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Outdoor Lighting Standards

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THIS MANUAL SUPERSEDES ALL PRIOR ISSUES AND REVISIONS

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POLICY, PROCEDURES & STANDARDS

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REVISION LOG

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Outdoor Lighting Standards  PROPRIETARY MATERIAL	REVISION LOG		ISSUE DATE: 10/20/23
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I. Purpose and Scope

- A. The following Outdoor Lighting Standards address the majority of construction issues.
- B. It is imperative to maintain standardization and that completed Job Orders reflect any changes on the completed "Installation Records" to assure that all record systems reflect the actual location and facilities as they have been constructed. The accuracy of construction to standards will allow SRP to expedite future locating, rebuilding or repairing of these facilities to improve Customer service.

II. How to Use This Book

- A. Revisions are indicated by **red** text or graphics.
- B. Title blocks are used to hold information about the book, section, and standard and are located at the bottom of the page.
 - 1. "Approval" refers to the engineer responsible for that standard.
 - 2. "Issue Date" is when the standard was originally created.
 - 3. Revision Date ("Rev Date") is the date the standard was last updated. Note that standards are reviewed periodically by the responsible engineer, and if no updates are necessary in that review, the Rev Date will remain unchanged.
 - 4. Revision statements are a summary of the changes made on the page and are located at the top of the title block.
 - 5. If a revision results in the complete removal of a diagram or an entire section of a diagram or a complete section of text, a brief explanation of the removal will be entered in the revision statement location of the title block.
 - 6. Revisions to formatting and corrections to typographical errors and/or page numbers will not be noted as a revision date change, however, it will be entered as a change in the Standards Revision Log.
- C. Utilizing SRP Standards
 - 1. When utilizing SRP's standards in design projects, modification of said standards is NOT permitted.
 - 2. Details or images may be extracted and used in design projects when they do not include the title block of the standard and are not presented as a standard.
- D. Watermarks
 - 1. Standards
 - a) For Reference Only – Standards that are not for new construction. Existing facilities may be maintained or replaced as like for like. Replaces Reference Only, Obsolete for Reference Only, Obsolete for Replacement Only, Obsolete Reference Only, Reference Only Do Not Construct, and Remove or Replace Only.
 - b) For Removal Only – Standards that are not for new construction. Existing facilities not maintained or replaced. Replaces Obsolete for Removal Only and Reference Only Remove When Located.

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2. Compatible Units (CUs)

- a) Replacement Only – CUs that are to be used in situations where a like for like replacement is required. These CUs are related to a piece of equipment that is no longer being used for new construction, but is able to be maintained in the field.
- b) Removal Only – CUs that are to be used to remove existing equipment in the field. These CUs are not to be used to construct new equipment.

To access the “General Compatible Unit User Guide for Dist and Trans Line CUs”, visit:

https://ecm/otcs/cs.exe/fetch/24135121/general_cu_users_guide.pdf

III. Changes to Standards

These standards are subject to update and modification at any time. Printed copies of this manual are provided as a courtesy, but may not include the most up-to-date standards, references, or requirements. To access current standards, visit:

<https://www.srpnet.com/doing-business/builders-developers-contractors/commercial-specifications-guidelines-handbooks>

IV. Contact Information

A. Business and Residential

Blue Stake	Within Maricopa County	(602) 263-1100
	Outside of Maricopa County	(800) 782-5348
Business Center	General Information, Billing Inquiries, Inspections, Municipal Customers, Public Agency Customers, Temporary Disconnect	(602) 236-8833
Electrical Emergencies	NOTE: Call 9-1-1 first for medical emergencies. Fallen Power Lines, Arcing, Electric Shock, Damage to SRP Facilities	(602) 236-8811
Residential	General Information, Billing Inquiries, Power Outages, Maintenance of SRP Facilities, Temporary Disconnect, Inspections	(602) 236-8888
Spanish	La Linea – servicio en español	(602) 236-1111
SRP EarthWise Solar	Main Line	(602) 236-4448
	Residential Photovoltaic	(602) 236-4661
	Residential Solar Water Heaters	(602) 236-4662
	Commercial Photovoltaic (Solar Initiatives)	(602) 236-4663
SRP Water (Irrigation)	Emergencies, Water (Irrigation), Flooding, General Information, Billing Inquiries, Irrigation Orders, Schedule Time Inquiries	(602) 236-3333
Location of Underground Facilities	National “Call Before You Dig” (“One Call” Office)	811

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B. Additional Resources

Graphic Records:	Contract construction companies can request printing services online at srpnet.com/electric/business/graphicrequest.aspx
Shop Drawings:	Customers are required to supply shop drawings for service entrance sections with non-pre-approved meter pedestals (single or double), non-pre-approved 320 amps, and all 400 amps and above. Email shopdraw@srpnet.com (PDF files are preferred).
Standards-related questions or for historical copies or versions of Standards email:	Engineering_Standards@srpnet.com
SRP's website	srpnet.com Residential / Business Electric / Water assistance information.

V. Area Business Office Locations

East Valley Service Center	7050E. University Dr., Mesa 85207
Project Administration Building.....	1500 N. Mill Ave., Tempe 85281
Pinal County Customer Service Center.....	3735 E. Combs Rd., Queen Creek 85242
West Valley Service Center.....	221 N. 79 th Ave., Tolleson 85353

VI. References

There are numerous documents and standards that were used in developing these guidelines. Many of these documents are modified and updated over time; the equipment of an interconnected generator shall conform to the most recent versions of these documents. A partial list of documents used is included below:

- Electric Utility Service Equipment Requirements Committee (EUSERC) Manual
- Institute of Electrical and Electronics Engineers (IEEE)
- International Building Code (IBC)
- National Electric Code (NEC)
- National Electrical Manufacturers Association (NEMA)
- National Electric Safety Code (NESC)
- Underwriter Laboratories (UL)
- Various state and municipal requirements

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SECTION 1: SRP OUTDOOR LIGHTING OVERVIEW

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Acronyms and Definitions

ATP: Authorization to Proceed

Ballast: An iron core and copper coil designed to limit the electric current through and control the voltage to the lamp.

CIAC: Contribution In Aid of Construction

Circuit, Streetlight: The streetlights and one or more branches of conductor served from a single electrical source, preferably a single phase transformer.

Collector Roadway: Generally one-half mile roadways

Cutoff Style: A luminaire from which light rays emitted either directly from the lamp or indirectly from the fixture are projected below the horizontal plane of the lowest point of the fixture; legally required by the Dark Sky Ordinance.

Dark Sky Ordinance: Primarily Bill 2347 passed by the state of Arizona in 1986 but also various other bills which require SRP, and others installing outdoor lighting, to discontinue use of mercury vapor and install only cutoff style lighting. All MV and non-cutoff lighting must be removed by 2011.

Footcandle: One lumen per square foot

Fully Shielded Lighting: Luminaires with a flat glass refractor.

IES: The Illuminating Engineering Society publishes lighting standards

Junction Box (J-Box): Flush mounted box is where the connection to the light is made; it is the contractual point of delivery. Above ground junction box is where service to the flush mounted junction box is connected to secondary from the transformer, if not served directly from the transformer.

LOA: Letter of Authorization

Local or Minor Roadway: Roadways within residential

Lumen: A unit of measure used to rate the total usable light output of electric lamps; usable light being light at wavelengths visible to the human eye.

Major Roadway: Generally mile roads (there are exceptions), expressways and similar streets.

Minimum Average Maintained Footcandles: Average illumination on the roadway when the reflector and refractor are dirty and the lamp is at its lowest output.

Mole Assembly: The submersible connector used inside the j-box to make the electrical connection from the transformer to the luminaire.

PHOENIX Customer Relationship System (CRS): Customer information system. Generates Customer's orders, trouble calls and billing.

Photocell: A small electronic device mounted on top of the luminaire for the purpose of switching the luminaire on at dusk and off at dawn. Specified to fail on so the light would be a day-burner.

Reflector: The mirror-like part of a luminaire behind the lamp that redirects light out to the area to be illuminated.

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Acronyms and Definitions

Refractor: The lens through which light passes from the lamp, or bulb, out to the area to be illuminated.

SLVD: An Excel program on the Line Standards, Policies, Procedures web page that calculates voltage drop and conductor amp loading given luminaire wattage, conductor type and length, circuit configuration and additional amp loads modeled at chosen junction boxes.

Starter: An electronic device in a high-pressure sodium luminaire that delivers a high voltage pulse to the lamp with the purpose of starting the lamp.

Uniformity Ratio: The ratio of the average maintained foot-candle value to the lowest maintained foot-candle value at any point on the pavement.

		
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SRP Outdoor Lighting Contracts

SRP offers the following lighting contracts:

1. **Municipal Rights-of-Way (Public):** Available to all municipal districts within SRP territory. These are used on public thoroughfares and publicly owned lighted street signs.
 - A. **Foreign Lighting:** Equipment owned by the SRP municipal Customer. These are mapped for the purpose of outage tracking and maintenance if maintained by SRP. Design to POD. Post all un-metered served lights to SmallWorld.
 - B. **Public:** Customer owned and maintained. (Exception: Queen Creek to 2019, Maricopa County – Ongoing)
2. **Non-Municipal:** Non-Municipal lighting (Private or Security) is not to be used to light public thoroughfares.
 - A. **Private:** Private streets, parking lots, drives and alleys, thoroughfares and common areas. Used in PUE or SRP easement. Requires a 10 year contract (Private and Security lighting, check Private E50 option on Private and Security Leasing Contract, on JET; see copy page 1-12-1). Compatible units for this category end with the code letter P. Example: ULHC2609P
 - B. **Security:** Private residences and commercial applications such as parking lots. Used on private property. This service is not intended for activities requiring illumination higher than an average of two foot-candles. Requires a 10 year contract. (Private and Security lighting, check Security E57 option on Private and Security Leasing Contract, on JET; see copy page 1-12-1.) Compatible units for this category end with the code letter D. Example: ULHC2609D
 - C. **Customer Owned and Maintained Private Lighting:** Design to POD and post all un-metered served lights to SmallWorld. Requires a 10 year contract. Check Customer E51 option on Private and Security Leasing Contract (Underground served only).

See the Distribution Design Policies and Procedures Manual for costing, contracting, permits, paper flow, notification and billing.

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Municipal Design Procedures

The general design procedures for municipal street lighting is listed below. For municipal street lighting there are two additional outlines on the following pages, titled "MIDBLOCK" and "SUBDIVISION/ROAD WIDENING/AESTHETICS". These illustrate steps occurring outside the design process and are provided for added understanding. For individual cities requirements, refer to Section 2, Municipal Lighting Flowcharts in the Distribution Design Policies and Procedures Manual.

NOTE: Since SRP does not own municipal street lighting, generally the foreign compatible unit codes ending with "F" and found in the Reference Only sections in the back of sections 7 and 8, should be used as the billing code on the DX22 screen on UNSS (Unit Number Sub System). Private and Security light compatible units, ending in P or D, should not be used for municipal street lights. If you have questions regarding the billing code, contact Unmetered Services.

If a Customer requires municipal street lighting:

1. SRP receives approved streetlight plan from municipality.
2. Design determines the POD requirements.
3. Design determines costs.
4. Design prepares the contract and submits it to the municipality.
5. Design for POD and energization only (Customer owned streetlight).
6. Municipality submits the payment or signs authorizing SRP to bill the city.
7. City sends Letter of Authorization (LOA), if required by municipality, for monthly billing to Design.
8. Design releases job to Construction.
9. Design sends Unmetered Services the job package.
10. Unmetered Services bills for monthly energy to Customer.
11. Design posts lights to SmallWorld.
12. Unmetered Services and Design retains all documentation.

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	SRP OUTDOOR LIGHTING OVERVIEW MUNICIPAL DESIGN PROCEDURES	ISSUE DATE: 01/21/00 REV. DATE: 01/29/13 APPROVAL: W. Laramie
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Municipal

Midblock

1. Customer requests light(s) from City.
2. City obtains signatures from neighborhood via petition.
3. City obtains easement to install pole and associated equipment.
4. City submits a letter requesting service and costs to SRP describing type of light and location of proposed light(s). SRP Design for POD only, calculates costs on Amp, prepares contract and submits contract to the City.
5. City signs contract and returns to SRP with payment or requests to be billed for CIAC. City submits LOA, if required by municipality, to Design for monthly billing.
6. Miscellaneous Accounts Receivable enters ATP and invoices City. Design is notified of ATP.
7. Design releases job to Construction.
8. Job is scheduled, constructed, and closed.
9. Send Job Package to Unmetered Services.
10. Unmetered Services and Design (JPC) bills for monthly energy to Customer.
11. Unmetered Services and Design retains all documentation.

Subdivision / Road Widening / Aesthetics

Lighting requests for subdivisions, road widening and aesthetics are processed the same by all divisions, except for the final billing. For subdivisions, the subdivision contractor will submit a request for lighting to the municipality prior to contacting SRP. For lighting requests from a municipality involving road widening or aesthetics, the municipality will contact SRP directly.

1. Municipality/Developer contacts SRP and submits approved light plan to SRP.
2. Design assigns streetlights POD locations and subdivision streetlight numbers on the subdivision/road widening/aesthetics job.
3. Draft job - for Road Widening and Aesthetics Only:
 - A. Designer prepares construction cost proposal and may collect connection fees. Designs for POD only
 - B. After the municipality approves the costs and payment is received, the Designer receives the ATP, and LOA, if required by municipality, for monthly billing responsibilities.
5. Release job package to SRP Construction, Customer.
6. Job is scheduled, constructed and closes.
7. Unmetered Services authorizes billings for monthly energy to Customer.
8. Design posts lights to SmallWorld.
9. Unmetered Services and Design retains all documentation.

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Non-Municipal Procedures Lighting Not Associated with Other Projects

If a Customer requires non-municipal lighting (10 year contracts):

1. The Customer contacts SRP through Residential Customer Services (RCS), Business Contact Center (BCC), or Construction Contact Center (CCC).
2. RCS, BCC, or CCC generates an Unmetered Service Memo Order on Phoenix CRS and transmits it to Unmetered Services via AMP.
3. Unmetered Services schedules a meeting between the Designer and Customer.
4. Unmetered Services meets with Customer.
5. Unmetered Services and Customer determine the lighting needs of the Customer.
6. Unmetered Services opens Work order number.
7. Unmetered Services draws up a contract for CIAC charges and monthly equipment charges.
8. Customer signs contract and pays applicable fees.
9. MARS enters ATP and scans in the signed contract.
10. Unmetered Services drafts and grids the job.
11. Unmetered Services releases the job to Construction and SRP Inspection as applicable and provides copies to the Customer.
12. SRP Inspection is involved if any construction is done by the Customer, typically any underground work, i.e. trench, conduit, and j-box.
13. The Customer should call Unmetered Services Inspections at (602)236-0436 for a pre-construction meeting with SRP Inspection, Design and the Customer's contractor. At this meeting SRP answers any of the Customer's questions about what work the Customer must perform.
14. When the Customer has completed his work, a final inspection is required.
15. After SRP Inspection has given final approval they send the Inspection and Communication Record, the "Pink Sheet" as it is called, to SRP Construction for completion of the work.
16. Job will be scheduled, constructed and closed.
17. Unmetered Services initiates billing.
18. Unmetered Services posts lights to SmallWorld.
19. Unmetered Services retains all documentation.

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Non-Municipal Procedures Lighting Associated with Other Projects

If a Customer requires non-municipal lighting (10 year contracts):

1. The Customer typically contacts SRP by plan submittal.
2. Design schedules a meeting with the Customer and requests the customer to contact the municipality and ask for their outdoor lighting criteria.

Example: In the City of Phoenix, the mounting height is restricted to 15 ft. when located within 150 ft. of a residential district, and 25 ft. in a non-residential district. Mounting heights greater than this will require the Customer to obtain a zoning variance issued by the City of Phoenix.
3. Design meets with the Customer and determines lighting needs of the Customer.
4. Design provides proposal to Customer.
5. Design requests a work order number from the Job Processing Coordinator (JPC).
6. Calculate charges.
7. Design draws up a contract. [Distribution Design Policies & Procedures Manual and Costing Manual - Home](#)
8. Customer signs contract and pays applicable fees.
9. Design drafts and grids the job.
10. Job is released to Construction and SRP Inspection as applicable.
11. Design provides copies to the Customer.
12. Design sends the job package to Unmetered Services.
13. SRP Inspection is involved if any construction is done by the Customer, typically any underground work (i.e., trench, conduit, j-box).
14. Customer contacts East Valley (EV) (602) 236-6300 or West Valley (WV) (602) 236-0676 to schedule a pre-construction meeting with SRP Inspection, Design and the Customer's contractor. At this meeting, SRP answers any of the Customer's questions about what work the Customer must perform.
15. When the Customer has completed their work, they contact EV or WV for a final inspection.
16. After Inspection has given final approval, they send the Inspection and Communication Record (aka "pink sheet"), to SRP Construction for completion of the work.
17. The job is scheduled for construction.
 - A. The city inspector will be advised of the construction schedule. This inspection is intended to verify zoning compliance (conformity to approved site plan) and spot check conformity to the installation standards. The city has advised this inspection requirement will not delay energization. The facility may be energized following completion of construction, whether or not the inspector was on site during construction.
 - B. Construct the job.
 - C. Z-code the job when complete.

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18. Unmetered Services initiates billing and posts lights to exhibit maps.
19. Unmetered Services and Design retains all documentation for one to two years and then forwards the documentation to Graphic Records to be stored permanently.

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Additional References

1. See the Customer Charges section of the Distribution Design Policy and Procedures Manual for information regarding:
 - Customer street lighting services
 - Customer charges
 - The lighting request process
 - Customer responsibilities
 - SRP Lighting Policy
 - Lighting conflicts with trees
 - SRP outdoor lighting options
 - Job Types section for information regarding streetlight connection blanket numbers.
 - Forms section for examples of the various forms mentioned in this book.

 PROPRIETARY MATERIAL		
	SRP OUTDOOR LIGHTING OVERVIEW ADDITIONAL REFERENCES	ISSUE DATE: 01/21/00 REV. DATE: 01/13/13 APPROVAL: W. Laramie
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I. General Notes

A. Charges

1. Connection fees apply for Customer-owned lights; refer to Distribution Design Costing Manual.
2. For Private/Security light installation, CIAC may apply; refer to Distribution Design Costing Manual.
3. Charges are based on a 30-day billing cycle and adjusted monthly for variances in the length of the billing cycle.
4. Monthly bills will not be reduced due to lamp outages. The Customer is responsible for notifying SRP when lamp outages occur on SRP-maintained lights. To report light outages, contact Customer Service or go to SRP's website at <https://www.srpnet.com/customer-service/report-broken-street-light>.
5. Monthly charges include all maintenance and repairs on SRP-owned lights.
6. All rates are subject to change without notice.

B. Construction

1. The Customer shall provide and install all trench, backfill and landscape, 2-1/2 inch conduit, sonotube, electronic marker, ground rod and clamp, one-inch diameter flexible duct with pulling tape installed and junction box. All material must be SRP approved; refer to "Contractor-Supplied Material".

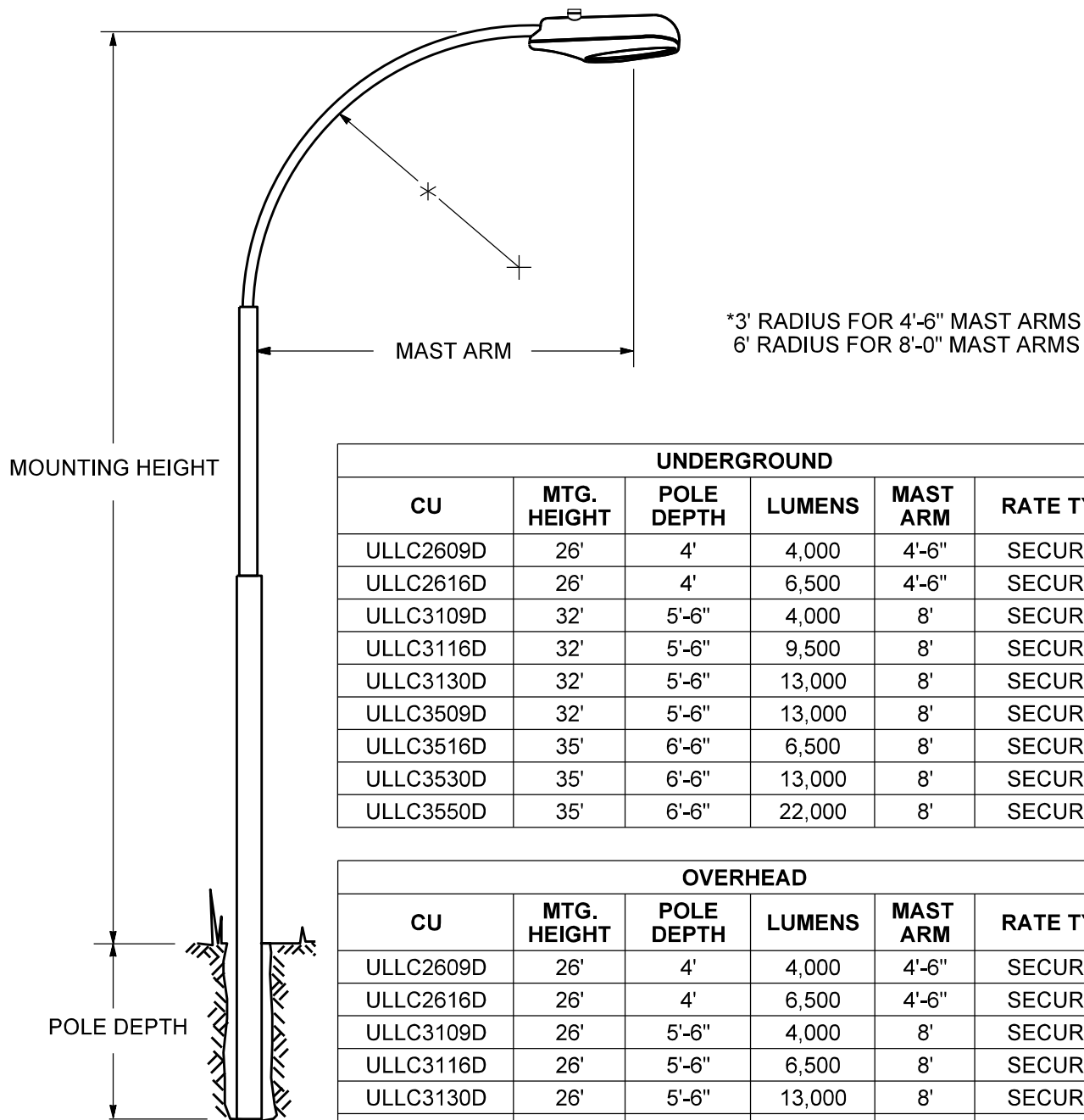
C. Replacement luminaire styles may vary in appearance as a result of manufacturer design changes and variations in style from one manufacturer to another.

D. The iso-footcandle charts on the following pages are an approximation. Actual field measurements will vary due to luminaire manufacturer variations, other lighting in the area, shading and reflections of surrounding surfaces, and age of the lamp.

E. Spill light levels greater than one foot-candle are undesirable.

F. The maximum lighting voltage shall be 120 volts. The exception is ADOT lighting fed from 240/480 volt transformer

 PROPRIETARY MATERIAL		
	LED LUMINAIRE GENERAL NOTES	ISSUE DATE: 01/19/11
		REV. DATE: 04/30/24
		APPROVAL: J. Luera
	2-0-1	OL2-0-1.doc



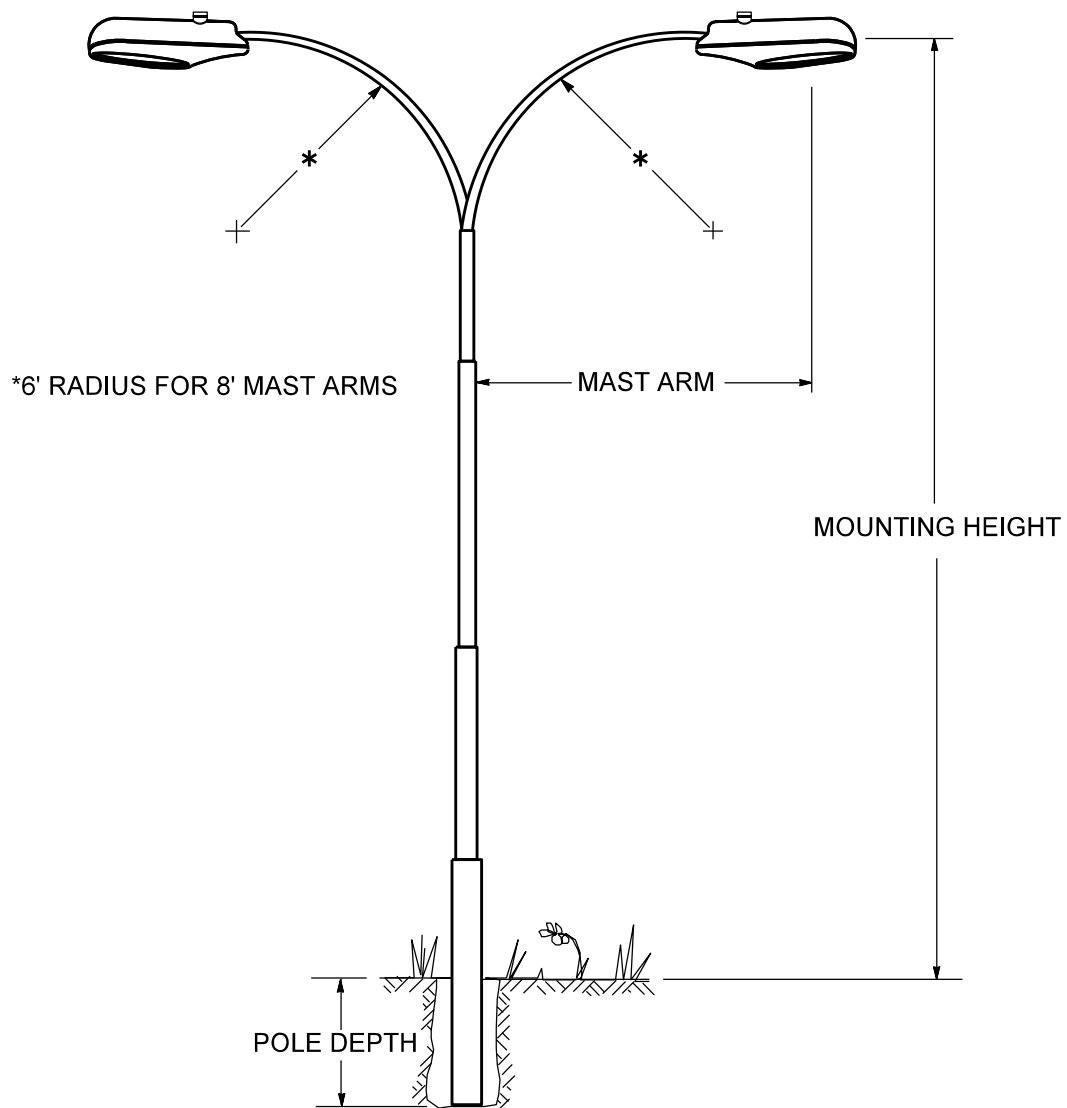
UNDERGROUND					
CU	MTG. HEIGHT	POLE DEPTH	LUMENS	MAST ARM	RATE TYPE
ULLC2609D	26'	4'	4,000	4'-6"	SECURITY
ULLC2616D	26'	4'	6,500	4'-6"	SECURITY
ULLC3109D	32'	5'-6"	4,000	8'	SECURITY
ULLC3116D	32'	5'-6"	9,500	8'	SECURITY
ULLC3130D	32'	5'-6"	13,000	8'	SECURITY
ULLC3509D	32'	5'-6"	13,000	8'	SECURITY
ULLC3516D	35'	6'-6"	6,500	8'	SECURITY
ULLC3530D	35'	6'-6"	13,000	8'	SECURITY
ULLC3550D	35'	6'-6"	22,000	8'	SECURITY

OVERHEAD					
CU	MTG. HEIGHT	POLE DEPTH	LUMENS	MAST ARM	RATE TYPE
ULLC2609D	26'	4'	4,000	4'-6"	SECURITY
ULLC2616D	26'	4'	6,500	4'-6"	SECURITY
ULLC3109D	26'	5'-6"	4,000	8'	SECURITY
ULLC3116D	26'	5'-6"	6,500	8'	SECURITY
ULLC3130D	26'	5'-6"	13,000	8'	SECURITY
ULLC3150D	26'	5'-6"	22,000	8'	SECURITY
ULLC3550D	26'	5'-6"	22,000	8'	SECURITY

NOTES

1. All poles and arms are round, grey (galvanized). Luminaires are grey.
2. All poles on this page are steel.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LED LUMINAIRE LED STREAMLINED	
	2-1-1	ISSUE DATE: 12/11/19 REV. DATE: APPROVAL: N. SABBAH 8518E332.DGN



UNDERGROUND					
CU	MTG. HEIGHT	POLE DEPTH	LUMENS	MAST ARM	RATE TYPE
ULLC3116TD	30'	5'-6"	16,000	8'	SECURITY
ULLC3130TD	30'	5'-6"	13,000	8'	SECURITY
ULLC3550TD	30'	5'-6"	22,000	8'	SECURITY

OVERHEAD					
CU	MTG. HEIGHT	POLE DEPTH	LUMENS	MAST ARM	RATE TYPE
LLC3116TD	30'	5'-6"	16,000	8'	SECURITY
LLC3130TD	30'	5'-6"	13,000	8'	SECURITY
LLC3550TD	30'	6'-6"	22,000	8'	SECURITY

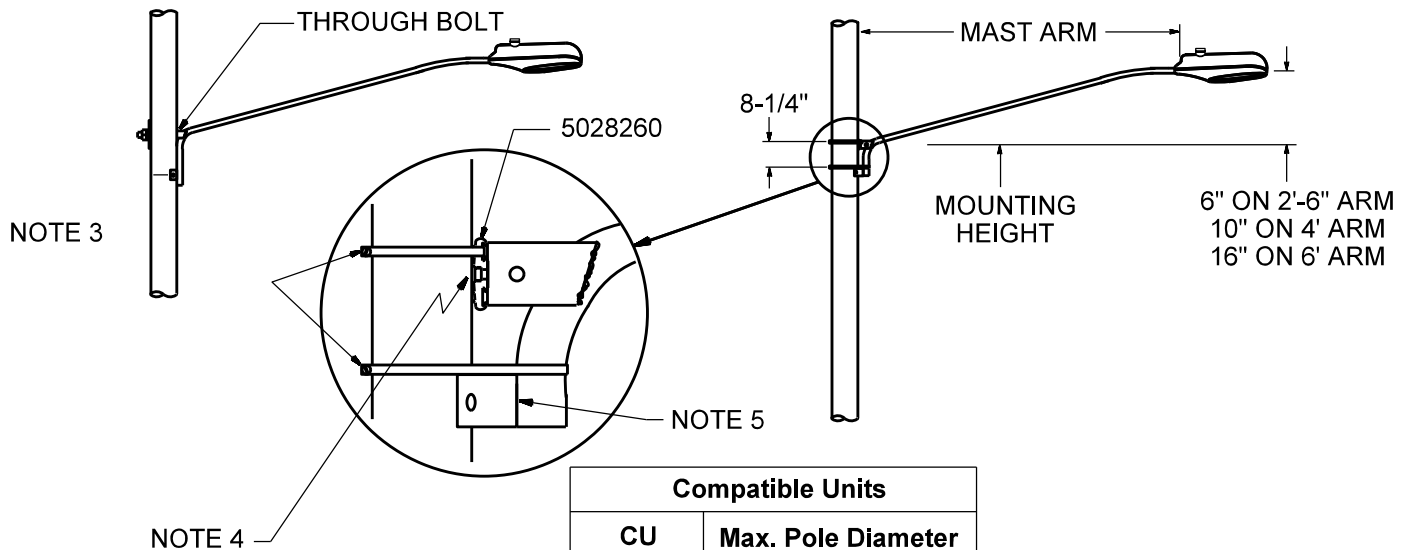
NOTES

1. All poles and arms are round, grey (galvanized). Luminaires are grey.
2. All poles on this page are steel.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LED LUMINAIRE LED TWIN STREAMLINED	ISSUE DATE: 12/11/19 REV. DATE: APPROVAL: N. SABBAH
	2-2-1	8518E333.DGN

WOOD POLE MOUNTING

STEEL POLE MOUNTING



Compatible Units	
CU	Max. Pole Diameter
*LBKS	4" - 25"
*LBKM	25" - 40"
*LBKL	40" - 55"

*For mounting on steel pole order band compatible unit based on pole diameter.

Underground				
CU	Mtg. Height	Lumens	Mast Arm	Rate Type
ULLC09D	29'-6"	4,000	2'-6"	Security
ULLC30D	29'-6"	13,000	2'-6"	Security
ULLC50D	29'-6"	22,000	2'-6"	Security
ULLC0409D	25'-2"	4,000	4'	Security
ULLC0416D	25'-2"	6,500	4'	Security
ULLC0630D	31'-2"	13,000	6'	Security
ULLC0650D	31'-2"	22,000	6'	Security

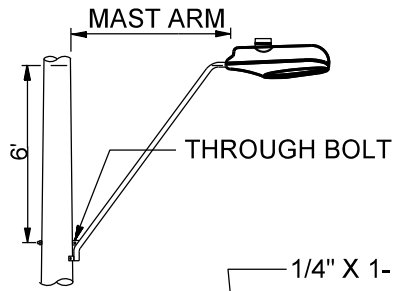
Overhead				
CU	Mtg. Height	Lumens	Mast Arm	Rate Type
LLC09D	29'-6"	4,000	2'-6"	Security
LLC30D	29'-6"	13,000	2'-6"	Security
LLC50D	29'-6"	22,000	2'-6"	Security
LLC0409D	25'-2"	4,000	4'	Security
LLC0416D	25'-2"	6,500	4'	Security
LLC0630D	31'-2"	13,000	6'	Security
LLC0650D	31'-2"	22,000	6'	Security

NOTES

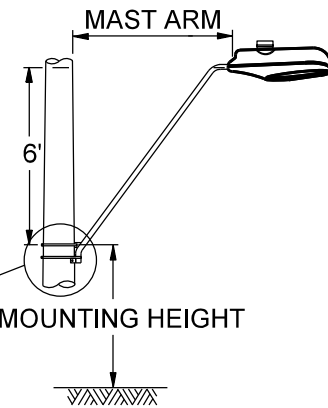
1. Mounting height shown is nominal, ± 1 foot.
2. Other heights may be specified by designer.
3. Place stainless steel band adjustment bolts on back of pole.
4. Remove 5/8" X 3" and replace with 5/8" X 2" bolt with lock washer.
5. Tighten band to compress pole bracket 1/2".
6. All poles and arms are round, grey (galvanized). Luminaires are grey.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	LIGHTING COMPATIBLE UNITS LED MAST ARM, STREAMLINED		ISSUE DATE: 10/01/19
			REV. DATE: 0
	2-3-1		APPROVAL: N. SABBAH 8518E334.DGN

WOOD POLE MOUNTING



STEEL POLE MOUNTING



NOTE 3

NOTE 4

Compatible Units	
CU	Max. Pole Diameter
*LBKS	4" - 25"
*LBKM	25" - 40"
*LBKL	40" - 55"

*For mounting on steel pole order band compatible unit based on pole diameter.

