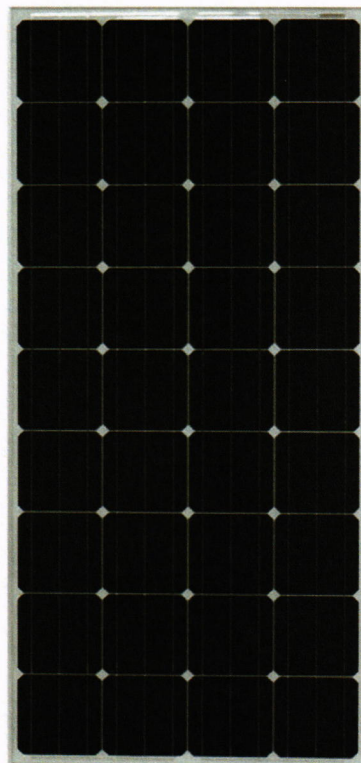
Sol's CTI-170 is a high-efficiency polycrystalline solar module that provides outstanding performance and cost-effective solar power for high-end off-grid and mobile applications. The module is built to last and features a 20-year limited power output warranty.

DURABLE

To ensure long life, the high-efficiency solar cells are encapsulated between a special tempered, low-iron solar glass and a Tedlar[®]/polyester backing material. The mounting frame, manufactured from anodized marine-grade aluminum, allows the CTI-170 to be installed in extreme conditions.

FEATURES

- Compact and rugged design
- Plug and play junction box
- Lightweight anodized aluminum frame
- High transmissivity tempered glass
- Industry standard quick-connect cables (MC4) work in series or in parallel
- **20-year limited power output warranty**



CTI-170



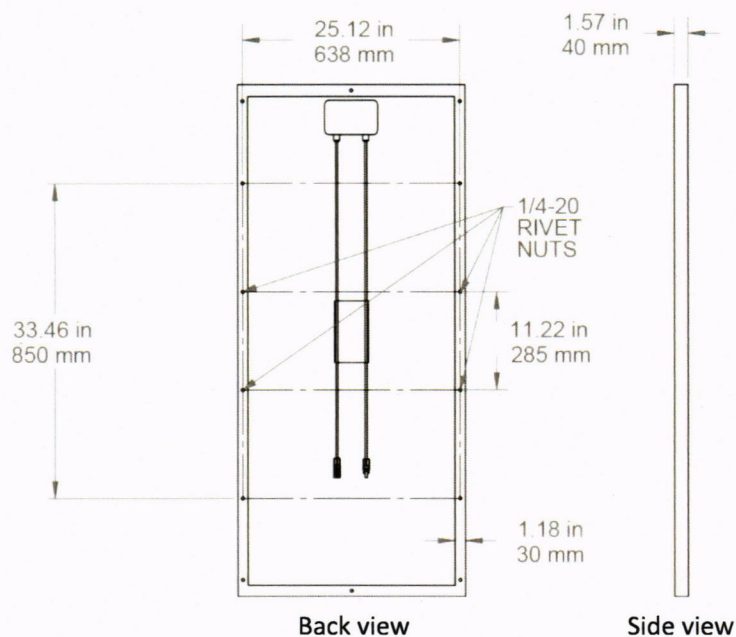
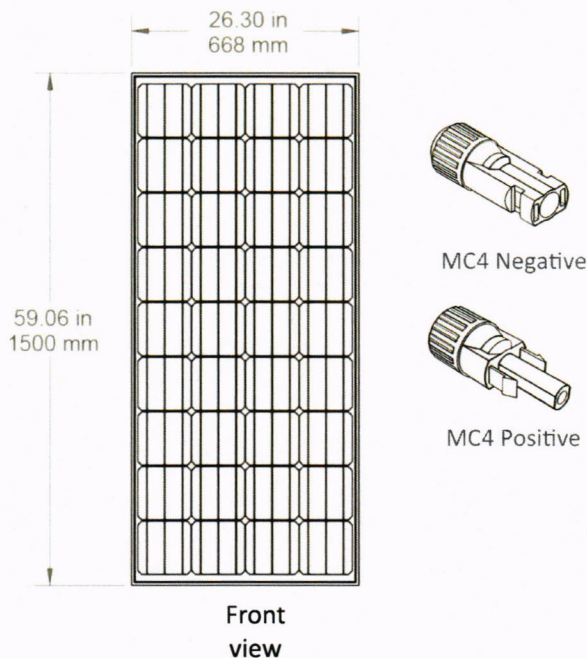
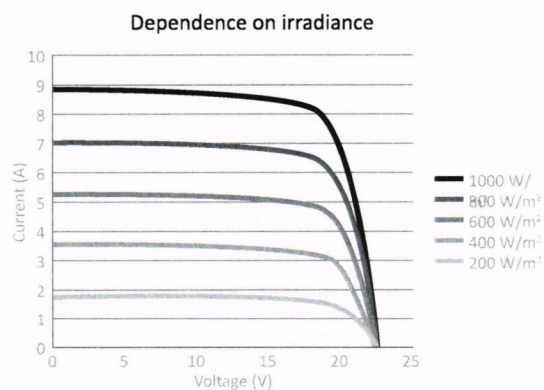
SPECIFICATIONS

Rated power (P _m)	170W
Maximum power voltage (V _{mp})	19.60V
Maximum power current (I _{mp})	8.77A
Open circuit voltage (V _{oc})	23.20V
Short circuit current (I _{sc})	9.35A
Power coefficient	-0.42% / °C
Voltage coefficient	-0.31% / °C
Current coefficient	0.033% / °C
Max power tolerance	+/- 3W
Cell type	Polycrystalline
Module efficiency	17.0%
Series fuse rating	15A
Maximum system voltage	600VDC
Operating temperature	-40°C to 85°C (-40°F to 185°F)
Weight	11.16 kg (24.6 lb)
Dimensions	1500 x 668 x 40 mm 59.1 x 26.3 x 1.57 in
Frame type / material	Clear anodized aluminum frame
Certifications	UL 1703

Power Specifications calculated at STC:

- Irradiance: 1000 W/m²
- Cell Temperature: 77°F (25°C)
- Air Mass: 1.5

IV CURVE PARAMETERS



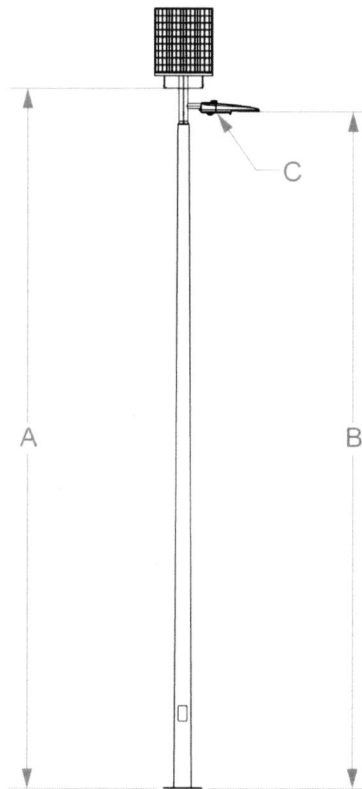
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Specifications may be subject to change.
US and International patents apply. Other patents pending.
"Sol" logo is a trademark of Sunna Design.

