

Scale: 1 inch= 50 Ft.

Prepared For:
 Holbrook Associated
 P.O. Box 401
 Rockland, MA 02370

Job Name:
 Essex Pastures
 Lighting Layout
 Version B

Scale: as noted

Date: 3/8/2018

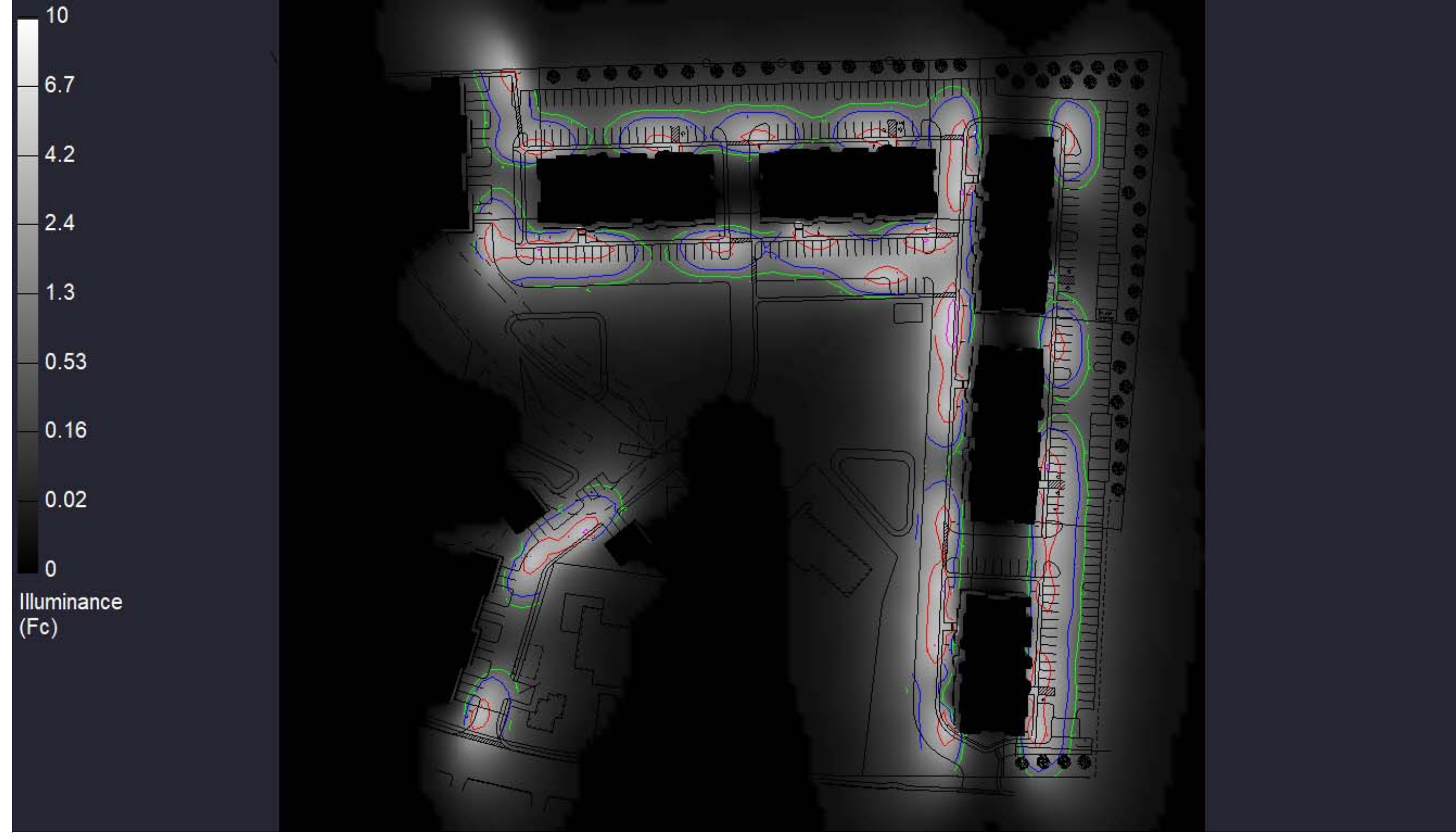
Case # 00163451

Filename: Essex Pastures Layout 00163451B.AGI

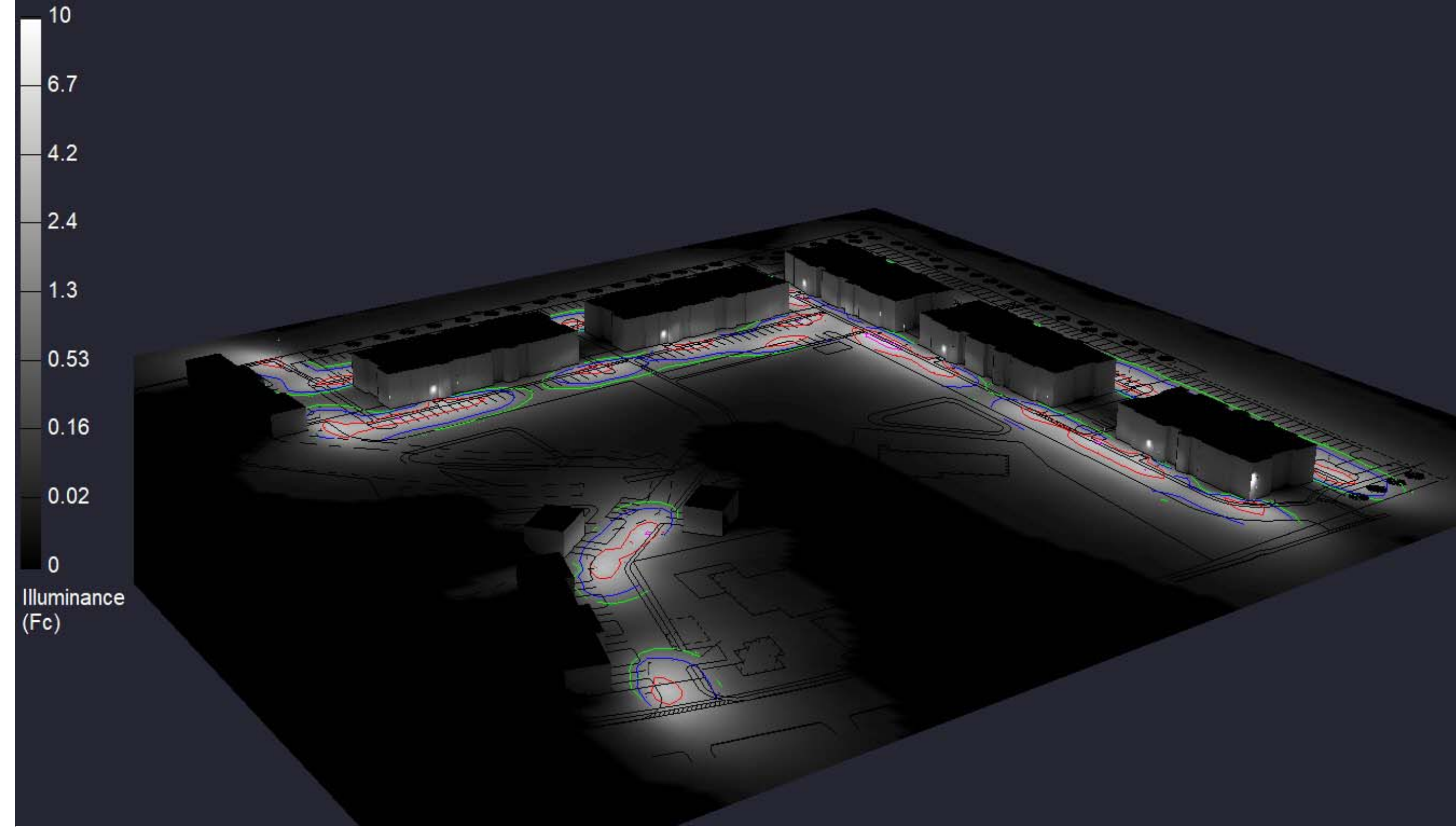
Drawn By: S Elliott

The Lighting Analysis, Layout, Energy Analysis and/or Visual Simulation ("Lighting Design") provided by RAB Lighting Inc. ("RAB") is based on design parameters and information supplied by others. These design parameters and information have not been field verified by RAB and therefore actual measured results may vary from the actual field conditions. RAB warrants that design parameters and other information be field verified to reduce variation. RAB neither warrants, either implied or stated with regard to actual measured light levels or energy consumption levels as compared to those illustrated by the Lighting Design. RAB neither warrants, either implied or stated, nor represents the appropriateness, completeness or suitability of the Lighting Design as compliant with any applicable regulatory code requirements. This Lighting Design is issued as a work in progress, as a design document for informational purposes and is not intended for construction nor as being part of a project's construction documentation package.

