

HEBER PUBLIC UTILITY DISTRICT

REPORT TO BOARD OF DIRECTORS

MEETING DATE: August 16, 2018

FROM: Laura Fischer, General Manager

SUBJECT: Authorize the General Manager to Solicit Proposals for the Purchase and Installation of Solar Lights at Jiggs Johnson Park.

ISSUE:

Shall the Board of Directors authorize the General Manager to solicit proposals for the purchase and installation of solar lights at Jiggs Johnson Park?

GENERAL MANAGER’S RECOMMENDATION:

It is recommended that the Board of Directors authorize the General Manager to solicit proposals for the purchase and installation of solar lights in Jiggs Johnson Park.

FISCAL IMPACT:

Funding Reserved for Project via Resolution 2018-06 Reserve Budget 2018-19: \$115,000

Capital Improvement Project Description: Install Solar Area Lighting & Shade Structures and Picnic Tables/Benches.

Total Funds Available for this Project: \$115,000.

Jiggs Johnson Park			
<i>Install Solar Area Lighting Shade Structures and Tables/Benches</i>		Project Schedule FY 18-19	Project Cost \$ 114,200
<i>Project Components</i>			
<i>Actual Cost</i>	THG Design / Bid / CM / Labor Compliance		10,900
	THG - Design Engineering	3,200	
	THG - Bidding Services	2,400	
	THG - Construction Management Services	3,200	
	THG - Labor Compliance Services	2,100	
<i>Estimated Cost</i>	Construction - Install Solar Lights	24,000	24,000
<i>Estimated Cost</i>	Solar Area Lights Purchase	70,300	70,300
<i>Estimated Cost</i>	Shade Structure over Tables Purchase HPUD Install	9,000	9,000
	TOTAL	114,200	\$ 114,200

BACKGROUND:

This project is included in the FY 18-19 Capital Improvement Plan and is funded via Resolution 2018-06 Reserve Budget. The need for lights at Jiggs Johnson Park has been discussed for several years, and in 2016 both restroom and lights were identified as needed at Jiggs Johnson Park. In the most recent Capital Improvement Project List, the project was

modified to eliminate the restrooms and include solar lights along the walking path, shade over the cement slab, and picnic tables under the new shade.

After the RFP is prepared and submitted to eligible contractors, staff will bring the bids back to the Board for consideration and to award the contract. At that time, a timeline for completion should be made available.

DISCUSSION:

The Holt Group has provided a quote to assist with the administration of this project including design review, bidding, building permit coordination with County, Construction Management, and labor compliance services. I have attached a copy of The Holt Group proposal. Additionally, HPUD has received a sample design and quote from a solar light company and I have attached that for your review and consideration.

The quote includes the technical specifications and details of the solar lights. The quote included pictures of the light fixtures, solar panels, and battery. The quote also included renderings of the park with the lights. I have attached this information for your consideration.

CONCLUSION:

As this project was included in the capital improvement budget for FY 2018-19, staff recommends authorizing staff to submit a Request for Proposal for the purchase and installation of solar area lighting at Jiggs Johnson Park. Staff will get the required quotes for the purchase of the shade structure and picnic tables. HPUD staff will install the shade and picnic tables.

ALTERNATIVES:

- 1) Do not authorize the General Manager to solicit proposals for the purchase and installation of solar area lights at Jiggs Johnson Park.
- 2) Provide alternate direction to staff to address the need for area lighting at Jiggs Johnson Park.

Respectfully Submitted,

Laura Fischer, General Manager

Attachments: Sample design of lights
Sample quote for solar lights



23661 Birtcher Dr, Lake Forest, CA 92630
 t. 949-609-9636 f. 949-812-6690

QUOTE

Number GSIQ1930

Date Jul 31, 2018

Sold To	Ship To	Your Sales Rep
City of Heber Laura Fischer 1078 Dogwood Rd, Ste 103 Heber, CA 92249	City of Heber Laura Fischer TBD Upon Bid Award Heber, CA 92249	Heidi Emmert VP of Sales 9496099636 ext 102
Phone (760) 482-2440 Fax Email Project name : Park Pathway Lighting	Phone (760) 482-2440 Fax	Installation city : Heber Sales Tax Rate : 7.75 %

Terms	P.O. Number	Ship Via	Lead Time
NET 30			8-10 weeks

Line	Qty	Description	Unit Price	Ext. Price
1	27	Lita-15S	\$2,346.00	\$63,342.00
Luminaire: GS-LD-LI, 10W, CREE LEDs, 1146 lumens, 4000K, IP65, Type V Solar charge controller: PC-LED-350, waterproof- IP 68, factory programmed Working mode: auto-on at dusk/ auto-off at dawn: Dusk to dawn full brightness Autonomy: 6 back up days Pole: 14', hot-dip galvanized steel, with anchor bolts and template for concrete base foundation Arm: 2', hot-dip galvanized steel Brackets: mounting brackets for solar panels, installed at the top of the pole Battery Capacity: 80Ah, 12V, gel cell deep cycle battery Waterproof enclosure for underground burial 110W Solar Panel, monocrystalline silicon solar cells, conversion efficiency: 15% Black-color powder coating finish, corrosion resistant Accessories: Wiring, connectors, standard hardware This system is configured for locations with a minimum sunhours of 2.7 5 Years limited warranty, more @ www.streetlights-solar.com/warranty.html				

By signing this quote and returning it to Greenshine New Energy, you are confirming the purchase of the described items, and agree on Greenshine's general terms and conditions.

Date :
 Signature :

SubTotal	\$63,342.00
Sales Tax	\$4,908.67
Shipping	\$2,000.00
Total	\$70,250.67

Please contact me if I can be of further assistance.

Prices are valid for a period of 30 days from the creation date of this quote. For more information, related to the terms and conditions of purchase of our solar lighting solution please visit www.streetlights-solar.com/terms_and_conditions.html



LITA SERIES

Cost Effective Solar Lighting Solutions



General Specifications (12W)

Light Fixture (GS-LD-LI)

Luminaire input voltage	12 V
Power consumption	12 W
Lumen	1014 lumens
Color temperature	5000 K
IES lighting type	Type V
Material	Die-cast aluminum

Solar Panel

Rating Power	100 W
Maximum Power Voltage	17.56 V
Maximum Power Current	5.72 A
Open Circuit Voltage	21.7 V
Short Circuit Current	6.23 A
Size	47.5" × 27"
Weight	29.5 lb.