All Sol products are manufactured in facilities that are certified to ISO quality standards.
Document: SPEC_SOL-Sunna_CTI-170_RevA

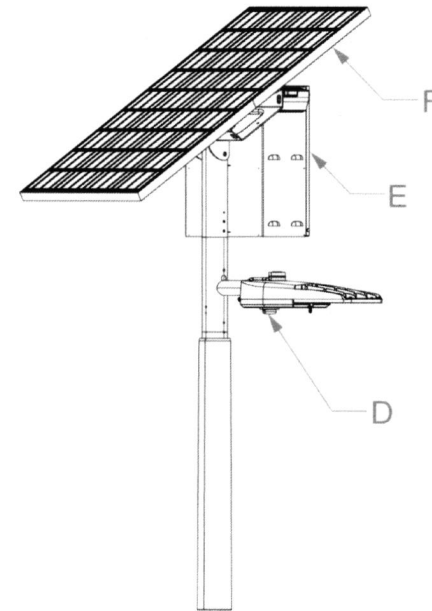
SYSTEM DRAWING


8		7		6		5		4		3		2		1	
MODEL		A [Pole Length Above Grade]	B [Fixture Mount Height]	C/D [Arm Type]		E [Battery Mount]		F [System EPA]		[System Weight]		POLE Type	POLE Info 1	POLE Info 2	
EverGen™ M Series		NONE	Based on Photometric Design**		NONE		HIGH		9.0 Ft² (0.84 m²)		213.0LB		No Pole Provided	N/A	N/A

Note: Line Drawings May Not Entirely Resemble Shipped Product

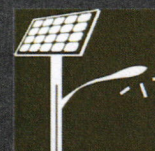


**DISCLAIMER: Arm(s) will be drilled and installed on site as per customer or photometric requirements.



<p>UNLESS OTHERWISE SPECIFIED DO NOT SCALE DRAWING</p> <p>INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.100-2000 TOLERANCES APPLY AS SHOWN BELOW</p> <table><tr><td>DECIMALS</td><td>SURF FINISH</td><td>ANGLES</td></tr><tr><td>.X ±.1</td><td>63 ✓</td><td>±1°</td></tr><tr><td>.XX ±.01</td><td></td><td></td></tr><tr><td>.XXX ±.005</td><td></td><td></td></tr><tr><td>.XXXX ±.0005</td><td></td><td></td></tr></table>			DECIMALS	SURF FINISH	ANGLES	.X ±.1	63 ✓	±1°	.XX ±.01			.XXX ±.005			.XXXX ±.0005			<p>PDM MAINTAINED DATA</p> <p>CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN AUTHORITY</p>			<div><div><div>Sol[®]</div><div>by Sunna Design[®]</div></div><div>990 Biscayne Blvd., Office 701 Miami, FL 33132, USA Tel 1.800.959.1329</div></div>		
DECIMALS	SURF FINISH	ANGLES																					
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.XXXX ±.0005																							
<p>THIRD ANGLE PROJECTION</p> 			<p>SCALE</p> <p>1:64</p>			<p>PROPRIETARY</p> <p>COPYRIGHT © 2020 BY Sol by Sunna Design.</p> <p>ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM WITHOUT THE WRITTEN PERMISSION OF Sol by Sunna Design.</p>																	
<p>Estimate ID:</p> <p>2-22678-1</p>						<p>Pole Part #:</p> <p>NONE</p>																	

WARNING: DO NOT INSTALL POLES WITHOUT SOLAR LIGHTING SYSTEMS



Helpful data when you want it, automatic alerts when you need it.™

Insight remote monitoring allows you to view how your entire network of solar lights are performing on the ground—from the comfort of your desk.

At any time, simply log in to the Insight platform to see the status and geolocation of each light. If further diagnostics is desired, you can drill down into recent data to determine if a system was commissioned properly and if it is working as expected. And if regularly reviewing your dashboard doesn't fit into your schedule, Insight will send automatic notifications if any system is compromised or not working the way it's supposed to.

Sol's Insight platform is a tool that can save your department time by removing the guesswork and by protecting your investment.



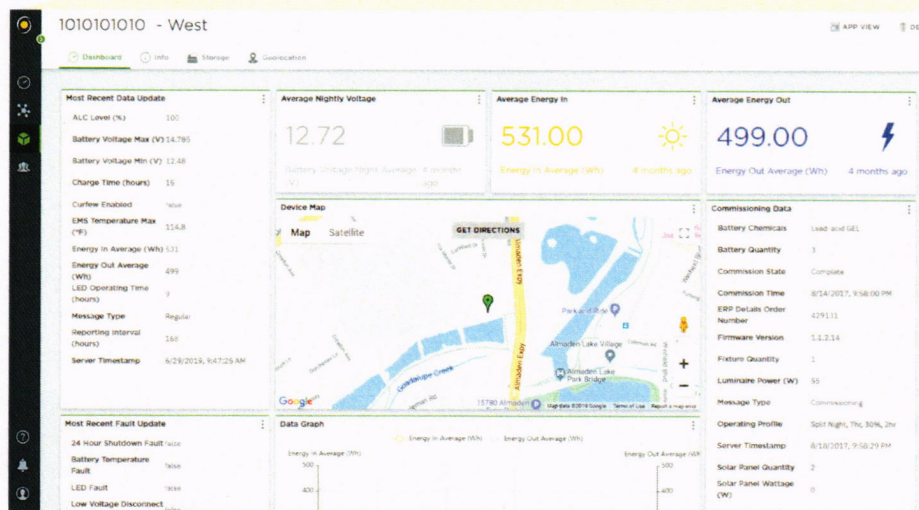
FEATURES



Receive automated notifications



Our expert product technologists can access your platform's data to help resolve issues



Check light status anytime with an easy-to-use, cloud-based dashboard that includes Google Map overlays, battery health, faults, and more



Provide peace of mind with smart monitoring that ensures the systems' health over time and protects your investment



Commissioning confirmation



API integration available

PRICING

Every EverGen lighting system includes a **complimentary 12-month subscription** to Sol's Insight remote monitoring platform. Extended subscription packages are available. Contact our sales team for more information.

To receive Insight remote monitoring, customers must sign off on terms and conditions. An email address is also required to receive Insight services. Contact a Sol sales representative for details.

US and International patents apply. Other patents pending. All Sol products are manufactured in facilities that are certified to ISO quality standards. "Sol" logo is a trademark of Sunna Design. Document: SELL_SOL-Sunna_Insight_RevA

STEP 1

Ensure your installer has the right tools before going on site.

- Smartphone or tablet built within the last three years (iPhone 6 or newer running iOS 12.0+/Android 6.0+ and Bluetooth Low Energy).
- The EverGen Setup App (see Step 2).
- The Sol order number (e.g. ORD12345).

STEP 2

Download the app.

From a smartphone/tablet, the installer can go to the [iOS App Store](#)/[Google Play Store](#) and search for "EverGen Setup App" by Sol Inc. (or click the links above).



If the app is not showing up in the App Store, the phone/tablet may not be compatible. Try installing on another iPhone/Android phone/tablet.

STEP 3

Sign Up for access in the app.

Using the "Sign Up" tab, installers can enter their information to create a profile to access the app. A verification email will be sent to the address used for the profile. Once the account is verified, login and move to step 4.

STEP 4

Download the order information to the app.

Prior to installation, the installer will need to download their order information to the app so the correct settings can be applied to the EverGen. Enter the order number provided on the shipping documentation (ORDXXXXXX). Downloading requires an internet connection.



If there will be no internet access onsite, the contractor should download order information before arriving. After downloading the order information, the contractor can complete the rest of the steps even while offline. Order information remains available in the app for two weeks.



NEXT STEPS: Follow the EverGen Setup App instructions onsite.



US and International patents apply. Other patents pending. "Sol" logo is a trademark of Sunna Design. All Sol products are manufactured in facilities that are certified to ISO quality standards.
Document: SELL_SOL-Sunna_EverGen-4Steps-Setup-App_RevC



Terms and Conditions of Warranty and Other Details

Limited Warranty

By purchasing the Product, the Buyer, or the owner of the Product ("**you**") are agreeing to be bound by the terms of this limited warranty. The Company provides the following limited warranty coverage as applicable to the Product.

Subject to the terms and conditions of the Limited Warranty as set forth herein (the "Terms and Conditions of Warranty"), a Product shall be considered a "Deficient Product" if Buyer provides written notification of the occurrence of the following within the associated warranty period enumerated below and proves to SUNNA DESIGN's satisfaction that the defect exists.