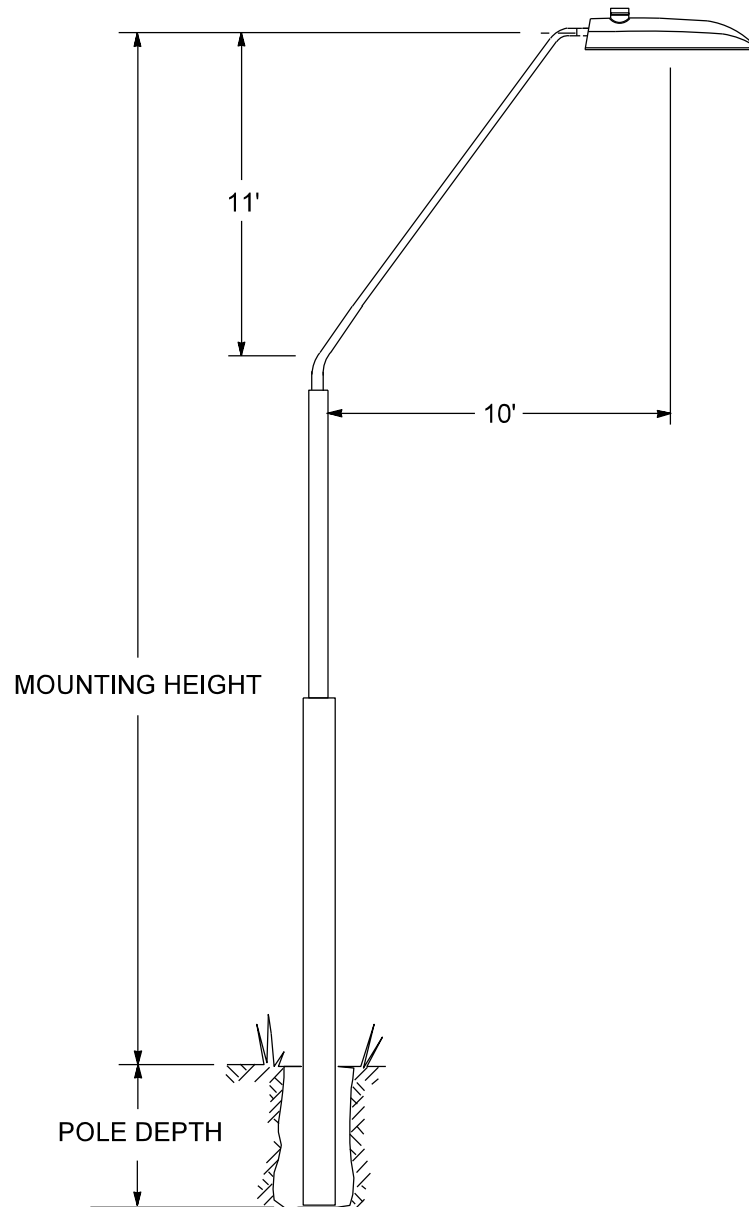
Underground				
CU	Mtg. Height	Lumens	Mast Arm	Rate Type
ULALC0809D	25'-6"	4,000	8'	Security

Overhead				
CU	Mtg. Height	Lumens	Mast Arm	Rate Type
LALC0809	25'-6"	4,000	8'	Public
LALC0816	25'-6"	6,500	8'	Public
LALC0830	25'-6"	13,000	8'	Public

NOTES

1. Mounting height shown is nominal, ± 1 foot. Other heights may be specified by designer.
2. These units to be used only when required to maintain proper clearance to energized circuits.
3. Place stainless steel band adjustment bolts on back of pole.
4. Tighten band to compress pole bracket 1/2".
5. All poles and arms are round, grey (galvanized). Luminaires are grey.

Outdoor Lighting Standards  PROPRIETARY MATERIAL			
	LIGHTING COMPATIBLE UNITS LED HIGH RISE MAST ARM, STREAMLINED		ISSUE DATE: 12/11/19
			REV. DATE: 0
			APPROVAL: N. SABBAAH
	2-4-1	8518E335.DGN	

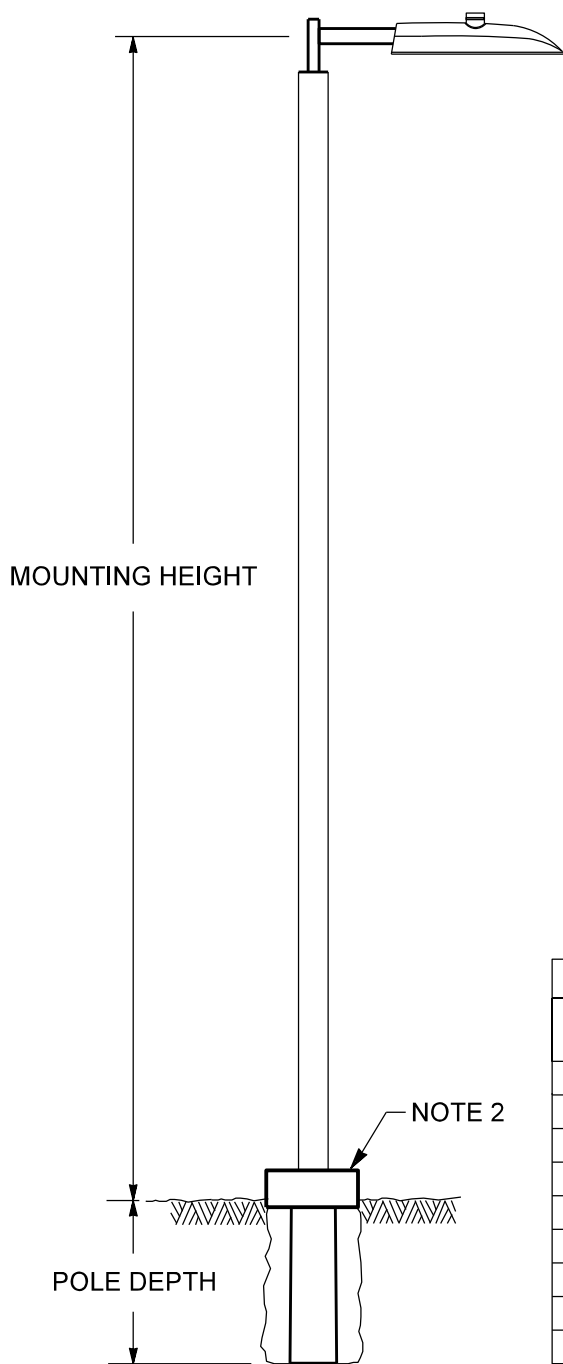


Underground				
CU	Mtg. Height	Pole Depth	Lumens	Rate Type
ULALQ2516D	32'	5'-6"	6,500	Security
ULALQ2530D	32'	5'-6"	13,000	Security

NOTES

1. All architectural style (shoe box) luminaires
2. Pole to be steel.
3. All poles are square and brown. Luminaires and arms are brown.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LIGHTING COMPATIBLE UNITS LED HIGH RISE MAST ARM, ARCHITECTURAL	ISSUE DATE: 12/11/19 REV. DATE: 0 APPROVAL: N. SABBAAH
	2-5-1	8518E336.DGN

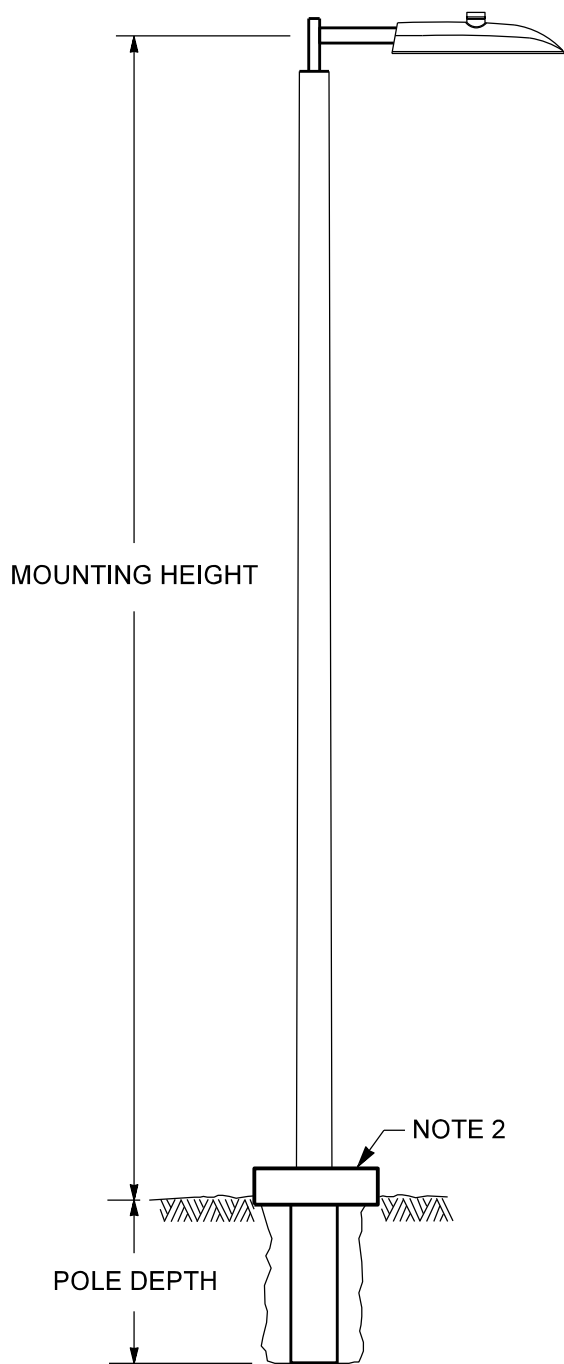


Underground					
CU	Mtg. Height	Pole Depth	Pole Material	Lumens	Rate Type
ULALF1809D	15'	3'-6"	Fiberglass	4,000	Security
ULAL2809D	25'-6"	4'	Steel	4,000	Security
ULAL2816D	25'-6"	4'	Steel	6,500	Security
ULAL3616D	32'	5'-6"	Steel	6,500	Security
ULAL3630D	32'	5'-6"	Steel	13,000	Security
ULAL4009D	35'-4"	5'-6"	Steel	4,000	Security
ULAL4030D	35'-4"	5'-6"	Steel	13,000	Security
ULAL4050D	35'-4"	5'-6"	Steel	22,000	Security
ULAL4016D	35'-4"	5'-6"	Steel	6,500	Security

NOTES

1. All poles are square and brown. Luminaires and arms are brown.
2. On fiberglass poles, ground line protection is required and included in the compatible unit. Ground line protection may be the factory-installed 1/2" layer of elastomeric urethane, a foot above and below grade, or a factory supplied collar to be installed with the pole (see protective collar, page 6-12-1). Collars are not required on steel poles.

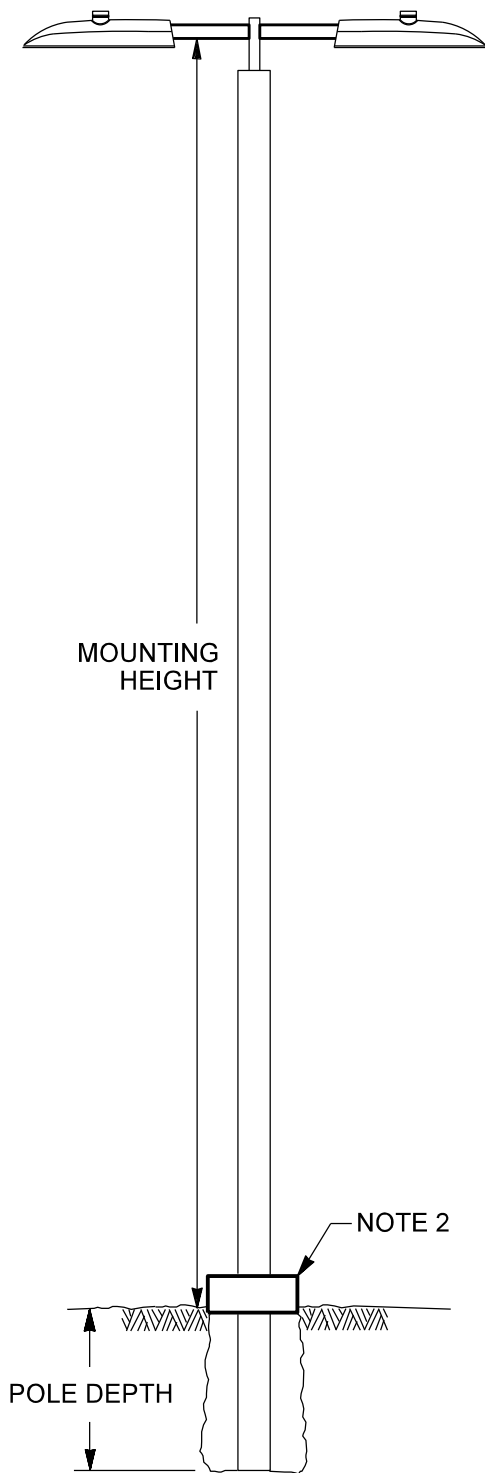
Outdoor Lighting Standards  PROPRIETARY MATERIAL			
	LIGHTING COMPATIBLE UNITS LED ARCHITECTURAL, SQUARE POLE		ISSUE DATE: 12/11/19
			REV. DATE: 0
	2-6-1		APPROVAL: N. SABBAAH
8518E337.DGN			



Underground				
CU	Mtg. Height	Pole Depth	Lumens	Rate Type
ULALF2309D	20'-3"	4'	4,000	Security
ULALF2316D	20'-3"	4'	6,500	Security

- NOTES**
1. All poles are square and brown. Luminaires and arms are brown.
 2. On fiberglass poles, ground line protection is required and included in the compatible unit. Ground line protection may be the factory installed 1/2" layer of elastomeric urethane, a foot above and below grade, or a factory-supplied collar to be installed with the pole (see protective collar, page 6-12-1). Collars are not required on steel poles.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LIGHTING COMPATIBLE UNITS LED ARCHITECTURAL, ROUND POLE	ISSUE DATE: 12/11/19 REV. DATE: 0 APPROVAL: N. SABBAAH
	2-7-1	8518E338.DGN

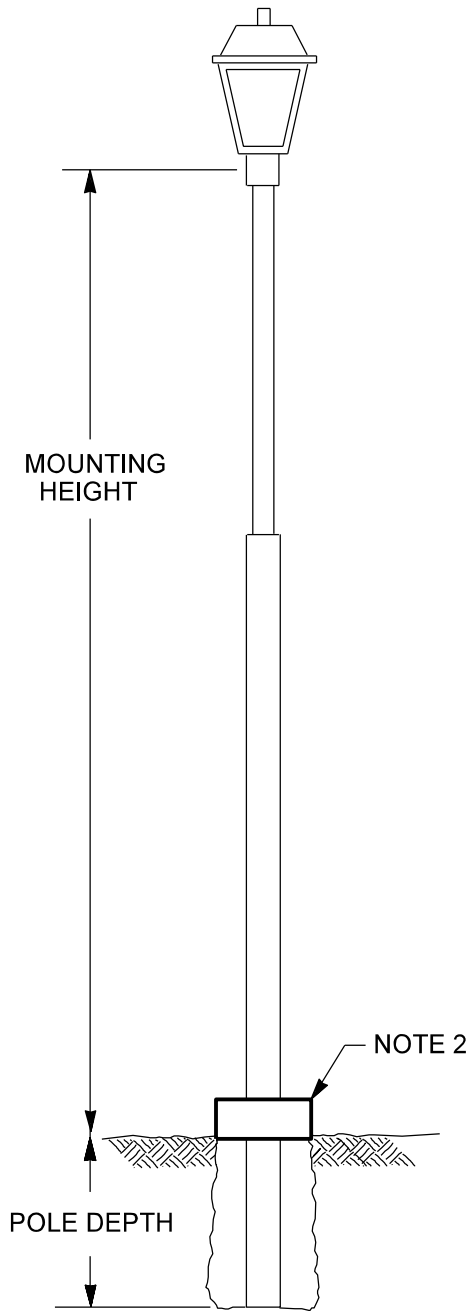


Underground					
CU	Mtg. Height	Pole Depth	Pole Material	Lumens	Rate Type
ULALF1809TD	15'	3'-6"	Steel	4,000	Security
ULAL2809TD	25'-6"	4'	Steel	4,000	Security
ULAL2816TD	25'-6"	4'	Steel	6,500	Security
ULAL3609TD	32'	5'-6"	Steel	4,000	Security
ULAL3630TD	32'	5'-6"	Steel	13,000	Security
ULAL4009TD	35'-4"	5'-6"	Steel	4,000	Security
ULAL4016TD	35'-4"	5'-6"	Steel	6,500	Security
ULAL4050TD	35'-4"	5'-6"	Steel	22,000	Security

NOTES

1. The luminaires and poles for all of these units are brown.
2. On fiberglass poles, ground line protection is required and included in the compatible unit. Ground line protection may be the factory installed 1/2" layer of elastomeric urethane, a foot above and below grade, or a factory-supplied collar to be installed with the pole (see protective collar, page 6-12-1). Collars are not required on steel poles.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LIGHTING COMPATIBLE UNITS STREETLIGHTS - LED TWIN ARCHITECTURAL	ISSUE DATE: 12/11/19 REV. DATE: 0 APPROVAL: N. SABBAH
	2-8-1	8518E339.DGN

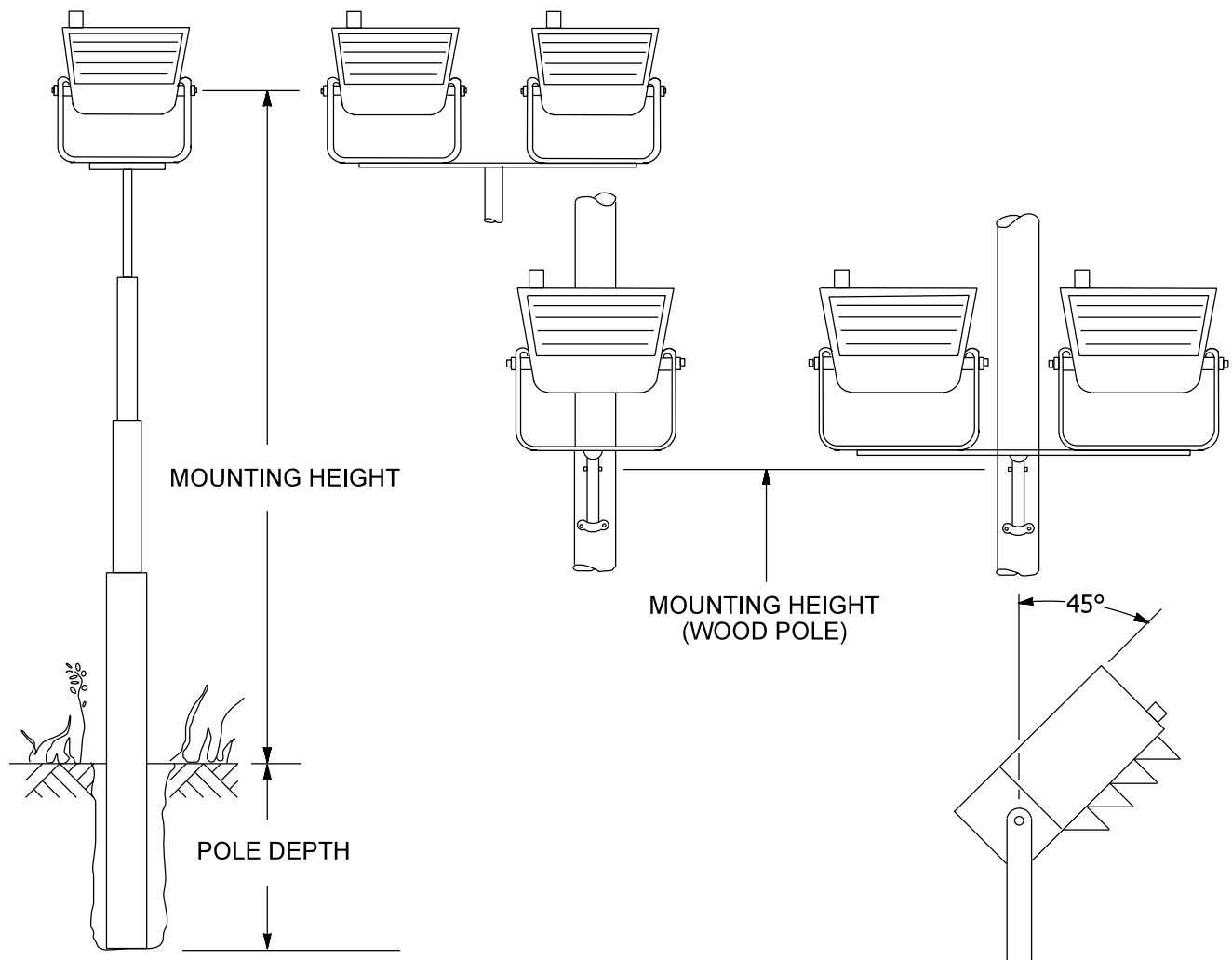


Underground				
CU	Mtg. Height	Pole Depth	Lumens	Rate Type
ULEHCF1709D	14'	3'-6"	9,500	Security

NOTES

1. All poles are round, black fiberglass. luminaires are black.
2. On fiberglass poles, ground line protection is required and included in the compatible unit. Ground line protection maybe the factory installed 1/2" layer of elastomeric urethane, a foot above and below grade, or a factory-supplied collar to be installed with the pole (see protective collar, page 6-12-1). Collars are not required on steel poles.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LIGHTING COMPATIBLE UNITS LED EARLY AMERICAN	ISSUE DATE: 12/11/19 REV. DATE: 0 APPROVAL: N. SABBAH
	2-9-1	8518E340.DGN



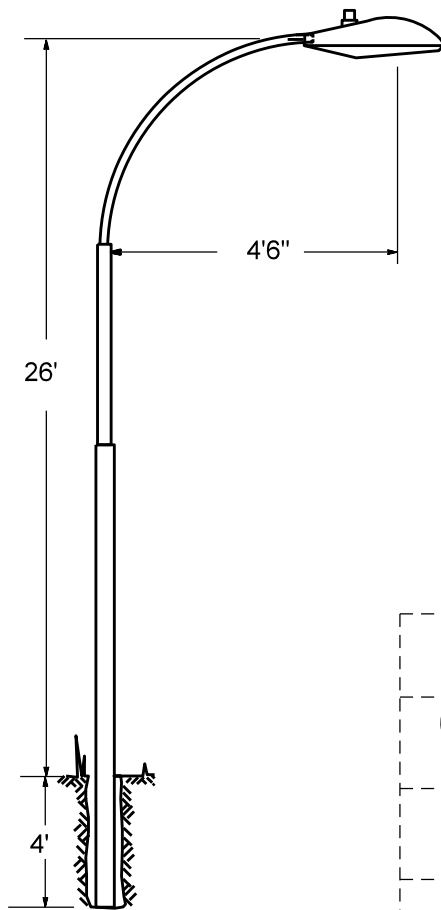
Underground						
CU	Mtg. Height	Pole Depth	Lumens	Pole Material	Number of Lights	Rate Type
ULFHC3150D	35'	5'-6"	25,000	Steel	1	Security
ULFHL3150TD	35'	5'-6"	25,000	Steel	2	Security
ULFLC50D	34'	-	25,000	Wood	1	Security
ULFLC50TD	34'	-	25,000	Wood	2	Security

Overhead						
CU	Mtg. Height	Pole Depth	Lumens	Pole Material	Number of Lights	Rate Type
LFLC3150D	35'	5'-6"	25,000	Steel	2	Security
LFLC3150TD	35'	5'-6"	25,000	Steel	1	Security
LFLC50D	34'	-	25,000	Wood	1	Security
LFLC50TD	34'	-	25,000	Wood	2	Security

NOTES

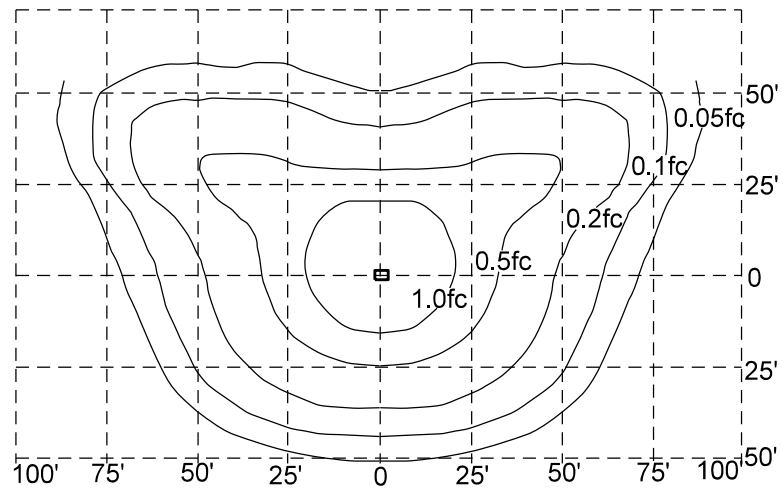
1. Shielded fixture must be mounted at 45° angle to meet the cutoff.
2. For A.E.L. floodlights the shield is material item 5035137.

Outdoor Lighting Standards  PROPRIETARY MATERIAL			
	LIGHTING COMPATIBLE UNITS STREETLIGHTS - LED SHIELDED FLOODLIGHTS		ISSUE DATE: 12/11/19
			REV. DATE: 0
			APPROVAL: N. SABBAH
	2-10-1	8518E341.DGN	

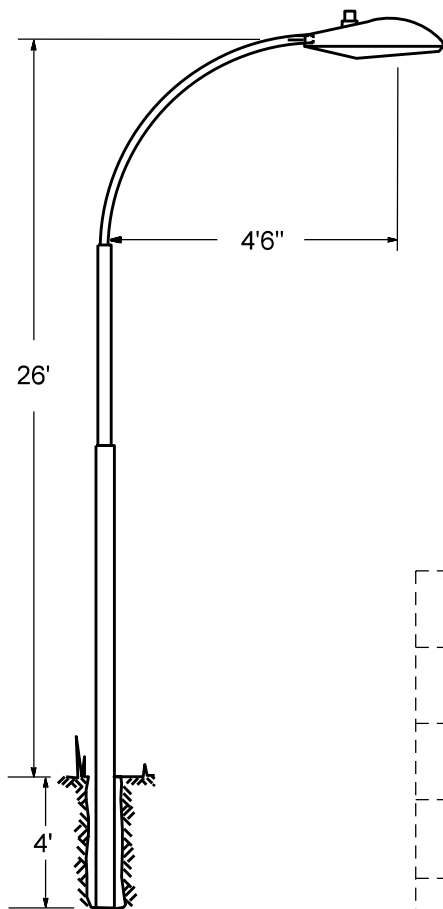


- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULHC2609D LHC2609D
- ULHC2609P LHC2609P

SEE GENERAL NOTES PAGE 2-0-1.

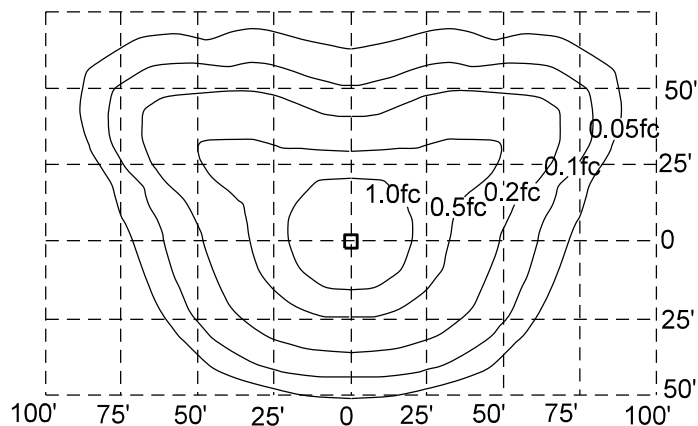


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE SINGLE STREAMLINED LUMINAIRE 9,500 LUMEN, 100 WATT LAMP 26 FOOT MOUNTING HEIGHT 2-11-1	ISSUE DATE: 01/20/00 REV. DATE: 01/03/13 APPROVAL: W. LARAMIE 8518E165.DGN
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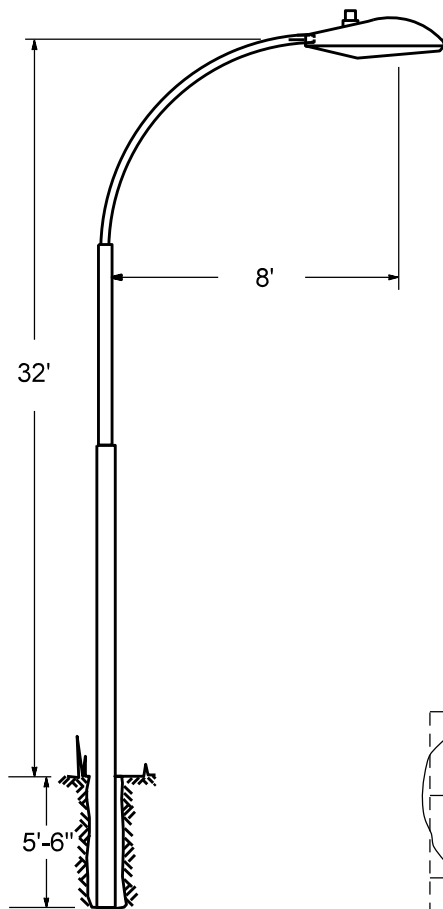


- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULHC2616D LHC2616D
- ULHC2616P LHC2616P

SEE GENERAL NOTES PAGE 2-0-1.

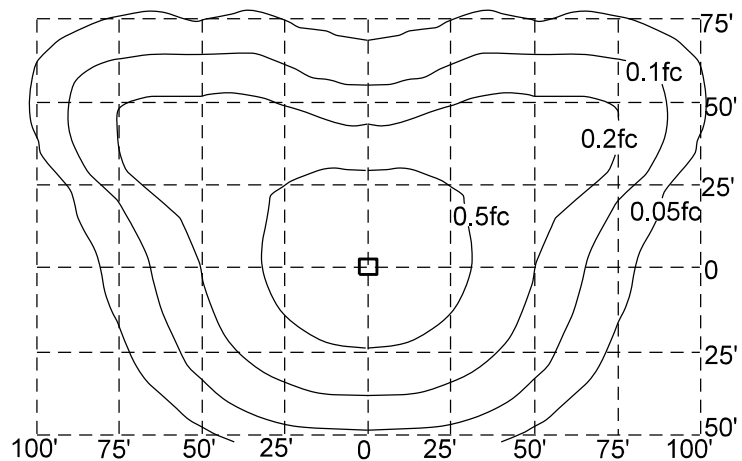


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE SINGLE STREAMLINED LUMINAIRE 16,000 LUMEN, 150 WATT LAMP 26 FOOT MOUNTING HEIGHT 2-11-2	ISSUE DATE: 01/31/00 REV. DATE: 01/03/13 APPROVAL: W. LARAMIE 8518E286.DGN
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- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULHC3109D LHC3109D
- ULHC3109P LHC3109P

SEE GENERAL NOTES PAGE 2-0-1.



Outdoor Lighting
Standards



PROPRIETARY MATERIAL

LED LUMINAIRE
SINGLE STREAMLINED LUMINAIRE
9,500 LUMEN, 100 WATT LAMP
32 FOOT MOUNTING HEIGHT

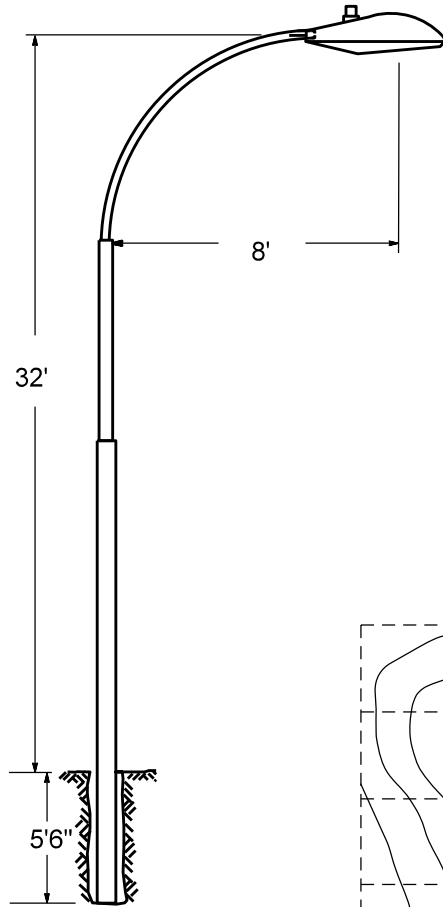
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ISSUE DATE: 03/30/05

REV. DATE: 01/03/13

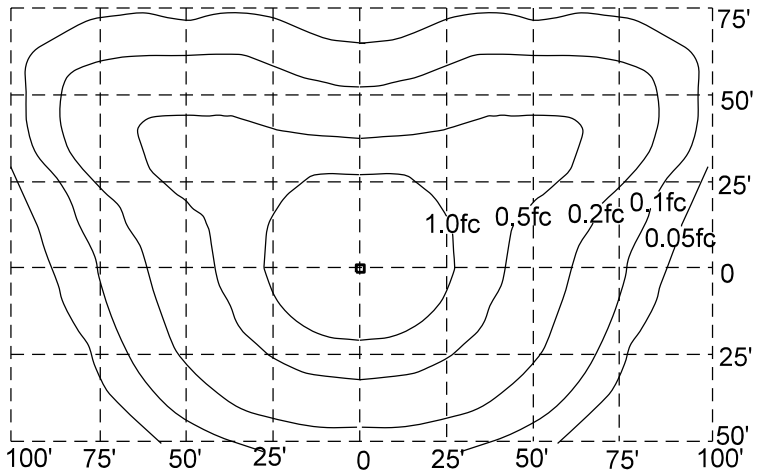
APPROVAL: W. LARAMIE

8518E168.DGN



- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULHC3116D LHC3116D
- ULHC3116P LHC3116P

SEE GENERAL NOTES PAGE 2-0-1.



Outdoor Lighting
Standards



PROPRIETARY MATERIAL

LED LUMINAIRE
SINGLE STREAMLINED LUMINAIRE
16,000 LUMEN, 150 WATT
32 FOOT MOUNTING HEIGHT

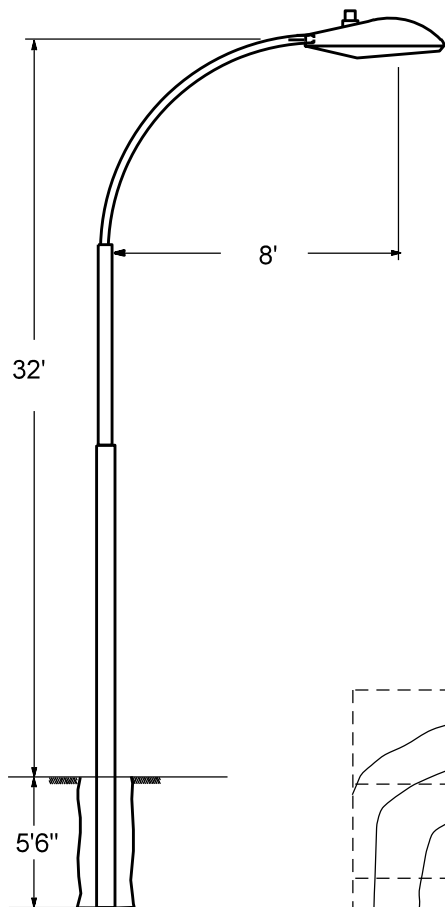
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ISSUE DATE: 01/31/00

REV. DATE: 01/03/13

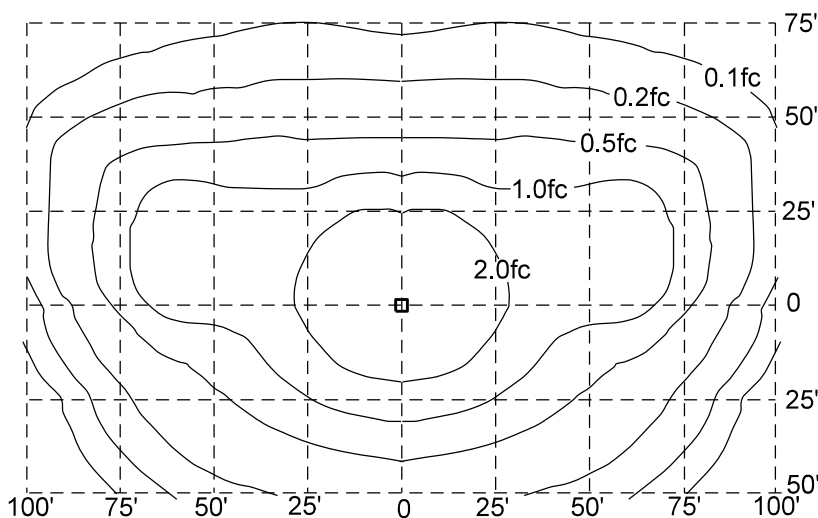
APPROVAL: W. LARAMIE

8518E287.DGN



- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULHC3130D LHC3130D
- ULHC3130P LHC3130P

SEE GENERAL NOTES PAGE 2-0-1.