Battery

Battery type	GEL Deep cycle lead-acid
Operating voltage	12 V
Capacity	80Ah at 20hr-rate to 1.75V per cell at 25°C/ 77°F
Dimensions	13 (L) × 7(W) × 8.5(H) (in)
Expected life	5 ~ 7 years

Solar Charger

Operating Voltage	12 V/24 V auto recognition
Max. charge/ load current	5 A/ 10 A/ 20 A (different models)
Night/day detection	2.5 V – 10 V
IP class	IP68

Pole

Height	14 ft.
Diameter	5.5" – 3"
Thickness	5/32"
Material	Galvanized steel
Finishing	Powder coating

GS-S-lita



Greenshine

1-949-609-9636

sales@streetlights-solar.com

www.streetlights-solar.com

GS-S-lita

- Unique design for better removal of dirt and self-cleaning
- Advanced thermal management to maximize performance
- 1W optical module LED bulb
- 50,000 hours life span
- Die-cast aluminum housing
- PMMA lens for superior performance
- Suitable for pathways and sidewalks
- Reduced maintenance
- Optimized sidewalk distribution
- E27 Standard base

GS-S-lita



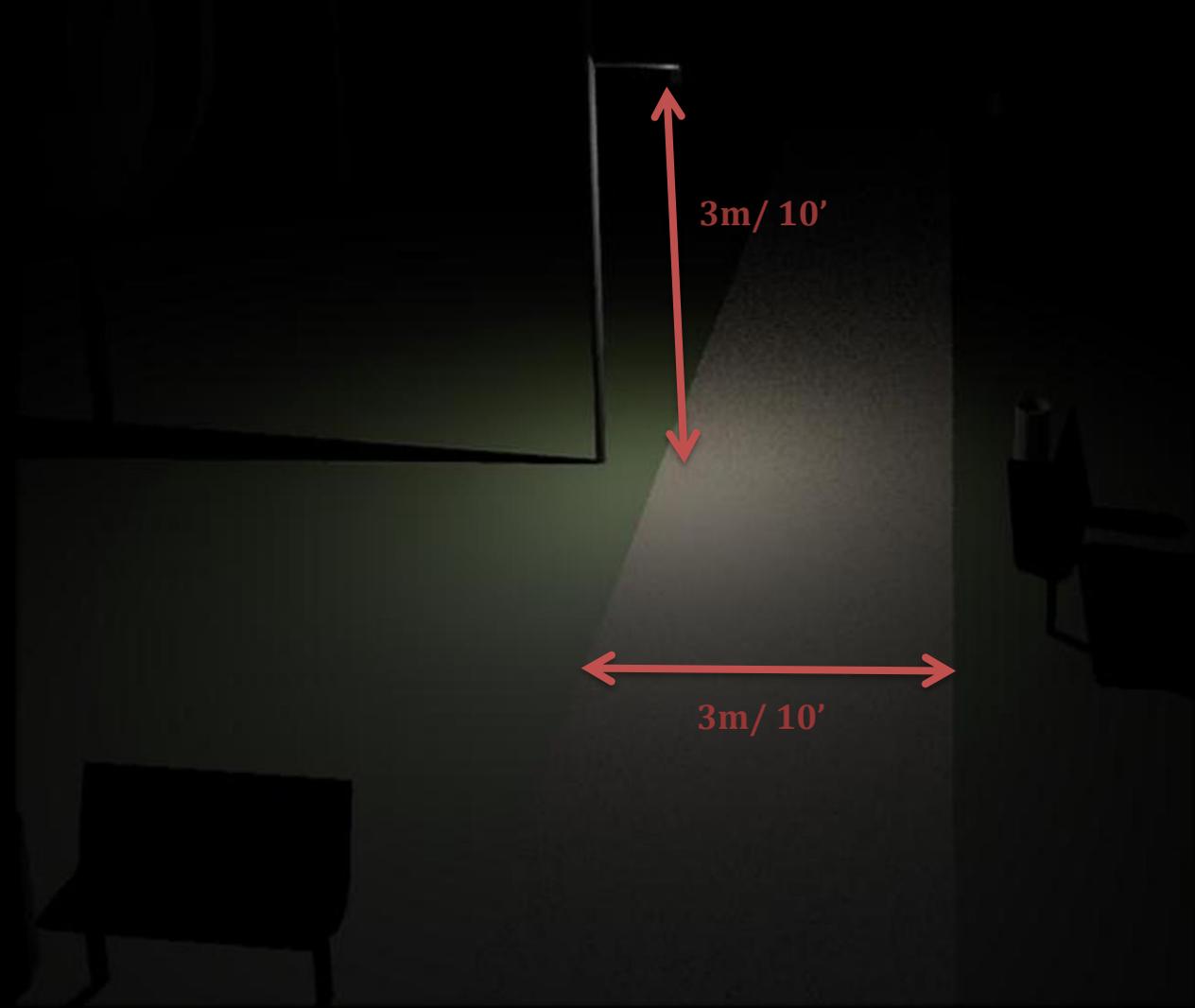
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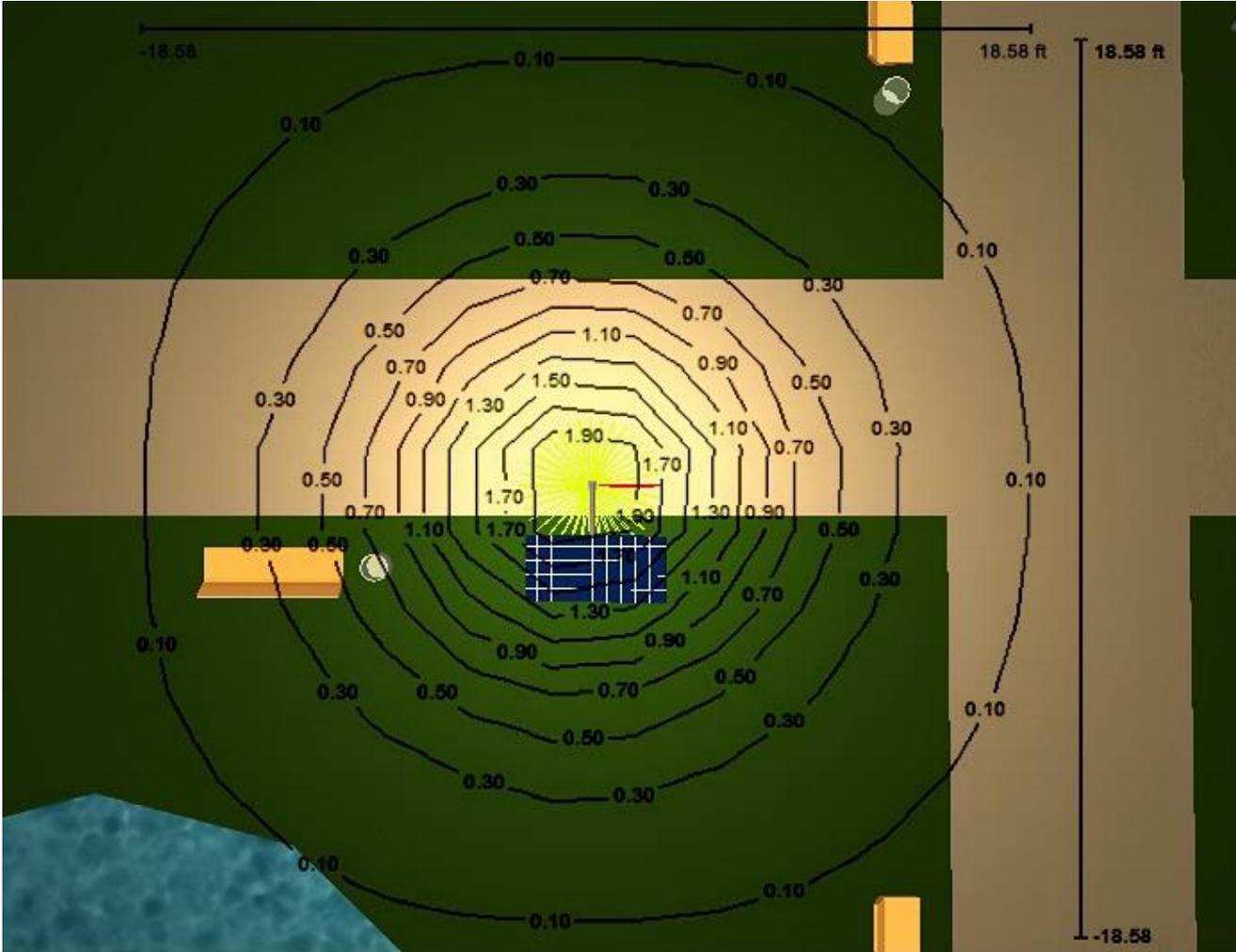
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Standard application