The Limited Warranty applies exclusively to the Buyer, and third parties will have no rights or benefits under the Limited Warranty. The Limited Warranty is non-assignable, except upon the written consent of SUNNA DESIGN. Claims for a breach of the Limited Warranty can only be made: (i) during the relevant Limited Warranty periods as set forth above, (ii) with a proof of purchase as was issued by SUNNA DESIGN to Buyer which includes the Product purchase date and (iii) written notification of such Limited Warranty claim being given in writing within thirty (30) days of the alleged occurrence giving rise to the Limited Warranty claim to SUNNA DESIGN at the following address: 990 Biscayne Boulevard, Suite 701, Miami, 33132 Florida.

What the Warranty Covers and for How Long

- Subject to the exclusions and claim procedure set out below, the Company warrants each new lighting system to be free from defects in materials and workmanship that performs under normal use and service. The Company will, at its option and discretion, repair or replace any system or system component that is defective in materials or manufacture within a specific timeframe after purchase—the Warranty Period (the "Warranty"). Additionally, specific items within the system may have extended warranty protection as noted.
- The Company shall be entitled, at its discretion, to use new and/or reconditioned parts or products in performing warranty repair or providing a replacement Product in accordance with the Warranty Coverage. The Company also reserves the right to use parts or products of original or improved design in any repair or replacement in accordance with the Warranty Coverage. It further reserves the right to make changes in design or improvements to its products without notice to you and without obligation to incorporate the same in any product previously manufactured. Any products or parts which are replaced shall become the property of the Company.
- If the Company repairs or replaces a Product in accordance with the Warranty Coverage, the Warranty will continue to apply and remain in effect for the balance of the Warranty Period calculated from the date you purchased the Product from the Company (the "**Date of Purchase**") and not the repair or replacement date.
- If the Company chooses to offer a credit towards the purchase of new Product in accordance with the Warranty Coverage, then the warranty applicable to the new product shall apply. All credits must be used within 90 days of issuance from the Company towards the purchase of new Product or such credits become null and void.
- Shipping the Product to the Company's factory remains at the expense and responsibility of the Buyer. The Warranty does not cover import fees, duties, and taxes.

What the Warranty Does Not Cover

The Warranty does not provide coverage for the following which are expressly excluded from the Warranty:

- Failure due to normal wear and tear of the Product;
- Failure caused by improper user programming of Product settings through computer software supplied with or associated with the Product;
- Failure due to accident, abuse, misuse, liquid contact, neglect, improper installation, generalized corrosion, biological infestations, or input voltages that create operating conditions beyond the maximum or minimum listed in the Company's specifications;
- Products which have been repaired or altered other than by the Company or as authorized by its employees or agents;
- Products that have their original identification (including, but not limited to, trademarks or serial numbers) markings defaced, altered, or removed;
- Products utilized as a component part of a product expressly warranted by another manufacturer;



by Sunna Design®

- Operation or storage of the Product outside the specification ranges disclosed by the Company, and/or alteration or deployment of the Product other than in accordance with any published or provided user, storage, or maintenance requirements; Specifically, the warranty does not cover storage of the Product for more than 365 days, or in a location where temperatures may exceed 25°C (77°F).
- Failure that is in any way attributable to the improper use, storage, maintenance, installation, or placement of the Product;
- Failure caused by use in violation or contravention of any applicable laws, statutes, rules, regulations, and ordinances or any applicable standard, code, or instructions for use in installations, including, but not limited to, those contained in the *National Electrical Code* and published by the *Standards for Safety of Underwriters Laboratory*, the *International Electrotechnical Commission*, the *American National Standards Institute*, and the *Canadian Standards Association*;
- Failure caused by any acts of God, including, but not limited to, earthquakes, lightning strikes, and flooding; and
- Any additional costs required to repair or replace the defective Product, including, but not limited to, legislatively imposed fees where applicable.

Restrictions and Limitations to Warranty

- The Company is not responsible for repairs, disassembly, or re-assembly of other products that are not supplied, provided, or sold by the Company.
- The Company is not liable for any losses, expenses, damages, or costs incurred by you incidental or collateral to the Warranty, including, but not limited to, shipping, retrieval, and redeployment of the Product.
- This Warranty is not transferable or assignable by you and only applies to you. Upon written notice to you, the Company may assign this Warranty. In other words, warranty claims can only be made by the company that purchased the products from the Company.
- The Company does not warrant the results obtained from the implementation of recommendations made by the Company or its authorized distributors concerning the use, design, or application of the Product.
- You assume all responsibility and liability for loss or damage resulting from your handling or use of the Product.
- The onus is on you to provide evidence satisfactory to the Company that any event that may invalidate the Warranty has not occurred, including, but not limited to, providing evidence of specific storage, maintenance, or operational procedures to assure Product performance.
- The Company has the sole discretion in determining the validity of any Warranty claim and reserves the right to determine the cause of Product defect including examining patterns in Product usage, trends in Product failure, and to review your documentation of installation, use, maintenance, storage procedures, and test results.
- The Company's liability on any claim, whether in warranty, contract, negligence, or any other legal theory, for loss, damage, or injury arising directly or indirectly from or in relation to the use of the Product shall in no event exceed the purchase price paid by you for the Product as stated in the original invoice.
- The repair or replacement of the Product or granting of credit by the Company in accordance with the Warranty Coverage shall be your sole remedy and IN NO EVENT SHALL THE COMPANY BE LIABLE FOR PUNITIVE, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES INCURRED BY YOU WHETHER FORSEEABLE OR NOT, INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR REVENUES, LOSS OF USE OF GOODS (EXCLUDING THE PRODUCT), LOSS OF BARGAIN, LOSS OF BUSINESS, LOSS OF OPPORTUNITY, OR LOSS OF REPUTATION.
- The Warranty set out above is the sole warranty granted by the Company with respect to the Product. No oral understanding, representations or warranties shall be of any effect and the Company makes no further warranties, express or implied, concerning the Product other than the Warranty. You, where permitted by applicable law, hereby expressly waive any statutory or implied warranties including, but not limited to, that the Product shall be merchantable, fit for a particular purpose, or durable. All other warranties, conditions, and representations are hereby cancelled and are null and void. This Warranty may only be modified or amended by written agreement signed by the Company.
- This Warranty Terms shall be governed exclusively by the laws of the state of Delaware, United States excluding rules of international law that would result in the application of the laws of any other jurisdiction. The United Nations Convention on Contracts for the International Sale of Goods (1980) does not apply to this Agreement. If Buyer's principal place of business is located within the United States, the parties hereby irrevocably attorn and submit to the exclusive jurisdiction of Delaware, United States of America in respect of all disputes arising under or in respect of this Agreement. If Buyer's principal place of business is located outside of the United States of America, then all disputes arising out of or in respect of this Agreement shall be determined by arbitration administered by the International Centre for Dispute Resolution in accordance with its International Arbitration Rules. The number of arbitrators shall be one. The place of arbitration shall be Wilmington, Delaware, United States of America. The language of the arbitration shall be English.
- To the extent that this Warranty is inconsistent with mandatory applicable laws, this Warranty shall be deemed modified to be consistent with such mandatory applicable local laws.



SUNNA DESIGN shall, at its sole option and discretion, either repair or replace with a comparable product, or give a credit to Buyer ("Remedy"). Buyer and SUNNA DESIGN acknowledge and agree that the Remedy is SUNNA DESIGN's sole and exclusive obligation and Buyer's sole and exclusive remedy under this Limited Warranty and with respect to the Product. Where a Deficient Product is no longer being manufactured by SUNNA DESIGN, SUNNA DESIGN reserves the right to supply another type. Absence of SUNNA DESIGN's receipt of written notification within the applicable warranty period in compliance with the terms and conditions set forth herein shall constitute a waiver of all claims under the Limited Warranty.

SUNNA DESIGN's performance of a Remedy shall not cause the beginning of a new warranty period, nor otherwise extend the applicable warranty period. SUNNA DESIGN's cumulative aggregate liability under this Limited Warranty shall not exceed the original purchase price of the Product. Buyer shall bear all costs of shipment and transportation related to the repair or replacement of Deficient Product.

EXCEPT FOR THE LIMITED WARRANTY EXPRESSLY SET FORTH HEREIN, SUNNA DESIGN MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND WHATSOEVER REGARDING THE PRODUCT AND DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, COURSE OF DEALING AND USAGE OF TRADE.