Outdoor Lighting
Standards



PROPRIETARY MATERIAL

LED LUMINAIRE
SINGLE STREAMLINED LUMINAIRE
30,000 LUMEN, 250 WATT LAMP
32 FOOT MOUNTING HEIGHT

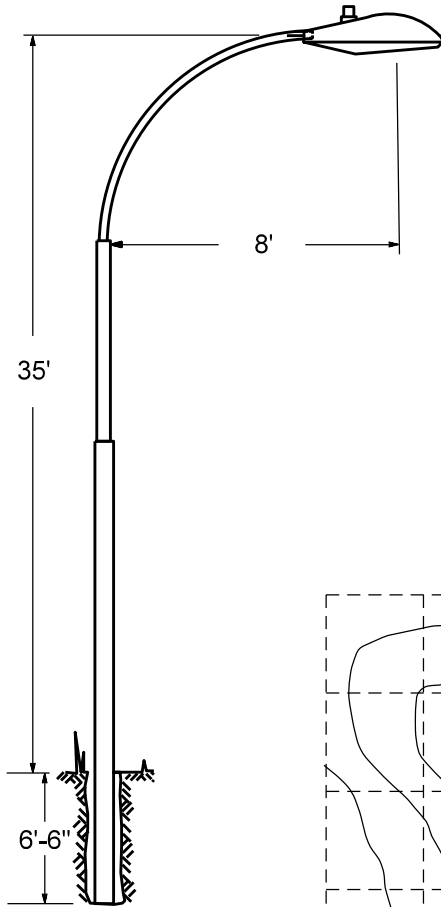
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ISSUE DATE: 01/31/00

REV. DATE: 01/03/13

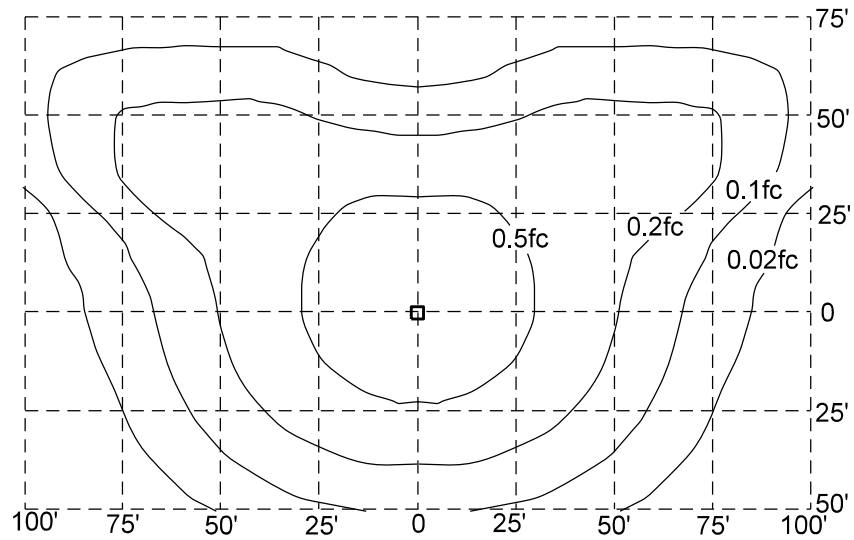
APPROVAL: W. LARAMIE

8518E288.DGN



- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULHC3509D LHC3509D
- ULHC3509P LHC3509P

SEE GENERAL NOTES PAGE 2-0-1.



Outdoor Lighting
Standards



PROPRIETARY MATERIAL

LED LUMINAIRE
SINGLE STREAMLINED LUMINAIRE
9,500 LUMEN, 100 WATT LAMP
35 FOOT MOUNTING HEIGHT

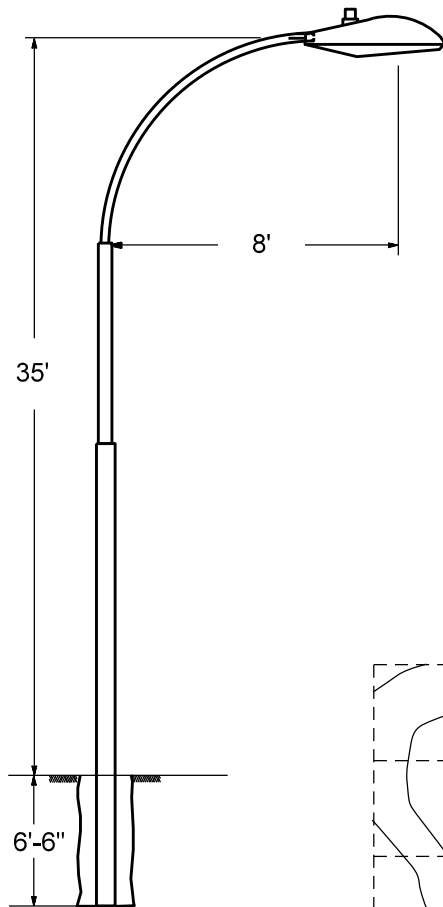
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ISSUE DATE: 03/30/05

REV. DATE: 01/03/13

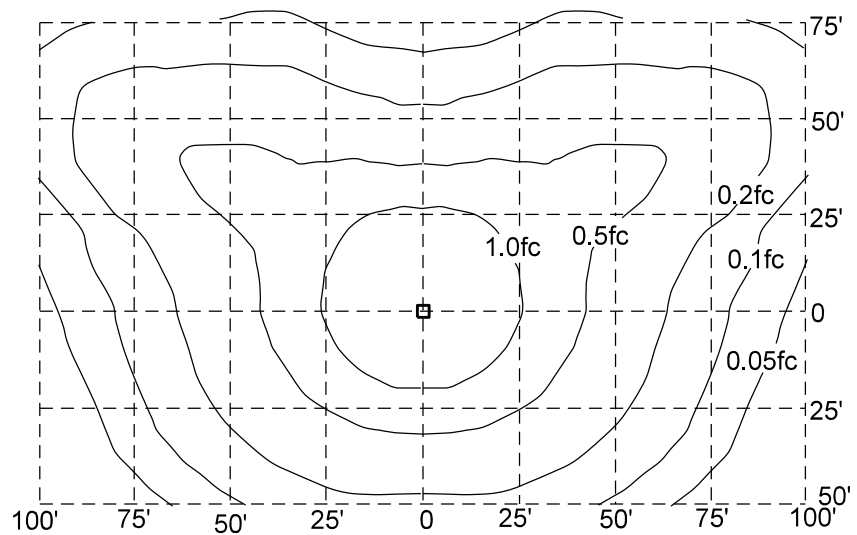
APPROVAL: W. LARAMIE

8518E169.DGN



- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULHC3516D LHC3516D
- ULHC3516P LHC3516P

SEE GENERAL NOTES PAGE 2-0-1.



Outdoor Lighting
Standards



PROPRIETARY MATERIAL

LED LUMINAIRE
SINGLE STREAMLINED LUMINAIRE
16,000 LUMEN, 150 WATT LAMP
35 FOOT MOUNTING HEIGHT

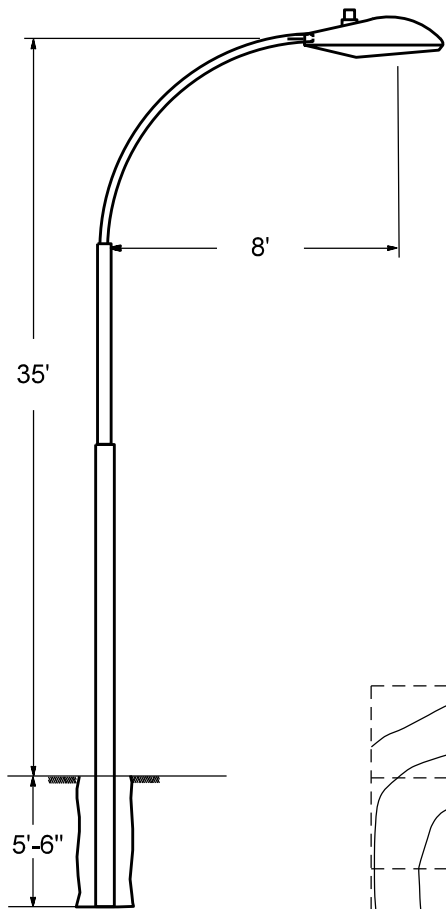
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ISSUE DATE: 01/31/00

REV. DATE: 01/03/13

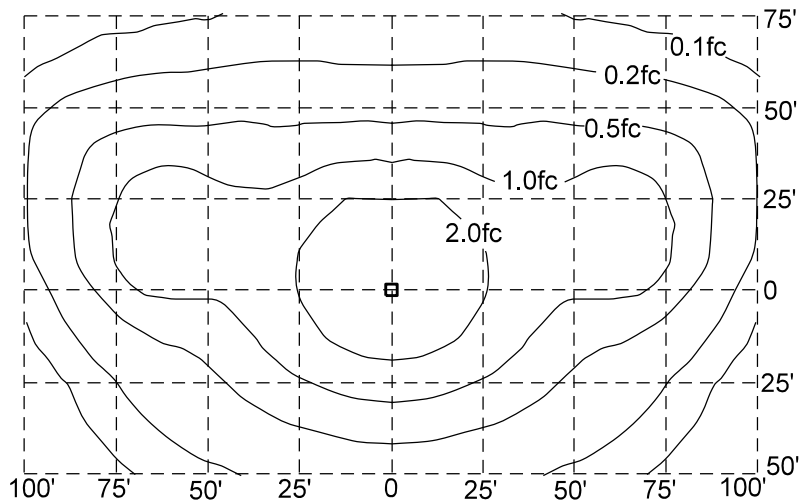
APPROVAL: W. LARAMIE

8518E289.DGN

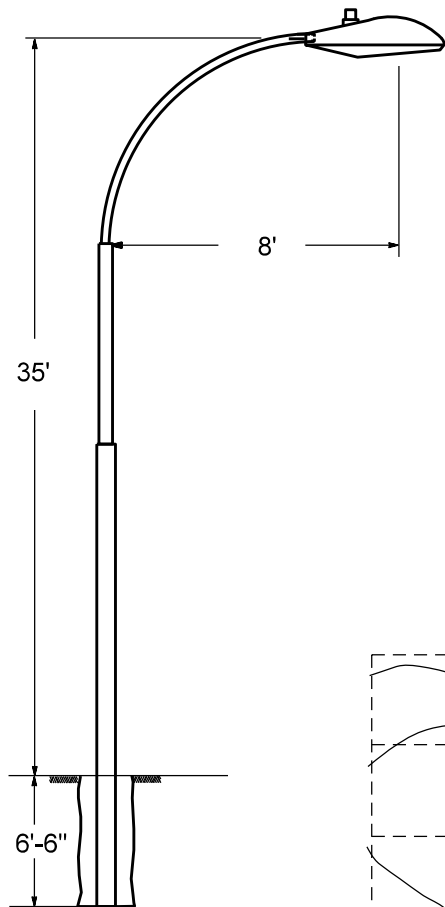


- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULHC3530D LHC3530D
- ULHC3530P LHC3530P

SEE GENERAL NOTES PAGE 2-0-1.

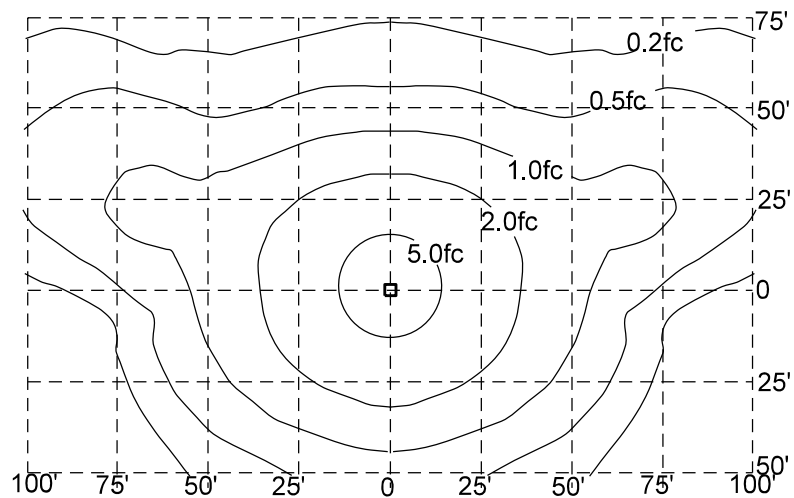


Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LED LUMINAIRE SINGLE STREAMLINED LUMINAIRE 30,000 LUMEN, 250 WATT LAMP 35 FOOT MOUNTING HEIGHT	ISSUE DATE: 01/31/00 REV. DATE: 01/03/13 APPROVAL: W. LARAMIE
	2-11-8	8518E290.DGN



- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULHC3550D LHC3550D
- ULHC3550P LHC3550P

SEE GENERAL NOTES PAGE 2-0-1.



Outdoor Lighting
Standards



PROPRIETARY MATERIAL

LED LUMINAIRE
SINGLE STREAMLINED LUMINAIRE
50,000 LUMEN, 400 WATT LAMP
35 FOOT MOUNTING HEIGHT

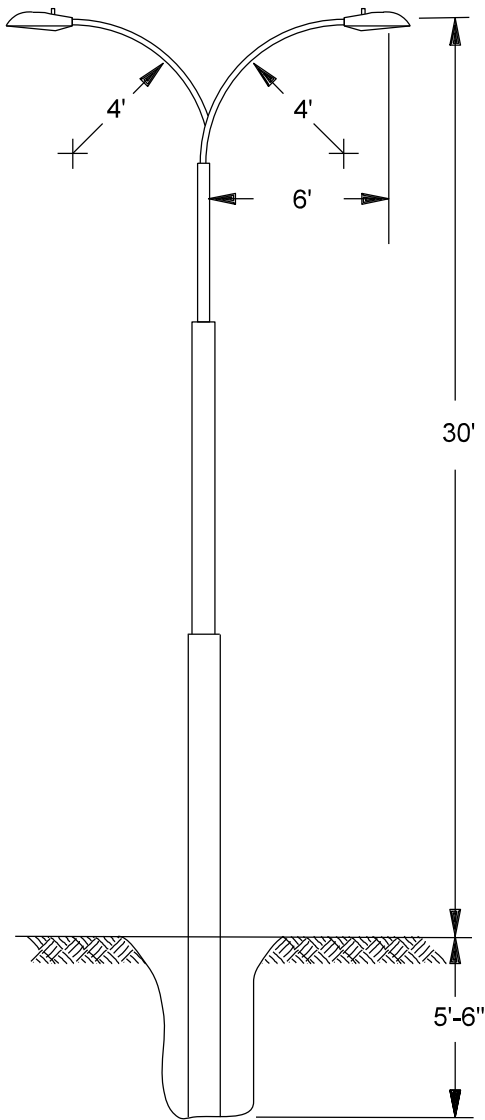
2-11-9

ISSUE DATE: 01/31/00

REV. DATE: 01/16/13

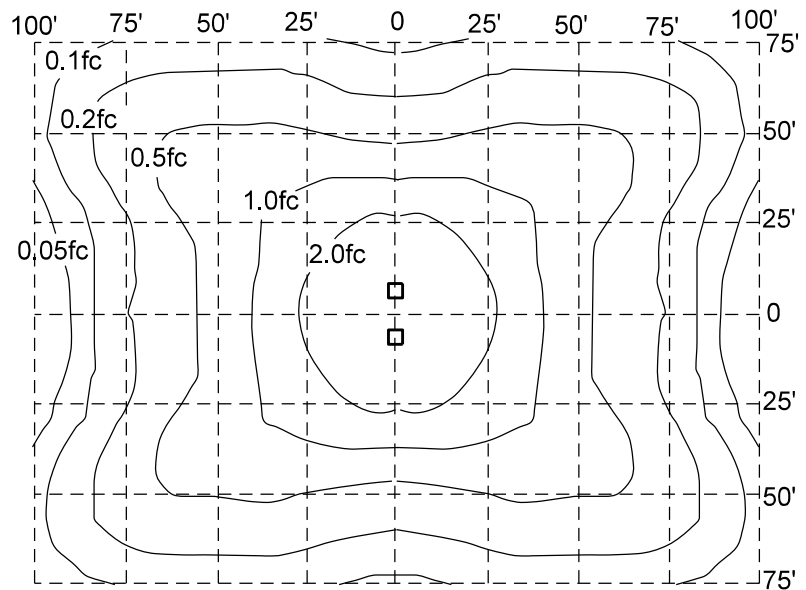
APPROVAL: W. LARAMIE

8518E291.DGN

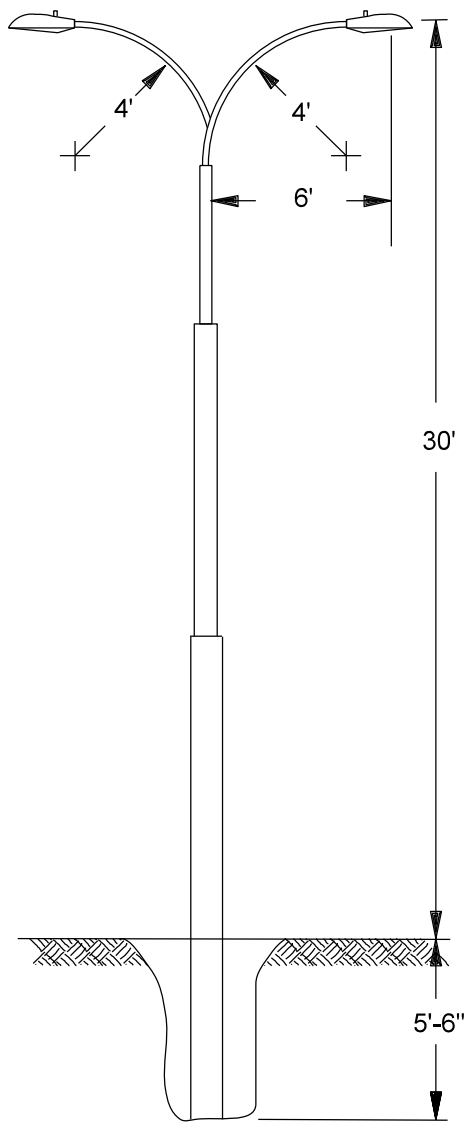


- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULHC3116TP LHC3116TP
- ULHC3116TD LHC3116TD

SEE GENERAL NOTES PAGE 2-0-1.

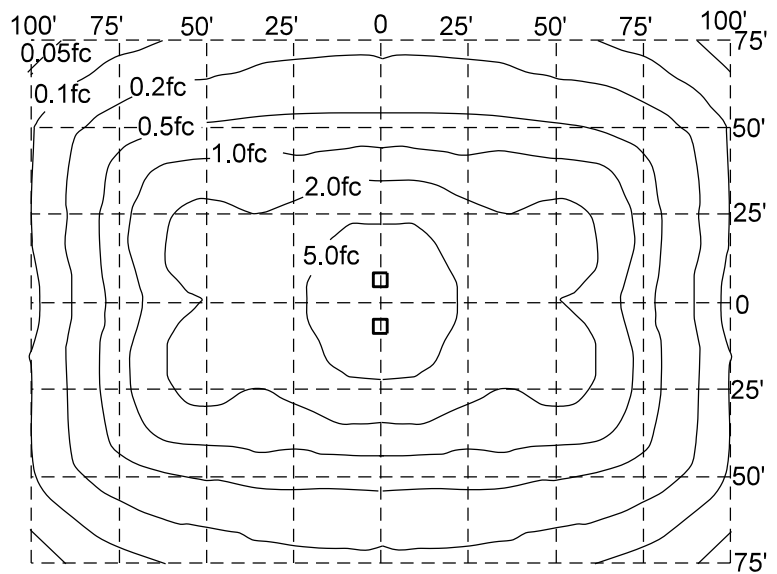


Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LED LUMINAIRE DUAL STREAMLINED LUMINAIRE 16,000 LUMEN, 150 WATT LAMP 30 FOOT MOUNTING HEIGHT	ISSUE DATE: 01/31/00 REV. DATE: 01/03/13 APPROVAL: W. LARAMIE
	2-12-1	8518E166.DGN



- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULHC3130TP LHC3130TP
- ULHC3130TD LHC3130TD

SEE GENERAL NOTES PAGE 2-0-1.



Outdoor Lighting
Standards



PROPRIETARY MATERIAL

LED LUMINAIRE
DUAL STREAMLINED LUMINAIRE
30,000 LUMEN, 250 WATT LAMP
30 FOOT MOUNTING HEIGHT

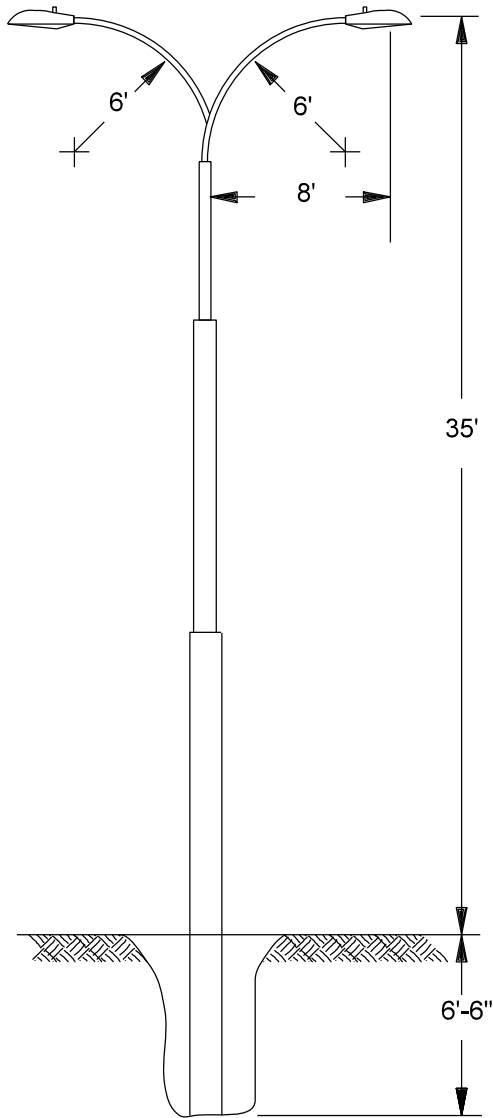
2-12-2

ISSUE DATE: 01/31/00

REV. DATE: 01/03/13

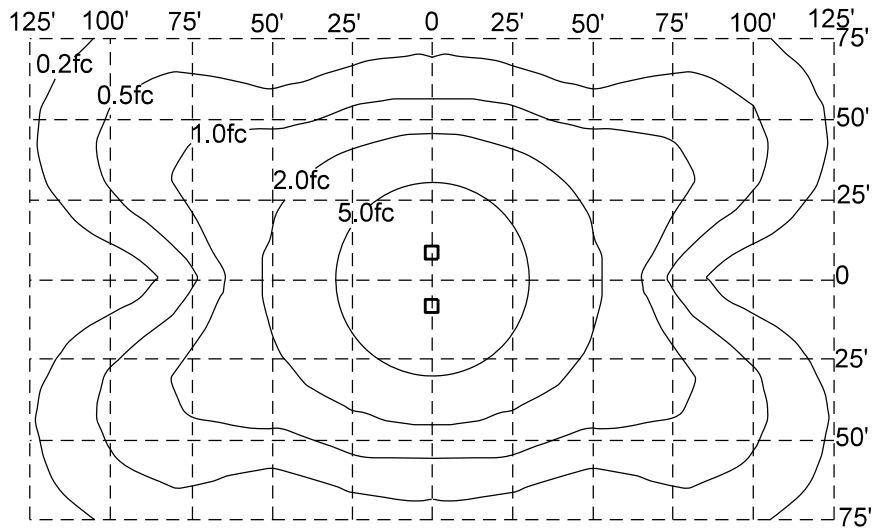
APPROVAL: W. LARAMIE

8518E276.DGN



- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULHC3550TP LHC3550TP
- ULHC3550TD LHC3550TD

SEE GENERAL NOTES PAGE 2-0-1.



Outdoor Lighting
Standards



PROPRIETARY MATERIAL

LED LUMINAIRE
DUAL STREAMLINED LUMINAIRE
50,000 LUMEN, 400 WATT LAMP
35 FOOT MOUNTING HEIGHT

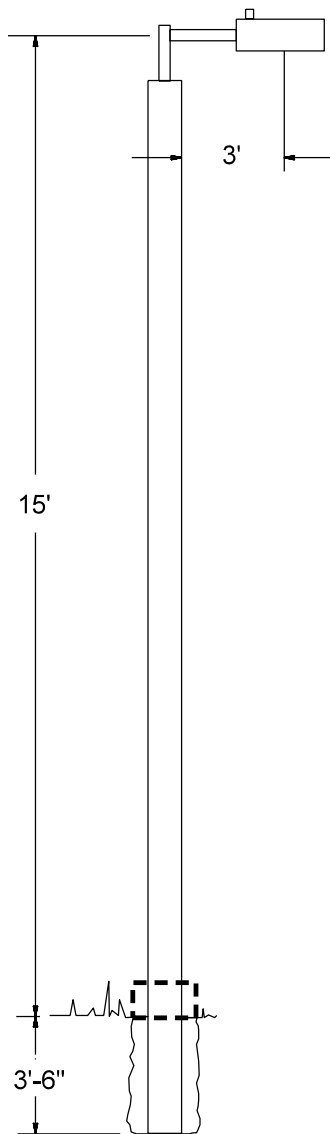
2-12-3

ISSUE DATE: 01/31/00

REV. DATE: 01/03/13

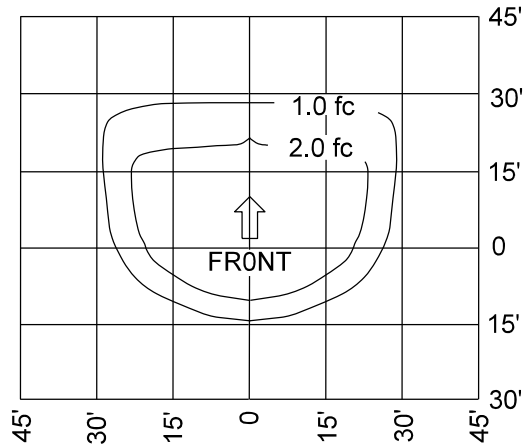
APPROVAL: W. LARAMIE

8518E277.DGN



- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, FIBERGLASS POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULAHF1809P ULAHF1809D

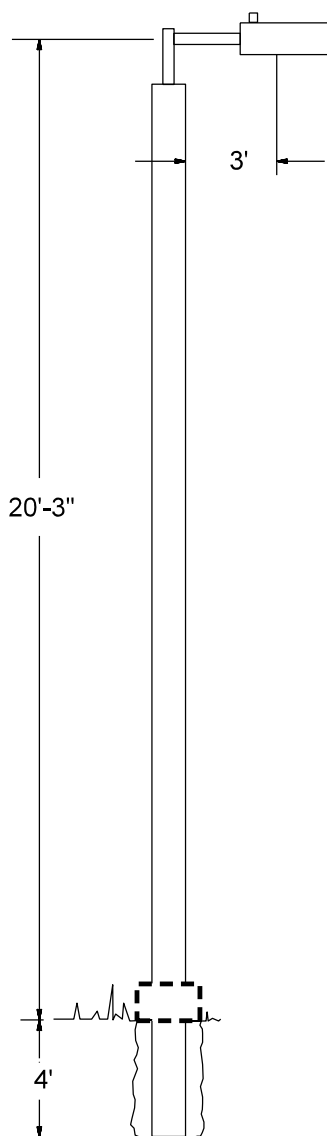
SEE GENERAL NOTES PAGE 2-0-1.



NOTES

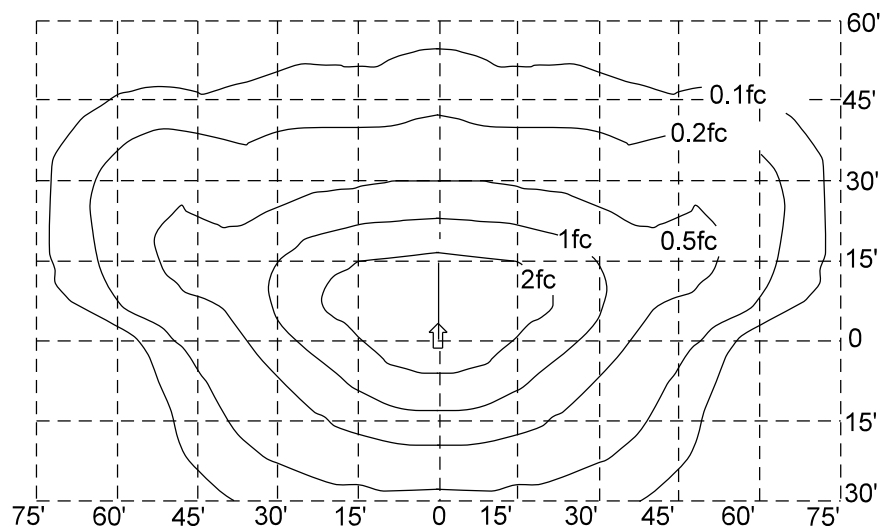
1. Ground line protection may be a collar as shown or a 1/2" thick layer of elastomeric urethane one foot above and below ground line.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE SINGLE ARCHITECTURAL LUMINAIRE 9,500 LUMEN, 100 WATT LAMP 15 FOOT MOUNTING HEIGHT 2-13-1	ISSUE DATE: 01/31/00 REV. DATE: 01/17/13 APPROVAL: W. LARAMIE 8518E185.DGN
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- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GRAY, FIBERGLASS POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULAHF2309D ULAHF2309P

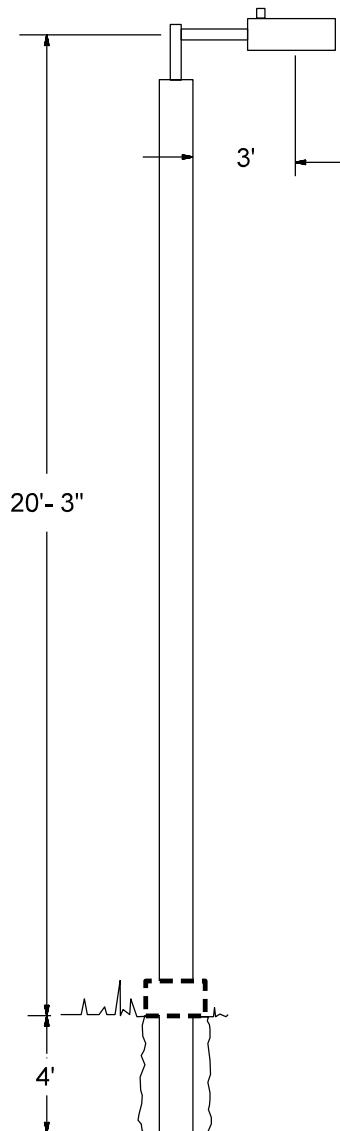
SEE GENERAL NOTES PAGE 2-0-1.



NOTES

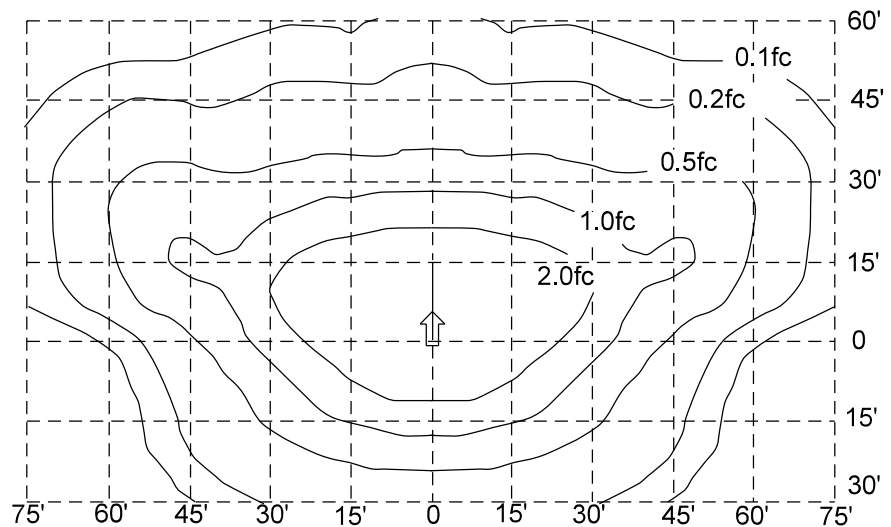
1. Ground line protection may be a collar as shown or a 1/2" thick layer of elastomeric urethane one foot above and below ground line.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE SINGLE ARCHITECTURAL LUMINAIRE 9,500 LUMEN, 100 WATT LAMP 20'-3" MOUNTING HEIGHT 2-13-2	ISSUE DATE: 03/29/05 REV. DATE: 01/17/13 APPROVAL: W. LARAMIE 8518E183.DGN
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- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GRAY, FIBERGLASS POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULAHF2316D ULAHF2316P

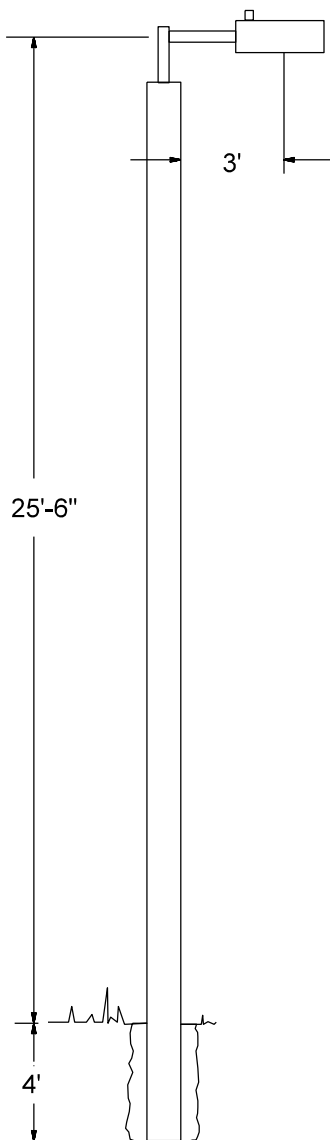
SEE GENERAL NOTES PAGE 2-0-1.



NOTES

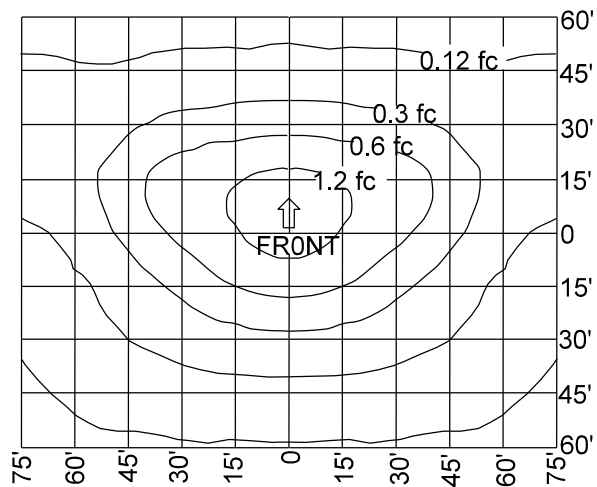
1. Ground line protection may be a collar as shown or a 1/2" thick layer of elastomeric urethane one foot above and below ground line.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE SINGLE ARCHITECTURAL LUMINAIRE 16,000 LUMEN, 150 WATT LAMP 20'-3" MOUNTING HEIGHT 2-13-3	ISSUE DATE: 03/29/05 REV. DATE: 01/17/13 APPROVAL: W. LARAMIE 8518E184.DGN
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- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULAH2809P ULAH2809D

SEE GENERAL NOTES PAGE 2-0-1.