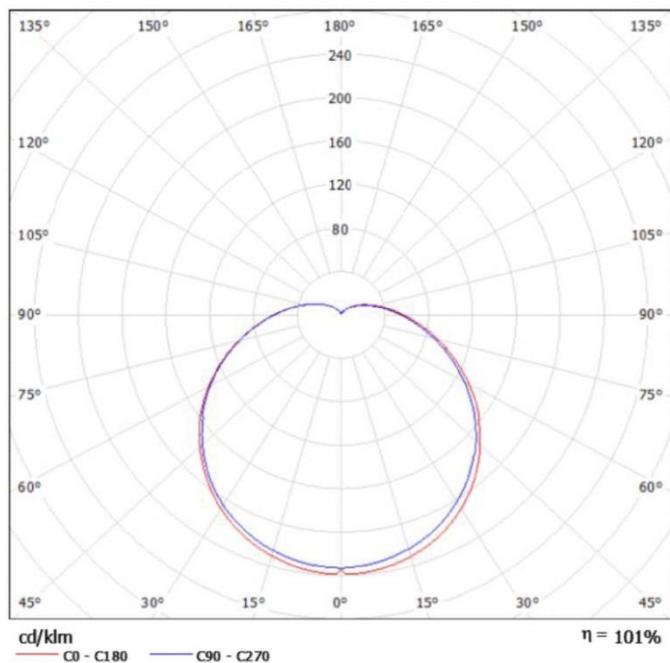


Photometric overview



8W system, photometric results on a park pathway

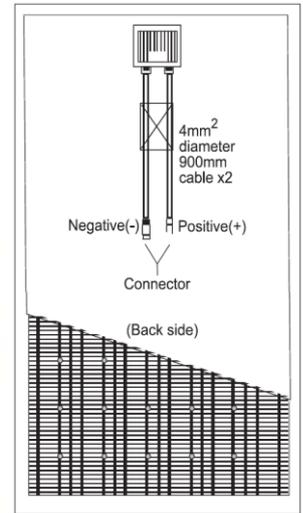
30'x30' area		
Model	12W System	20W System
Average illuminance	0.52 fc	0.97 fc





100W / 150W

- Mono-Crystalline solar cells
- Aluminum frame with a unique design to withstand strong winds
- Highly resistant tempered glass
- Multilayer EVA encapsulation with triple layer back sheet
- 25-year power output warranty: 5 years/95%, 12 years/90%, 25 years/80%.



<u>Rating Power</u>	100W	150W
<u>Production Tolerance</u>	± 3%	
<u>Maximum Power Voltage</u>	17.56 V	18.72V
<u>Maximum Power Current</u>	5.72 A	8.01A
<u>Open Circuit Voltage</u>	21.7 V	22.4 V
<u>Short Circuit Current</u>	6.23 A	8.61 A
<u>Frame</u>	Anodized aluminum, 4mm thickness	
<u>Dimensions</u>	1208mm x 682mm 47.5" x 27" 13Kg / 29.5lb	1486mm x 682mm 58.5" x 27" 18Kg / 39.5lb
<u>Test Temperature</u>	25°C / 77°F	
<u>Junction box / Wiring</u>	IP65 Junction box with 900mm cable	

Greenshine Gel-type Battery

(80Ah – 120Ah – 150Ah – 200Ah)

GEL deep cycle battery with a 12 years floating design life is especially designed for frequent cyclic discharge under extreme temperature.