IN NO EVENT SHALL SUNNA DESIGN BE LIABLE FOR, AND BUYER HEREBY AGREES TO INDEMNIFY SUNNA DESIGN FROM AND AGAINST, ANY AND ALL CLAIMS AND COSTS, INCLUDING ATTORNEY'S FEES, ARISING IN ANY WAY FROM THE SALE, USE OR INABILITY TO USE THE PRODUCT, BASED ON: LOSS OF USE, REVENUE OR PROFIT; DIRECT, INDIRECT, SPECIAL, PUNITIVE, LIQUIDATED, INCIDENTAL, CONSEQUENTIAL, OR ANY OTHER DAMAGE; OR INJURY TO PERSONS OR PROPERTY.

The rights, obligations and limitations contained herein are specifically negotiated as part of the agreement between the parties, and represent the specific intent to allocate risks, including those arising due to each party's own negligence or breach, and the potential of the Limited Warranty failing of its essential purpose.

Neither the sales personnel of SUNNA DESIGN nor its distributors are authorized to make warranties or representations, whether oral or written about the Products beyond those set forth in these Warranty Terms and Conditions, and no other warranties are given to Buyer other than the Limited Warranty set forth herein. These Warranty Terms and Conditions constitute the final expression of the parties' agreement, and it is a complete and exclusive statement of the terms of that agreement and supersedes all prior agreements, warranties, or statements regarding Products or any warranty associated with the Products. These Warranty Terms and Conditions cannot be amended, altered or modified in any way except in writing signed by an authorized officer of SUNNA DESIGN. These Warranty Terms and Conditions shall be governed by and construed in accordance with the laws of the State of Delaware without regard to principles of conflicts of laws.



10 Year Limited Warranty

The Company warrants that each new solar lighting system to have a component or system free from defects in materials and workmanship that performs under normal use and service. The Company will, at its option, repair or replace any system or system component that is defective in materials or manufacture within a specific timeframe after purchase. Warranties are a minimum of five (5) years, with specific items within the system noted below having additional warranty protection against failure. For full details regarding this warranty, review the Terms and Conditions below.

Item	EverGen M Series	iSSL & UP Series
Solar PV Panel Output Power	20 Years	10 Years
Mounting Hardware	10 Years	10 Years
Pole (if provided)	Manufacturer's Warranty	Manufacturer's Warranty
LED Fixture	Manufacturer's Warranty	10 Years
Electronics (Charge Controller, LED Driver)	10 Years	10 Years
Energy Storage Array (Battery)	5 Years/10 Years*	10 Years**

* Batteries provided by the Company have a limited warranty for battery replacement (batteries must be provided by Sunna Design), based on the date of shipment, with the following pro-rated coverage:


** This warranty is applicable for products installed in the United States and Canada only. iSSL & UP systems installed in other territories benefit from a 6 Years warranty.

5 Year EverGen Battery Warranty:

- 0 to 36 months: 100% credit (user pays 0% of replacement battery price)
- 37 to 48 months: 40% credit (user pays 60% of replacement battery price)
- 49 to 60 months: 20% credit (user pays 80% of replacement battery price)

10 Year EverGen, iSSL & UP Series Battery Warranty:

- 0 to 84 months: 100% credit (user pays 0% of replacement battery price)
- 85 to 96 months: 30% credit (user pays 70% of replacement battery price)
- 97 to 108 months: 20% credit (user pays 80% of replacement battery price)
- 109 to 120 months: 10% credit (user pays 90% of replacement battery price)

Luminaire Schedule										
Symbol	Label	Luminaire Watts	Lumens/Lamp	Total Lamp Lumens	LLF	Arrangement	Arm	Tilt	Mount Height	Qty
	ATB0_P202_R2_4K	49	N.A.	N.A.	0.880	Single	1	0	25	32

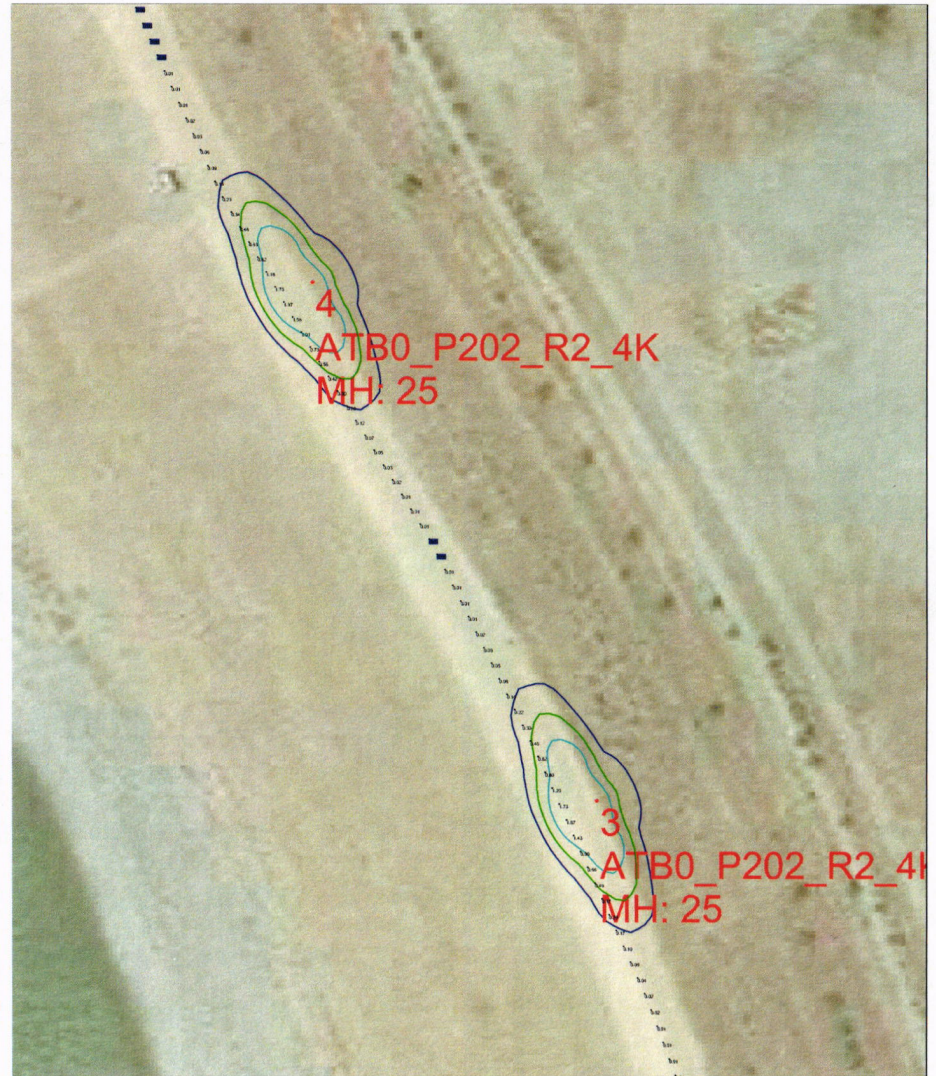
Numeric Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Pathway	Illuminance	Fc	0.34	2.37	0.00	N.A.	N.A.