Outdoor Lighting
Standards



PROPRIETARY MATERIAL

LED LUMINAIRE
SINGLE ARCHITECTURAL LUMINAIRE
9,500 LUMEN, 100 WATT LAMP
25 1/2 FOOT MOUNTING HEIGHT

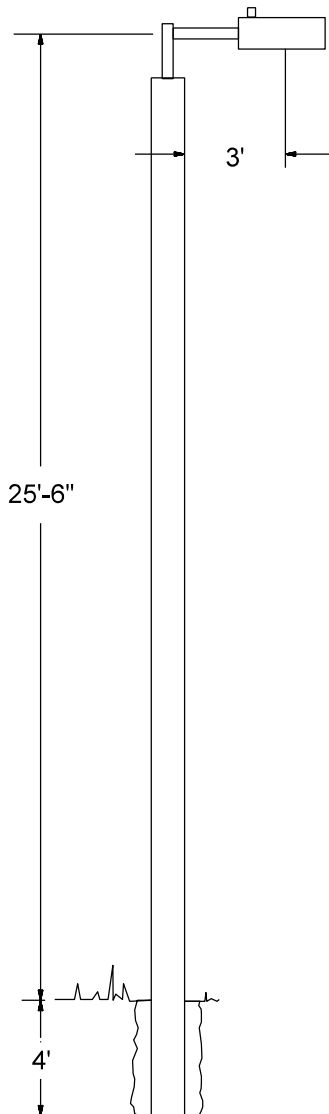
2-13-4

ISSUE DATE: 01/31/00

REV. DATE: 01/10/13

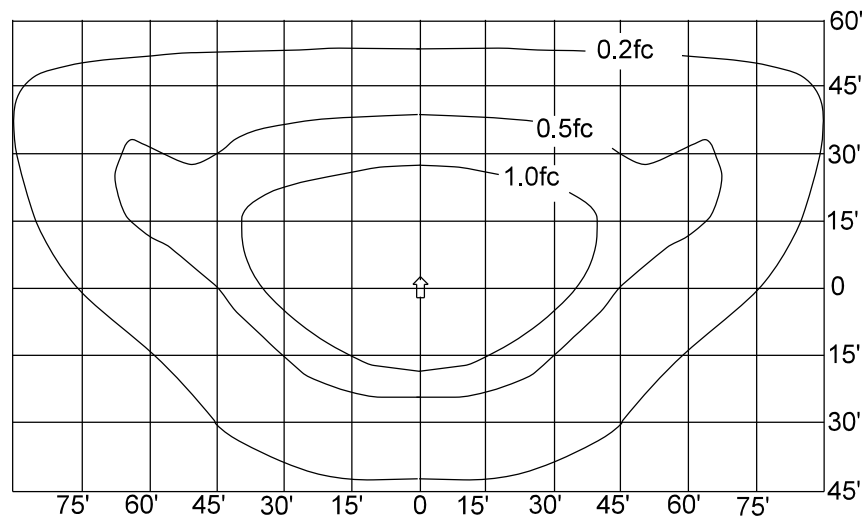
APPROVAL: W. LARAMIE

8518E186.DGN

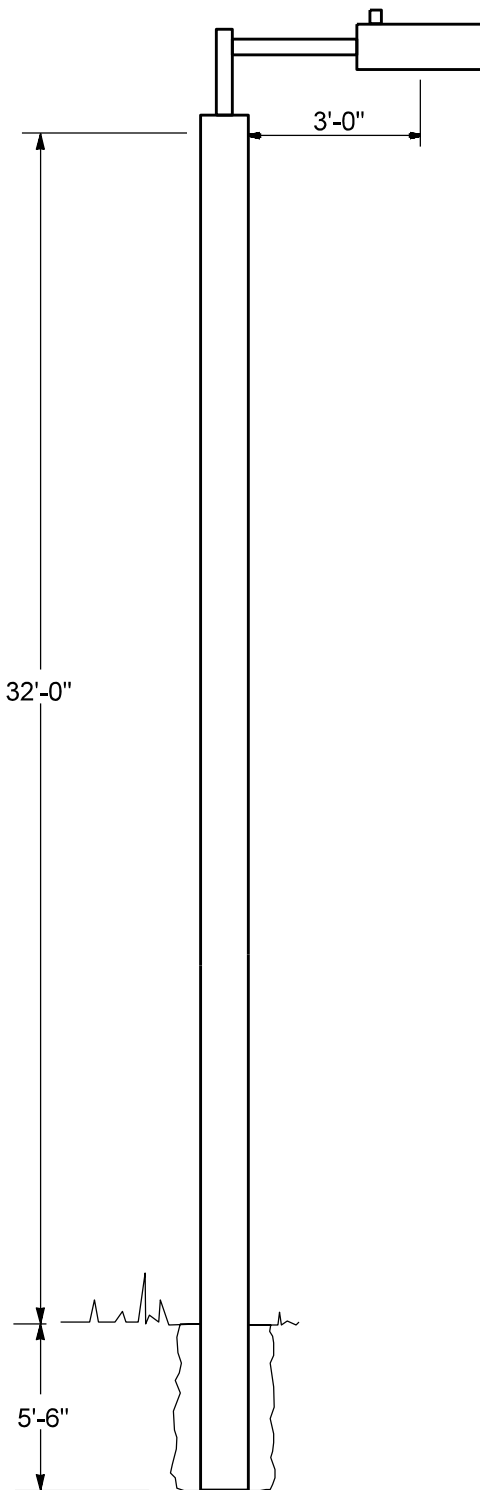


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULAH2816D ULAH2816P

SEE GENERAL NOTES PAGE 2-0-1.

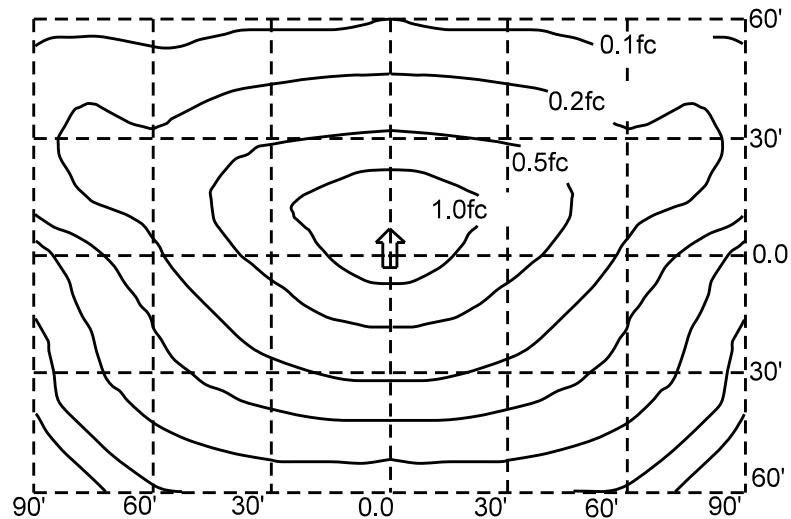


Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LED LUMINAIRE SINGLE ARCHITECTURAL LUMINAIRE 16,000 LUMEN, 150 WATT LAMP 25 1/2 FOOT MOUNTING HEIGHT	ISSUE DATE: 01/31/00 REV. DATE: 01/10/13 APPROVAL: W. LARAMIE
	2-13-5	8518E187.DGN

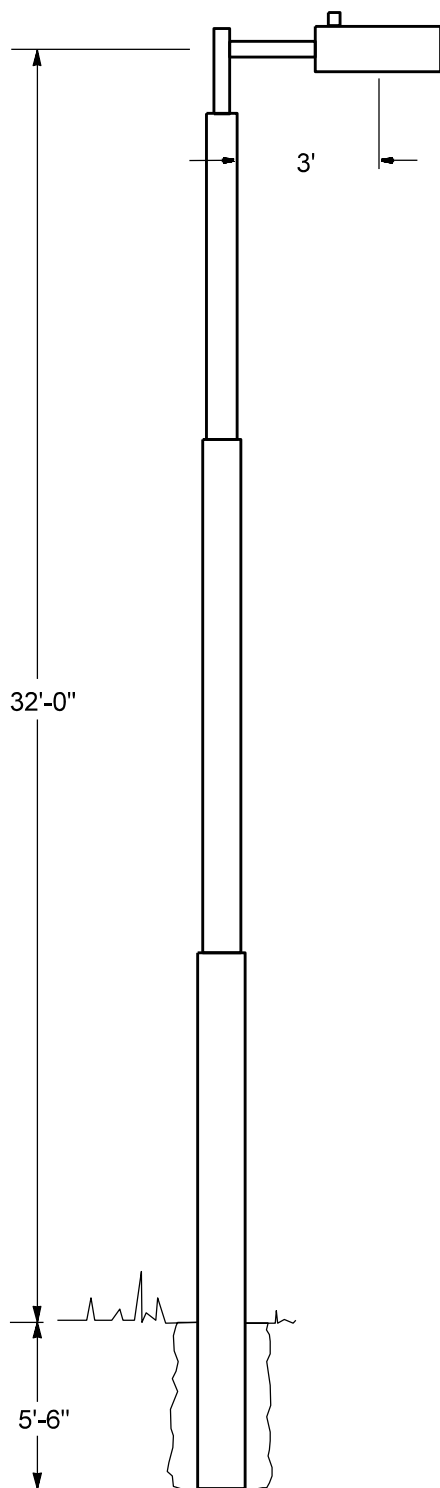


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE LIGHTING
- SERVED UNDERGROUND
- ULAH3609P

SEE GENERAL NOTES PAGE 2-0-1.

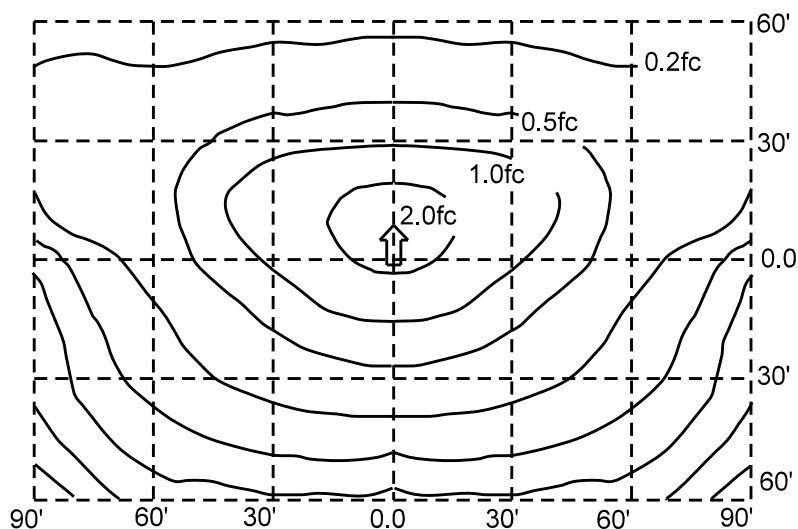


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE SINGLE ARCHITECTURAL LUMINAIRE 9,500 LUMEN, 100 WATT LAMP 32 FOOT MOUNTING HEIGHT 2-13-6	ISSUE DATE: 01/31/00 REV. DATE: 01/15/13 APPROVAL: W. LARAMIE 8518E63.DGN
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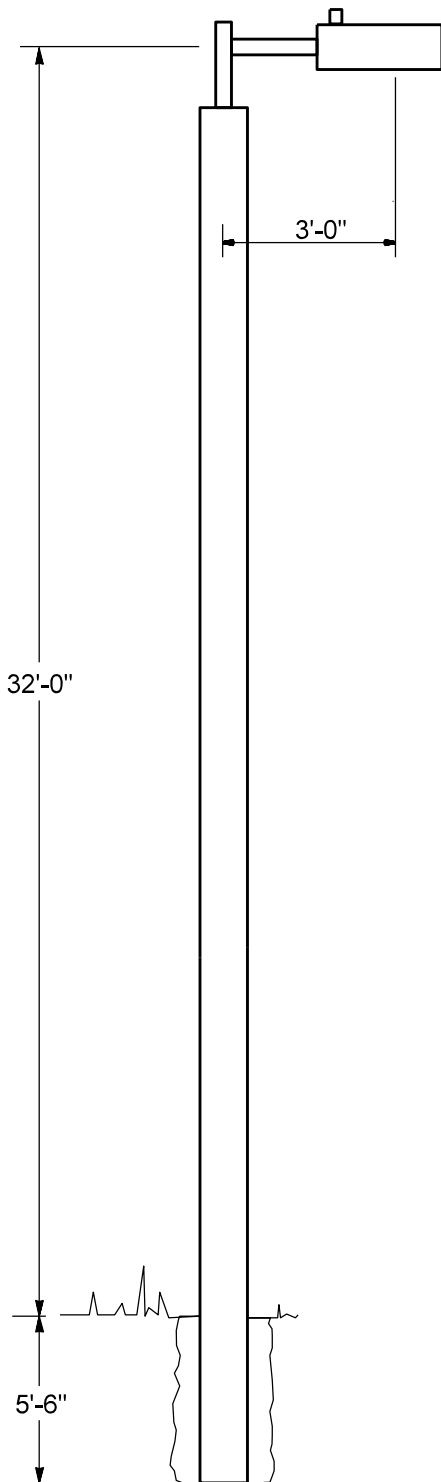


- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, STEEL POLE
- FOR PRIVATE LIGHTING
- SERVED UNDERGROUND
- ULAH3116P

SEE GENERAL NOTES PAGE 2-0-1.

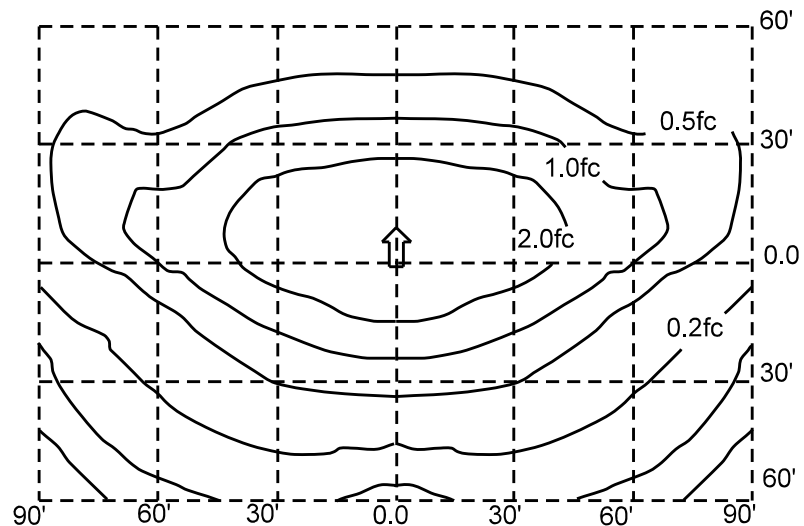


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE SINGLE ARCHITECTURAL LUMINAIRE 16,000 LUMEN, 150 WATT LAMP 32 FOOT MOUNTING HEIGHT 2-13-7	ISSUE DATE: 01/31/00 REV. DATE: 01/13/13 APPROVAL: W. LARAMIE 8518E292.DGN
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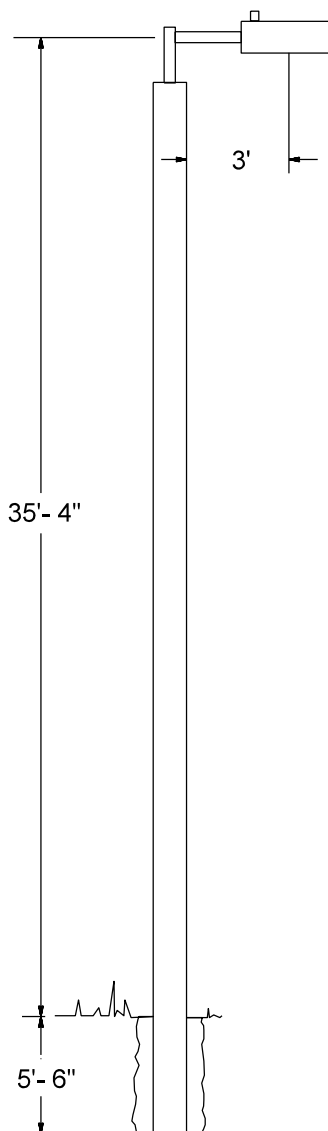


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULAH3630P
- ULAH3630D

SEE GENERAL NOTES PAGE 2-0-1.

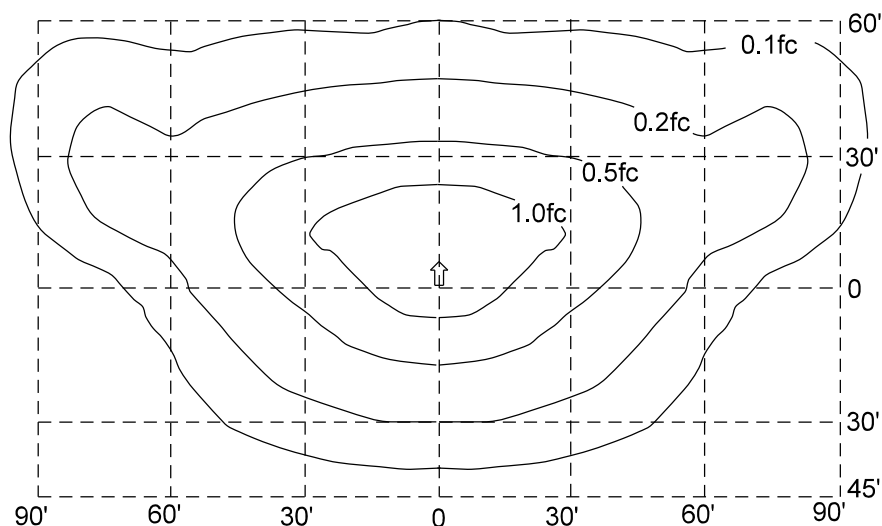


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE SINGLE ARCHITECTURAL LUMINAIRE 30,000 LUMEN, 250 WATT LAMP 32 FOOT MOUNTING HEIGHT 2-13-8	ISSUE DATE: 01/31/00 REV. DATE: 01/15/13 APPROVAL: W. LARAMIE 8518E293.DGN
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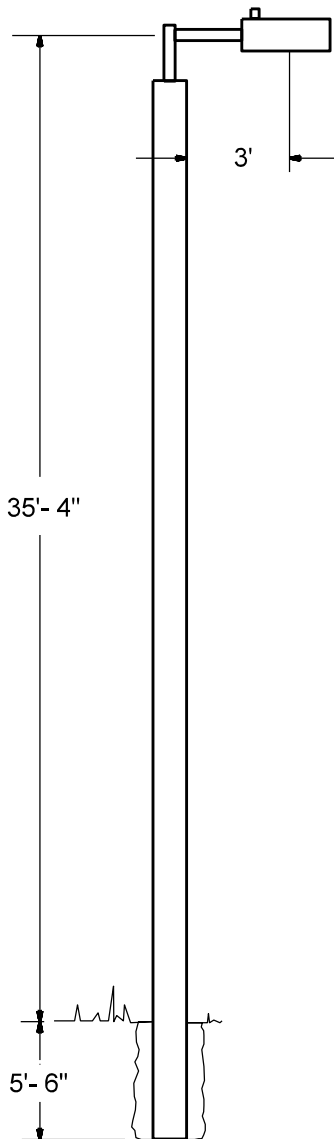


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULAH4009P

SEE GENERAL NOTES PAGE 2-0-1.

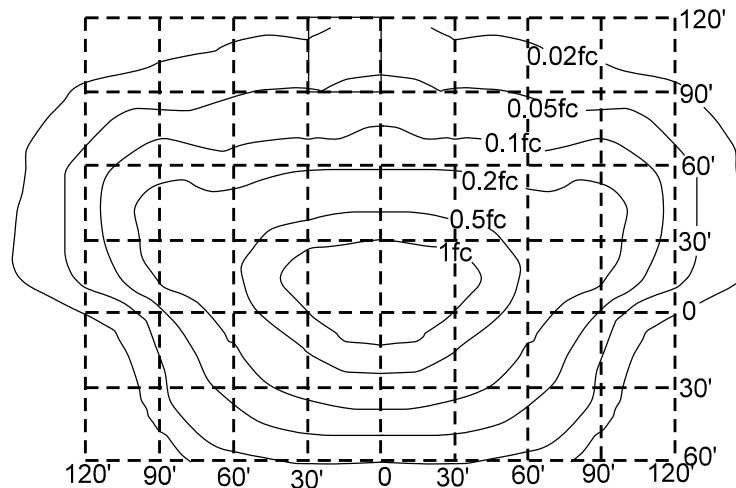


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE SINGLE ARCHITECTURAL LUMINAIRE 9,500 LUMEN, 100 WATT LAMP 35'-4" MOUNTING HEIGHT 2-13-9	ISSUE DATE: 01/31/00 REV. DATE: 12/26/12 APPROVAL: W. LARAMIE 8518E188.DGN
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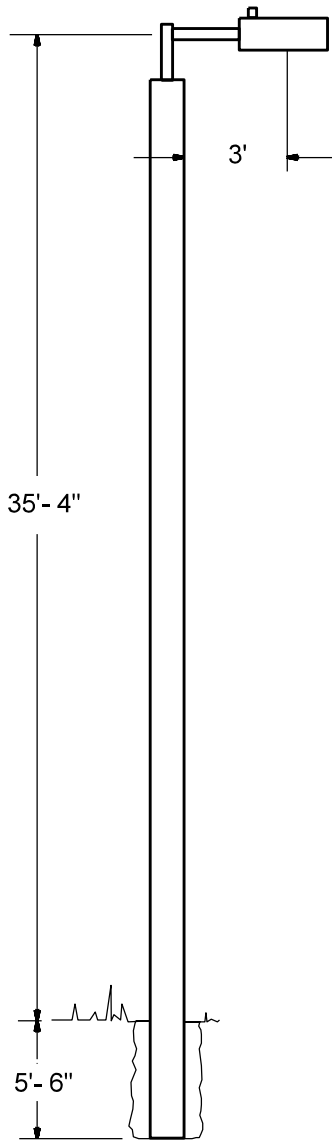


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE LIGHTING
- SERVED UNDERGROUND
- ULAH4016P

SEE GENERAL NOTES PAGE 2-0-1.

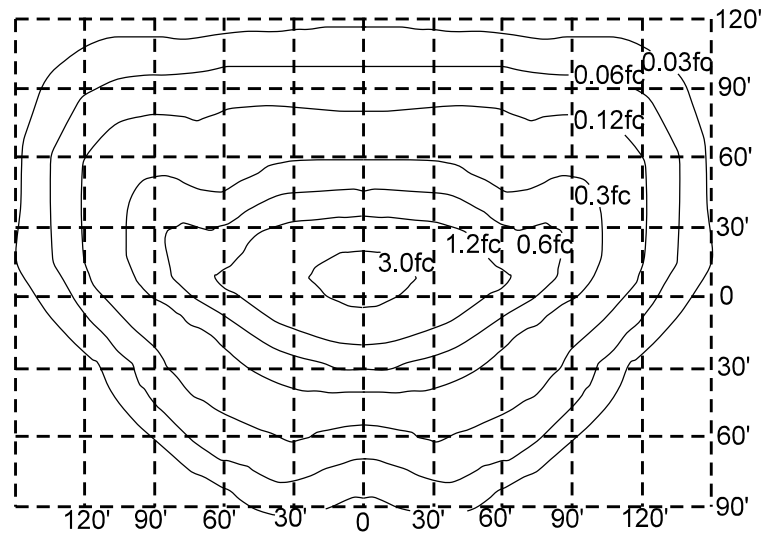


Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LED LUMINAIRE SINGLE ARCHITECTURAL LUMINAIRE 16,000 LUMEN, 150 WATT LAMP 35'-4" MOUNTING HEIGHT	ISSUE DATE: 01/31/00 REV. DATE: 12/25/12 APPROVAL: W. LARAMIE
	2-13-10	8518E73.DGN

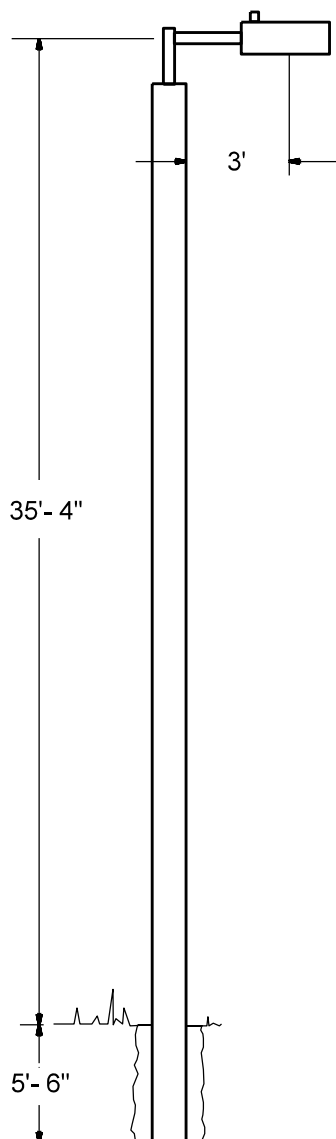


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULAH4030P

SEE GENERAL NOTES PAGE 2-0-1.

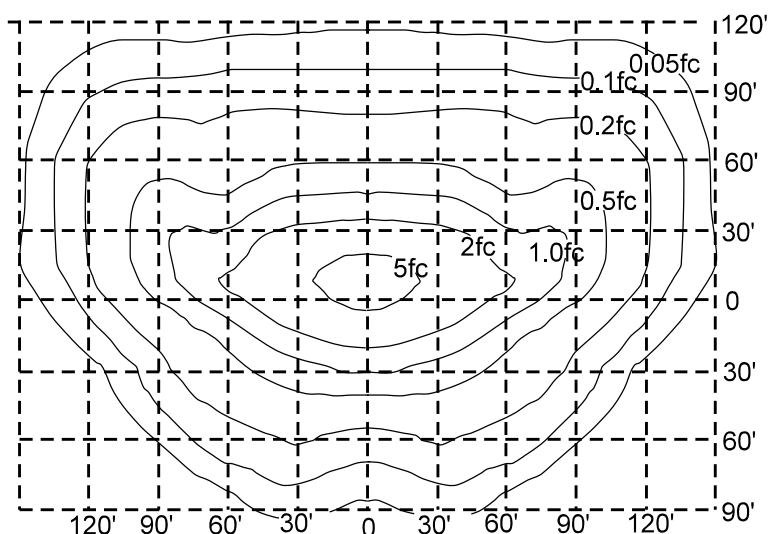


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE		ISSUE DATE: 04/10/12
	SINGLE ARCHITECTURAL LUMINAIRE		REV. DATE: 12/25/12
	30,000 LUMEN, 250 WATT LAMP		APPROVAL: W. LARAMIE
	35'-4" MOUNTING HEIGHT		
	2-13-11		8518E315.DGN

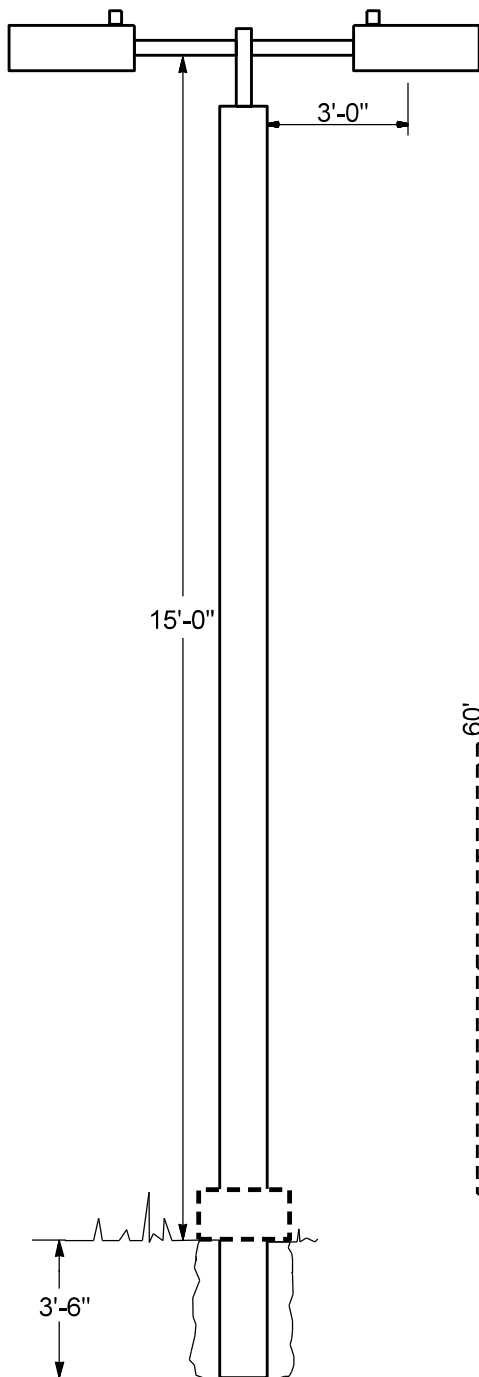


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULAH4050P ULAH4050D

SEE GENERAL NOTES PAGE 2-0-1.

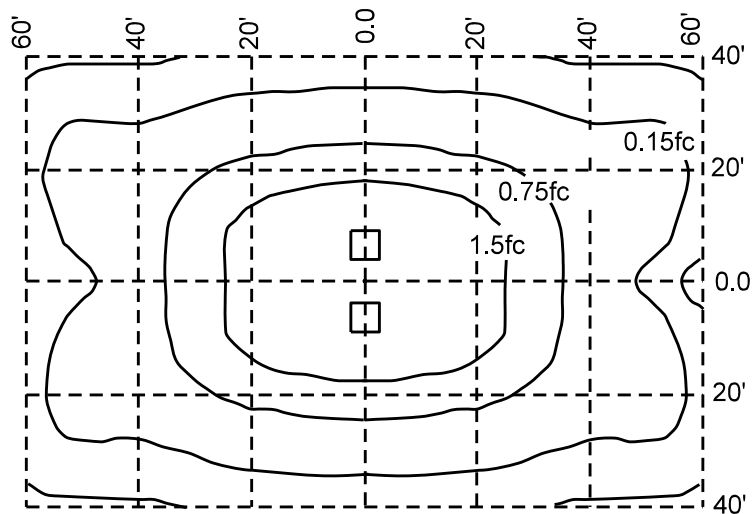


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE SINGLE ARCHITECTURAL LUMINAIRE 50,000 LUMEN, 400 WATT LAMP 35'-4" MOUNTING HEIGHT		ISSUE DATE: 01/31/00
	2-13-12		REV. DATE: 05/08/13
			APPROVAL: W. LARAMIE 8518E74.DGN



- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, FIBERGLASS POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULAHF1809TP ULAHF1809TD

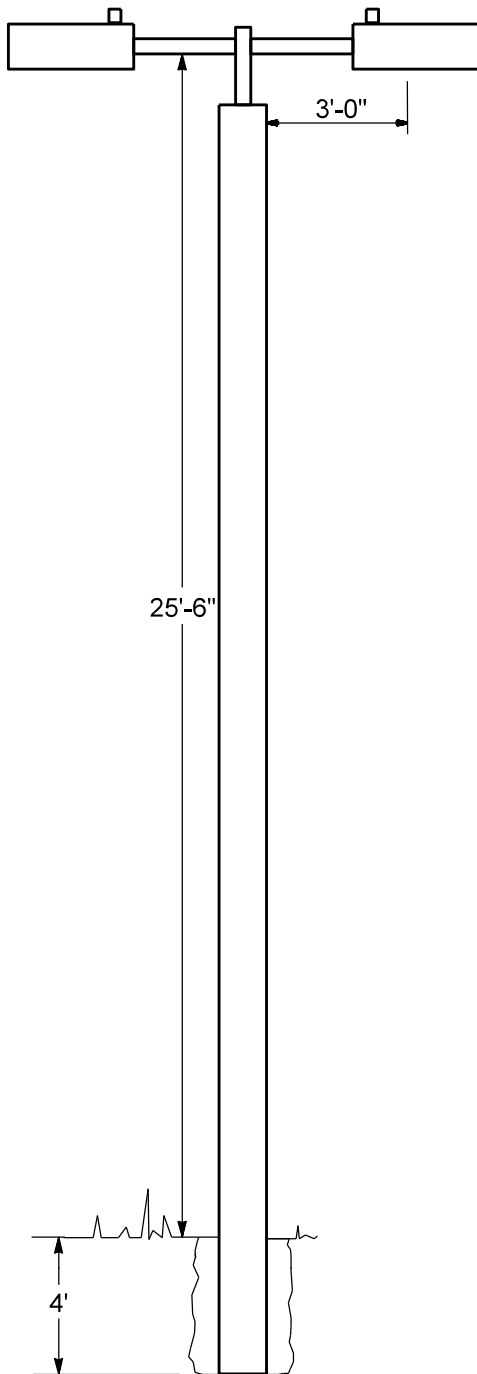
SEE GENERAL NOTES PAGE 2-0-1.



NOTES

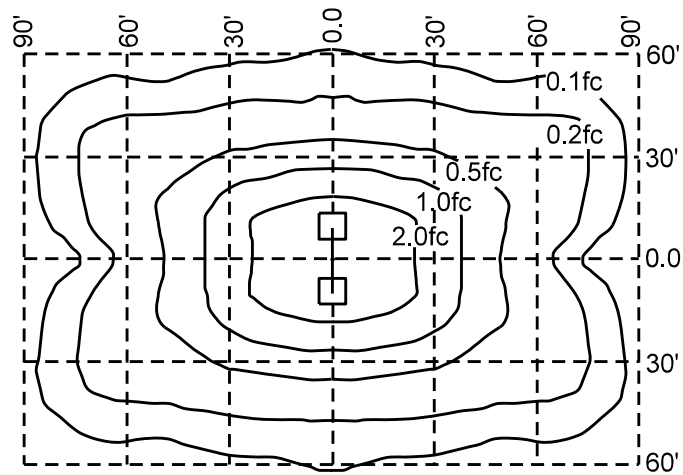
1. Ground line protection may be a collar as shown or a 1/2" thick layer of elastomeric urethane one foot above and below ground line.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE DUAL ARCHITECTURAL LUMINAIRE 9,500 LUMEN, 100 WATT LAMP 15 FOOT MOUNTING HEIGHT 2-14-1	ISSUE DATE: 01/31/00 REV. DATE: 01/17/13 APPROVAL: W. LARAMIE 8518E294.DGN
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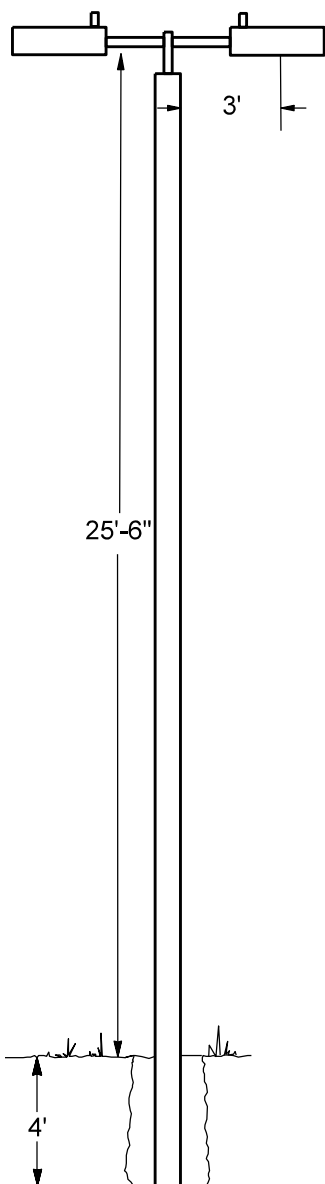


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULAH2809TD ULAH2809TP

SEE GENERAL NOTES PAGE 2-0-1.

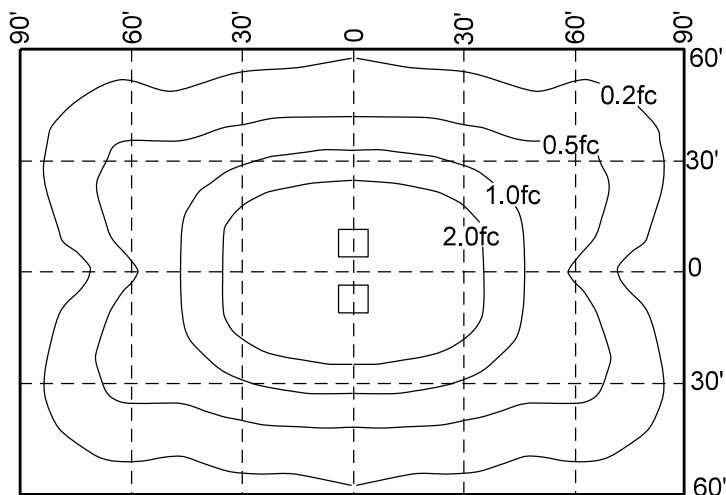


Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LED LUMINAIRE DUAL ARCHITECTURAL LUMINAIRE 9,500 LUMEN, 100 WATT LAMP 25'-6" MOUNTING HEIGHT	ISSUE DATE: 03/30/05 REV. DATE: 01/17/13 APPROVAL: W. LARAMIE
	2-14-2	8518E295.DGN

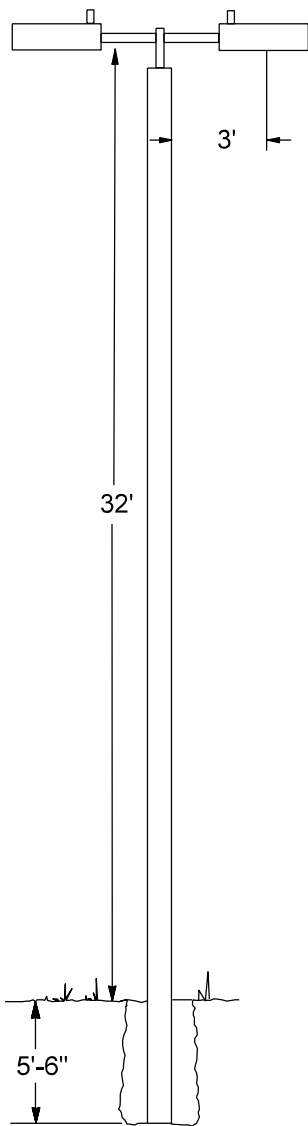


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULAH2816TD
- ULAH2816TP

SEE GENERAL NOTES PAGE 2-0-1.