	GS-GEL-H80	GS-GEL-H120	GS-GEL-H150	GS-GEL-H200
Cells per unit	6			
Voltage per unit	12V			
Capacity	80Ah @ 20hr-rate to 1.75V per cell @ 25°C/ 77°F	120Ah @ 20hr-rate to 1.75V per cell @ 25°C/ 77°F	150Ah @ 20hr-rate to 1.75V per cell @ 25°C/ 77°F	200Ah @ 20hr-rate to 1.75V per cell @ 25°C/ 77°F
Weight	26 kg/ 58 lb.	38 kg/ 84 lb.	46 kg/ 100 lb.	59.2 kg/ 131.5 lb.
Dimensions L x W x H	330×172×214(mm) 13"×7"×8.5"	406×173×233 (mm) 16"×7"×9.2"	483×170×240 (mm) 19"×6.7"×9.5"	522×240×218 (mm) 20.5"×9.44"×8.7"
Max discharge current	800A (5 sec)	1200 (5sec)	1500 (5sec)	1500A (5 sec)
Operating temperature range	-40°C~60°C/ -40°F~140°F			
Float charging voltage	13.6 to 13.8 VDC/ unit average at 25°C/ 77°F			
Recommended maximum charging current	36A	36A	36A	30A
Self-discharge	Valve Regulated Lead Acid can be stored for more than 6 months at 25°C/ 77°F. Self-discharge ratio less than 3% per month at 25°C/ 77°F. Please charge batteries before using			
Equalization and cycle service	14.6 to 14.8 VDC/unit Average at 25°C/ 77°F			
Terminal type	Terminal F5/F12			

Battery



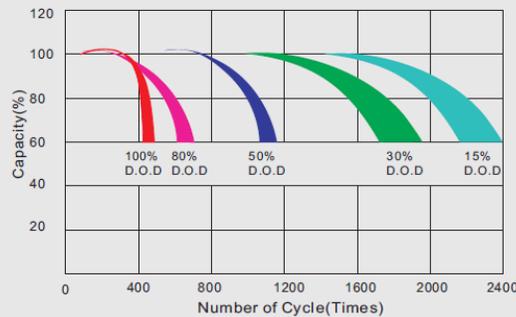
Greenshine

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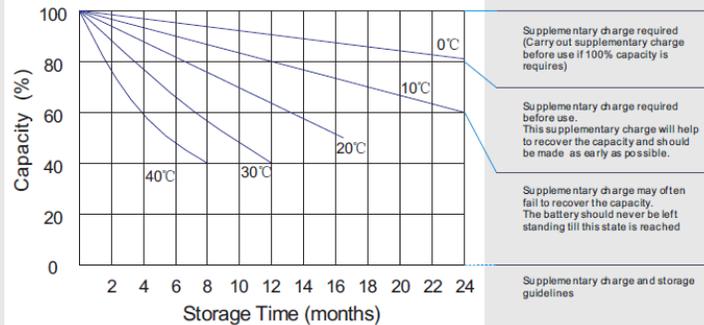
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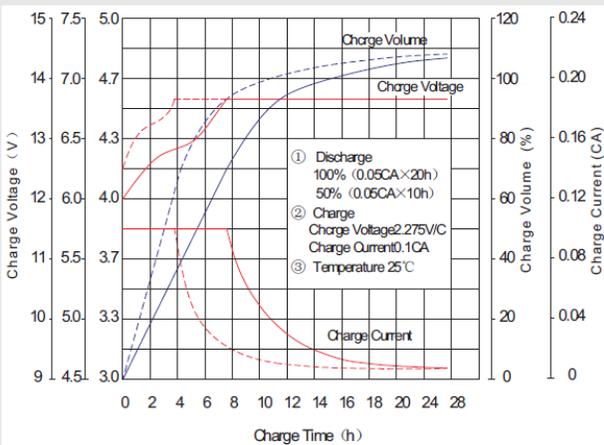
Life characteristics of cyclic use



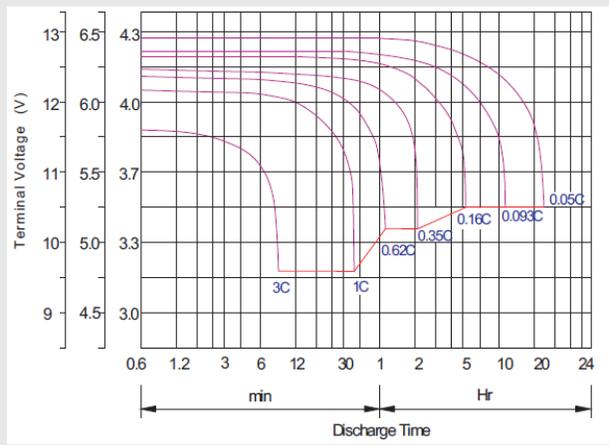
Storage characteristic



Charge characteristic curve for cyclic use



Discharge characteristic curve



Capacity Factors With Different Temperature

Battery Type		-20°C	-10°C	0°C	5°C	10°C	20°C	25°C	30°C	40°C	45°C
GEL Battery	6V&12V	50%	70%	83%	85%	90%	98%	100%	102%	104%	105%
	2V	60%	75%	85%	88%	92%	99%	100%	103%	105%	106%
AGM Battery	6V&12V	46%	66%	76%	83%	90%	98%	100%	103%	107%	109%
	2V	55%	70%	80%	85%	92%	99%	100%	104%	108%	110%

Discharge Current VS. Discharge Voltage

Final Discharge Voltage V/cell	1.75V	1.70V	1.60V
Discharge Current (A)	(A) ≤ 0.2C	0.2C < (A) < 1.0C	(A) ≥ 1.0C

Charge the batteries at least once every six months, if they are stored at 25°C.

Charging Method:

Constant Voltage	-0.2Cx2h+2.4-2.45V/Cellx24h, Max. Current 0.3CA
Constant Current	-0.2Cx2h+0.1CAx12h
Fast	-0.2Cx2h+0.3CAx4.0h

Maintenance & Cautions

Cycle service
※ Avoid battery over discharge, especially battery series connection use.
※ Charged with recommend voltage, ensure battery can be full recharged.
In general, recharge capacity should be 1.1-1.15 times discharge capacity.
※ Effect of temperature on cycle charge voltage: -4mV/°C/Cell.
※ There are a number of factors that will affect the length of cyclic service.
The most significant are depth of discharge, ambient temperature, discharge rate, and the manner in which the battery is recharged.
Generally speaking, the most important factors is depth of discharge.