Lake Elsinore CA - Lake Elsinore Levee
 Project Number - MR_2-095MR
 Prepared By: jim ww
 Operating Profile -
 Date:2023-08-29

Sol by Sunna Design Inc.
 Solarlighting.com
 sales@solarlighting.com
 Toll free: +1 800 959 1329

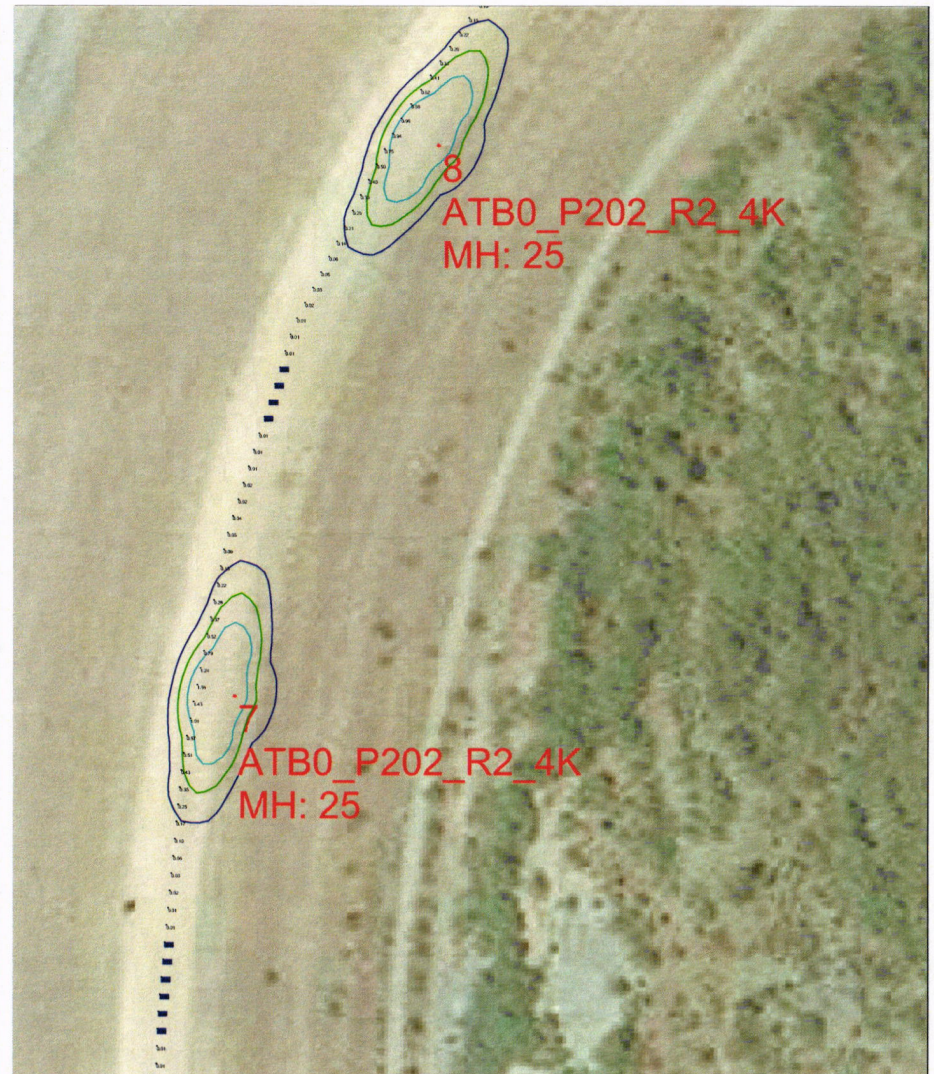
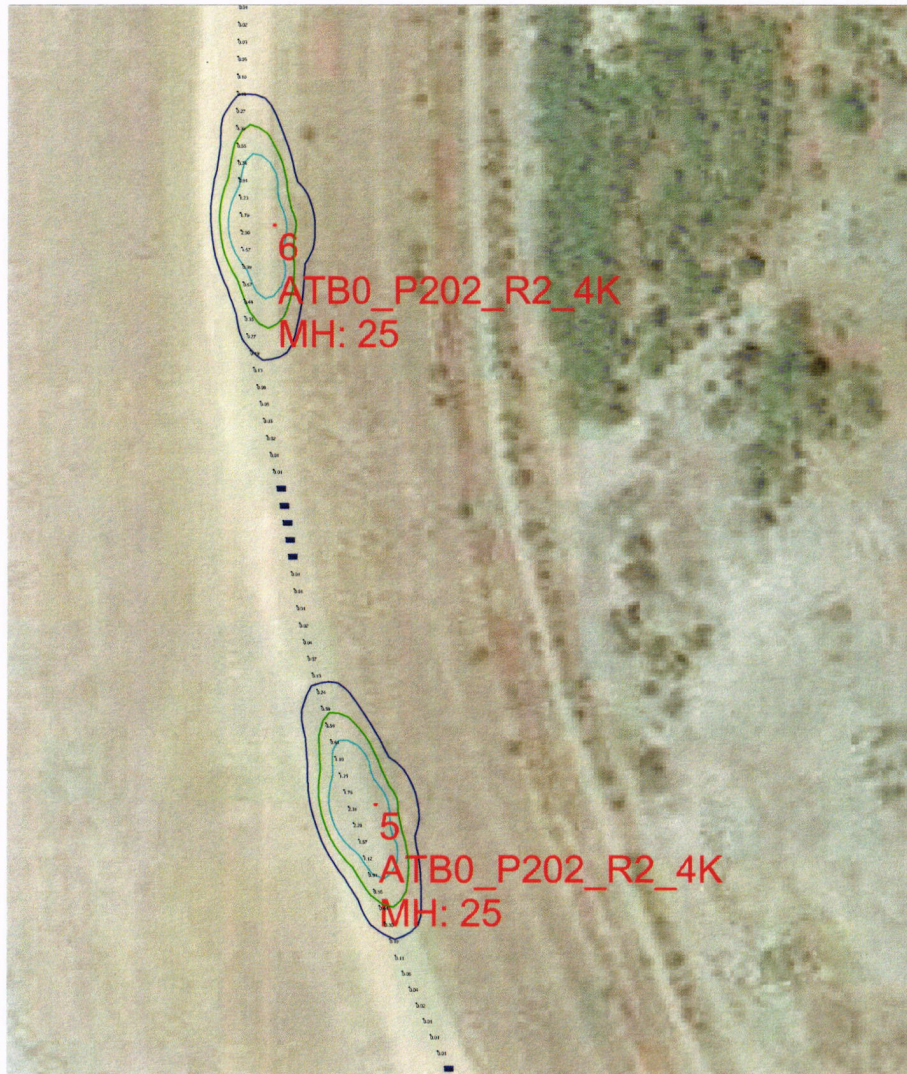




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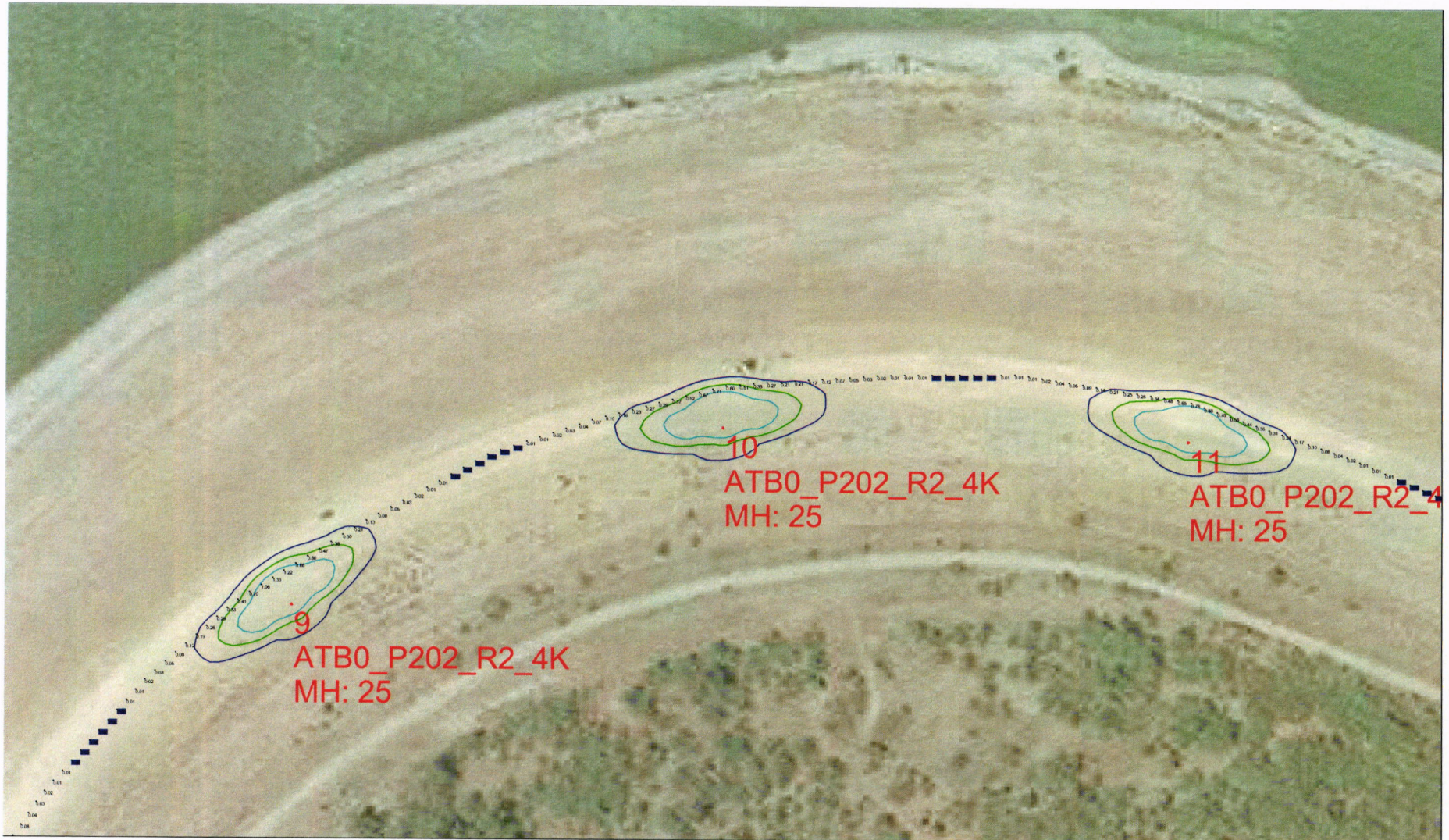
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 by Sunna Design®