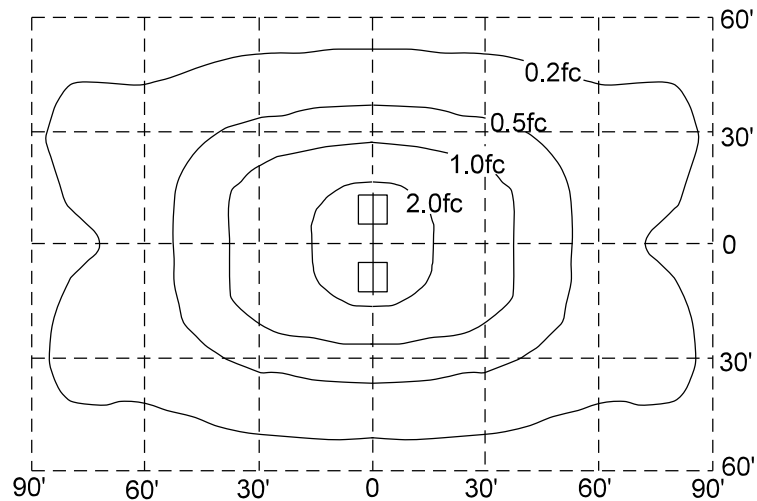


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE DUAL ARCHITECTURAL LUMINAIRE 16,000 LUMEN, 150 WATT LAMP 25'-6" MOUNTING HEIGHT 2-14-3	ISSUE DATE: 03/30/05 REV. DATE: 12/25/12 APPROVAL: W. LARAMIE 8518E170.DGN
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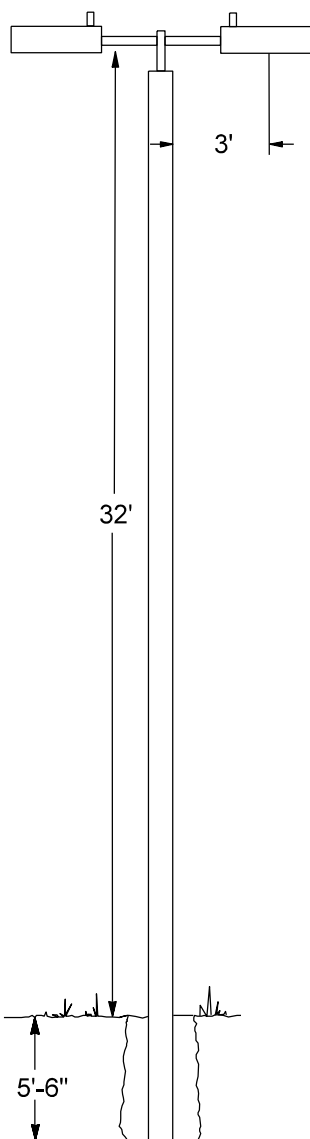


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE LIGHTING
- SERVED UNDERGROUND
- ULAH3609TP

SEE GENERAL NOTES PAGE 2-0-1.

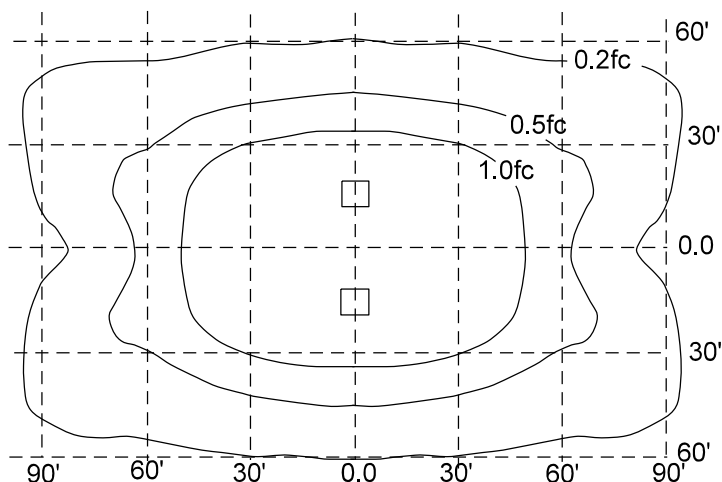


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE DUAL ARCHITECTURAL LUMINAIRE 9,500 LUMEN, 100 WATT LAMP 32 FOOT MOUNTING HEIGHT 2-14-4	ISSUE DATE: 01/31/00 REV. DATE: 12/20/12 APPROVAL: W. LARAMIE 8518E75.DGN
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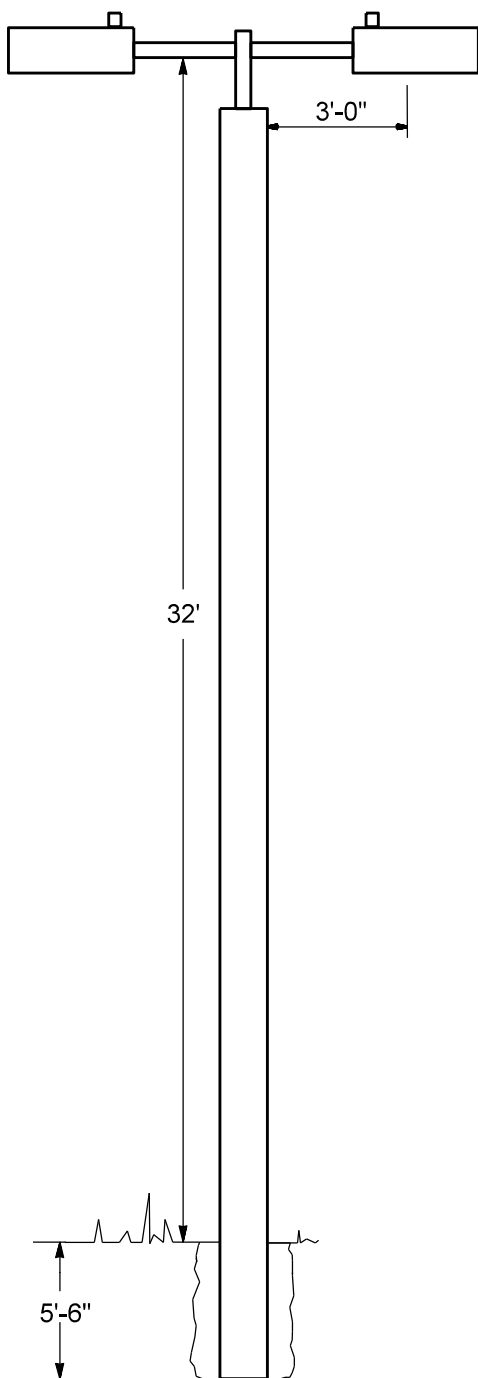


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULAH3616TP ULAH3616TD

SEE GENERAL NOTES PAGE 2-0-1.

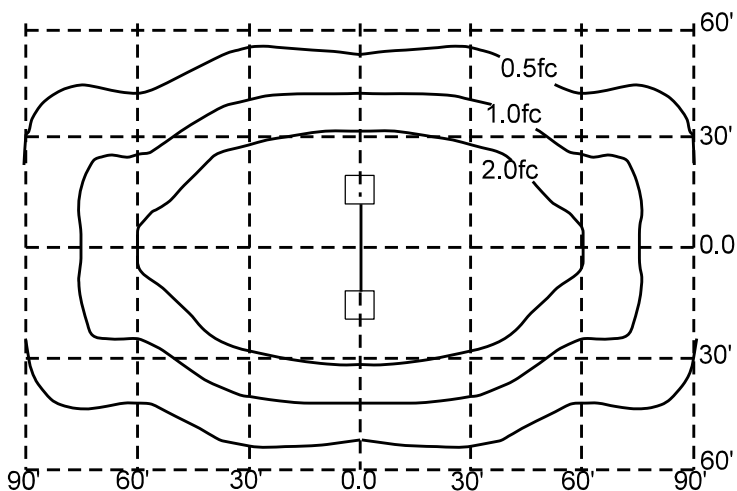


Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LED LUMINAIRE DUAL ARCHITECTURAL LUMINAIRE 16,000 LUMEN, 150 WATT LAMP 32 FOOT MOUNTING HEIGHT	ISSUE DATE: 01/31/00 REV. DATE: 12/20/12 APPROVAL: W. LARAMIE
	2-14-5	8518E192.DGN

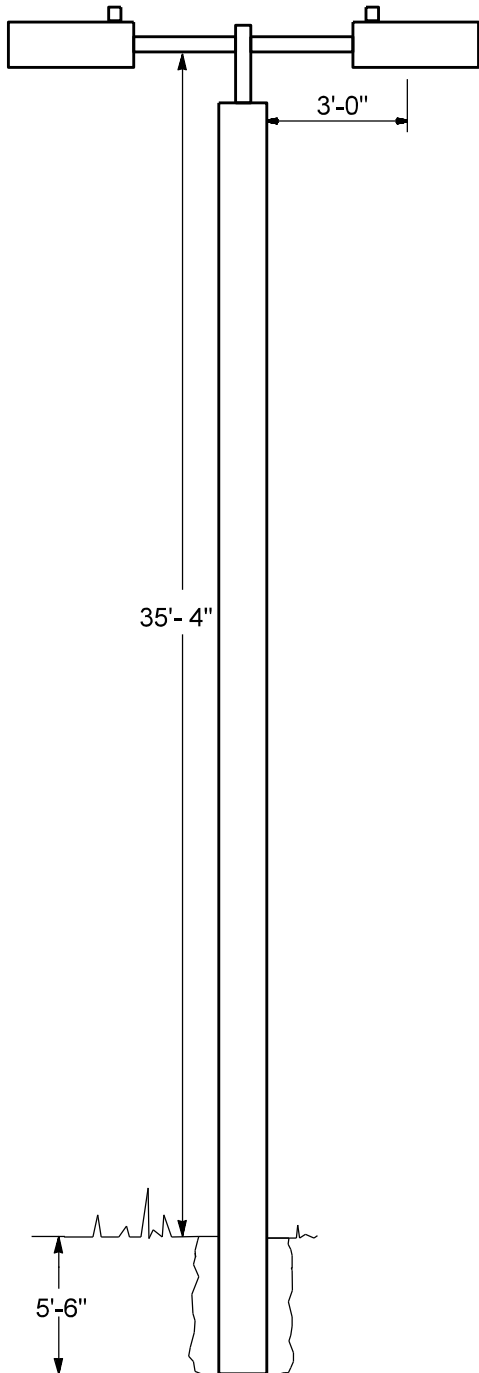


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULAH3630TP / ULAH3630TD

SEE GENERAL NOTES PAGE 2-0-1.

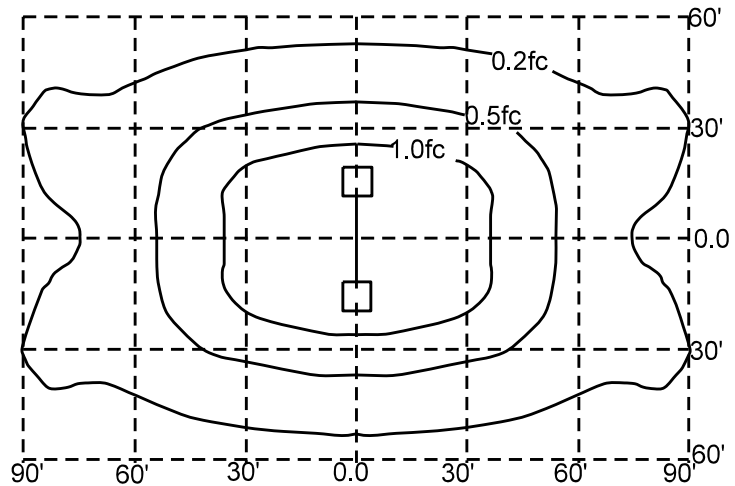


Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LED LUMINAIRE DUAL ARCHITECTURAL LUMINAIRE 30,000 LUMEN, 250 WATT LAMP 32 FOOT MOUNTING HEIGHT	ISSUE DATE: 01/31/00 REV. DATE: 01/16/13 APPROVAL: W. LARAMIE
	2-14-6	8518E299.DGN

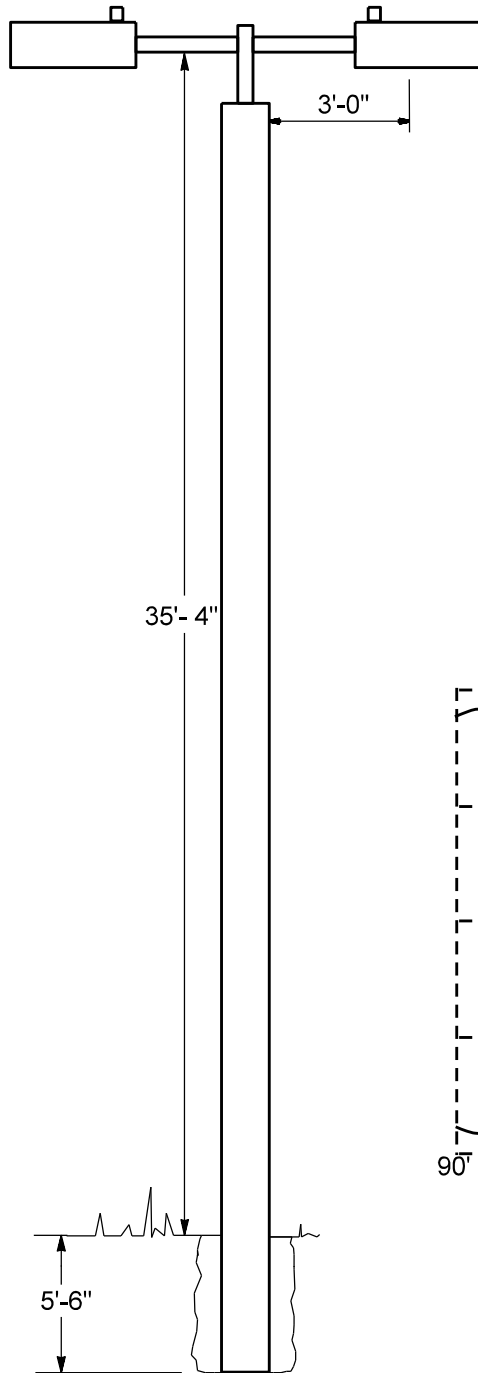


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE LIGHTING
- SERVED UNDERGROUND
- ULAH4009TP

SEE GENERAL NOTES PAGE 2-0-1.

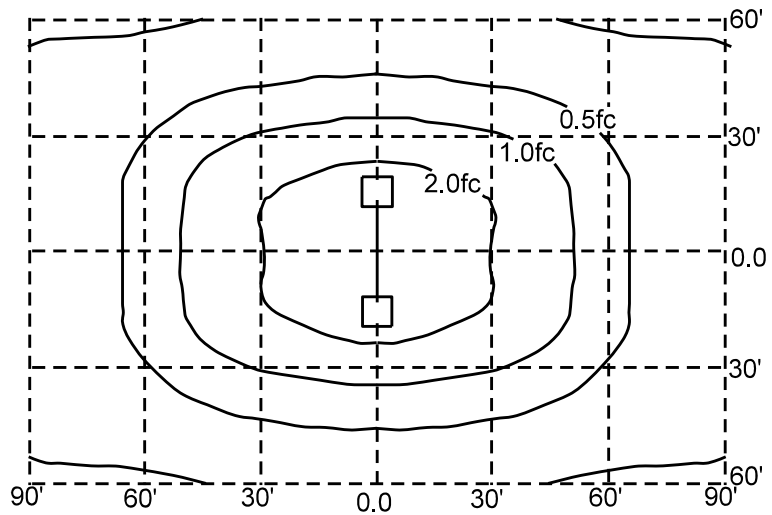


Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LED LUMINAIRE DUAL ARCHITECTURAL LUMINAIRE 9,500 LUMEN, 100 WATT LAMP 35'-4" MOUNTING HEIGHT	ISSUE DATE: 01/31/00 REV. DATE: 01/16/13 APPROVAL: W. LARAMIE
	2-14-7	8518E300.DGN

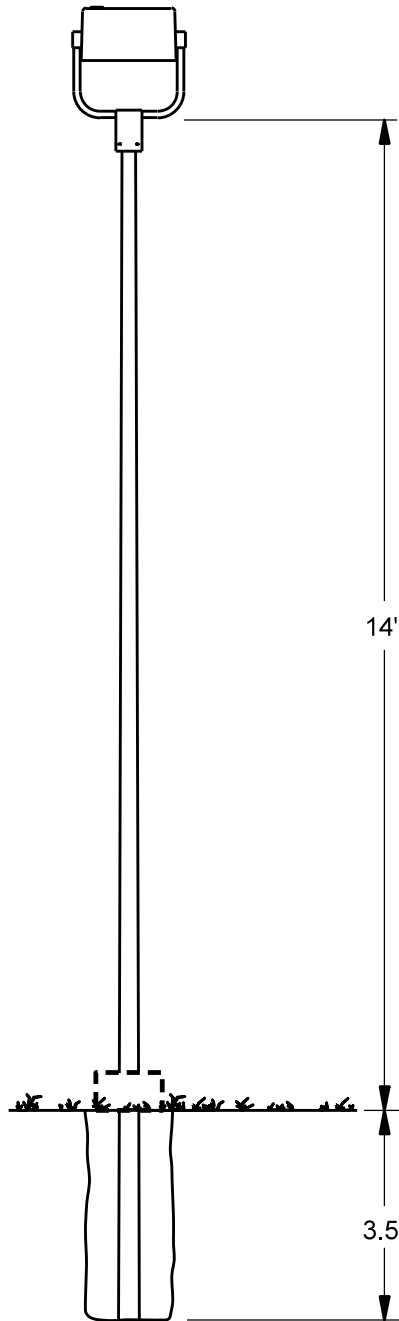


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, STEEL POLE
- FOR PRIVATE LIGHTING
- SERVED UNDERGROUND
- ULAH4016TP

SEE GENERAL NOTES PAGE 2-0-1.

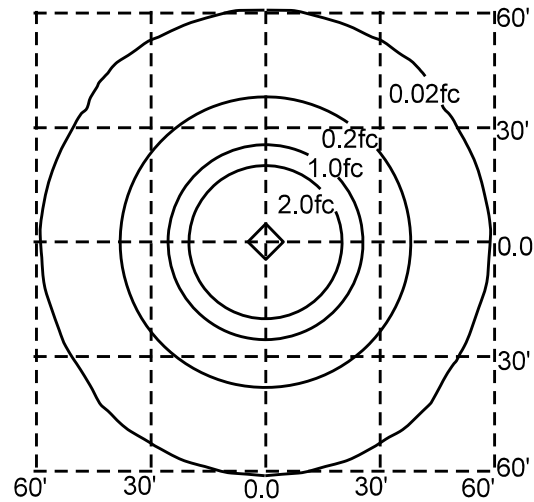


Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LED LUMINAIRE DUAL ARCHITECTURAL LUMINAIRE 16,000 LUMEN, 150 WATT LAMP 35'-4" MOUNTING HEIGHT	ISSUE DATE: 01/31/00 REV. DATE: 01/17/13 APPROVAL: W. LARAMIE
	2-14-8	8518E301.DGN



- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, FIBERGLASS POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULCHCF1709D / ULCHCF1709P

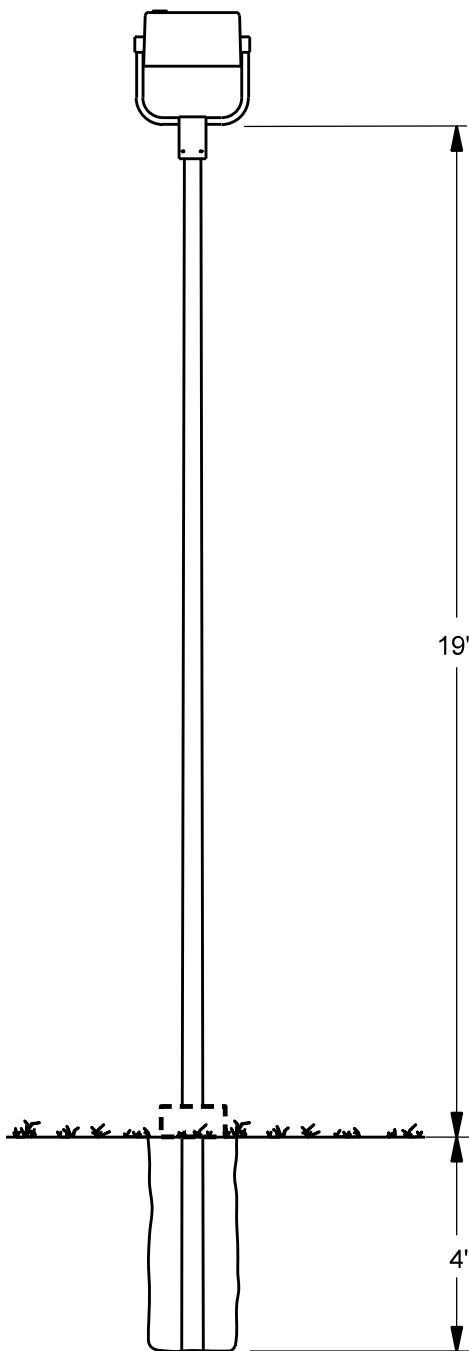
SEE GENERAL NOTES PAGE 2-0-1.



NOTES

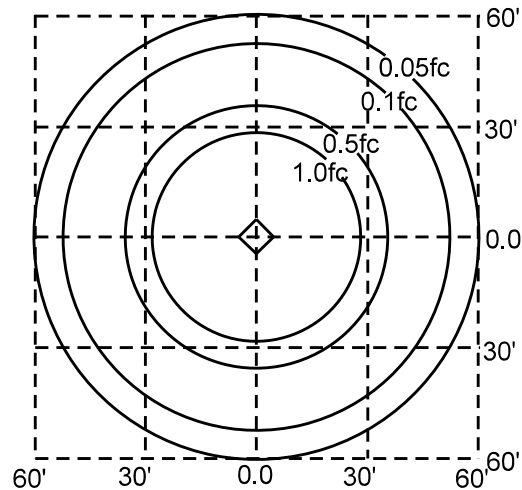
1. Ground line protection may be a collar as shown or a 1/2" thick layer of elastomeric urethane one foot above and below ground line.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE CONTEMPORARY LUMINAIRE 9,500 LUMEN, 100 WATT LAMP 14 FOOT MOUNTING HEIGHT 2-15-1	ISSUE DATE: 01/20/00 REV. DATE: 01/17/13 APPROVAL: W. LARAMIE 8518E296.DGN
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- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, FIBERGLASS POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULCHCF2309D / ULCHCF2309P

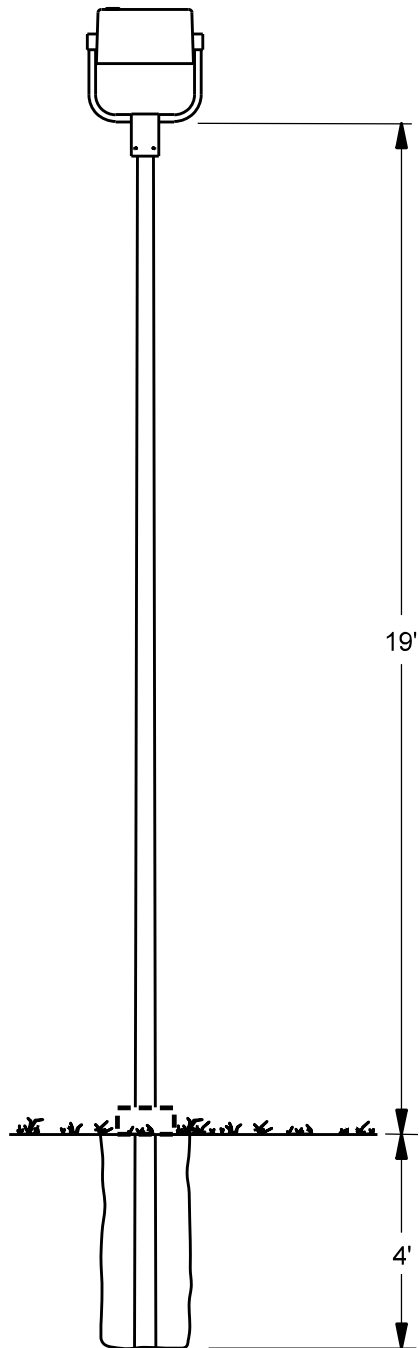
SEE GENERAL NOTES PAGE 2-0-1.



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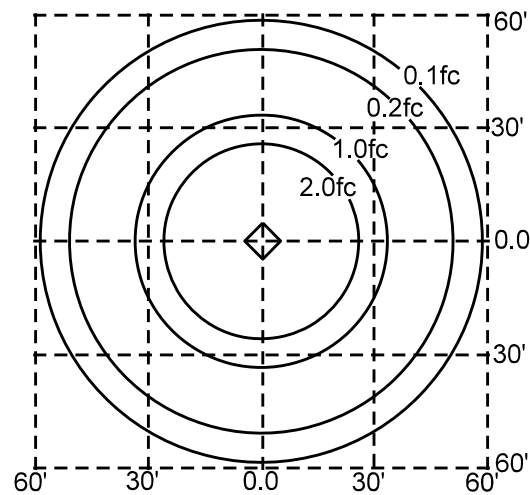
1. Ground line protection may be a collar as shown or a 1/2" thick layer of elastomeric urethane one foot above and below ground line.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE CONTEMPORARY LUMINAIRE 9,500 LUMEN, 100 WATT LAMP 19 FOOT MOUNTING HEIGHT 2-15-2	ISSUE DATE: 01/19/00 REV. DATE: 01/17/13 APPROVAL: W. LARAMIE 8518E297.DGN
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- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, FIBERGLASS POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULCHCF2316D ULCHCF2316P

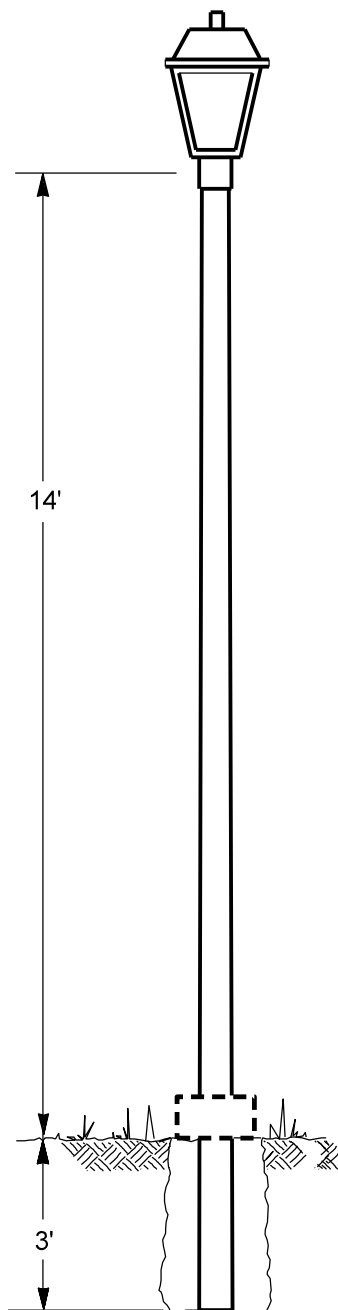
SEE GENERAL NOTES PAGE 2-0-1.



NOTES

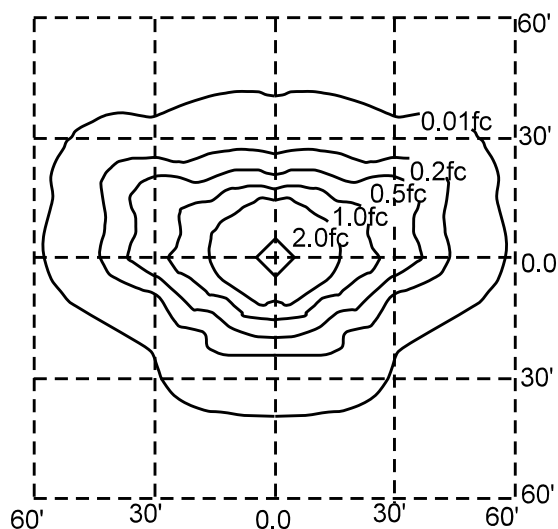
1. Ground line protection may be a collar as shown or a 1/2" thick layer of elastomeric urethane one foot above and below ground line.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE CONTEMPORARY LUMINAIRE 16,000 LUMEN, 150 WATT LAMP 19 FOOT MOUNTING HEIGHT 2-15-3	ISSUE DATE: 01/20/00 REV. DATE: 01/08/13 APPROVAL: W. LARAMIE 8518E298.DGN
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- HIGH PRESSURE SODIUM FIXTURE
- ROUND, BLACK, FIBERGLASS POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND
- ULEHCF1709D / ULEHCF1709P

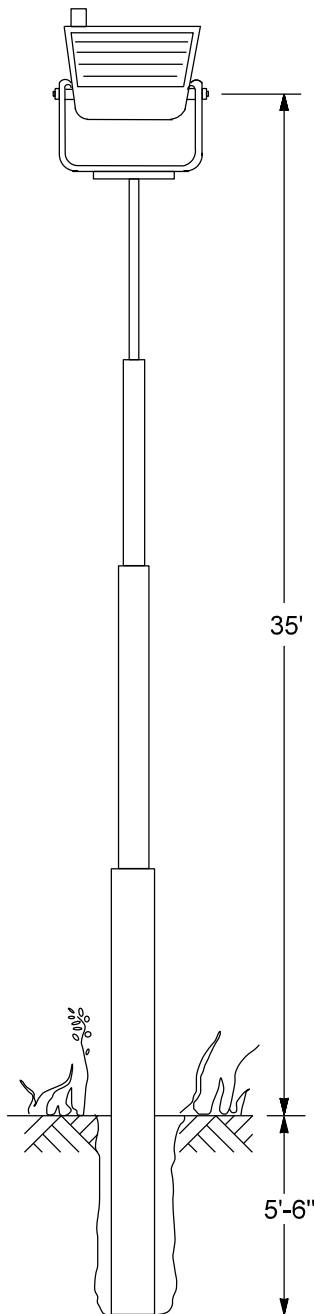
SEE GENERAL NOTES PAGE 2-0-1.



NOTES

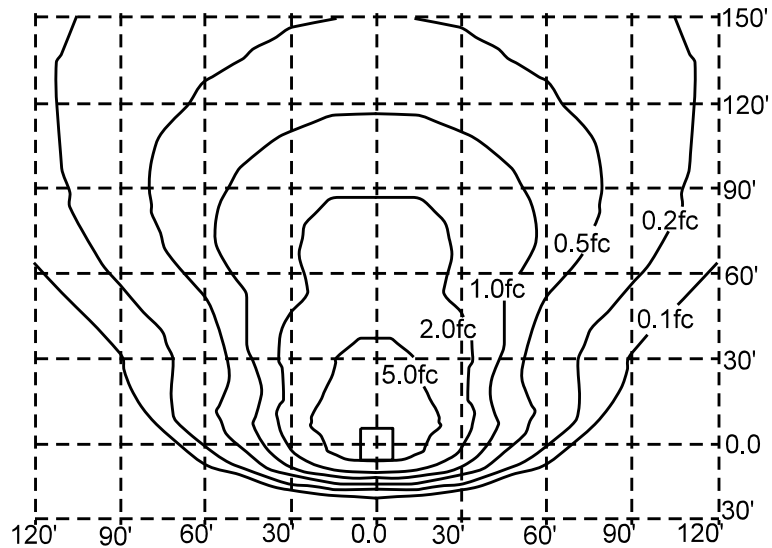
1. Ground line protection may be a collar as shown or a 1/2" thick layer of elastomeric urethane one foot above and below ground line.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE EARLY AMERICAN LUMINAIRE 9,500 LUMEN, 100 WATT LAMP 14 FOOT MOUNTING HEIGHT 2-16-1	ISSUE DATE: 12/22/99 REV. DATE: 01/08/13 APPROVAL: W. LARAMIE 8518E202.DGN
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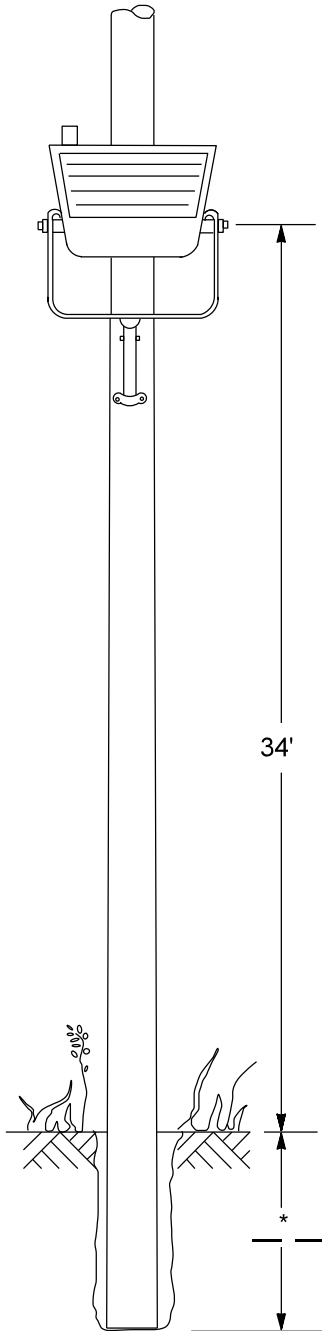


- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULFHC3150D LFHC3150D

SEE GENERAL NOTES PAGE 2-0-1.

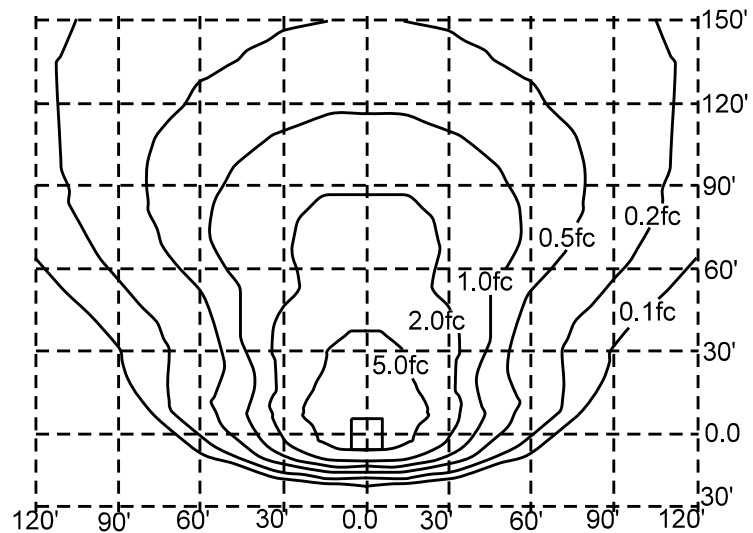


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE FLOODLIGHT 50,000 LUMEN, 400 WATT LAMP 36 FOOT MOUNTING HEIGHT 2-17-1	ISSUE DATE: 12/22/99 REV. DATE: 01/08/13 APPROVAL: W. LARAMIE 8518E302.DGN
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- HIGH PRESSURE SODIUM FIXTURE
- WOOD POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULFHC50D LFHC50D

SEE GENERAL NOTES PAGE 2-0-1.



* Generally installed on existing pole.