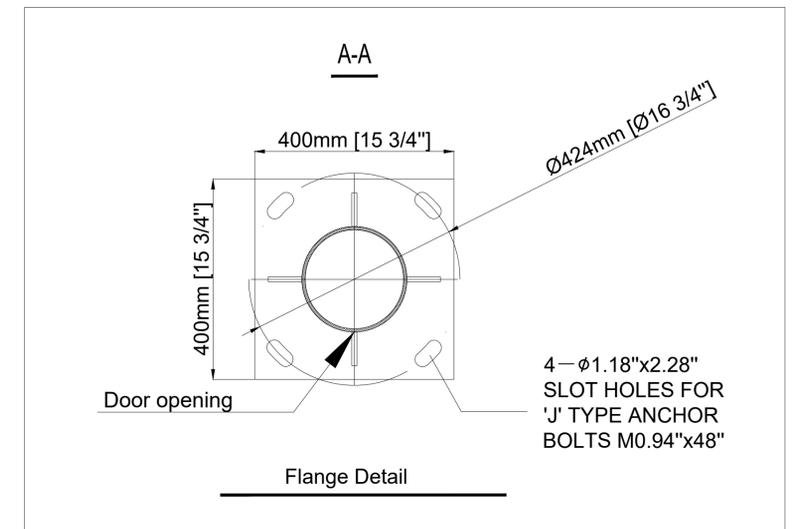
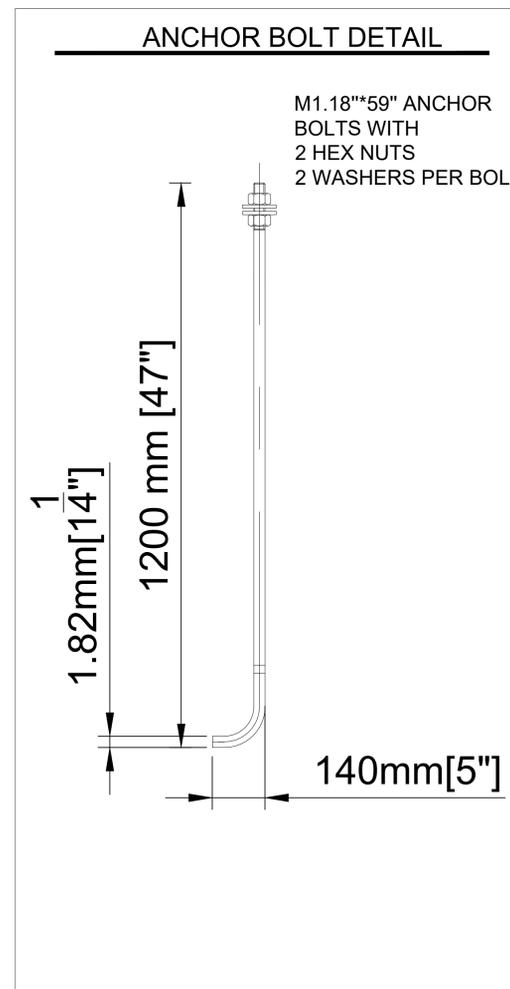
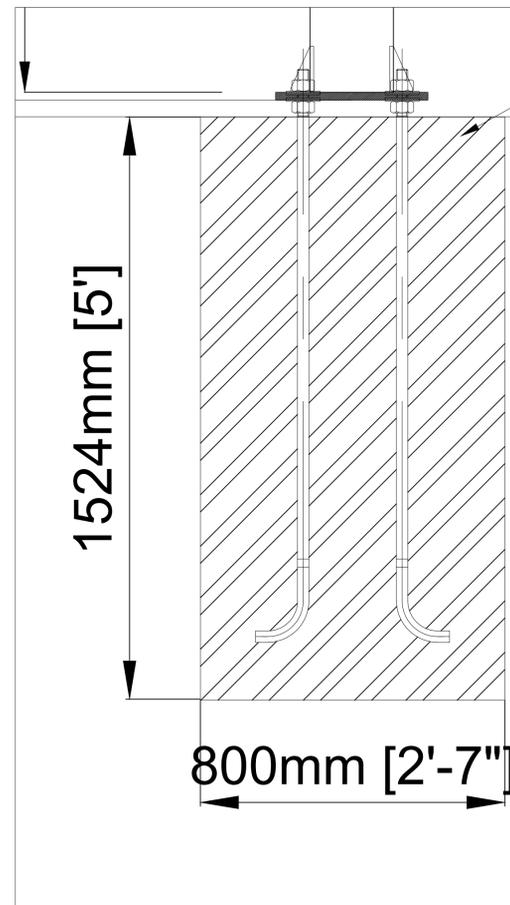