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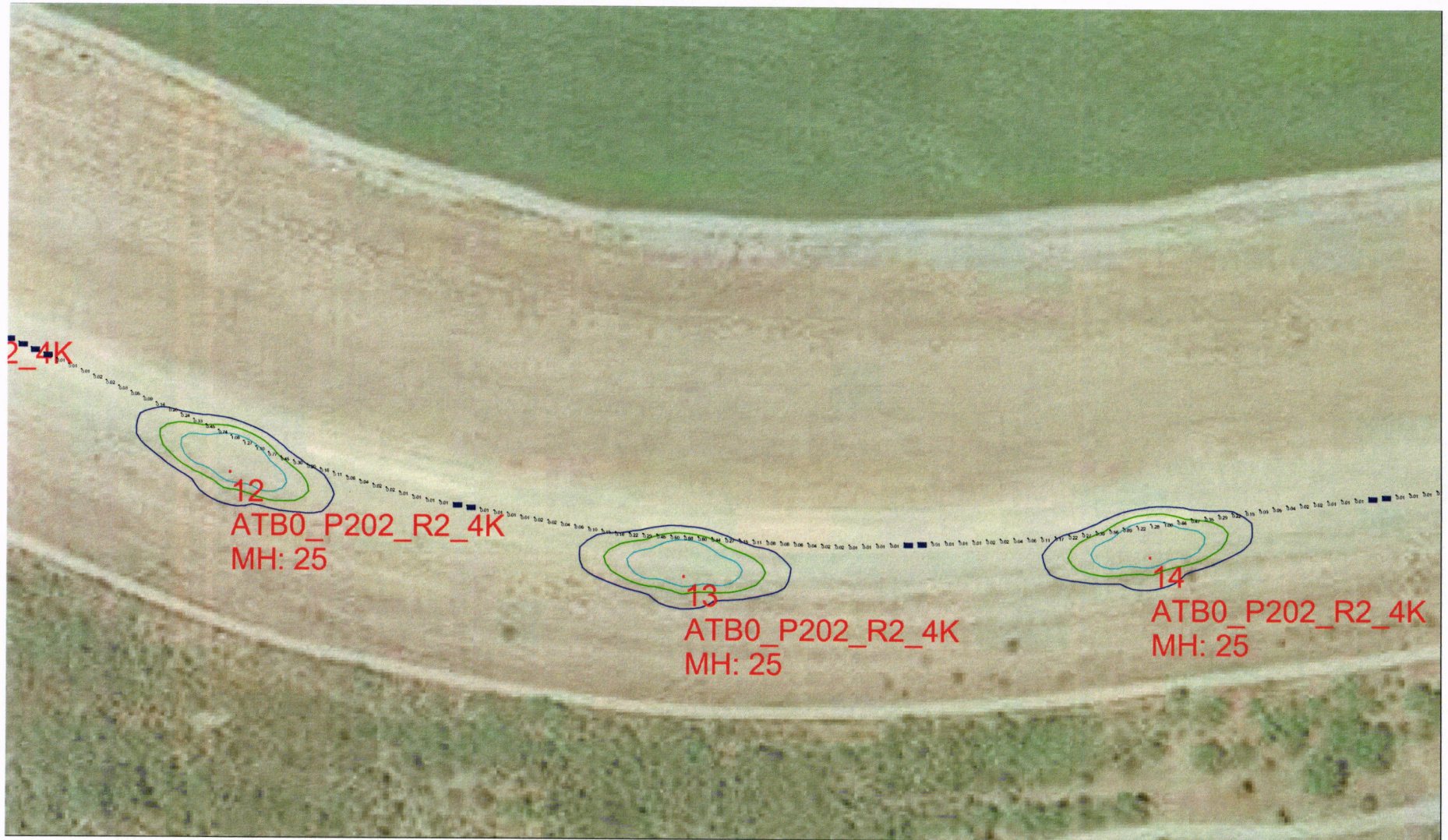
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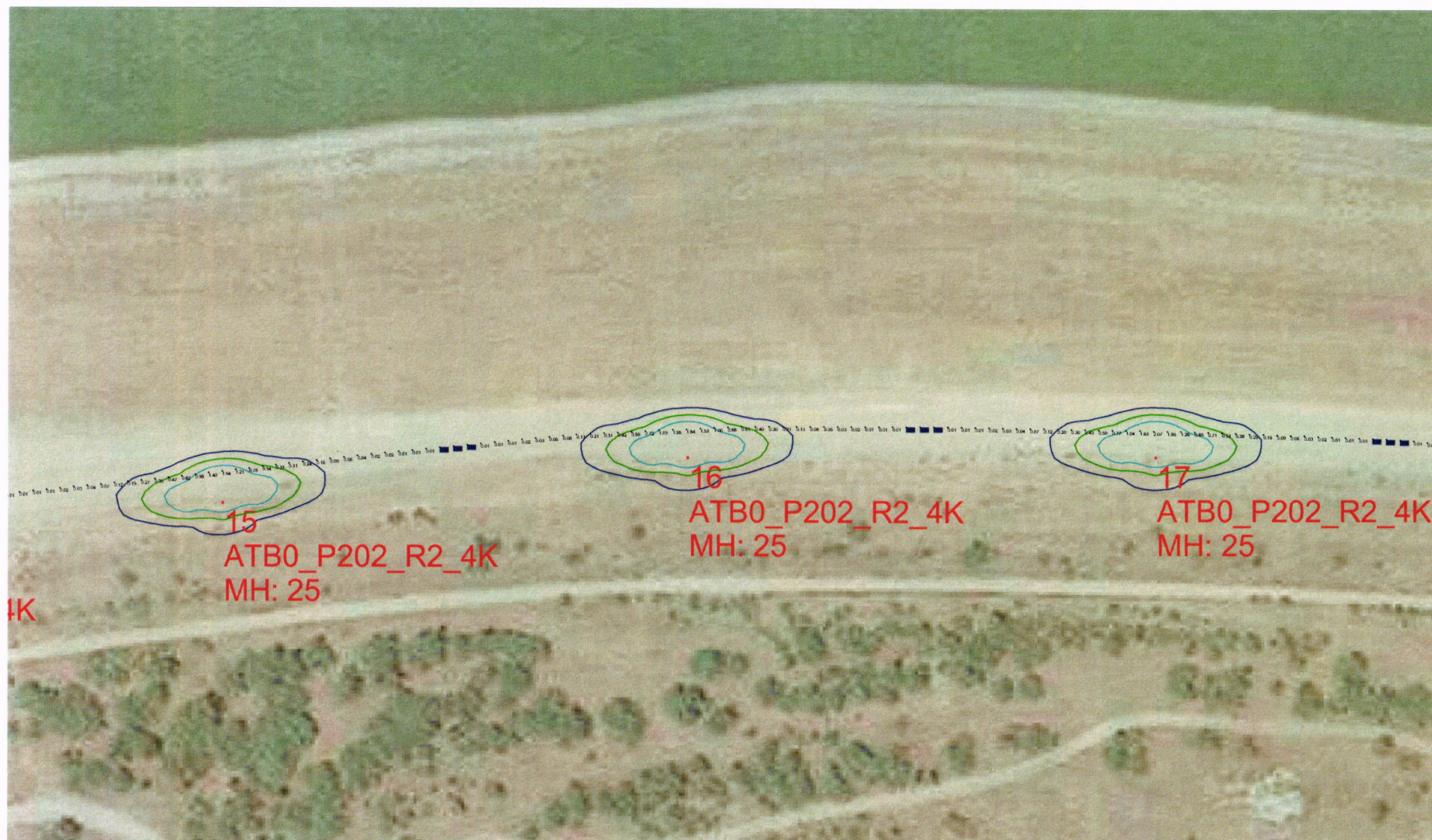