Outdoor Lighting
Standards



PROPRIETARY MATERIAL

LED LUMINAIRE
FLOODLIGHT

50,000 LUMEN, 400 WATT LAMP
34 +/- ONE FOOT MOUNTING HEIGHT

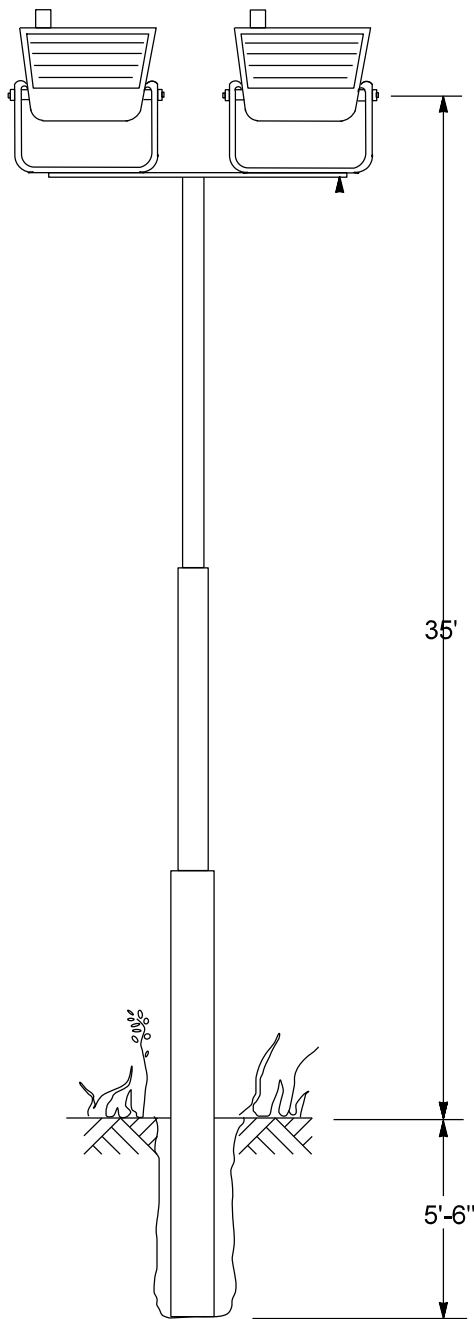
2-17-2

ISSUE DATE: 1/31/00

REV. DATE: 01/19/13

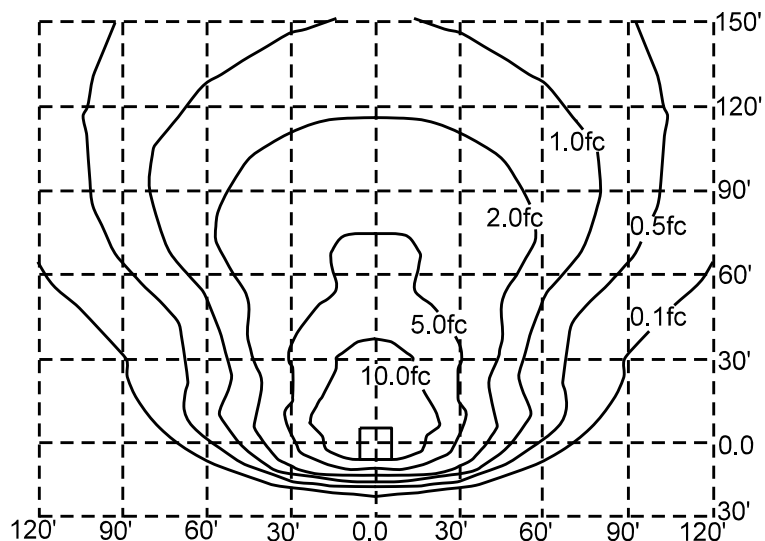
APPROVAL: W. LARAMIE

8518E303.DGN

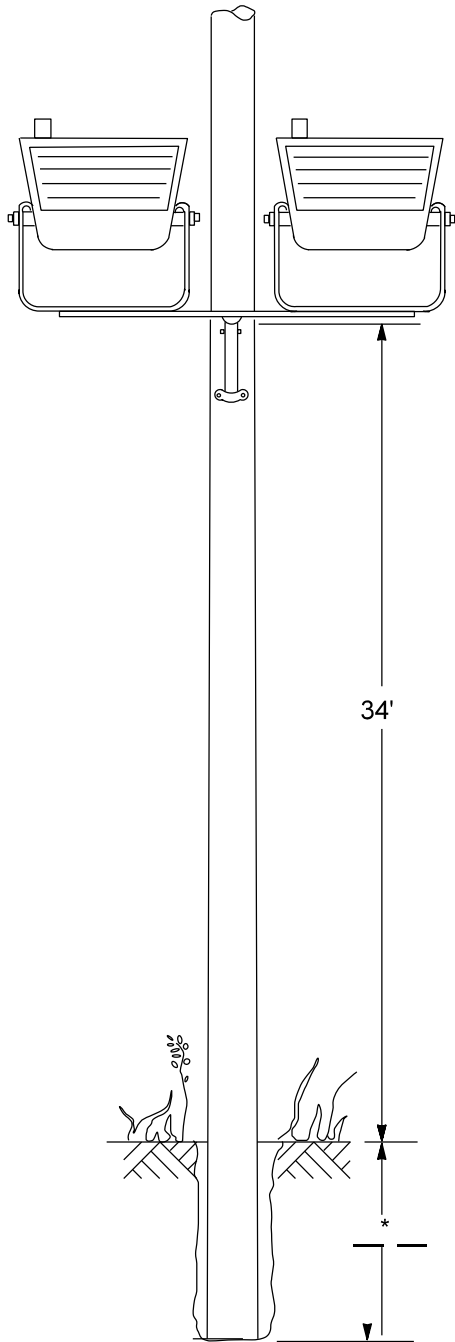


- HIGH PRESSURE SODIUM FIXTURE
- ROUND, GREY, STEEL POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULFHC3150TD / ULFHC3150TP
- LFHC3150TD / LFHC3150TP

SEE GENERAL NOTES PAGE 2-0-1.

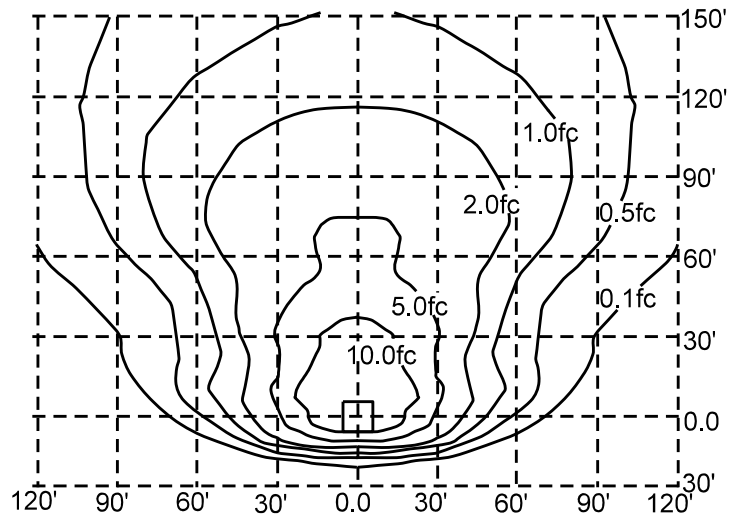


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE DUAL FLOODLIGHT 50,000 LUMEN, 400 WATT LAMP 35 FOOT MOUNTING HEIGHT 2-18-1	ISSUE DATE: 01/31/00 REV. DATE: 01/10/13 APPROVAL: W. LARAMIE 8518E304.DGN
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- HIGH PRESSURE SODIUM FIXTURE
- WOOD POLE
- FOR PRIVATE AND SECURITY LIGHTING
- SERVED UNDERGROUND OR OVERHEAD
- ULFHC50TD LFHC50TD

SEE GENERAL NOTES PAGE 2-0-1.



* Generally installed on existing pole.

Outdoor Lighting
Standards



PROPRIETARY MATERIAL

LED LUMINAIRE
DUAL FLOODLIGHT
50,000 LUMEN, 400 WATT LAMP
34 +/- ONE FOOT MOUNTING HEIGHT

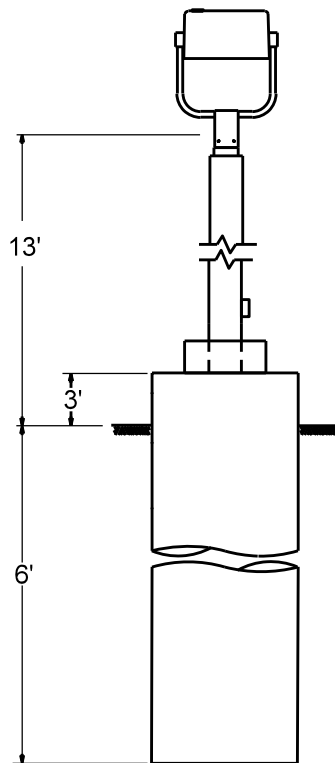
2-18-2

ISSUE DATE: 12/22/99

REV. DATE: 01/19/13

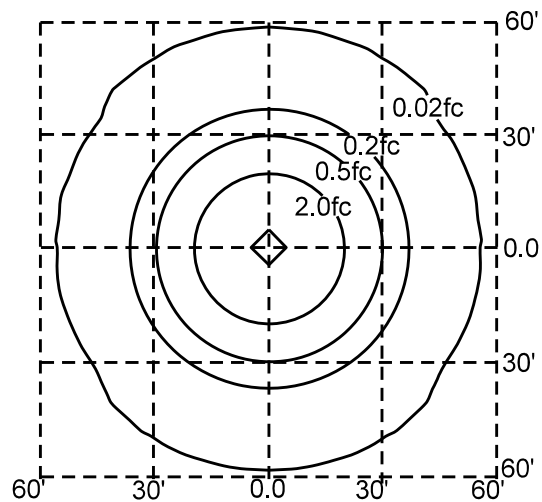
APPROVAL: W. LARAMIE

8518E305.DGN

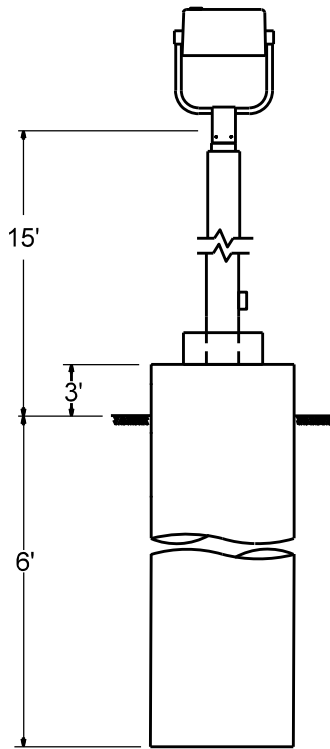


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, GREY, FIBERGLASS POLE, PEDESTAL MOUNT
- FOR WATER RETENTION BASIN LIGHTING
- SERVED UNDERGROUND
- ULCHPF1009P ULCHPF1009D

SEE GENERAL NOTES PAGE 2-0-1.

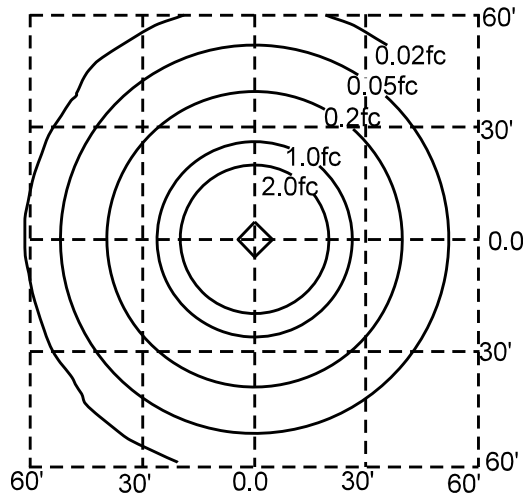


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE WATER RETENTION BASIN CONTEMPORARY, 3 FOOT PEDESTAL 9,500 LUMEN, 100 WATT LAMP / 13 FOOT MOUNTING HEIGHT	ISSUE DATE: 04/04/01
		REV. DATE: 12/27/12 APPROVAL: W. LARAMIE
	2-19-1	8518E306.DGN

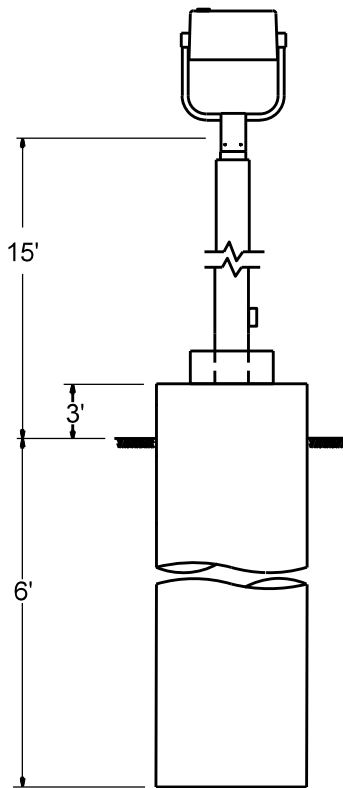


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, GREY, FIBERGLASS POLE, PEDESTAL MOUNT
- FOR WATER RETENTION BASIN LIGHTING
- SERVED UNDERGROUND
- ULCHPF1209P ULCHPF1209D

SEE GENERAL NOTES PAGE 2-0-1.

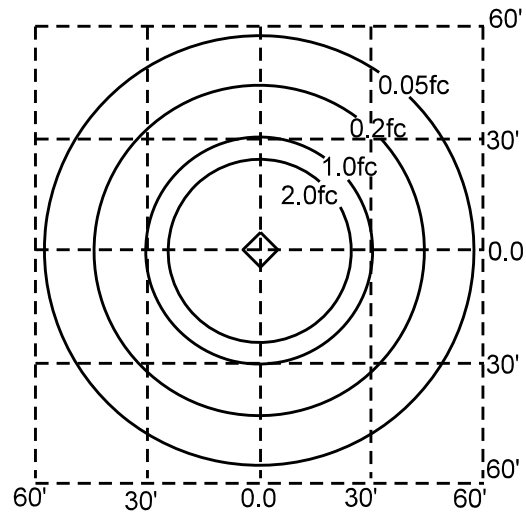


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE WATER RETENTION BASIN CONTEMPORARY, 3 FOOT PEDESTAL 9,500 LUMEN, 100 WATT LAMP / 15 FOOT MOUNTING HEIGHT	ISSUE DATE: 04/04/01
		REV. DATE: 12/20/12 APPROVAL: W. LARAMIE
	2-19-2	8518E307.DGN

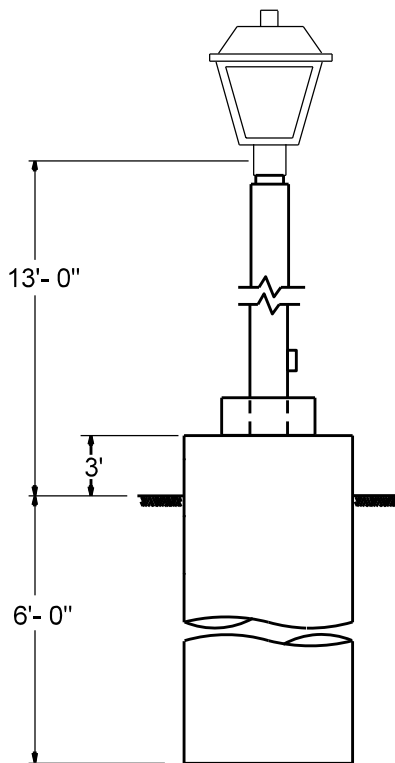


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, GREY, FIBERGLASS POLE, PEDESTAL MOUNT
- FOR WATER RETENTION BASIN LIGHTING
- SERVED UNDERGROUND
- ULCHPF1216P ULCHPF1216D

SEE GENERAL NOTES PAGE 2-0-1.

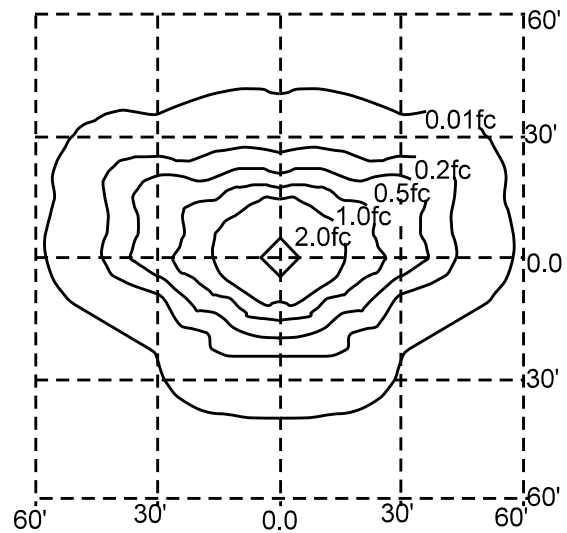


Outdoor Lighting Standards  PROPRIETARY MATERIAL			
	LED LUMINAIRE WATER RETENTION BASIN CONTEMPORARY, 3 FOOT PEDESTAL 16,000 LUMEN, 150 WATT LAMP / 15 FT. MOUNTING HEIGHT		ISSUE DATE: 04/04/01
			REV. DATE: 12/20/12
	2-19-3		APPROVAL: W. LARAMIE
			8518E308.DGN

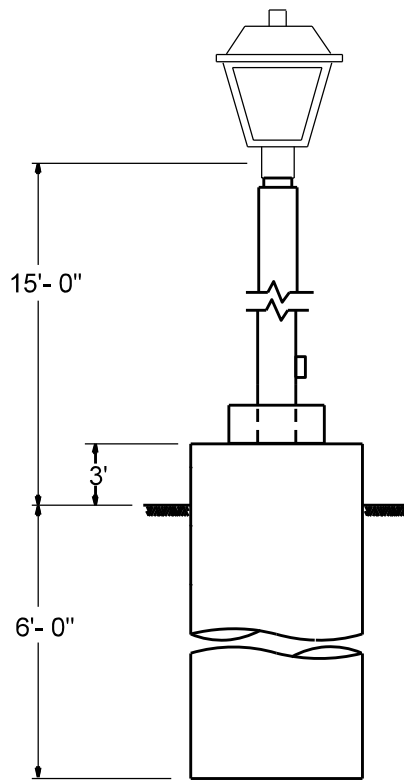


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BLACK, FIBERGLASS POLE, PEDESTAL MOUNT
- FOR WATER RETENTION BASIN LIGHTING
- SERVED UNDERGROUND
- ULEHPF1009P ULEHPF1009D

SEE GENERAL NOTES PAGE 2-0-1.

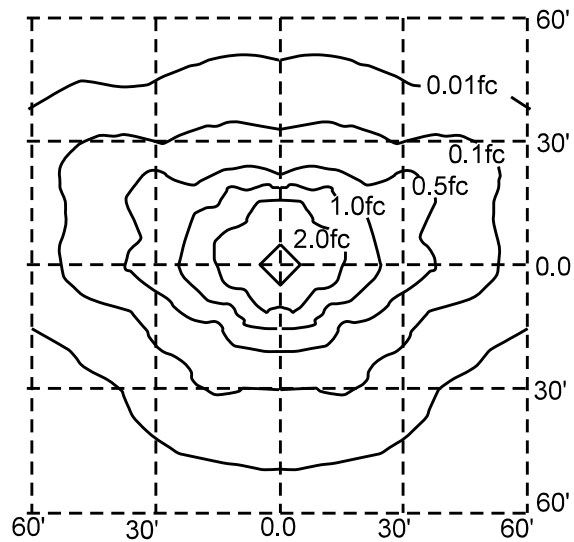


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE WATER RETENTION BASIN EARLY AMERICAN, 3 FOOT PEDESTAL 9,500 LUMEN, 100 WATT LAMP / 13 FOOT MOUNTING HEIGHT	ISSUE DATE: 03/05/09
		REV. DATE: 12/20/12 APPROVAL: W. LARAMIE
	2-20-1	8518E309.DGN

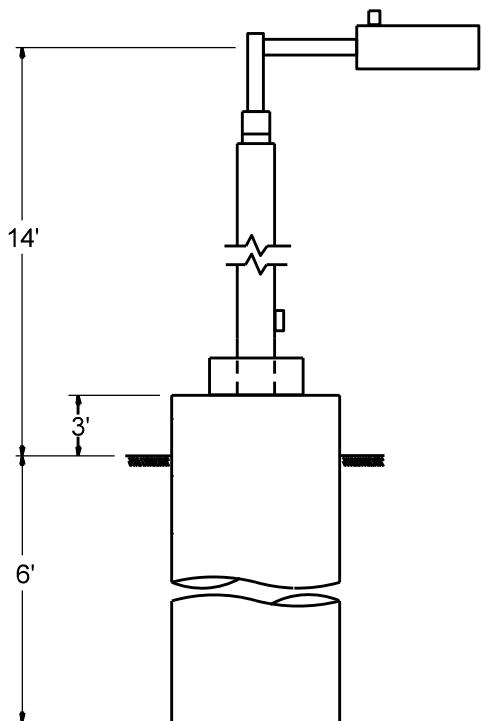


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BLACK, FIBERGLASS POLE, PEDESTAL MOUNT
- FOR WATER RETENTION BASIN LIGHTING
- SERVED UNDERGROUND
- ULEHPF1209P ULEHPF1209D

SEE GENERAL NOTES PAGE 2-0-1.

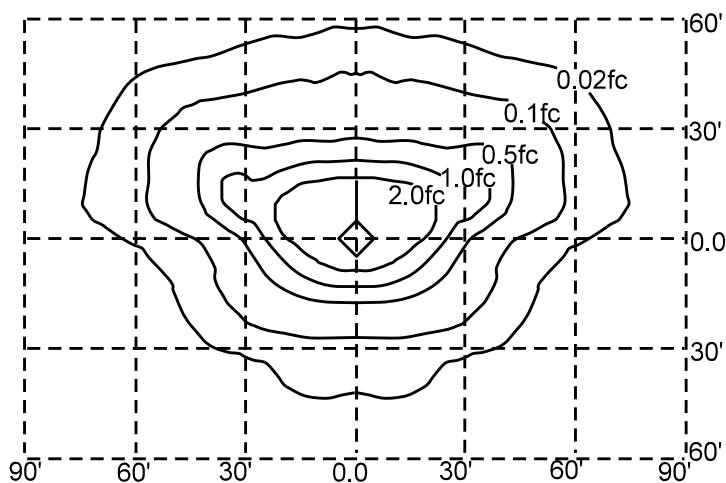


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE WATER RETENTION BASIN EARLY AMERICAN, 3 FOOT PEDESTAL 9,500 LUMEN, 100 WATT LAMP / 15 FOOT MOUNTING HEIGHT	ISSUE DATE: 03/05/01 REV. DATE: 12/20/12 APPROVAL: W. LARAMIE
	2-20-2	8518E310.DGN

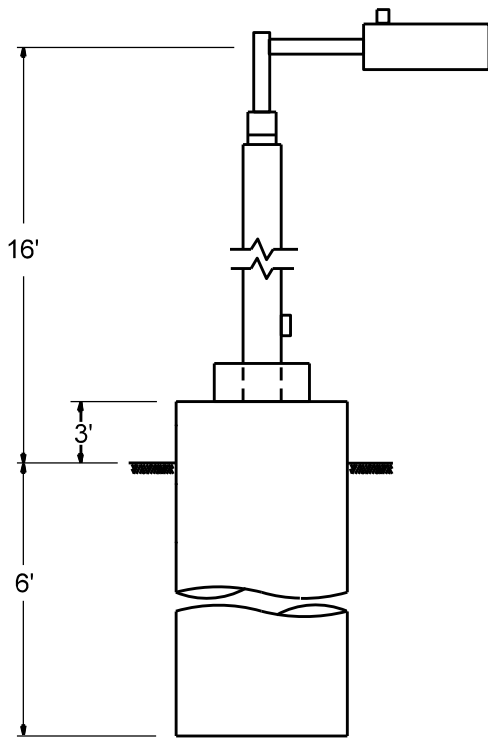


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, FIBERGLASS POLE, PEDESTAL MOUNT
- FOR WATER RETENTION BASIN LIGHTING
- SERVED UNDERGROUND
- ULSF1009D ULSF1009P

SEE GENERAL NOTES PAGE 2-0-1.

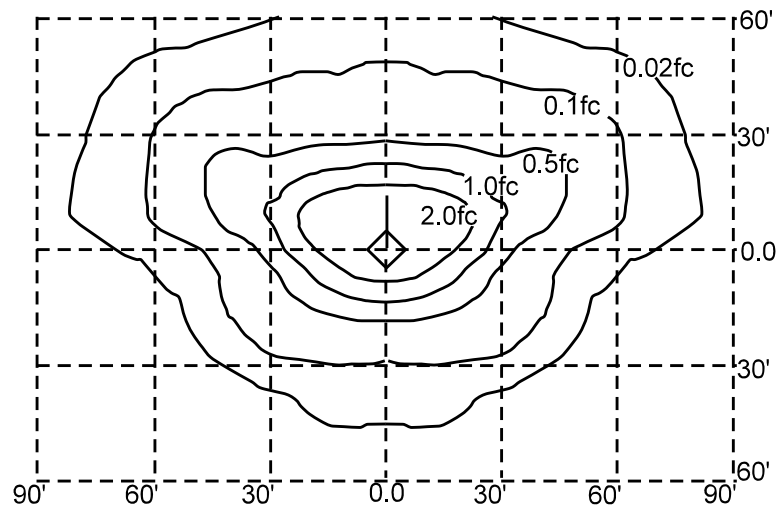


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE WATER RETENTION BASIN ARCHITECTURAL, 3 FOOT PEDESTAL 9,500 LUMEN, 100 WATT LAMP / 14 FOOT MOUNTING HEIGHT 2-21-1	ISSUE DATE: 01/31/00 REV. DATE: 12/20/12 APPROVAL: W. LARAMIE 8518E311.DGN

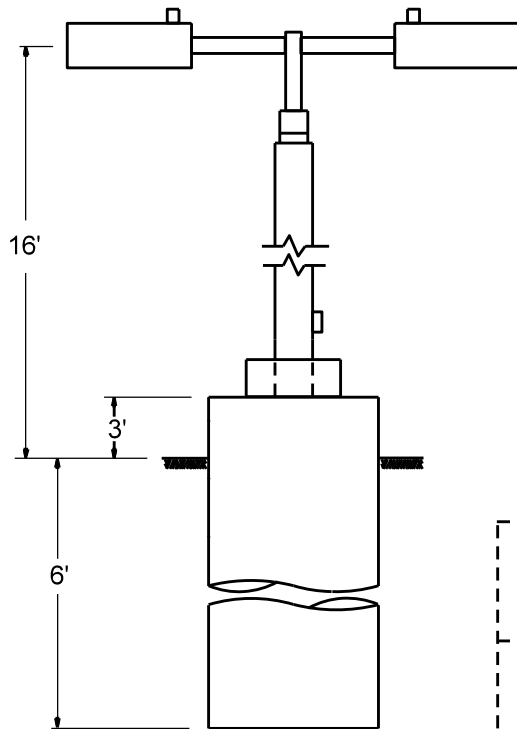


- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, FIBERGLASS POLE, PEDESTAL MOUNT
- FOR WATER RETENTION BASIN LIGHTING
- SERVED UNDERGROUND
- ULSF1209D ULSF1209P

SEE GENERAL NOTES PAGE 2-0-1.

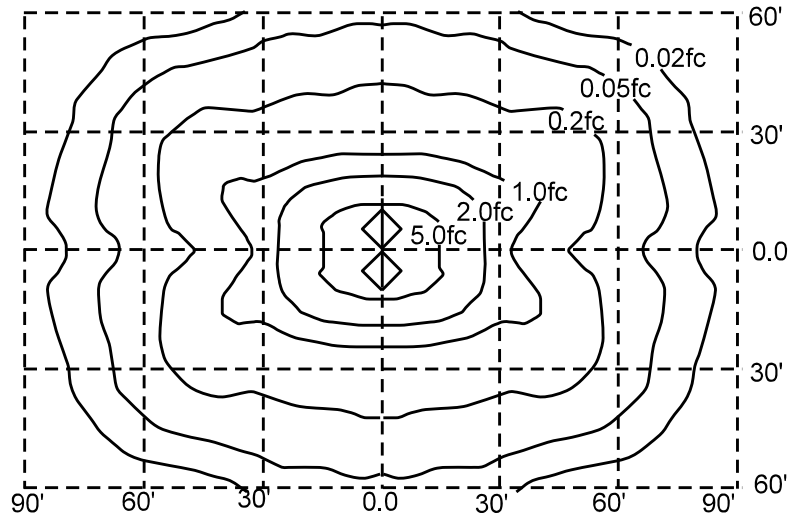


Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE WATER RETENTION BASIN ARCHITECTURAL, 3 FOOT PEDESTAL 9,500 LUMEN, 100 WATT LAMP / 16 FOOT MOUNTING HEIGHT 2-21-2	ISSUE DATE: 04/04/01 REV. DATE: 12/20/12 APPROVAL: W. LARAMIE 8518E312.DGN



- HIGH PRESSURE SODIUM FIXTURE
- SQUARE, BROWN, FIBERGLASS POLE, PEDESTAL MOUNT
- FOR WATER RETENTION BASIN LIGHTING
- SERVED UNDERGROUND
- ULSF1209TD ULSF1209TP

SEE GENERAL NOTES PAGE 2-0-1.



Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE WATER RETENTION BASIN DUAL ARCHITECTURAL, 3 FOOT PEDESTAL 9,500 LUMEN, 100 WATT LAMP / 16 FOOT MOUNTING HEIGHT		ISSUE DATE: 04/04/01
	2-22-1		REV. DATE: 12/20/12
			APPROVAL: W. LARAMIE 8518E312.DGN

Some municipalities are replacing or installing luminaires, fed from the SRP system, that are non-standard luminaires. Non-standard meaning SRP does not have a compatible unit (CU) describing these luminaires. Examples: LED, metal halide, low pressure sodium and inductive.

SRP maps un-metered served lighting (streetlights, private/security) when served from its distribution system for billing purposes and to control loading on electrical circuits. Use the table below to map non-standard Customer-owned lighting in USMS when CUs are not available for the luminaire installed.

Bill Code	Lumen	Type	Watt	kWH	City
LC05S	5800	High Pressure Sodium	70	25	-
LC09S	9500	High Pressure Sodium	100	46	-
LC16S	16000	High Pressure Sodium	150	74	-
LC22S	22000	High Pressure Sodium	200	92	Mesa
LC27S	27500	High Pressure Sodium	250	108.5	Mesa
LC30S	30000	High Pressure Sodium	250	109	-
LC37S	37000	High Pressure Sodium	310	140	Mesa
LC50S	50000	High Pressure Sodium	400	169	-
LC80S	8000	Low Pressure Sodium	55	19.25	-
LC13S	13500	Low Pressure Sodium	90	31.5	-
LC22LS	22500	Low Pressure Sodium	135	47.25	-
LC33S	33500	Low Pressure Sodium	180	63	-
-	4000	Mercury Vapor	100	43	-
LC07S	7000	Mercury Vapor	175	67	-
LC11S	11000	Mercury Vapor	250	100	-
LC20S	21000	Mercury Vapor	400	154	-
-	50000	Mercury Vapor	400	400	-
LC05H	5000	Metal Halide	70	33	-
LC08H	8500	Metal Halide	100	44	-
LC12H	12000	Metal Halide	175	74	-
-	13000	Metal Halide	150	65	-
LC18H	18000	Metal Halide	250	103	-
LC36H	36000	Metal Halide	400	367	-
-	110000	Metal Halide	1000	385	-
LC40E*	4832	LED	70	27	Mesa
LC26E	2607	LED	37	15	Scottsdale
LC84E	8497	LED	122	48	Scottsdale
LC16IF	16000	Incan Fluorescent	150	56	ADOT

* Due to the present lack of standardized LED luminaire designs, bill codes for most wattages are not listed. Call 602-236-0459 for additional bill codes.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LED LUMINAIRE NON-STANDARD CUSTOMER-OWNED LUMINAIRES	ISSUE DATE: 12/28/10 REV. DATE: 01/16/13 APPROVAL: W. Laramie
	2-23-1	OL2-23-1.doc

UnMetered Services has an online process for creating lighting contracts that can be installed by going to this link: [Distribution Design Policies & Procedures Manual and Costing Manual - Home](#)

The online forms are for Commercial New Business (Commercial or Residential) and HMC (Residential New Business). By filling in the forms online the monthly charge and the construction and permit charges are calculated.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	LED LUMINAIRE ONLINE LEASING FORM 2-24-1	ISSUE DATE: 01/16/13 REV. DATE: APPROVAL: W. Laramie OL2-24-1.doc
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Contract Number



Delivering More Than Power.®

PRIVATE AND SECURITY LIGHTING LEASING CONTRACT

CUSTOMER NAME				SUBDIVISION NAME				LOCATION KEY ACCT #			
INSTALLATION ADDRESS				RIDER:		SECURITY 4 YEARS E57	PRIVATE 20 YEARS E50	CUSTOMER 20 YEARS E51	10 YEARS E59		
COORDINATE LOCATION				OVHD X	UG						
CARE OF NAME/DBA				*CIAC FEES: \$				*CONSTRUCTION FEES: -			
MAILING ADDRESS (Street Address, City, State, Zip Code)				PERMIT FEES		MUNICIPALITY		HANDLING	TOTAL		
INSTALLATION CITY				STATE		ZIP CODE		Commercial			

PROJECT LIGHTING STYLE

*Construction and permit fees must be paid prior to design and installation of lights.

	OWNER	STYLE	LUMENS	QTY	MTG HEIGHT	QTY	ARM SIZE	QTY	UNIT PRICE	TOTAL
CODE	1									
PRICE			TWIN		PED	\$ -		\$ -		
CODE	2									
PRICE			TWIN		PED					
CODE	3									
PRICE			TWIN		PED					
CODE	4									
PRICE			TWIN		PED					
CODE	5									
PRICE			TWIN		PED					
TOTAL SUMMER MONTHLY CHARGE**										

**(subject to change at time of any subsequent rate increase)

Customer is advised to schedule a pre-construction mtg prior to trenching. All work must be inspected, to schedule pre-con and/or inspection call:
 EAST: 602-236-6300 WEST: 602-236-0676 HMC: 602-236-0829

<u>Underground Applications:</u>	The customer is responsible for all trenching, conduit installation, backfill & landscaping repairs. The customer will supply and install a j-box & sonotube at each light location. Specific design criteria to be specified on the installation drawing. SRP will pull in the conductors and install the light in the sonotube.
<u>Overhead Applications:</u>	The customer is responsible for installing sonotubes for each light location. SRP will install the light and provide overhead electrical service.

Please sign and return this contract with the total amount due on or before 'DATE HERE'

TOTAL DUE FOR CONSTRUCTION AND PERMITS:

This agreement authorizes SRP to install, maintain, render billing, and remove unmetered lighting services as indicated herein, in accordance with terms and conditions set forth with the Rate Schedules 56 and 57. Neither this agreement nor the service supplied thereunder, shall be transferable by Customer without written consent of the District. This agreement is subject to change in the applicable rate schedule and/or standard adjustments. If Customer revises or cancels the installation/modification of facilities, SRP will charge Customer for any additional costs incurred by SRP, including but not limited to design and engineering costs. Such costs may be retained by SRP from any previously collected from Customer, or billed directly to Customer, as appropriate. This agreement expires after 11/30/2012 if not executed.

RESPONSIBLE PARTY	DATE	SRP REPRESENTATIVE	10/31/2012 DATE
PRINT NAME & TITLE		RELATED JOB NUMBER	COST CENTER
CUSTOMER PHONE NUMBER		WORKORDER NO:	

Form Rev: 10/31/2012

Additional Terms Conditions on Page 2

Page 1 of 2

Outdoor Lighting
Standards

PROPRIETARY MATERIAL

LED LUMINAIRE
PRIVATE AND SECURITY LIGHTING
LEASING CONTRACT EXAMPLE

2-25-1

 ISSUE DATE: 01/10/00
 REV. DATE: 01/28/13
 APPROVAL: W. Laramie

OL2-25-1.doc

- A. This contract agreement between the Salt River Project Agriculture & Power Improvement District, hereinafter referred to as SRP, and the customer is a lease agreement. The customer is entitled to all the rights and privileges of the lease as stated herein.
- B. Customer shall pay for such lighting service pursuant to the terms and conditions set forth in the Electric Rate Schedule, E-56 and any applicable rider(s), or any successor rate, this contract and the District Rules Regulations which are by reference incorporated herein. Copies of the Electric Rate Schedule and Salt River Project Rules and Regulations are available for inspection at the Business Office. Excerpts from the E-56 and any applicable rider(s), or any successor rate Electric Rate Schedule are listed below for the customer's convenience and as such are not given greater or lesser weight than the complete schedule or the Salt River Project Rules and Regulations. The SRP Rules & Regulations is available at WWW.SRPNET.COM.
- C. SRP will not do temporary light turn offs at customer request nor will monthly bills be reduced because of lamp outages. The customer must notify SRP when lamp outages occur by calling 602-236-8888.
- D. A customer may cancel a lighting service agreement by payment of the monthly bill including the applicable tax adjustment, multiplied by the number of remaining months of the initial contract, or the "up and down" costs for the installation, whichever is lower. Call 602-236-8888 for information.
- E. A guarantee deposit may be required for the installation of the light(s).
- F. The point of delivery shall be at a junction box point or handhole of the pole for underground installations and at the overhead attachment point when lines are run overhead.
- G. A customer may not make connections, attachments, or alterations to the electric lighting circuits or to the lighting equipment without SRP's written consent.
- H. A customer must pay for the cost of relocating a SRP owned security or private street lighting installation unless such relocation is made for the convenience of SRP.
- I. Items for which no basic charge has been included in this schedule will be billed at a charge determined by SRP management, subject to ratification or retroactive adjustment by the SRP Board of Directors within one year from initiation of the charges.
- J. Additions to or conditions relating to security or private street lighting other than those contained herein will be by supplementary agreement between the customer and SRP.
- K. A customer shall pay for the cost of additions to the security or private street lighting system by a non-refundable contribution in aid of construction.
- L. Where any installation of underground service must be made in difficult areas such as under paving, in rocky terrain, etc., SRP may require the customer to bear any additional costs of construction as determined by SRP field survey.
- M. In the event it becomes necessary for either party to employ an attorney to enforce compliance with the terms of this contract, said party, if successful in enforcing its rights, shall be entitled to reimbursement from the other party for reasonable attorney's fees, as determined by the court, and costs and expenses incurred in such enforcement.