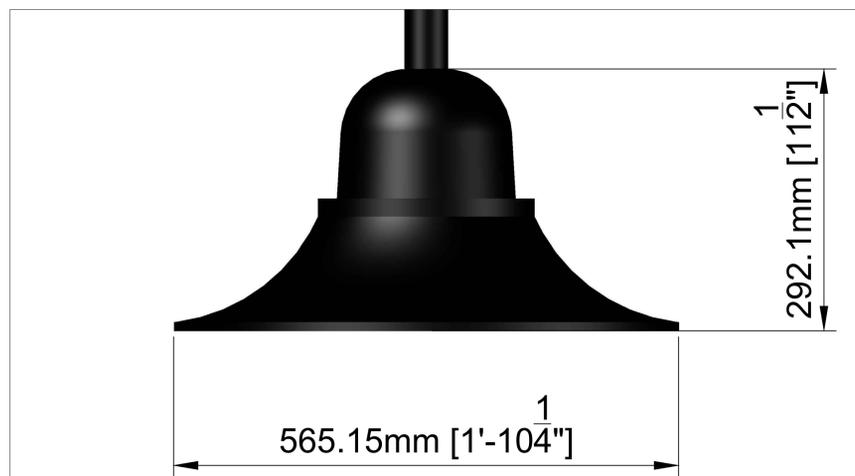
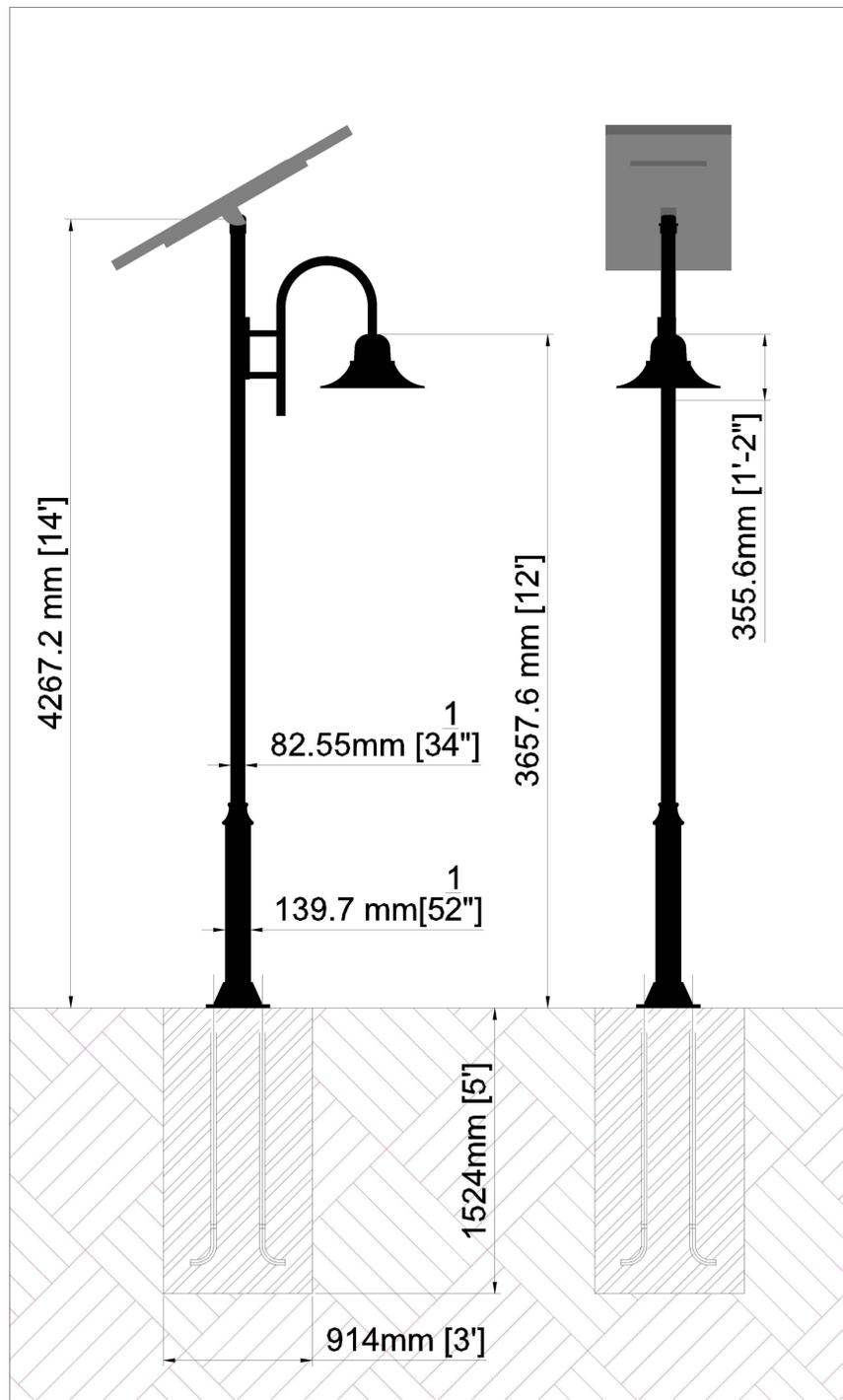
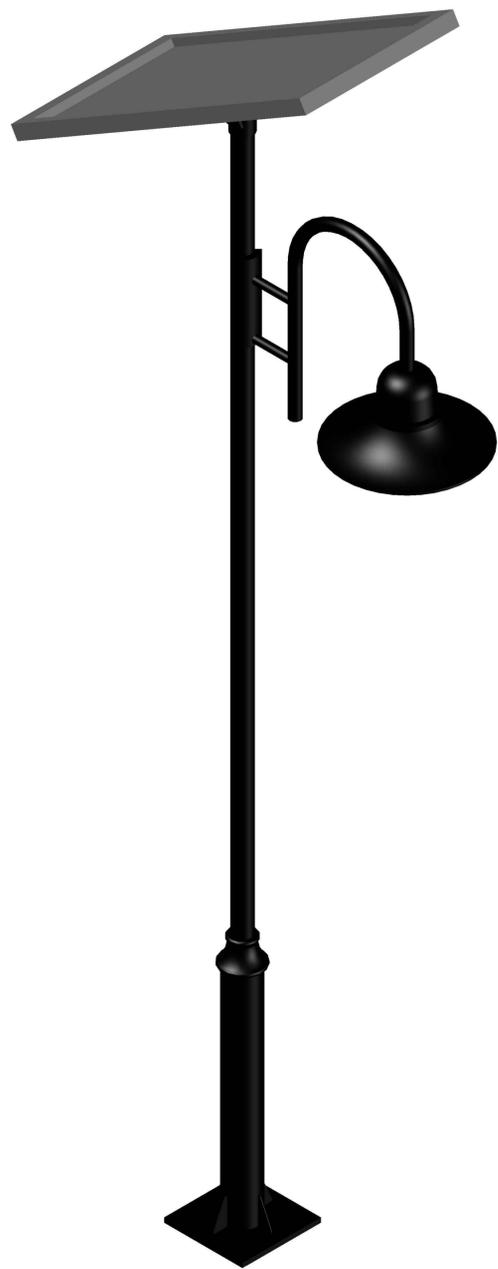
GS-LED-CTRL