Filename: \\rab-storage-1\Lighting Design\Job Files\Holbrook Associated\Rock\Essex Pastures\Working Files\AGI\Essex Pastures Layout 00163451B.AGI





Plan View



Iso View

Calculation Summary											
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	Description	PtSpLr	PtSpTb	Meter Type
CalcPts Ground	Illuminance	Fc	1.12	6.2	0.0	N.A.	N.A.	Readings Taken at 0'-0"AFG	10	10	Horizontal

Luminaire Schedule													
Symbol	Qty	Tag	Label	Arrangement	Lum. Lumens	Arr. Lum. Lumens	LLF	Description	Lum. Watts	Arr. Watts	Total Watts	Filename	
	31	A	ALED3T78	SINGLE	9263	9263	1.000	Pole Mount (Type 3)	76.8	76.8	2380.8	ALED3T78 - Cool - RAB02147.IES	
	10	B	ENTRA12	SINGLE	1284	1284	1.000	Wall Mount	14.4	14.4	144	ENTRA12 - Cool - ITL76948.IES	

Expanded Luminaire Location Summary						
LumNo	Tag	X	Y	MTG HT	Orient	Tilt
1	A	216.135	630.867	20	0	0
2	A	274.091	717.489	20	90	0
3	A	276.329	629.654	20	270	0
4	A	403.749	721.938	20	90	0
5	A	337.98	629.972	20	270	0
6	A	467.956	634.739	20	270	0
7	A	572.485	637.85	20	270	0
8	A	687.286	640.63	20	270	0
9	A	509.414	727.499	20	90	0
10	A	632.16	729.088	20	90	0
11	A	734.861	738.978	20	180	0
12	A	731.048	677.709	20	180	0
13	A	727.567	560.098	20	180	0
14	A	723.595	521.566	20	180	0
15	A	720.814	451.653	20	180	0
16	A	716.743	329.751	20	180	0
17	A	712.253	259.687	20	180	0
18	A	708.374	198.395	20	180	0
19	A	718.926	110.841	20	180	0
20	A	794.96	107.331	20	0	0
21	A	798.774	174.067	20	0	0
22	A	803.858	255.024	20	0	0
23	A	806.875	325.713	20	0	0
24	A	809.417	387.364	20	0	0
25	A	815.674	516.624	20	0	0
26	A	827.131	734.847	20	0	0
27	A	254.483	805.76	20	201.192	0
28	A	205.162	128.457	20	340.499	0
29	A	261.895	294.929	20	326.309	0
30	A	331.164	314.359	20	131.189	0
31	A	643.045	579.16	20	90	0
32	B	320.263	640.311	10	270	0
33	B	551.172	646.359	10	270	0
34	B	421.367	715.323	10	88.453	0
35	B	652.139	721.252	10	91.272	0
36	B	742.441	694.004	10	177.17	0
37	B	731.423	475.66	10	178.842	0
38	B	798.652	370.43	10	359.296	0
39	B	809.536	588.69	10	359.03	0
40	B	719.77	218.436	10	176.986	0
41	B	788.251	151.287	10	359.553	0
Total Quantity: 41						

NOTES:

* The light loss factor (LLF) is a product of many variables, only lamp lumen depreciation (LLD) has been applied to the calculated results unless otherwise noted. The LLD is the result (quotient) of mean lumens / initial lumens per lamp manufacturers' specifications.

* Illumination values shown (in footcandles) are the predicted results for planes of calculation either horizontal, vertical or inclined as designated in the calculation summary. Meter orientation is normal to the plane of calculation.

* The calculated results of this lighting simulation represent an anticipated prediction of system performance. Actual measured results may vary from the anticipated performance and are subject to means and methods which are beyond the control of RAB Lighting Inc.

* Mounting height determination is job site specific, our lighting simulations assume a mounting height (insertion point of the luminaire symbol) to be taken at the top of the symbol for ceiling mounted luminaires and at the bottom of the symbol for all other luminaire mounting configurations.

* RAB Lighting Inc. luminaire and product designs are protected under U.S. and International intellectual property laws. Patents issued or pending apply.

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Scale: as noted
 Date: 3/8/2018
 CASE # 00163451
 Job Name: Essex Pastures Lighting Layout Version B
 Filename: Essex Pastures Layout 00163451B.AGI
 Drawn By: S Elliott

Prepared For:
 Holbrook Associated
 P.O. Box 401
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Filename: \\rab-storage-1\Lighting Design\Job Files\Holbrook_Associated\Beverly 104674\Essex Pastures\Working Files\AGI\Essex Pastures Layout 00163451B.AGI





Specification grade area lights available in IES Type III distributions. For use for roadway, general parking and other area lighting applications where a larger pool of lighting is required. Patent pending thermal management system. 5 Year Warranty.