Legal description:

		
	LED LUMINAIRE PRIVATE AND SECURITY LIGHTING LEASING CONTRACT EXAMPLE	ISSUE DATE: 01/10/00 REV. DATE: 01/28/13 APPROVAL: W. Laramie
	2-25-2	OL2-25-1.doc

Information Needed for Private/Security Lighting Agreement

*(All information must be complete, legible, and accurate otherwise this project may be delayed.
Upon completion of filling out this form, please return to your DDC for processing).*

SRP DDC providing this information: _____

Check one: ___ SRP owned, maintained and installed

 ___ Customer owned, maintained and installed

Project Name/Number: _____

Contract Legal Name: _____

(Must be INC, LLC, or HOA)

Billing Name: (mgmt. co.): _____

Billing Address: _____

Print name of Authorized Signer _____

Signer's title: _____ Phone #: _____

If SRP Lights:

Style of Lights: _____ Number of Lights: _____

Height of Pole: _____ Lumen/Wattage: _____

Compatible Unit: _____

If Customer Lights:

Number of lights: _____ Lumen/Wattage: _____

Name/phone number of person giving info: _____

Fax number: _____

Any additional information:

 PROPRIETARY MATERIAL	LED LUMINAIRE PRIVATE / SECURITY LIGHTING AGREEMENT		ISSUE DATE: 01/15/08
	2-26-1		REV. DATE: 01/28/13 APPROVAL: W. Laramie
			OL2-26-1.doc

SECTION 3: DESIGN AND MISCELLANEOUS

Title / Description	Page
Non-Municipal	3-1-1
Non-Municipal Luminaire, Pole Replacement	3-2-1
J-Box Requirements	3-3-1
Non-Municipal Lighting, Special Municipal Restrictions	3-4-1
Illumination Levels	3-5-1
Voltage Drop Calculations	3-6-1
Electric Service Requirements and Sources	3-7-1
City Owned Streetlights, Point of Delivery Detail.....	3-8-1
Water Retention Basin, Pole Placement	3-9-1
Light Poles in Areas Vulnerable to Vehicle Contact	3-10-1
Streetlight Pole, J-Box Location Details	3-11-1
Clear Area for Customer Equipment Adjacent to Transformer	3-12-1
Pole Marking and Identification	3-13-1
Municipal Streetlights, Pole Placement, City of Tempe, Reference Only	3-14-1
Municipal Streetlights, Pole Placement, City of Scottsdale, Reference Only	3-15-1
Municipal Streetlights, Pole Placement, Reference Only	3-16-1

I. Non-Municipal

A. Light Design

The following steps are necessary to complete a non-municipal light design. The order in which these are completed will vary.

1. Determine the mounting height requirements. For walk-ins (no bucket truck access) the maximum mounting height is 17 feet.
2. Identify the luminaire placement.
3. Municipal restrictions may apply.
4. Private security light poles and their point-of-delivery junction boxes are not to be installed within public utility easements.
5. Identify the electric service requirements and sources.
6. Check for voltage drop limitations using the Streetlight Voltage Drop Calculation Program Model: [Design Tools - New Streetlight Voltage Drop Model \(srp.gov\)](http://srp.gov)

 PROPRIETARY MATERIAL		
	DESIGN AND MISCELLANEOUS NON-MUNICIPAL	ISSUE DATE: 11/19/99 REV. DATE: 03/22/16 APPROVAL: S. Duran
	3-1-1	OL3-1-1.doc

I. Non-Municipal Luminaire

A. Pole Placement

The Customer usually has a preference in pole locations. The following are restrictions.

1. Place the pole where it can be reached by SRP bucket trucks. The circumstances may not allow this, but it makes a major impact on the cost to maintain the luminaire. If such a location is not possible, the location shall be in an area where it is easily accessible by a ladder and the mounting height shall be 17 feet or less.
2. If the luminaire is mounted on a wood pole, the luminaire must be either accessible by a bucket truck or the mounting arm shall be 24 inches or less to allow maintenance from the pole.
3. Avoid placing the pole in watered areas to reduce corrosive damage to the pole. Use the concrete pedestal mounted poles in water retention areas.
4. Attempt to place the pole in an area away from vehicle traffic.
5. Do not place poles within locked areas.
6. Choose a site where it will be convenient to access underground or overhead service.
7. Bonding shall be provided between all above ground metallic power and communications apparatus (pedestals, terminals, apparatus cases, transformer cases, metal poles, etc.) that are separated by a distance of 6 feet or less. See Construction Standards section, Light Poles in Proximity of Metallic Apparatus, Bonding.

 PROPRIETARY MATERIAL		
	DESIGN AND MISCELLANEOUS NON-MUNICIPAL LUMINAIRE POLE PLACEMENT	ISSUE DATE: 01/29/08 REV. DATE: 01/28/13 APPROVAL: W. Laramie
	3-2-1	OL3-2-1.doc

I. Junction Box (J-Box) and Lighting

A. Circuit Requirements

1. Light poles shall be served from a flush-mounted streetlight j-box which serves as POD. See the Construction Standards section for details. If the pole is six feet or less from any metallic apparatus, bonding is required. See Construction Standards section, Light Poles in Proximity of Metallic Apparatus, Bonding.
2. Above ground j-boxes are not an acceptable POD for streetlight circuits.
3. See the Electric Service Specifications, Trenching and Conduit section, Customer Excavation Limits, for precautionary instructions concerning digging near SRP electrical facilities.

 PROPRIETARY MATERIAL		
	DESIGN AND MISCELLANEOUS J-BOX AND LIGHTING CIRCUIT REQUIREMENTS	ISSUE DATE: 05/23/05
		REV. DATE: 07/17/21
		APPROVAL: J. Luera
	3-3-1	OL3-3-1.doc

I. Non-Municipal Lighting

A. Special Municipal Restrictions

1. County – General

By law a county in Arizona cannot own street lighting. If a development, with private streets, wants street lighting, the HOA can request non-municipal lighting from SRP and may negotiate with the county to pay SRP for the service. SRP will not light major public roadways.

2. Maricopa County

All luminaires must be cutoff style with no more than 2% uplight. All SRP luminaires presently purchased conform to this standard.

3. Tempe

a) Light poles shall not exceed 18 feet in height within 50 feet of any residential zoning district, 25 feet in height within 50 to 150 feet of any residential zoning district, and 30 feet in all other locations. Height shall be measured from the top of a light fixture to the adjacent grade at the base of the support for that light fixture.

b) Floodlights are permitted only on industrial property.

c) All exterior light shall be directed downward and away from adjoining property.

4. Phoenix

a) Lighting should be shielded to prevent direct visibility of the source from adjacent property.

b) Projected light level at the property line should be limited to one foot-candle or less.

c) Luminaire mounting height shall be limited to 15 feet or less, within 150 feet of a residence.

d) Luminaire mounting height shall be limited to 25 feet or less adjacent to nonresidential districts.

 PROPRIETARY MATERIAL		
	DESIGN AND MISCELLANEOUS NON-MUNICIPAL LIGHTING SPECIAL MUNICIPAL RESTRICTIONS	ISSUE DATE: 11/19/99 REV. DATE: 01/28/13 APPROVAL: W. Laramie
	3-4-1	OL3-4-1.doc

I. Illumination Levels

A. Options

If the Customer has requested an approximate foot-candle illumination level, there are two options:

1. Use the photometric pattern for the type, wattage and pole height for the specific luminaire in the Customer Data section of this book. A clear plastic “overhead projector” copy of the chart can be overlaid on top of a scaled drawing of the Customer’s property. Wherever the patterns overlay for two luminaires the foot-candle values are additive.
2. Contact Policy, Procedures & Standards (PP&S).

PP&S will need:

- a) A dimensioned drawing of the area to be illuminated
- b) The foot-candles of illumination requested
- c) Pole height
- d) Number of poles
- e) Luminaire style and wattage

 PROPRIETARY MATERIAL		
	DESIGN AND MISCELLANEOUS ILLUMINATION LEVELS	ISSUE DATE: 01/28/00
		REV. DATE: 01/28/13
		APPROVAL: W. Laramie
	3-5-1	OL3-5-1.doc

I. Voltage Drop Calculations

A. Streetlight Voltage Drop Calculation Program

1. The maximum number of lights served from a single source shall be limited by voltage drop calculations. These calculations are performed using the Modeling program "Streetlight Voltage Drop". For assistance with this program, contact Policy, Procedures & Standards. You can access the program here:
[Design Tools - New Streetlight Voltage Drop Model \(srp.gov\)](#)
2. Before beginning data entry to the calculations program, read through the information on the tab marked "Instructions". Next, go to the tab marked "Job Details" and fill in the information. Click either the "duplex" or "triplex" conductor and click the "Next" button to go to the tab for that conductor.
3. The Excel program is laid out as a series of ten j-boxes with branches of each j-box made up of ten J-boxes in a series. On overhead designs, the j-box represents the conductor connection at the pole. As data is entered, the program will send alerts that the design violates a limit if you exceed either minimum voltage for a luminaire or maximum current capacity for a conductor.
4. When all of the data is entered, click the "Go To Report" button and print out a paper copy.
5. The preferred service to a streetlight is directly from a single phase transformer via a flush-mounted j-box. (underground streetlight service shall be provided from an "all conduit").

B. Voltage requirements for SRP's Luminaires

1. SRP presently installs high pressure sodium style outdoor lighting. All high pressure sodium luminaires contain a ballast. The ballast is a coil of copper wire wrapped around an iron core, very similar to an electrical transformer. The function of the ballast is to control the electrical current supplied to the lamp. A ballast functions as long as it is provided the proper line voltage. All of SRP's luminaires are rated for 120 volts nominal line voltage. This means they will function with an input line voltage of 120 volts, plus or minus some tolerance. These tolerances are listed below.

Luminaire Wattage (all styles)	% Voltage Deviation from 120 V Tolerated
70	+/-5%
100	+/-5%
150	+/-5%
250	+/-10%
400	+/-10%

NOTE: The higher wattage luminaires allow for greater line voltage swings.

C. Light Emitting Diode (LED) Lighting

1. Presently SRP is not installing lighting using LED technology, however several Customers are beginning to install LED source lighting.

 PROPRIETARY MATERIAL		
	DESIGN AND MISCELLANEOUS VOLTAGE DROP CALCULATIONS	ISSUE DATE: 02/01/00 REV. DATE: 01/28/13 APPROVAL: W. Laramie
	3-6-1	OL3-6-1.doc

2. There are no LED luminaires in the drop-down selection boxes but the Customer's lighting load can be modeled in the Streetlight Voltage Drop Calculation Program if the line Amps of the LED luminaire are known. Enter the service cable information and any HPS luminaires that may also be served at each j-box. Enter the load of the LED luminaires in Amps in the top entry box. The program will not automatically alert you when the voltage drop has exceeded the LED luminaire's allowable limits, however the voltage drop in the second table to the right on the report page will appear. A typical LED luminaire will operate with as much as 25% voltage drop (down to 90 volts).

D. Remedies for Voltage or Current Violations

1. If a lighting circuit fails due to voltage drop or current overload, consider the following remedies.
 - a) Possible solutions for a circuit design that violates the voltage drop requirements are:
 - Use 1/0 aluminum in place of #6 aluminum.
 - Add another circuit to reduce the total wattage of the luminaires served from the circuit.
 - Find a transformer closer to the luminaires to reduce the service length.
 - b) Possible solutions for a circuit design that violates the current overload requirements of the conductor:
 - Use 1/0 aluminum in place of #6 aluminum.
 - Add another circuit to reduce the total wattage of the luminaires served from the circuit.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	DESIGN AND MISCELLANEOUS VOLTAGE DROP CALCULATIONS	ISSUE DATE: 02/01/00 REV. DATE: 01/28/13 APPROVAL: W. Laramie
	3-6-2	OL3-6-1.doc

I. Electric Service Requirements and Sources

A. Additions to Existing Residential Areas

1. Light circuit voltage and thermal capacity, per the Streetlight Voltage Drop Calculation Program, shall be the limiting factors for long circuits, branched circuits and/or circuits with multiple luminaires.
2. Underground light circuits, which are to be installed in locations where a non-conduit distribution system already exists (one that uses secondary and buried J-boxes), should be fed from the existing secondary streetlight conductors (refer to the Underground Distribution Construction Standards book, UWB8-UWB3). This will help to eliminate the necessity of trenching parallel to existing secondary streetlight conductors to obtain the feed from a pad-mounted transformer.
3. Light taps are not to be double lugged (more than one conductor per terminal hole) on mole assemblies.
4. Circumstances may require a transformer and associated equipment (tap enclosure) to be specifically dedicated for lighting (i.e., commercial or industrial parks) when single phase (1Ø) 120 V is not available.
5. Underground service shall be from a meter pedestal but cannot be tapped from a meter socket enclosure on a building.
6. Grounding is required for all steel poles and the luminaires on fiberglass poles.

a) Steel Poles

Steel light poles must be grounded. The ground connection can come from either the #6 Al triplex ground wire from the single phase transformer (some existing poles) or a ground rod in the j-box (see Construction Standards, J-box Connections).

The connection to the pole is shown in the Construction Standards for Light Connections at Steel Pole Handhole.

b) Fiberglass Poles

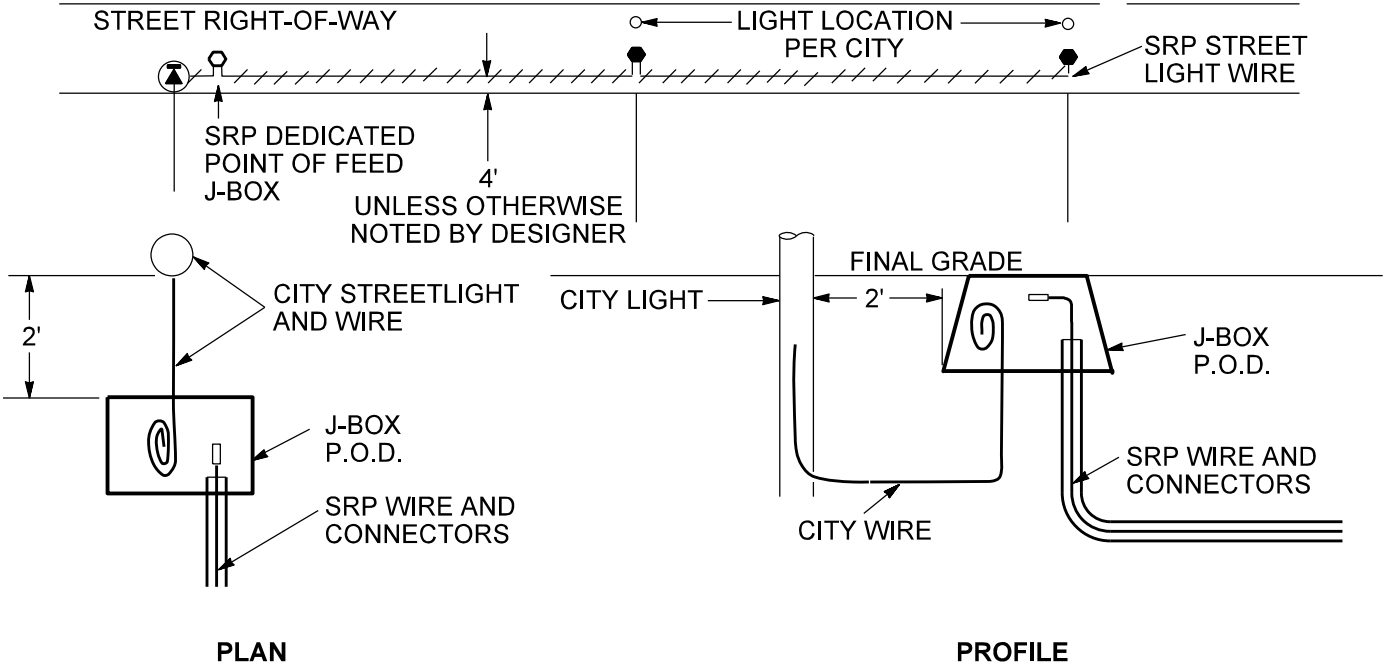
The luminaire shall be grounded on all fiberglass poles. The ground connection can come from either the #6 Al triplex ground wire from the single-phase transformer (some existing poles) or a ground rod in the j-box (see Construction Standards, J-box Connections). A green #12 copper wire shall be run up the pole, from the pole handhole and connected to the luminaire grounding screw.

The connection in the pole at the handhole is shown in the Construction Standards for Light Connections at Fiberglass Pole Handhole.

7. Bonding is required between all above ground metallic power and communication enclosures that are separated by a distance of six feet or less, in this case a steel light pole and any other above ground metallic power or communications enclosure. Bonding is an electrical connection designed to maintain a common electrical potential. See Construction Standards section.

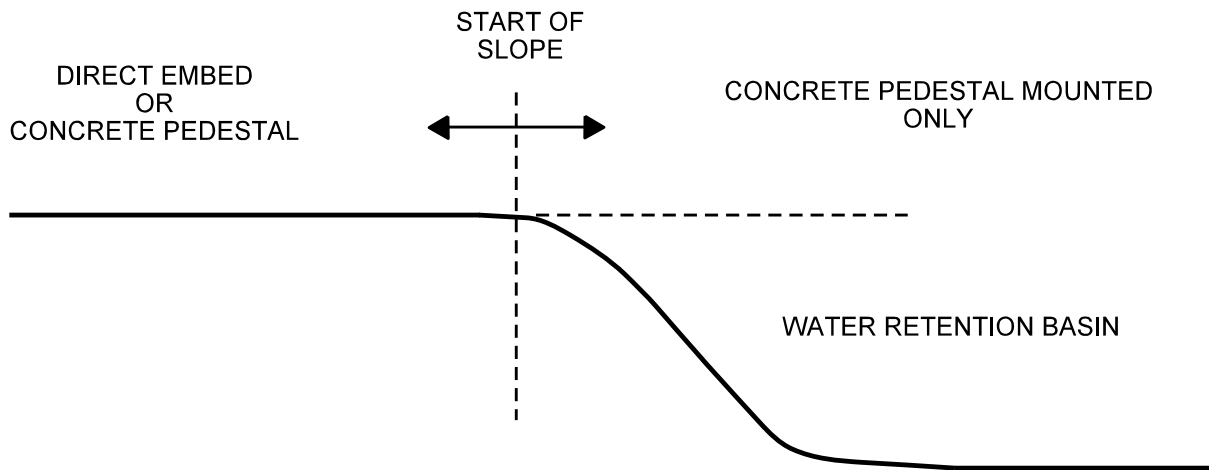
Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	DESIGN AND MISCELLANEOUS ELECTRIC SERVICE REQUIREMENTS AND SOURCES	ISSUE DATE: 01/28/00
		REV. DATE: 01/21/18
		APPROVAL: N. Sabbah
	3-7-1	OL3-7-1.doc

COMMERCIAL/INDUSTRIAL AND MAJOR ROAD STREET LIGHTING



- NOTES**
- 1. For city owned and installed streetlights to be served by SRP underground wire, the Point of Delivery (P.O.D.) will be an SRP approved junction box installed by the city. The city is to provide the location of the lights.
 - 2. A 3 ft. pigtail of streetlight wire from the city's light pole, via flexible conduit, is to be inserted into the junction box by the city. The city may include their own in-line fuse in the junction box. SRP is to make the electrical connection in the junction box (phase & neutral only) (Chandler and Tempe have agreements to connect).
 - 3. The city is to provide appropriate pole grounding if metal poles are used.
 - 4. The city must provide and install an SRP approved junction box as the SRP dedicated point of feed. Refer to the Electric Service Specifications for minimum fault current distance requirements.

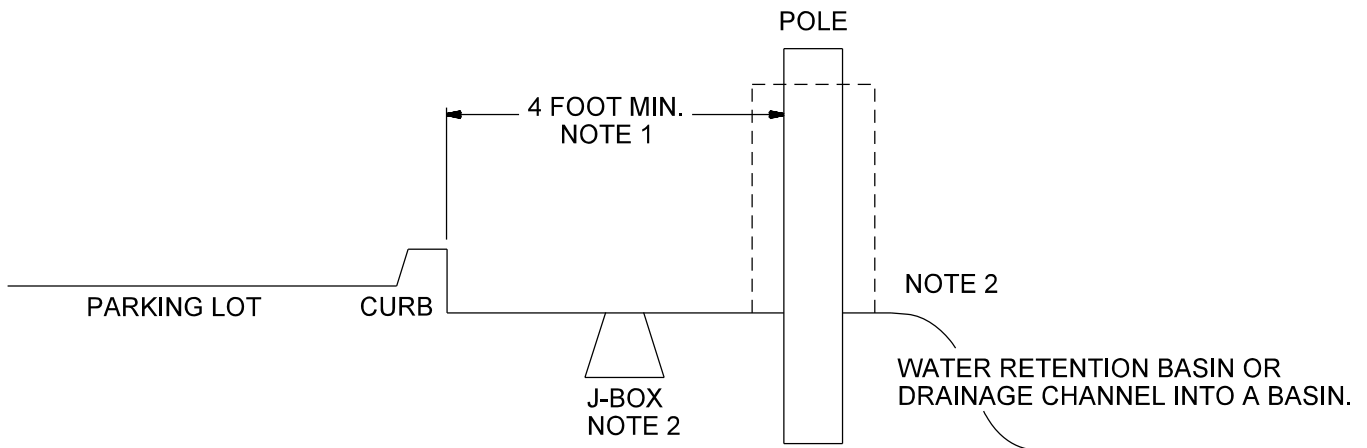
Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	DESIGN AND MISCELLANEOUS CITY OWNED STREETLIGHTS POINT OF DELIVERY DETAIL	ISSUE DATE: 10/25/88 REV. DATE: 01/12/16 APPROVAL: N. SABBAAH
	3-8-1	8513E81.DGN



NOTES

1. Base plate mounted lighting poles, on concrete pedestals, shall be utilized below the start-of-slope into a water retention basin.
2. Direct embed lighting poles may be used outside the start-of-slope into a water retention basin. The pole J-box must be set on the side of pole away from the water retention basin.
3. For areas of green-belt/multi-use having retention basins requiring lighting, developer to survey and stake high water mark. Lighting should be designed with consideration for the retention basins high water mark (i.e. pedestal lighting in retention areas).

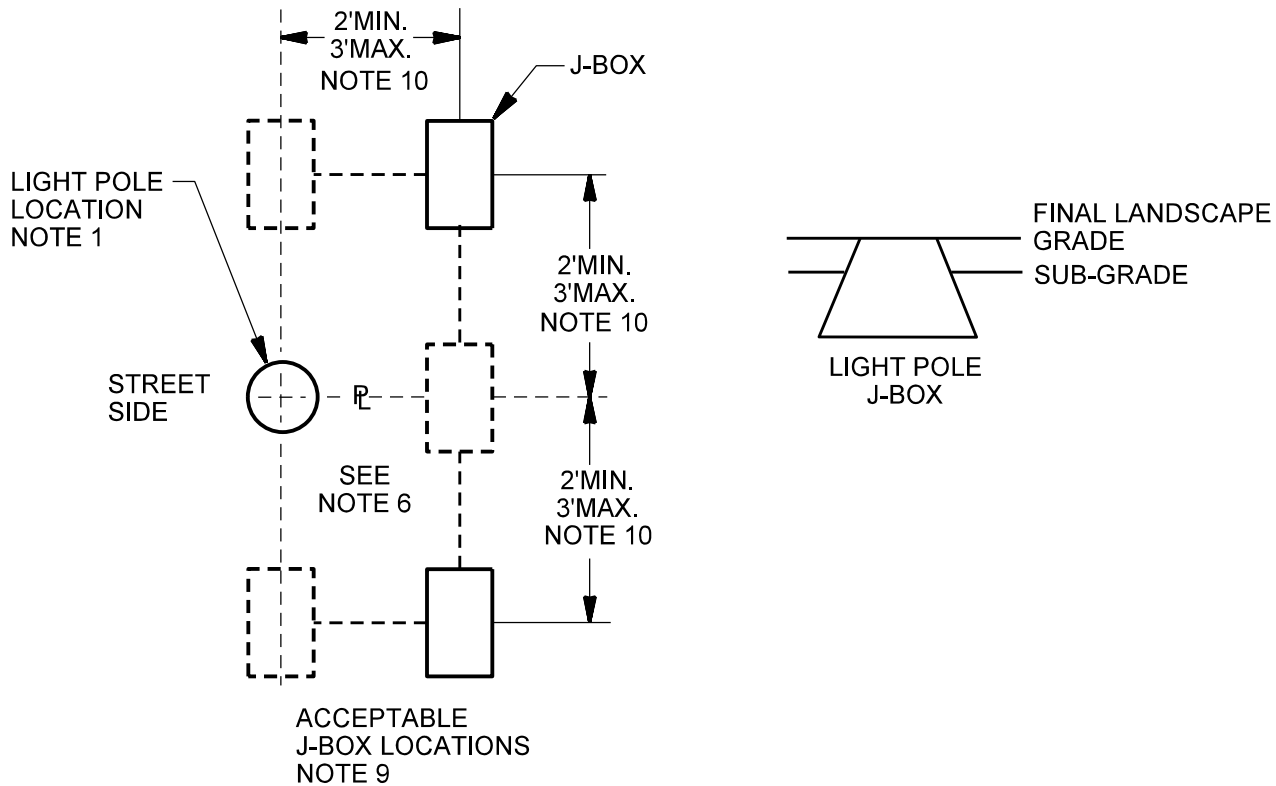
Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	DESIGN AND MISCELLANEOUS WATER RETENTION BASIN POLE PLACEMENT	ISSUE DATE: 01/19/04 REV. DATE: 01/10/13 APPROVAL: W. LARAMIE
	3-9-1	8518E133.DGN



NOTES

1. If the pole or sonotube must be closer to the curb than 4 feet, use the concrete pedestal mounted pole.
2. If the landscape slopes, such as near a water retention basin the j-box shall be installed on the opposite side of the pole from the slope. See Design Section, Water Retention Basin, Pole Placement, Note 2.

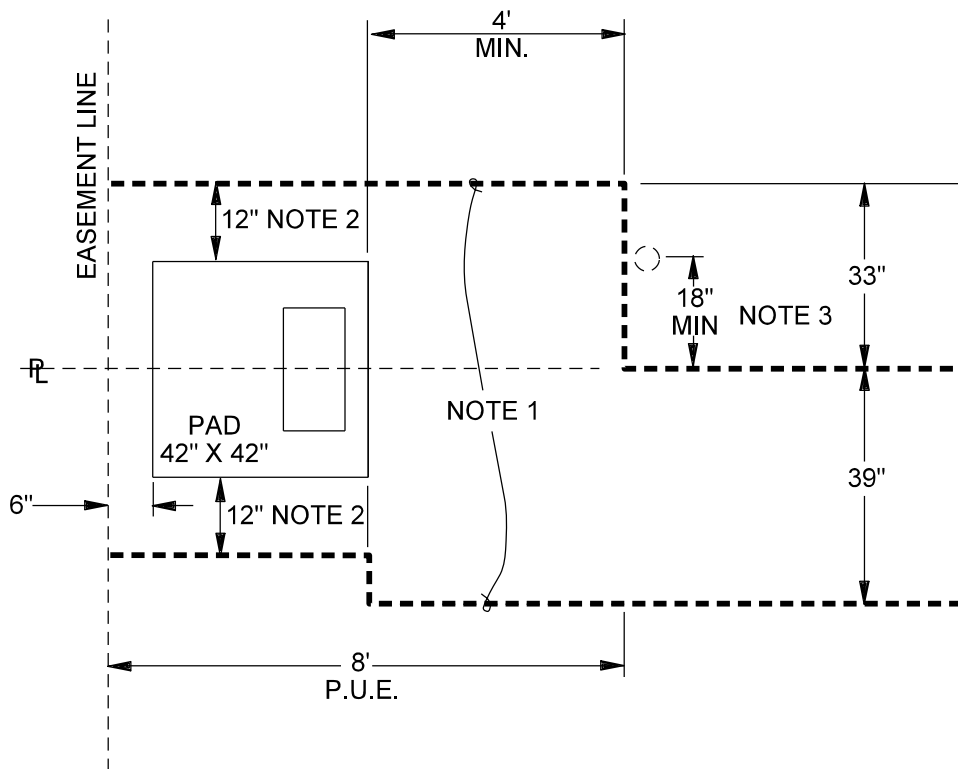
Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	DESIGN AND MISCELLANEOUS LIGHT POLES IN AREAS VULNERABLE TO VEHICLE CONTACT	ISSUE DATE: 03/10/08 REV. DATE: 01/10/13 APPROVAL: W. LARAMIE
	3-10-1	8518E250.DGN



NOTES

1. Customer to stake light location per approved municipal plan.
2. Grade stake to be within 2 feet of j-box location. Customer to stake j-box location. Avoid conflict with sidewalk, landscaping, etc.
3. Ground rod to be installed for each streetlight location per standards on 6-1-1: Steel Pole Installation Tube.
4. See sonotube installation detail, 6-1-1: Steel Pole Installation Tube, if applicable.
5. #6 bare copper ground wire to be attached from grounding lug on streetlight pole to ground rod in j-box.
6. J-box may be positioned behind the pole, except in the cities of Chandler and Gilbert.
7. If pole is in proximity of metallic apparatus, see Construction Standards section, Light Poles in Proximity of Metallic Apparatus, Bonding. Also see Section 3 "Electric Service Requirements Note 6".
8. For pedestal mounted poles the j-box is located above the water line. See Pole Placement, Water Retention Basin.
9. Some clearance restrictions apply to j-box locations near transformers, see Design and Miscellaneous, Clear Area for Customer Equipment, Adjacent to Transformer.
10. For municipal owned streetlight relocations, the distance from j-box to streetlight may be increased up to 15'.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	DESIGN AND MISCELLANEOUS STREETLIGHT POLE J-BOX LOCATION DETAILS 3-11-1	ISSUE DATE: 11/19/01 REV. DATE: 05/18/20 APPROVAL: J. LUERA 8518E90.DGN
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NOTES

1. No Telco or CATV pedestals, water boxes, poles, permanent obstructions or tripping hazards between lines. Clear area is from PUE (house side) to street or 12' maximum in front of pad.
2. This 12" minimum dimension describes the space requirement between the SRP pad and the Telco or CATV pedestal. When stubbing up Telco or CATV conduit, allow additional space to ensure the Telco or CATV pedestal does not enter the 12" minimum space.
3. If a light pole or other utility is required in this area, it is preferred that it be installed a minimum of 18" from the property line.
4. Bonding shall be provided between all above ground metallic power and communications apparatus (pedestals, terminals, apparatus cases, transformer cases, metal poles, etc.) that are separated by a distance of 6' or less. See page 6-7-1 Light Poles in Proximity of Metallic Apparatus, Bonding.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	DESIGN AND MISCELLANEOUS CLEAR AREA FOR CUSTOMER EQUIPMENT ADJACENT TO TRANSFORMER 3-12-1	ISSUE DATE: 03/08/89 REV. DATE: 10/24/17 APPROVAL: N. SABBAAH 8518E281.DGN
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DISTRIBUTION LINE DEVICE NUMBER (RISER, RECLOSER, SECTIONALIZER, CAPACITOR BANK, SINGLE BLADE DISCONNECTS, FRINGE AREA INTERCONNECTION FUSE OR GANG OPERATED SWITCH) 1X1.5" ADHESIVE BACKED ALPHA CHARACTERS AND 1-3/4" X 2-7/8"ADHESIVE BACKED NUMERIC CHARACTERS PLACED ON ALUMINUM SHEET (5035692)

NOTE: FOR POLE RISERS SEE UDCS 11-1-1.
NOT ALL RISERS ARE MARKED ON THE POLE.

STREETLIGHT NUMBER-1X1.5" CHARACTERS PLACED ON AN ADHESIVE BACKED 1-1/2" X 12" PLATE (5035695)
(DISTRIBUTION USE ONLY)

MILE POST COORDINATES 1"x1-1/2" ALPHA, 1-3/4"x2-7/8" NUMERIC PSL ON ALUMINUM PLATE (5035692)

TRANSMISSION STRUCTURE NUMBER 1-3/4"x2-7/8" NUMERIC PSL ON ALUMINUM PLATE (5035692)

TRANSMISSION SWITCH NUMBER, 1"x 1-1/2" ALPHA, 1-3/4"x2-7-8" NUMERIC PSL ON ALUMINUM PLATE (5035692)

POLE INSPECTION TAGS - ALL POLES
(POLE INSPECTION CREW USE)

POLE TAG SHOWING SRP OWNERSHIP (5029151)
(TRANSMISSION USE ONLY)

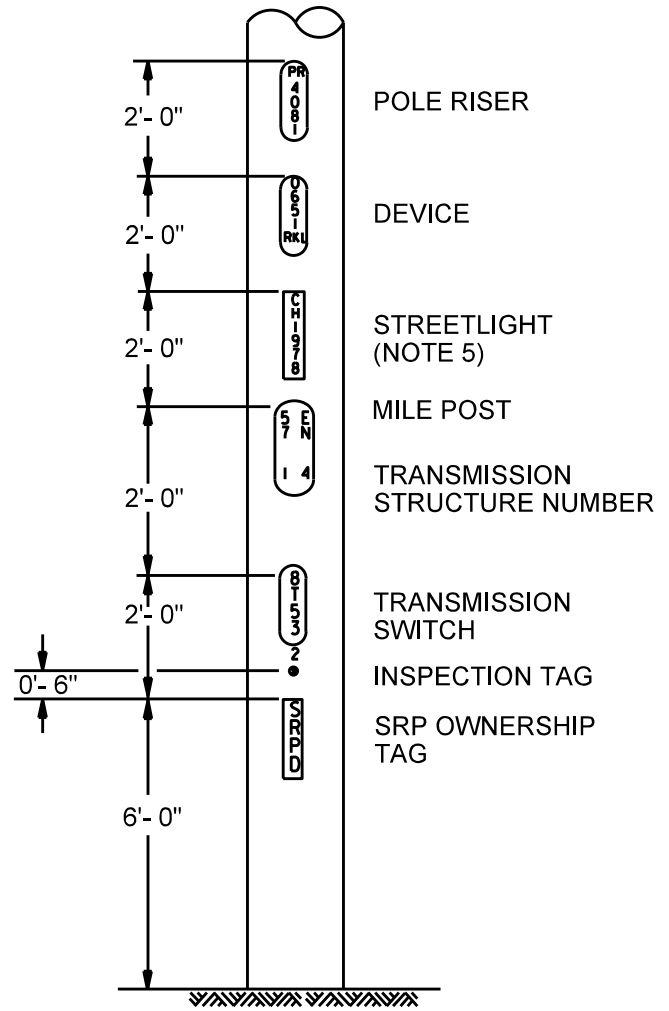


FIGURE 1

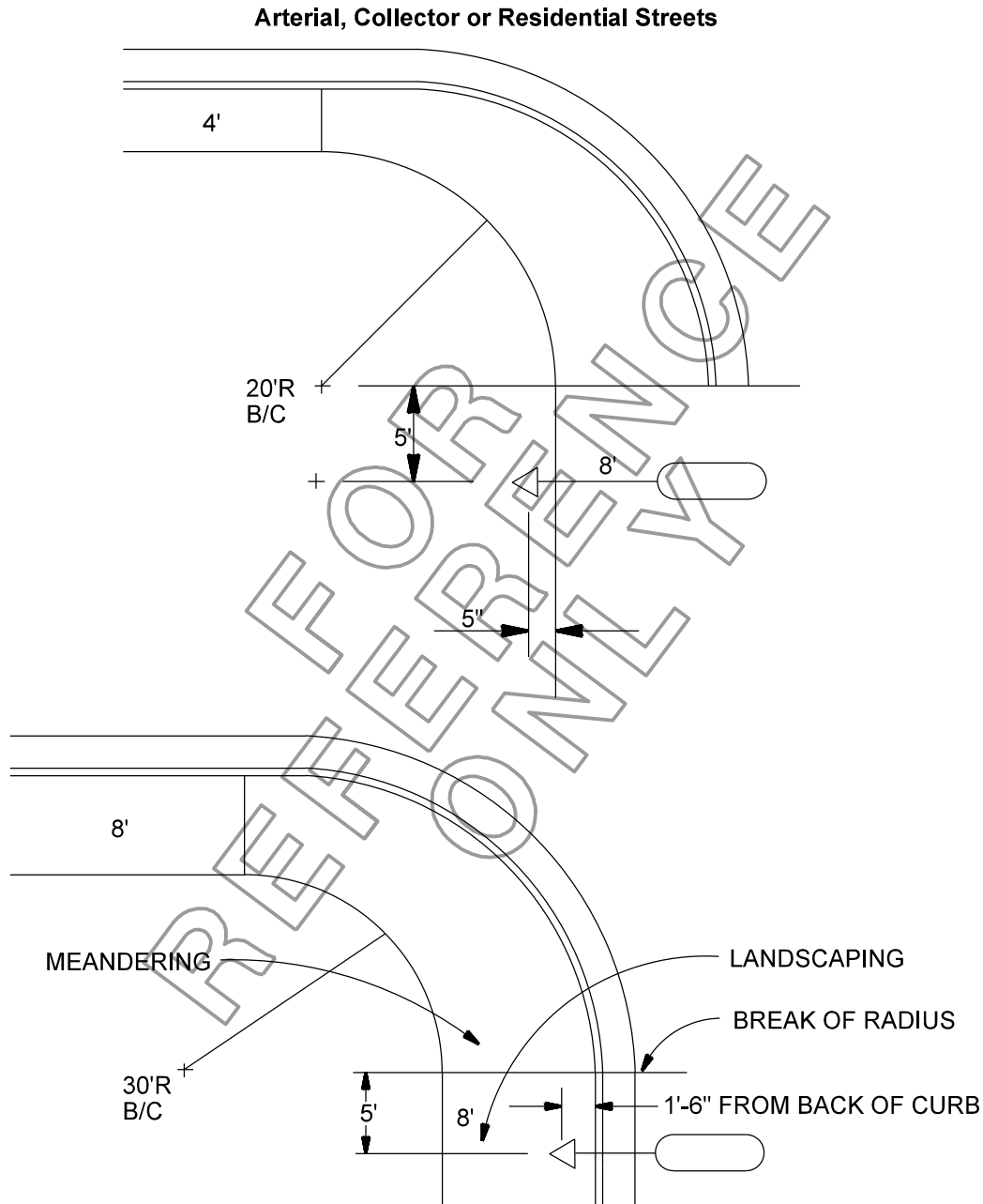
NOTES

- Any pole located at a mile coordinate point in an area lacking an intersection of both mile roads is to be labeled with that coordinate point. The coordinate labeling is to read in a horizontal direction on the pole, with one direction coordinate immediately below the other.
- Any pole having a streetlight, recloser, capacitor bank, set of single blade disconnects, ganged loadbreak switch, or pole riser is to be labeled with the proper line device number. This number is to be attached in a vertical direction reading top to bottom on the pole.
- Poles are to have markings installed on the most visible side of the pole; e.g; a pole on a northeast corner of an intersection should have markings facing west, or south. The markings shall not cover the pole brand.
- The aluminum sheets are attached to the wood poles with special screw nails item # 5006221. The 1 inch adhesive labels for streetlights are applied to a 10 inch plastic plate which is then attached to the pole with the special screw nails. On steel poles, if plate thickness is 1/2" or less the self drill/self tapping screws (5028982) may be used. If plate thickness is greater than 1/2" drill 3/16" diameter hole for self drill/self tapping screws (5028982).
- The owner of the light shall place streetlight numbers at 12' on shared poles (as shown above) and 8' on dedicated "streetlight" poles.
- Placement of pole markings shall be in accordance with Figure 1. If thru-bolts or other SRP hardware impede the specified location of the pole markings, placement of pole markings may be adjusted. Every effort must be made to locate the markings as close as possible to the indicated positions.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	DESIGN AND MISCELLANEOUS POLE MARKING AND IDENTIFICATION		ISSUE DATE: 02/16/06
	3-13-1		REV. DATE: 04/12/16 APPROVAL: W. LARAMIE 8518E200.DGN

SPECIAL REQUIREMENTS - CITY OF TEMPE

- Mid-block spacing shall be between 350ft. to 425ft. *with a maximum of 600ft.*
- The maximum may be reduced on curvilinear streets or on sections of streets where lights are not perpendicular to the street due to intersections.
- Provide a streetlight at the end of the cul-de-sac when the distance into the cul-de-sac is 150ft. or greater.
- Some dimensions shown may change per the municipality.