Features

- Corrosion-proof epoxy-encapsulated PCB (IP68)
- Four-stage battery charging (main, float, boost, equalization)
- Temperature compensated
- Automatic system voltage recognition (12V/24V)
- Customized by Greenshine to fit specific needs of clients
- Easy to installed

Specification

System voltage	12V/24V auto recognition
Max. charge/ load current	5A/ 10A/ 20A (different models)
Deep discharge protection:	
Cut-off voltage	11V – 12V/ 22V – 24V
Reconnect level	12.8V/25.6V
Overvoltage protection	15.5V/31.0V
Undervoltage protection	10.5V/21V
Max. panel voltage	$U_{BATmin} + 30V$ (if module and battery are connected with correct polarity)
Temperature compensation	-25mV/K at 12V
(Charge voltage)	-50mV/K at 24V
Ambient temperature	-40°C to +60°C, -40°F to +140°F
Max. altitude	4,000m above sea level
Battery type	Lead acid (GEL, AGM, flooded)
Adjustment range:	
Evening/morning hours	0 – 15h/ 0 – 14h
Night/day detection	2.5V – 10V
Wire cross section	1.5mm ² / 1.5mm ² / 2.5mm ² , 15 (AWG)
Type of protection	IP68 (1.5 m, 72 h)



- Foundation dimensions shall be confirmed by a local engineering company, Greenshine New energy will not be held liable for any defect of the concrete foundation due to improper sizing.
- Drawings are based using hot-dipped galvanized steel, powder coating with a thickness of 5/32".
- *EPA of the system exclude the EPA of the pole, includes the solar panels, brackets, arm and LED fixture and battery box.
- **Wind resistance of the poles are indicative and further customization can be provided.

Tilt angle of the solar panels	15	30	45	60
EPA (ft ²)*	6.68	9.31	11.57	13.3
Wind resistance** (mph)	145	145	145	145

Proposal



Greenshine

System	LITA series -Decorative pole - 14' pole - 1 panel		
By		Date	4/4/2017

HEBER - CA

27 units of LITA proposed to illuminate park trails.

LITA 10

14' pole
12' mounting height
GS-LED-LI-10W

Partner for Contact: Luis Jimenez:
Order No.:
Company: Greenshine New Energy:
Customer No.:

Date: 07 / 31 / 2018
Operator: Luis Jimenez

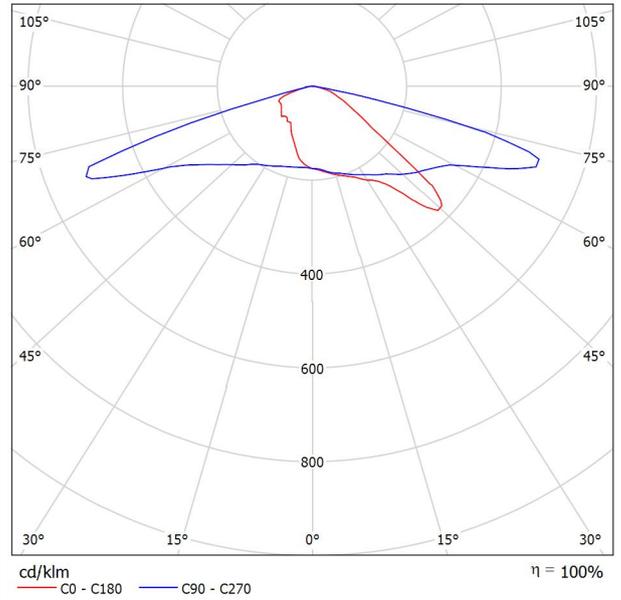
Greenshine New Energy
23661 Birtcher Dr
Lake Forest, CA 92630

Operator Luis Jimenez
Telephone 949-609-9636 X 104
Fax
e-Mail luis.jimenez@streetlights-solar.com

Greenshine New Energy GS-LED-LI-08-T2-10W-40K-BK 08 LED Type II Optics, 350mA 4000K Street Light Fixture / Luminaire Data Sheet

Luminous emittance 1:

See our luminaire catalog for an image of the luminaire.



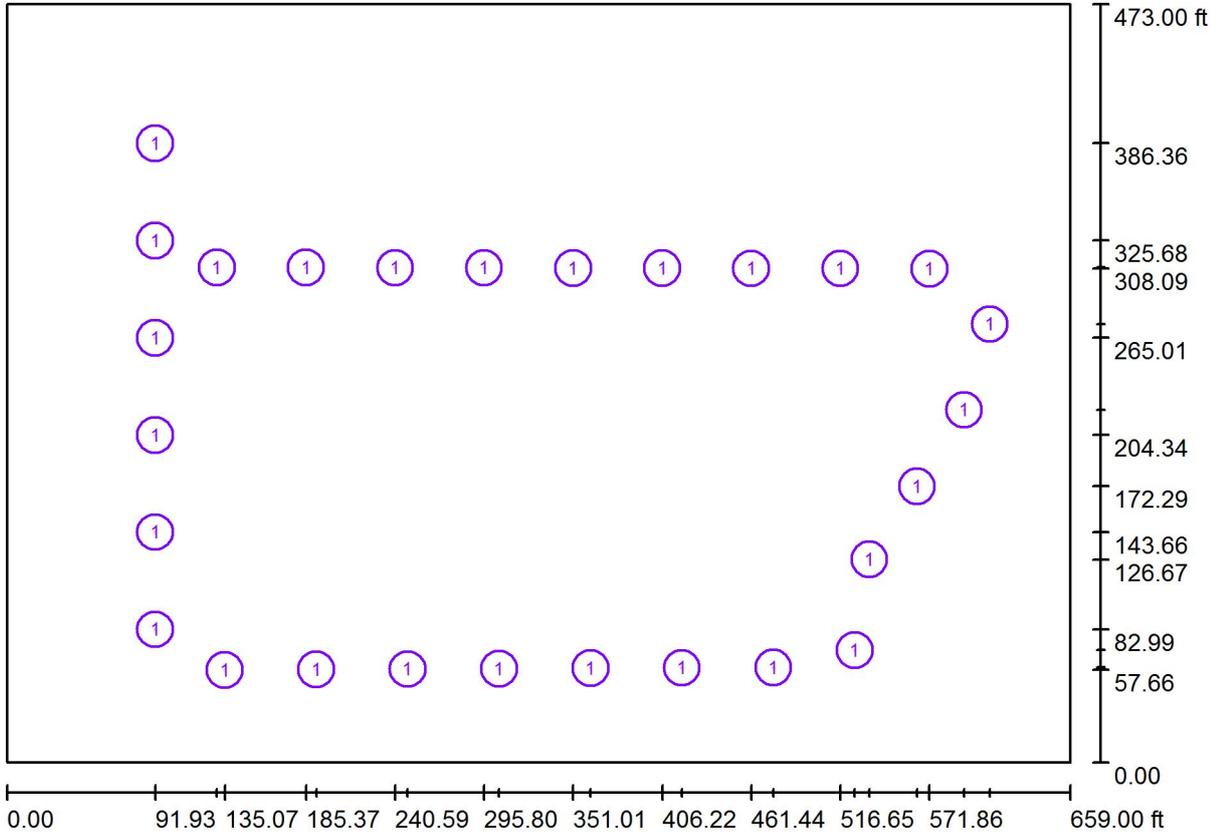
Luminaire classification according to CIE: 100
CIE flux code: 29 68 97 100 100

Due to missing symmetry properties, no UGR table can be displayed for this luminaire.