Color: Bronze

Weight: 30.4 lbs

Project:
Essex Pastures

Type:
A

Prepared By:
S Elliott

Date:
3/1/18

Driver Info

Type:	Constant Current
120V:	0.66A
208V:	0.41A
240V:	0.35A
277V:	0.30A
Input Watts:	77W
Efficiency:	N/A

LED Info

Watts:	78W
Color Temp:	5000K
Color Accuracy:	71 CRI
L70 Lifespan:	100000
Lumens:	9263
Efficacy:	121 LPW

Technical Specifications

LED Characteristics

Lifespan:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

LEDs:

Six (6) multi-chip, 13W, high-output, long-life LEDs.

Color Consistency:

3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:

LED color temperature is warranted to shift no more than 200K in CCT over a 5 year period.

Color Uniformity:

RAB's range of CCT (Correlated Color Temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2017.

Listings

DLC Listed:

This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities.
DLC Product Code: P0000179S

IESNA LM-79 & IESNA LM-80 Testing:

RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and 80, and have received the Department of Energy "Lighting Facts" label.

Dark Sky Approved:

The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire.

UL Listing:

Suitable for wet locations as a downlight.

Construction

IES Classification:

The Type III distribution is ideal for roadway, general parking and other area lighting applications where a larger pool of lighting is required. It is intended to be located near the side of the area, allowing the light to project outward and fill the area.

IP Rating:

Ingress Protection rating of IP66 for dust and water

Ambient Temperature:

Suitable for use in 40°C (104°F) ambient temperatures.

Cold Weather Starting:

Minimum starting temperature is -40°C (-40°F)

Thermal Management:

Superior heat sinking with external Air-Flow fins.

Effective Projected Area:

EPA = 0.75

Lens:

Tempered glass lens.

Housing:

Die cast aluminum housing, lens frame and mounting arm.

Mounting:

Universal mounting arm compatible for hole spacing patterns from 1" to 5 1/2" center to center. Round Pole Adaptor plate included as a standard. Easy slide and lock to mount fixture with ease.

Reflector:

Specular vacuum-metallized polycarbonate

Gaskets:

High temperature silicone gaskets.

Finish:

Formulated for high-durability and long lasting color.

Green Technology:

Mercury and UV free. RoHS compliant components. Polyester powder coat finish formulated without the use of VOC or toxic heavy metals.

For use on LEED Buildings:

IDA Dark Sky Approval means that this fixture can be used to achieve LEED Credits for Light Pollution Reduction.

Electrical

Driver:

Constant Current, Class 2, 2000mA, 100-277V, 50-60Hz, 1.1A, Power Factor 99%

THD:

5.3% at 120V, 13.3% at 277V

Surge Protection:

4kV

Technical Specifications (continued)

Electrical

Surge Protector:

ALED78 is available with a 6kV surge protector (SP6). SP6 available .

Other

Compatibility:

Compatible with Round Poles with a diameter of 2.5" to 6"

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish.

Patents:

The ALED design is protected by patents in the U.S. Pat. 668,370, Canada Pat. 144956, China ZL201230100154.X, and Mexico Pat. 38423. Pending patents in Taiwan.

Replacement:

Replaces 250W Metal Halide.

Buy American Act Compliance:

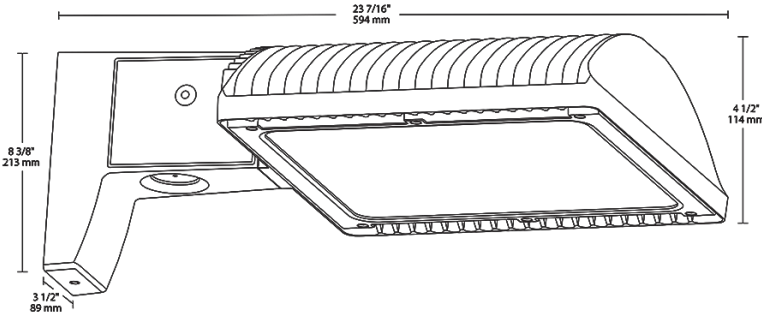
RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Optical

BUG Rating:

B1 U0 G2

Dimensions

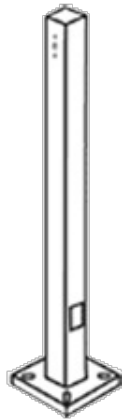


Features

- 66% energy cost savings vs. HID
- 100,000-hour LED lifespan
- Type III distribution
- 5-year warranty

Ordering Matrix

Family	Optics	Wattage	Mounting	Color Temp	Finish	Driver Options	Photocell Options
ALED	3T	78					
	2T = Type II	50 = 50W	Blank = Pole mount	Blank = 5000K (Cool)	Blank = Bronze	Blank = 120-277V	Blank = No Option
	3T = Type III	78 = 78W	SF = Slipfitter	N = 4000K (Neutral)	RG = Roadway Gray	/480 = 480V (not available for 150W)	/PC = 120V Button Photocell (Pole mount models only)
	4T = Type IV	105 = 105W		Y = 3000K (Warm)	W = White	/BL = Bi-Level	/PC2 = 277V Button Photocell (Pole mount models only)
		125 = 125W				/D10 = 0-10V Dimming	/PCT = 120-277V Twistlock Photocell (Pole mount models only)
		150 = 150W					/PCT4 = 480V Twistlock Photocell (Pole mount models only)
							/PCS = 120V Swivel Photocell
							/PCS2 = 277V Swivel Photocell
							/PCS4 = 480V Swivel Photocell
							/WS2 = Multi-Level Motion Sensor 20 ft. (Only available 0-10V dimming models)
							/WS4 = Multi-Level Motion Sensor 40 ft. (Only available 0-10V dimming models)



Square steel poles drilled for 2 Area Lights at 180°. Designed for ground mounting. Poles are stocked nationwide for quick shipment. Protective packaging ensures poles arrive at the job site good as new.

Color: Bronze

Weight: 137.0 lbs

Project: Essex Pastures	Type: Pole
Prepared By: S Elliott	Date: 3/1/18

Lamp Info		Ballast Info	
Type:	N/A	Type:	N/A
Watts:	0W	120V:	N/A
Shape/Size:	N/A	208V:	N/A
Base:	N/A	240V:	N/A
ANSI:	N/A	277V:	N/A
Hours:	N/A	Input Watts:	0W
Lamp Lumens:	N/A		
Efficacy:	N/A		

Technical Specifications

Listings

CSA Listed:

Suitable for wet locations.

Construction

Shaft:

46,000 p.s.i. minimum yield.

Hand Holes:

Reinforced with grounding lug and removable cover.

Base Plates:

Slotted base plates 36,000 p.s.i.

Shipping Protection:

All poles are shipped in individual corrugated cartons to prevent finish damage.

Color:

Bronze powder coating.

Height:

20 FT.

Weight:

137 lbs.

Gauge:

11

Wall Thickness:

1/8".

Shaft Size:

4".

Hand Hole Dimensions:

3" x 5".

Bolt Circle:

8 1/2".

Base Dimension:

8".

Anchor Bolt:

Galvanized anchor bolts and galvanized hardware and anchor bolt template. All bolts have a 3" hook.

Anchor Bolt Templates:

WARNING Template must be printed on 11" x 17" sheet for actual size. CHECK SCALE BEFORE USING. Templates shipped with anchor bolts and available .

Pre-Shipped Anchor Bolts:

Bolts can be pre-shipped upon request for additional freight charge.

MaxEPA's/Max Weights:

- 70MPH 8.3 ft_/240 lb
- 80MPH 5.6 ft_/165 lb
- 90MPH 3.6 ft_/110 lb
- 100MPH 2.2 ft_/75 lb
- 110MPH 1.0 ft_/45 lb
- 120MPH 0.2 ft_/20 lb.

Other

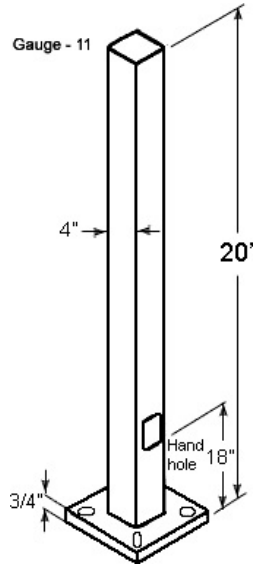
Terms of Sale:

Pole Terms of Sale is available .

Buy American Act Compliance:

RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Dimensions



Features

- Designed for ground mounting
- Heavy duty TGIC polyester coating
- Reinforced hand holes with grounding lug and removable cover for easy wiring access
- Anchor Bolt Kit includes pole cap and base cover (sold separately)
- Custom manufactured for each application



Affordable, high-performance, low-maintenance LED doorway light. Suitable for mounting heights up to 10', and replaces 70W high pressure sodium. 100,000-Hour LED lifespan. 5-Year warranty.