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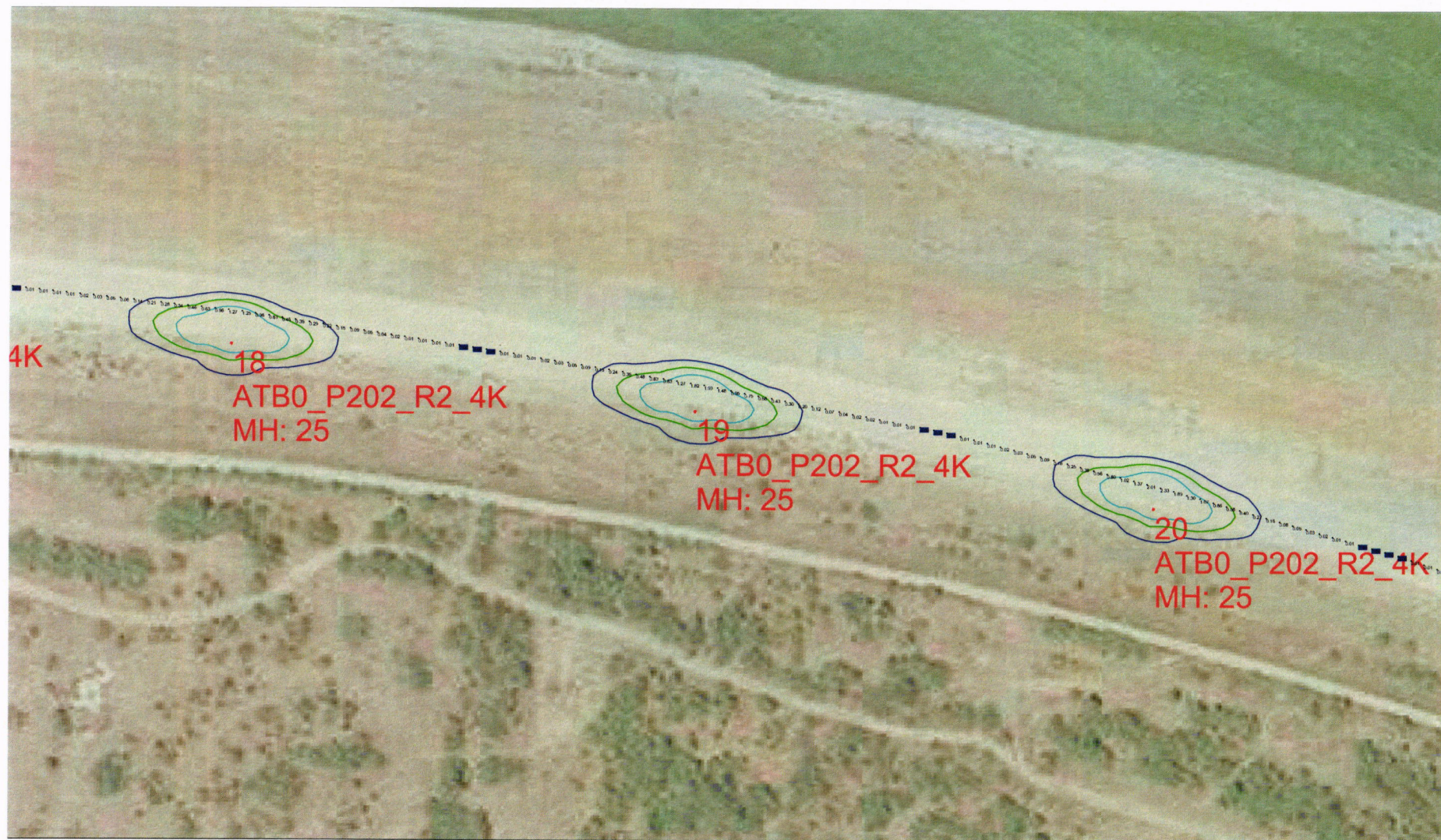
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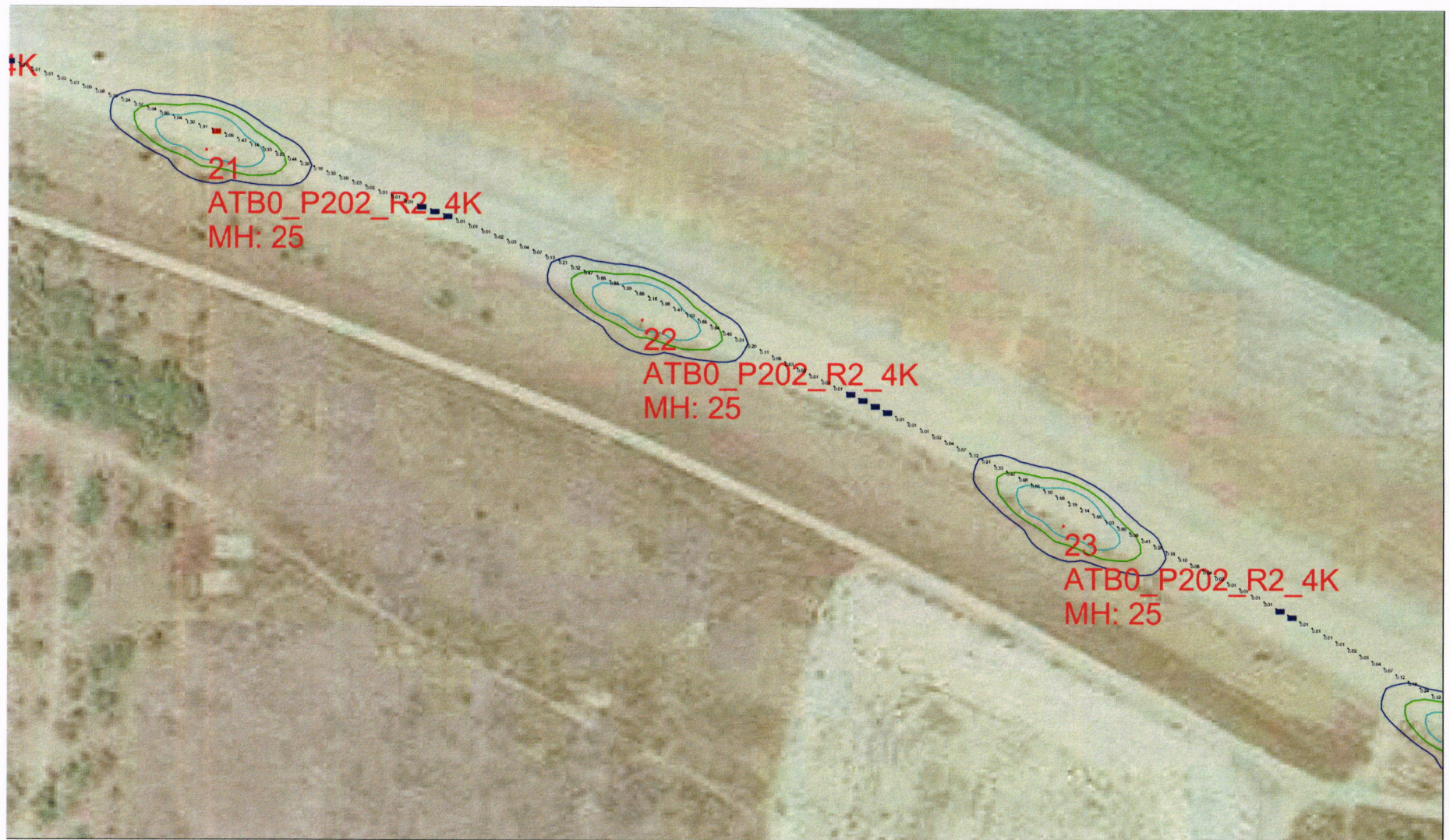