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 23661 Birtcher Dr
 Lake Forest, CA 92630

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 Telephone 949-609-9636 X 104
 Fax
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Exterior Scene 1 / Planning data



Light loss factor: 0.90, ULR (Upward Light Ratio): 0.0%

Scale 1:1437

Luminaire Parts List

No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	27	Greenshine New Energy GS-LED-LI-08-T2-10W-40K-BK 08 LED Type II Optics, 350mA 4000K Street Light Fixture (1.000)	1156	1156	10.0
Total:			31201	31212	270.0

Greenshine New Energy

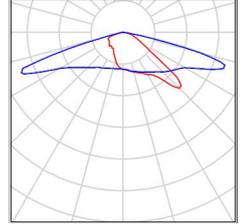
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Lake Forest, CA 92630

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Fax
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Exterior Scene 1 / Luminaire parts list

27 Pieces Greenshine New Energy GS-LED-LI-08-T2-10W-40K-BK 08 LED Type II Optics, 350mA 4000K Street Light Fixture
Article No.: GS-LED-LI-08-T2-10W-40K-BK
Luminous flux (Luminaire): 1156 lm
Luminous flux (Lamps): 1156 lm
Luminaire Wattage: 10.0 W
Luminaire classification according to CIE: 100
CIE flux code: 29 68 97 100 100
Fitting: 1 x 08 4000K LEDs (Correction Factor 1.000).

See our luminaire catalog for an image of the luminaire.



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Exterior Scene 1 / 3D Rendering

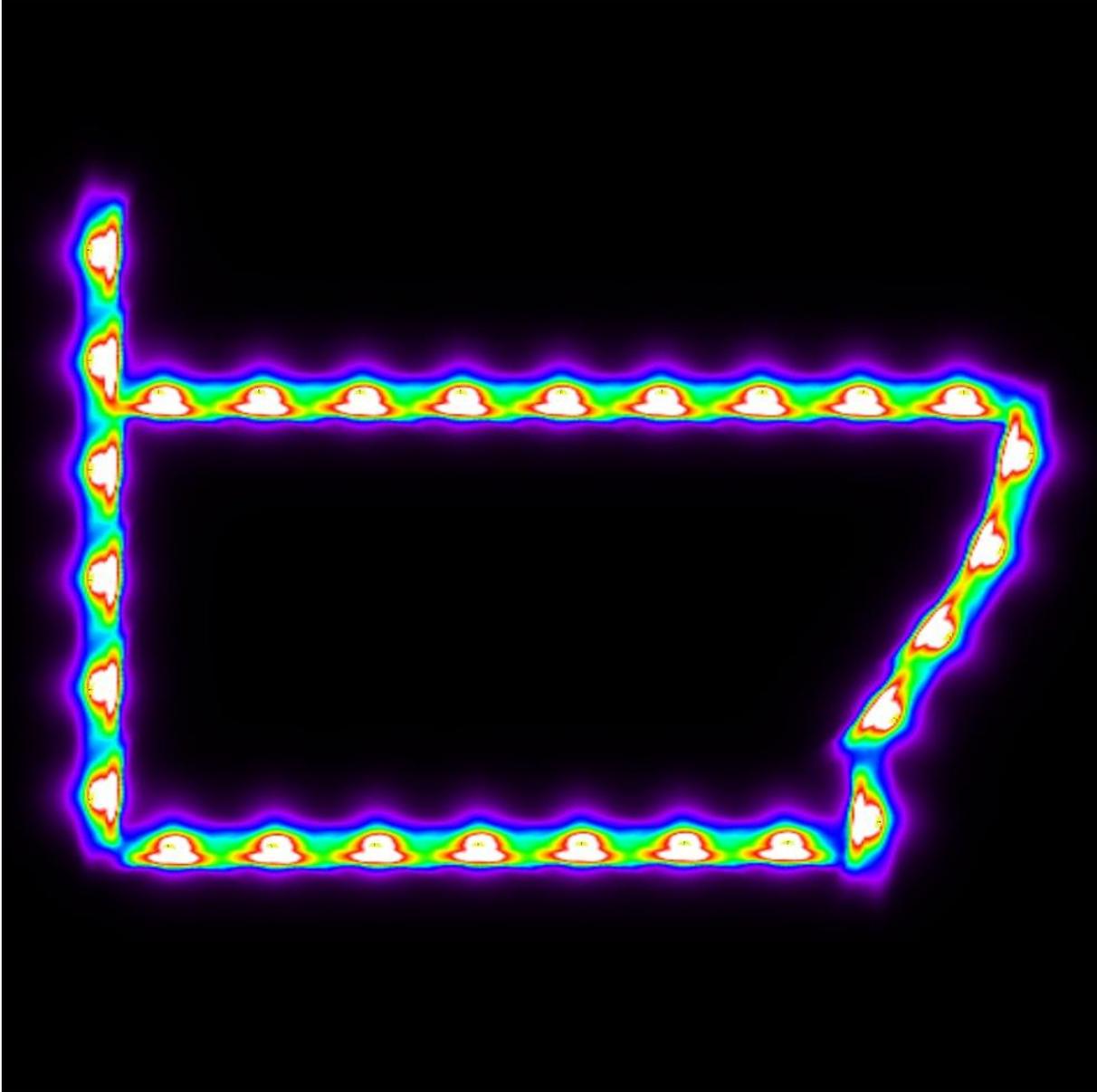




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Exterior Scene 1 / False Color Rendering



0 0.13 0.25 0.38 0.50 0.63 0.75 0.88 1.00 fc