Color: Bronze

Weight: 3.0 lbs

Project:
Essex Pastures

Type:
B

Prepared By:
S Elliott

Date:
3/8/18

Driver Info

Type: Constant Current
120V: 0.3A
208V: 0.3A
240V: 0.3A
277V: 0.3A
Input Watts: 14W
Efficiency: 83%

LED Info

Watts: 12W
Color Temp: 5000K
Color Accuracy: 70 CRI
L70 Lifespan: 100000
Lumens: 1284
Efficacy: 89 LPW

Technical Specifications

Listings

UL Listing:

Suitable for wet locations as downlight. Suitable for mounting within 1.2m (4ft) of the ground.

ADA Compliant:

ENTRA™ is ADA Compliant.

IESNA LM-79 & LM-80 Testing:

RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80, and have received the Department of Energy "Lighting Facts" label.

Construction

IP Rating:

Ingress Protection rating of IP66 for dust and water

Cold Weather Starting:

Minimum starting temperature is -40°C (-40°F)

Maximum Ambient Temperature:

Suitable for use in 40°C (104°F) ambient temperatures

Back Housing:

Die-cast aluminum.

Lens/Housing Cover:

Vandal resistant polycarbonate molded housing cover and lens.

Mounting:

Heavy die cast aluminum with 1/2" back knockout and mounting template for mounting to 4" box.

Recommended Mounting Height:

Up to 10 ft.

Reflectors (2):

White aluminum reflector topped with vacuum metalized polycarbonate LED reflector.

Gaskets:

High-temperature silicone

Finish:

Formulated for high-durability and long lasting color.

Green Technology:

Mercury and UV free. RoHS compliant components. Polyester powder coat finish formulated without the use of VOC or toxic heavy metals.

LED Characteristics

LED:

12W multi-chip, long life LED.

Lifespan:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

Correlated Color Temp. (Nominal CCT):

5000K

Color Stability:

LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Consistency:

7-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Electrical

Driver:

Constant Current, Class 2, 100-277V, 50/60Hz, 4kV Surge Protection, 350mA, 100-240VAC: 0.3 - 0.15 A, 277VAC: 0.15 A, Power Factor: 98.5%.

THD:

9.9% at 120V

Other

Patents:

The design of the ENTRATM is protected by patents pending in US, Canada, China, Taiwan and Mexico.

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish.

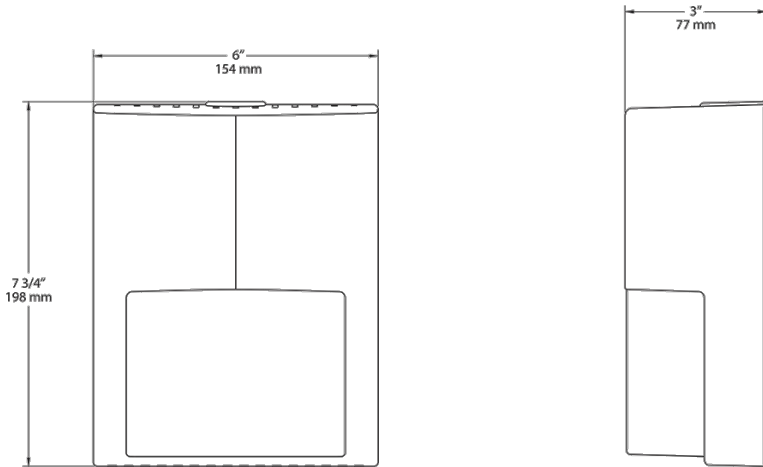
Equivalency:

Replaces 70W HPS.

Buy American Act Compliance:

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Dimensions



Features

- Save over \$700 in energy costs over life of fixture
- Equivalent to 70W high pressure sodium
- Durable vandal-resistant polycarbonate housing
- Low-profile and ADA compliant
- 100,000-hour LED lifespan
- 5-Year warranty

Ordering Matrix

Family	Wattage	Color Temp	Finish	Options
ENTRA	12 12 = 12W	Blank = 5000K (Cool) N = 4000K (Neutral) Y = 3000K (Warm)	Blank = Bronze W = White	Blank = No Options /PC = 120V Button /PC2 = 277V Button /PCS = 120V Swivel /PCS2 = 277V Swivel