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Sol®
by Sunna Design®



Lake Elsinore CA - Lake Elsinore Levee
 Project Number - MR_2-095MR
 Prepared By: jim ww
 Operating Profile -
 Date:2023-08-29

Sol by Sunna Design Inc.
 Solarlighting.com
 sales@solarlighting.com
 Toll free: +1 800 959 1329

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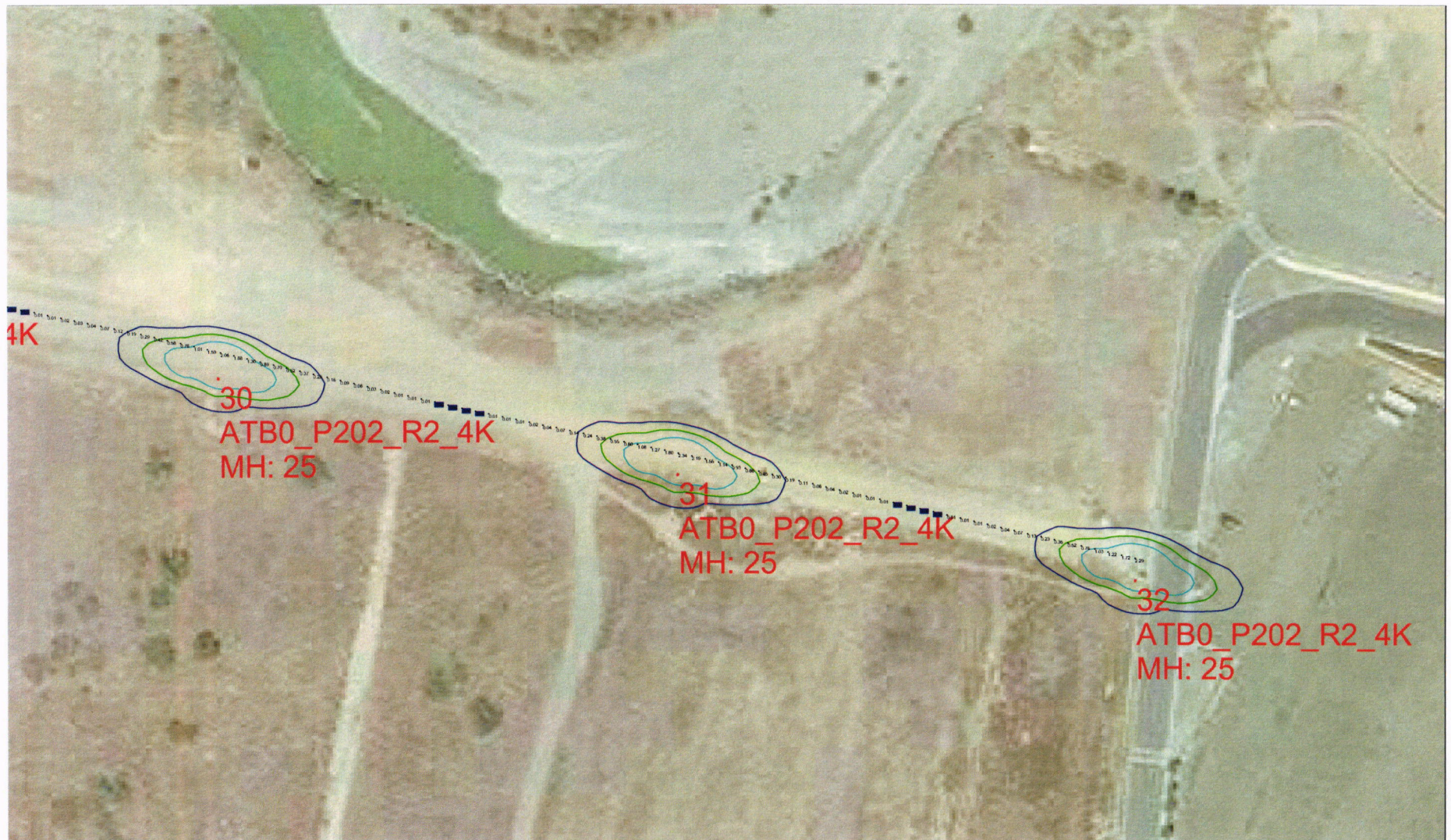
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Luminaire Location Summary					
LumNo	Label	X	Y	Z	Orient
1	ATB0_P202_R2_4K	1169.88	576.76	25	185.891
2	ATB0_P202_R2_4K	1104.49	910.58	25	196.37
3	ATB0_P202_R2_4K	986.57	1229.96	25	204.817
4	ATB0_P202_R2_4K	823.42	1528.73	25	210.784
5	ATB0_P202_R2_4K	683.14	1838.22	25	198.199
6	ATB0_P202_R2_4K	624.11	2172.87	25	185.195
7	ATB0_P202_R2_4K	648.11	2511.66	25	167.375
8	ATB0_P202_R2_4K	765.12	2829.63	25	148.356
9	ATB0_P202_R2_4K	991.48	3081.41	25	124.841
10	ATB0_P202_R2_4K	1302.93	3211.76	25	98.95
11	ATB0_P202_R2_4K	1640.55	3203.04	25	76.43
12	ATB0_P202_R2_4K	1956.83	3078.04	25	67.653
13	ATB0_P202_R2_4K	2287.95	3002.72	25	84.437
14	ATB0_P202_R2_4K	2627.29	3018.41	25	98.989
15	ATB0_P202_R2_4K	2965.61	3058.17	25	96.247
16	ATB0_P202_R2_4K	3304.62	3091.24	25	92.237
17	ATB0_P202_R2_4K	3645.26	3092.37	25	89.457
18	ATB0_P202_R2_4K	3984.63	3063.5	25	82.851
19	ATB0_P202_R2_4K	4321.74	3014.57	25	80.631
20	ATB0_P202_R2_4K	4655.05	2944.76	25	76.283
21	ATB0_P202_R2_4K	4980.54	2844.5	25	71.565
22	ATB0_P202_R2_4K	5297.66	2720.39	25	67.561
23	ATB0_P202_R2_4K	5603.88	2571.4	25	62.152
24	ATB0_P202_R2_4K	5902.31	2407.32	25	64.495
25	ATB0_P202_R2_4K	6231.95	2331.09	25	88.42
26	ATB0_P202_R2_4K	6566.31	2381.77	25	106.246
27	ATB0_P202_R2_4K	6899.71	2399.36	25	97.524
28	ATB0_P202_R2_4K	7233.14	2443.68	25	82.376
29	ATB0_P202_R2_4K	7568.88	2389.11	25	84.289
30	ATB0_P202_R2_4K	7901.58	2316.65	25	77.226
31	ATB0_P202_R2_4K	8234.95	2246.5	25	76.783
32	ATB0_P202_R2_4K	8566.79	2169.53	25	75.83

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