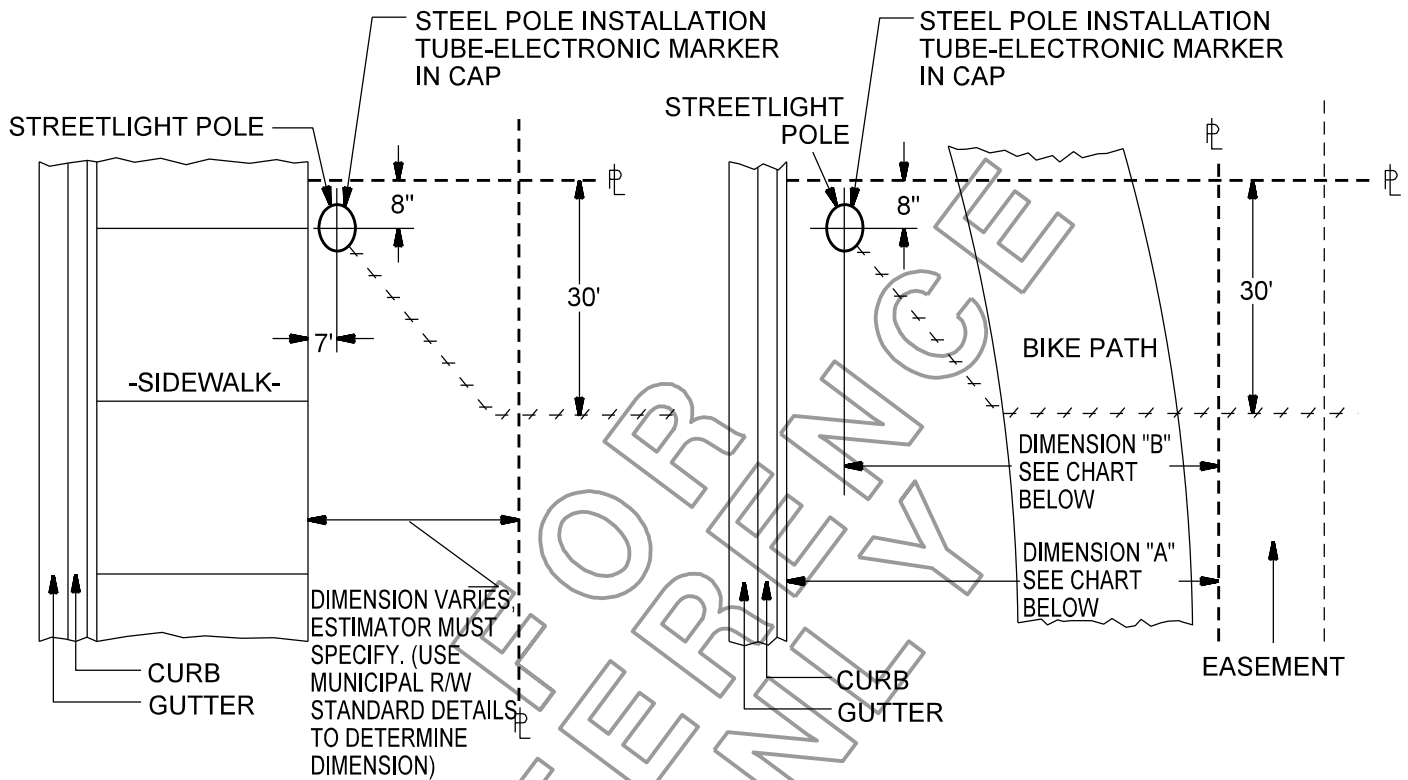
Streetlight pole locations in Tempe shall be installed at arterial intersections as indicated in the drawings above.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	DESIGN AND MISCELLANEOUS MUNICIPAL STREETLIGHTS POLE PLACEMENT CITY OF TEMPE 3-14-1	ISSUE DATE: 01/27/04 REV. DATE: 01/25/13 APPROVAL: W. LARAMIE 8518E134.DGN
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SPECIAL REQUIREMENTS - CITY OF SCOTTSDALE

Streetlight & Streetlight Stub-Out Location When Sidewalks Are Installed

Streetlight & Streetlight Stub-out Location When Bike Paths Are Installed Or No Sidewalks Are Planned



SCOTTSDALE				
R/W	STD. DETAIL	DIMENSION 'A'	DIMENSION 'B'	EASEMENT
60'	66'	9.5'	5.5'	4.0'
80'	67'	16.0'	10.5'	-
80'	68'	5.5'	0.0'	10.0'
110'	69'	20.5'	14.0'	-
130'	70'	20.5'	14.0'	-
130'	71'	17.0'	10.5'	-
130'	72'	17.0'	11.5'	-
130'	73'	30.5'	28.0'	-

* Estimator must specify dimension on job order sketch.

Outdoor Lighting
Standards



PROPRIETARY MATERIAL

DESIGN AND MISCELLANEOUS
MUNICIPAL STREETLIGHTS
POLE PLACEMENT
CITY OF SCOTTSDALE

3-15-1

ISSUE DATE: 01/27/04

REV. DATE: 01/25/13

APPROVAL: W. LARAMIE

8518E135.DGN

Exact Pole Placement

Once the layout and spacing are determined, the exact placement must be specified. Guidelines for placement of streetlight poles on the three categories of street are listed below.

Major

Poles are to be placed back of the sidewalk where right-of-way is available. At street intersections place the pole at the break in the radius. Deviations from the break in the radius should not exceed 15'.

Collector

Poles are to be placed back of the sidewalk where it exists, or is planned. Where sidewalks do not exist and are not planned for, the poles are to be placed 2' behind the back of curb with 1'-6" being the minimum distance allowed from back of curb to pole.

Local/Minor

Poles should be placed at lot lines where possible. Spacing over 300' should only be used if absolutely necessary, such as in a subdivision with 175' frontage with poles on every other lot line.

Poles are to be placed back of sidewalk where the sidewalk exists or is planned. Where sidewalks do not exist and are not planned for, the poles are to be placed 2' behind the back of curb.

If the sidewalk is not poured against the back of curb, the streetlight poles should be placed mid-way between the sidewalk and back of curb, but not less than 1'-6" behind the curb; 2' is preferred.

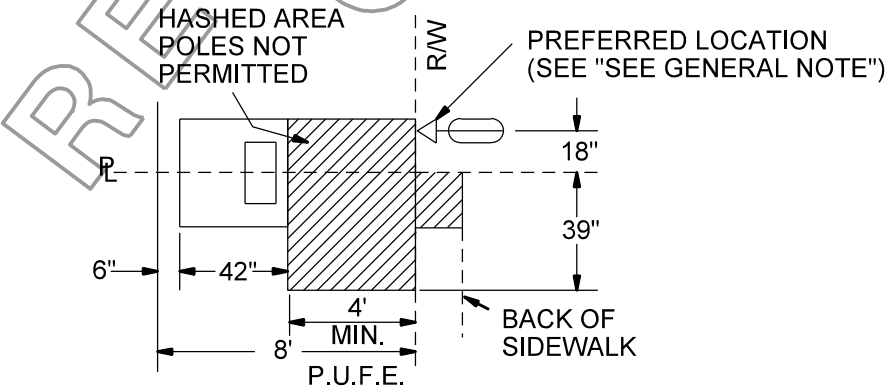
If uniform spacing is not possible on a section of street between intersections, the slightly shorter spacing should be placed nearer the intersections rather than in the center of the block.

Wood poles shall be used to support luminaires on unimproved streets.

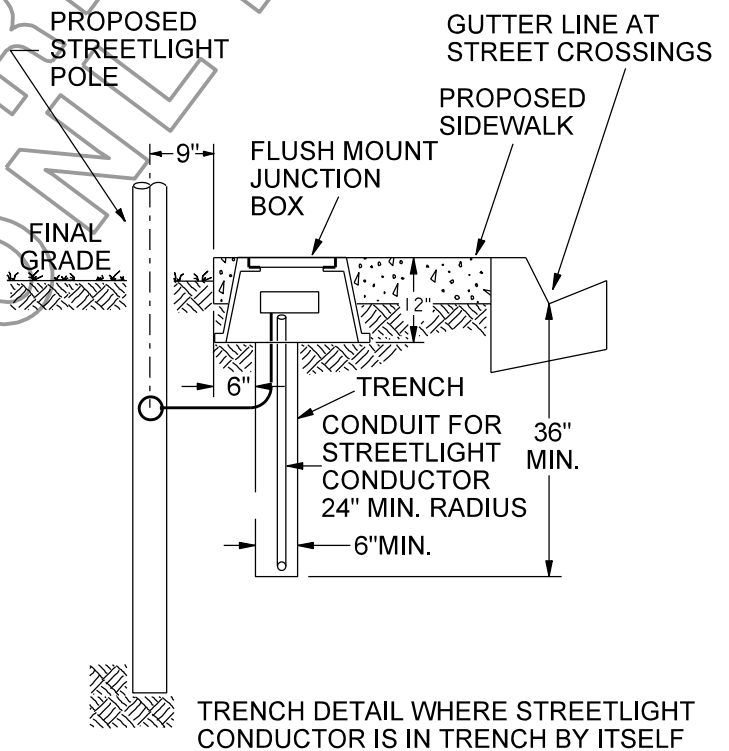
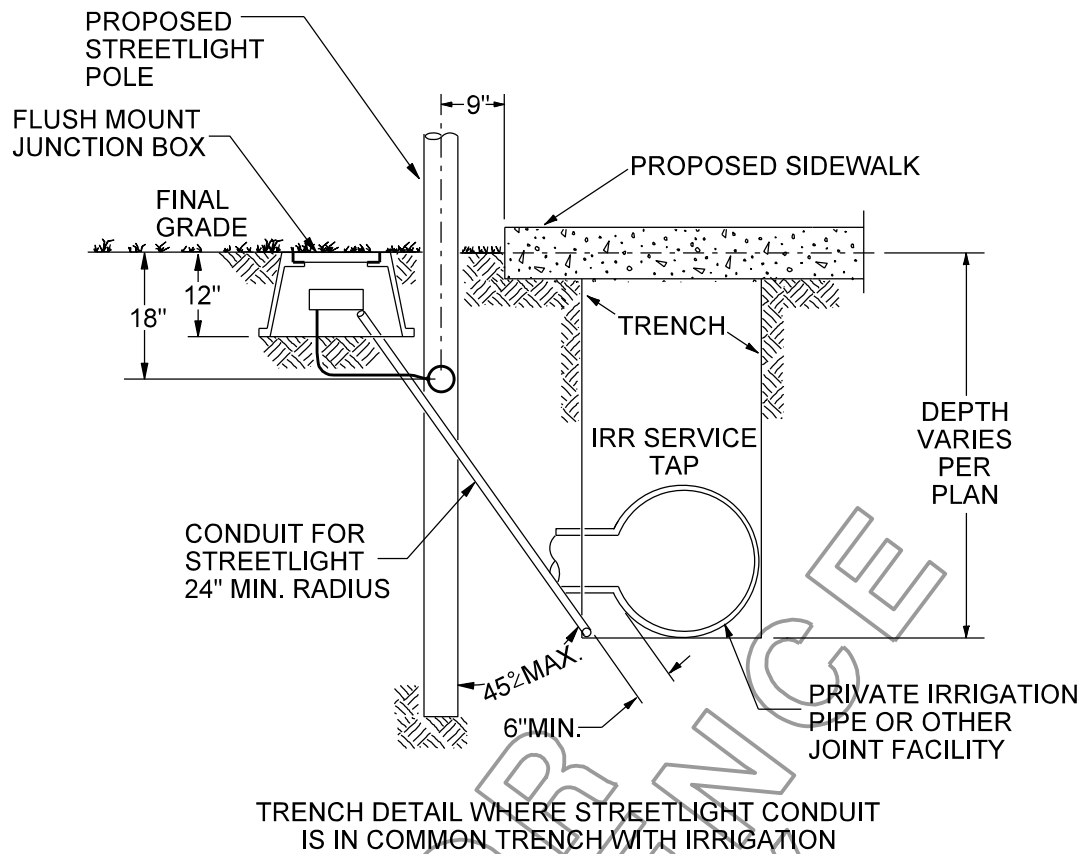
Steel poles shall be used on improved streets or in planned improvement areas.

General Note:

Streetlight poles should not be installed at locations with a pad mounted transformer, switch, capacitor, fusing cubicles, etc. However, if a streetlight must be installed at the same location as pad mounted equipment or near the same location/lot line, the streetlight poles shall be located a minimum of 18" from either side of pad mounted equipment to allow for maintenance/operation as shown below. When a streetlight pole must be installed at the same location as a pad mount transformer, the streetlight pole should be installed on the secondary side whenever possible. Bonding shall be provided between all above ground metallic power and communications apparatus (pedestals, terminals, apparatus cases, transformer cases, metal poles, etc.) that are separated by a distance of 6 feet or less. See Construction Standards section, Light Poles in Proximity of Metallic Apparatus, Bonding.



Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	DESIGN AND MISCELLANEOUS MUNICIPAL STREETLIGHTS POLE PLACEMENT	ISSUE DATE: 02/10/04 REV. DATE: 01/20/13 APPROVAL: W. LARAMIE
	3-16-1	8518E136.DGN



Outdoor Lighting
Standards



PROPRIETARY MATERIAL

DESIGN AND MISCELLANEOUS MUNICIPAL STREETLIGHTS POLE PLACEMENT

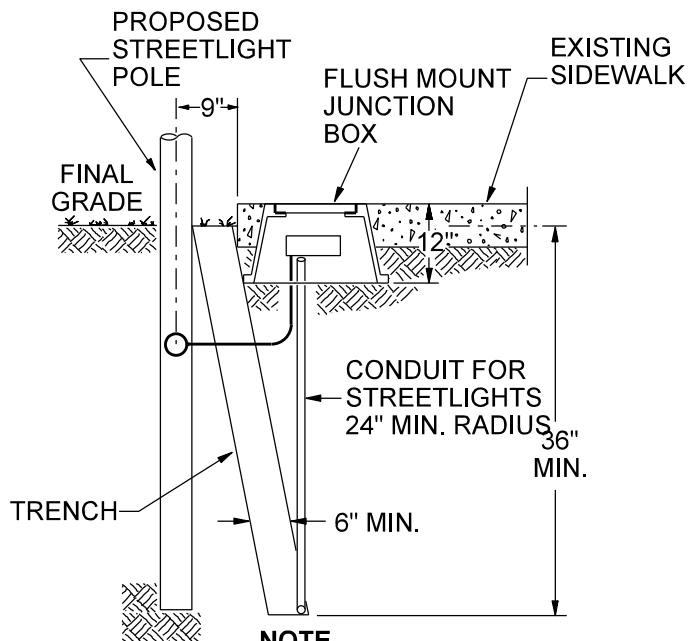
3-16-2

ISSUE DATE: 07/19/95

REV. DATE: 01/13/13

APPROVAL: W. LARAMIE

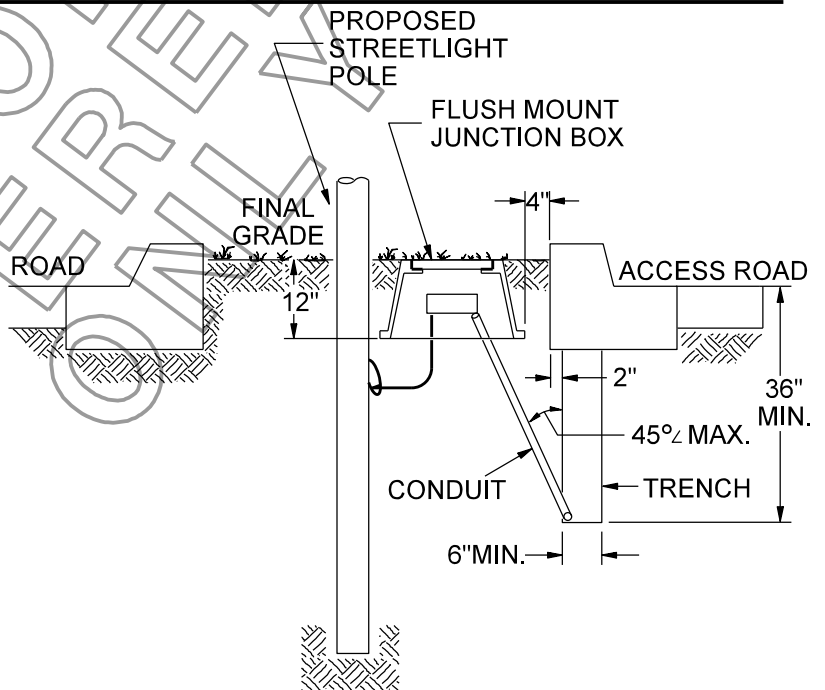
8518E137.DGN



NOTE

INSTALL CONDUIT UNDER EXISTING SIDEWALK BY TILTING TRENCHER STINGER ENOUGH TO END UP UNDER SIDEWALK.

TRENCH DETAIL WHERE EXISTING SIDEWALK IS TO REMAIN



TYPICAL DETAIL WHERE THERE IS AN ACCESS ROAD & MEDIAN WITH LIGHTING IN THE MEDIAN

THIS DETAIL TO BE USED WHERE INSIDE OF MEDIAN WILL BE USED AS A PLANTER

Outdoor Lighting
Standards



PROPRIETARY MATERIAL

DESIGN AND MISCELLANEOUS
MUNICIPAL STREETLIGHTS
POLE PLACEMENT

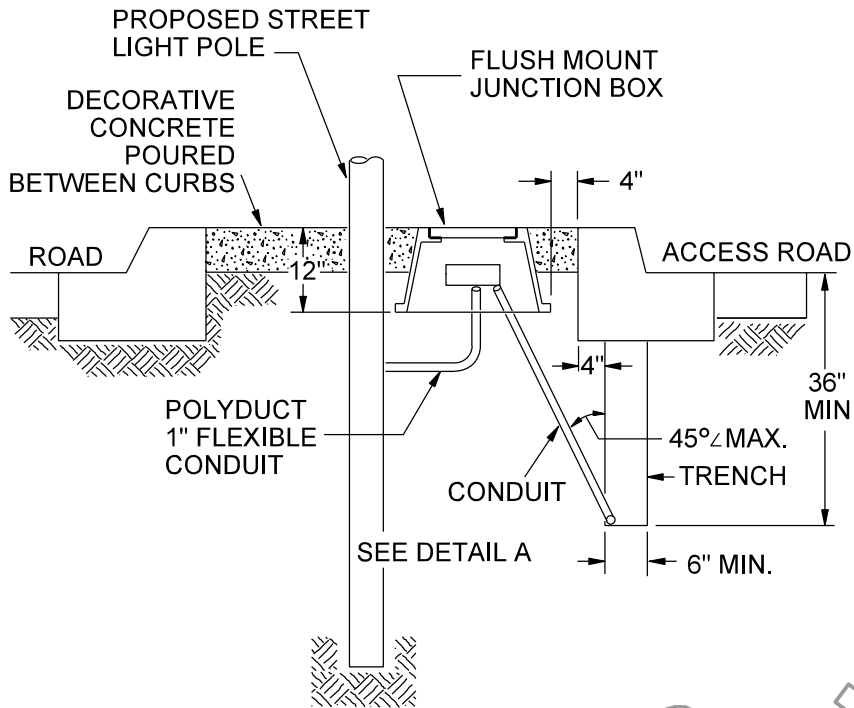
3-16-3

ISSUE DATE: 07/19/95

REV. DATE: 01/13/13

APPROVAL: W. LARAMIE

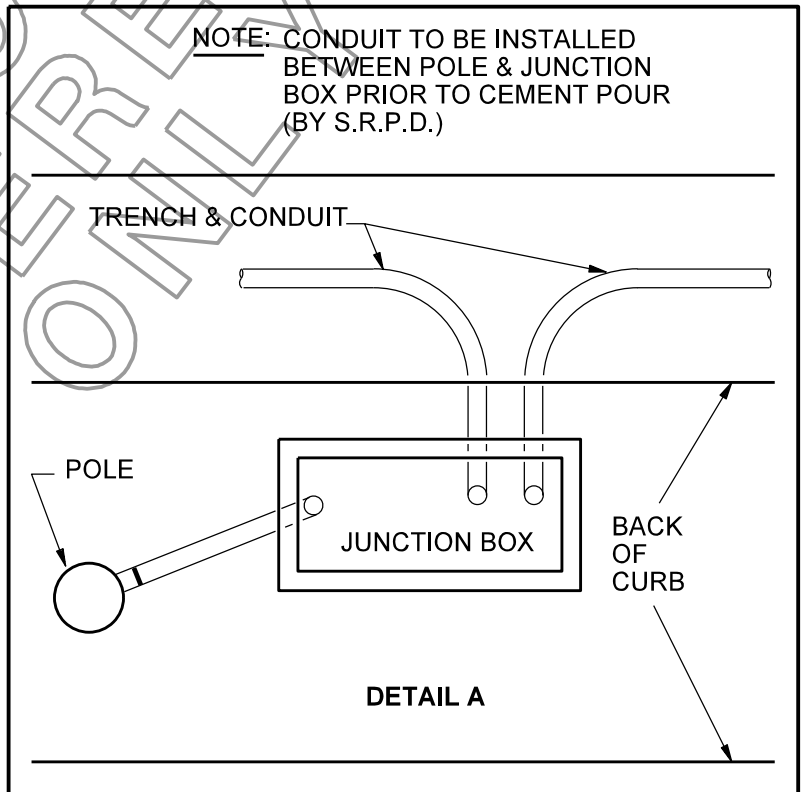
8518E138.DGN



TYPICAL DETAIL WHERE THERE IS AN ACCESS ROAD
& MEDIAN WITH LIGHTING IN THE MEDIAN

THIS DETAIL TO BE USED WHERE INSIDE OF MEDIAN
WILL BE POURED WITH DECORATIVE CONCRETE

NOTE: CONDUIT TO BE INSTALLED
BETWEEN POLE & JUNCTION
BOX PRIOR TO CEMENT POUR
(BY S.R.P.D.)



Outdoor Lighting Standards  PROPRIETARY MATERIAL	DESIGN AND MISCELLANEOUS MUNICIPAL STREETLIGHTS POLE PLACEMENT 3-16-4	ISSUE DATE: 01/24/00 REV. DATE: 01/25/13 APPROVAL: W. LARAMIE 8518E139.DGN
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SECTION 4: MAINTENANCE

Title / Description	Page
High Pressure Sodium Troubleshooting	4-1-1
Tape and Re-paint Pole Base Repair	4-2-1
Handhole Relocation	4-3-1
Handhole Relocation Wiring (Radial Fed Light Poles)	4-4-1
SRP Light Pole (with Non-Standard Holes), Repair/Replacement Guidelines.....	4-5-1
Hole Repair	4-5-2
Light Pole Repair, Epoxy Bypass Riser (Reference Only).....	4-5-3

I. High-Pressure Sodium Troubleshooting

A. Photocell

1. Light on in daylight, replace the photocell.
2. Light off, cover photocell to block light.
 - a) Light turns on, photocell is okay. If the photocell is older than five years, it is out of warranty, replace it anyway.
 - b) Light does not turn on, replace photocell.

B. Lamp

1. Light is reported to be cycling on and off, first visit:
 - a) Check the photocell orientation to make sure it is not aiming at a night-time light source.
 - b) If this is the first visit replace the lamp.
2. Light is reported to be cycling on and off, later visits:
 - a) Visually inspect capacitor, ballast, socket and wiring. If there is any damage the luminaire may need to be replaced.
 - b) Measure line voltage. Then, cover the photocell to switch on the light.

The 70 Watt to 150 Watt luminaires operate with input voltage as low as 114 V.

The 250 Watt and 400 Watt luminaires operate with voltage as low as 108 V.

If the voltage is lower than these minimums there may be service wire damage, loose or corroded connections in the luminaire, handhole, j-box or source. After these have been ruled out, there may be a design problem where the wire size may need to be increased.

NOTE: High-pressure sodium lamps shall be installed only in luminaires of the same wattage. They are not interchangeable.

 PROPRIETARY MATERIAL		
	MAINTENANCE HIGH-PRESSURE SODIUM TROUBLESHOOTING	ISSUE DATE: 12/10/99 REV. DATE: 01/18/13 APPROVAL: W. Laramie
	4-1-1	OL4-1-1.doc

C. BALLAST AND STARTER:

1. REMOVE THE HPS LAMP AND INSTALL THE MOGUL BASE ADAPTER (SRP STOCK CODE 29-4600) WITH ONE OF THE FOLLOWING TEST LAMPS.

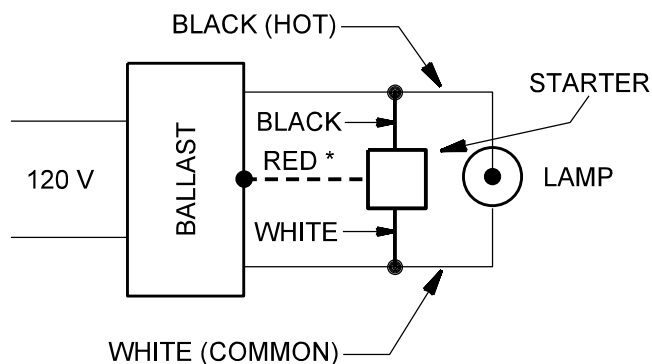
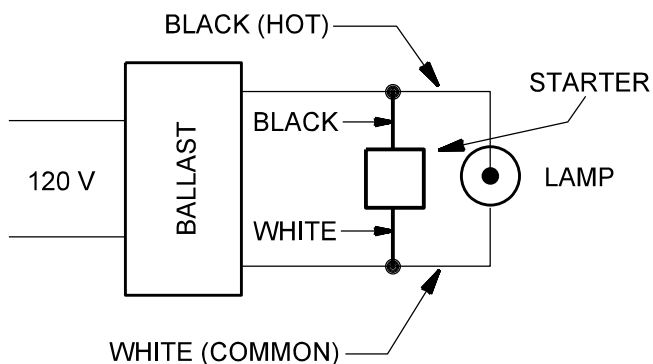
HPS Lamp Size (watts)	Install for Test
70 watt	100 watt incandescent bulb (5032002)
100 watt	100 watt incandescent bulb
150 watt	100 watt incandescent bulb
250 watt	250 watt mercury vapor lamp (5035128)
400 watt	400 watt mercury vapor lamp (5035130)

2. COVER THE PHOTOCELL, IF THE TEST LAMP DOES NOT LIGHT, THE BALLAST IS BAD AND THE ENTIRE LUMINAIRE SHOULD BE REPLACED. IF THE TEST LAMP TURNS ON, THE BALLAST IS GOOD. REPLACE THE STARTER PER THE CHART BELOW.

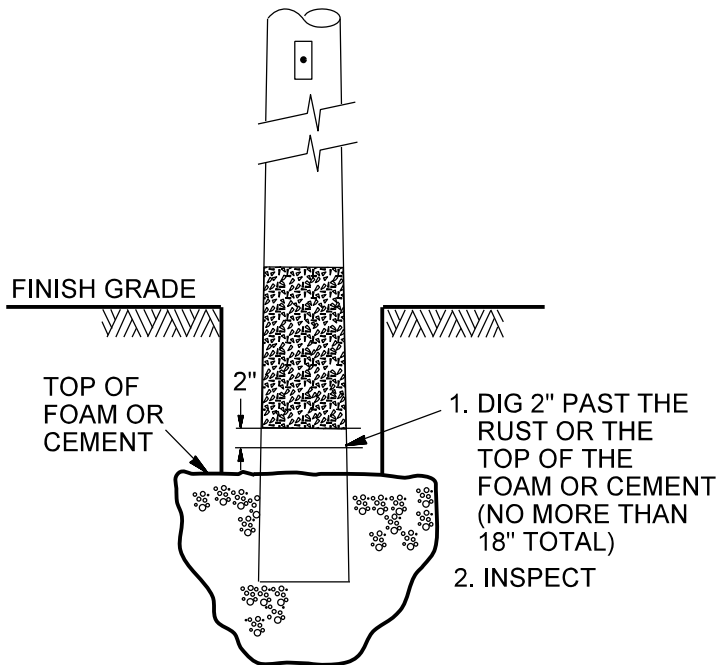
Existing Two-Wire Starter		
Watts	Replacement Starters	
70 100 150	5035003 (Univ.)	
250 400	GE 35-967410-51 OR Milbank SS-1	

Existing Three-Wire Starter		
Watts	Replacement Starters	
70 100 150	5035005 (West.) 220C173G11	5035003 (Univ.) *
250 400		

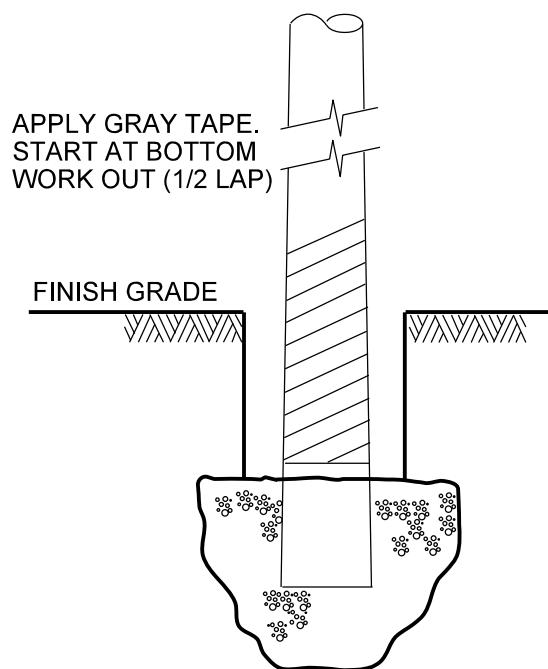
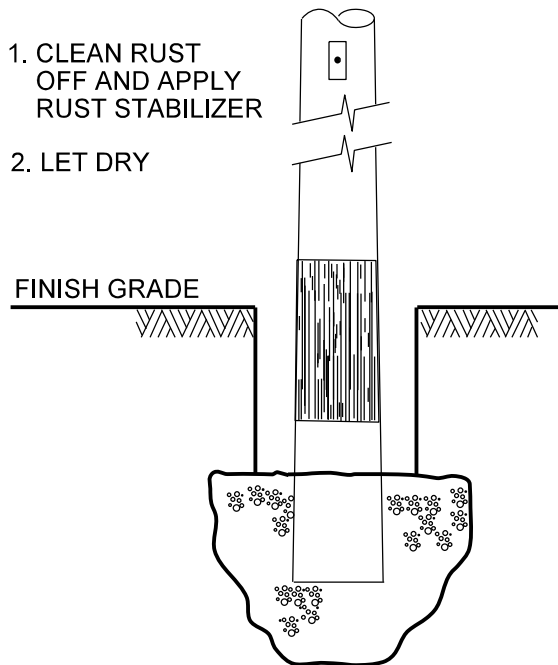
* WHEN REPLACING AN EXISTING THREE-WIRE STARTER WITH A TWO-WIRE STARTER, REMOVE OR CUT AND INSULATE THE BALLAST WIRE.



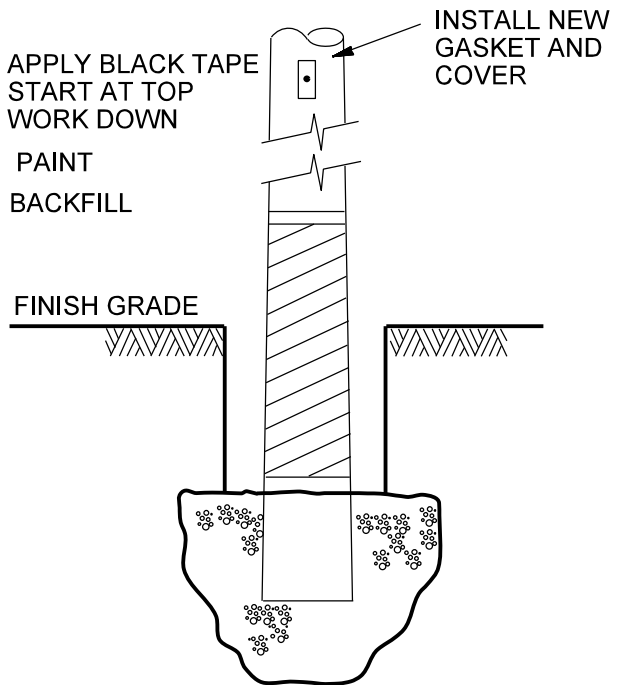
Outdoor Lighting Standards  SRP PROPRIETARY MATERIAL		
	MAINTENANCE HIGH PRESSURE SODIUM TROUBLESHOOTING	
	4-1-2	ISSUE DATE: 12/10/99 REV. DATE: 10/31/13 APPROVAL: W. LARAMIE 8518E57.DGN



1. CLEAN RUST OFF AND APPLY RUST STABILIZER
2. LET DRY



1. APPLY BLACK TAPE START AT TOP WORK DOWN
2. PAINT
3. BACKFILL



Outdoor Lighting
Standards



PROPRIETARY MATERIAL

MAINTENANCE TAPE AND RE-PAINT POLE BASE REPAIR

4-2-1

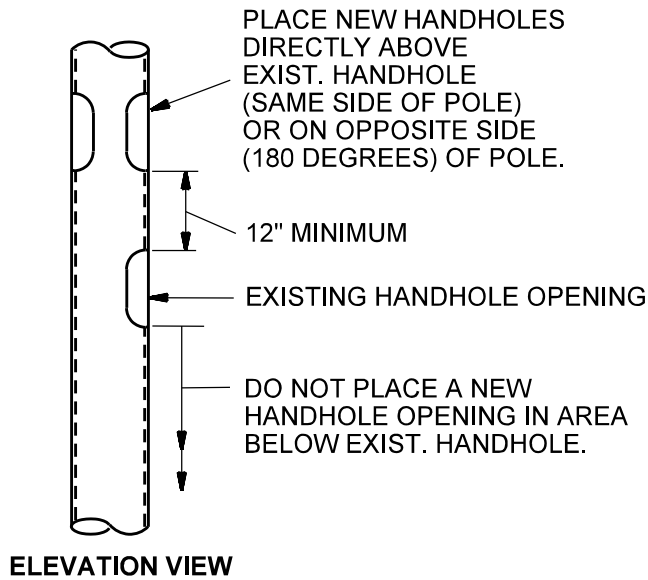
ISSUE DATE: 12/27/10

REV. DATE: 01/11/13

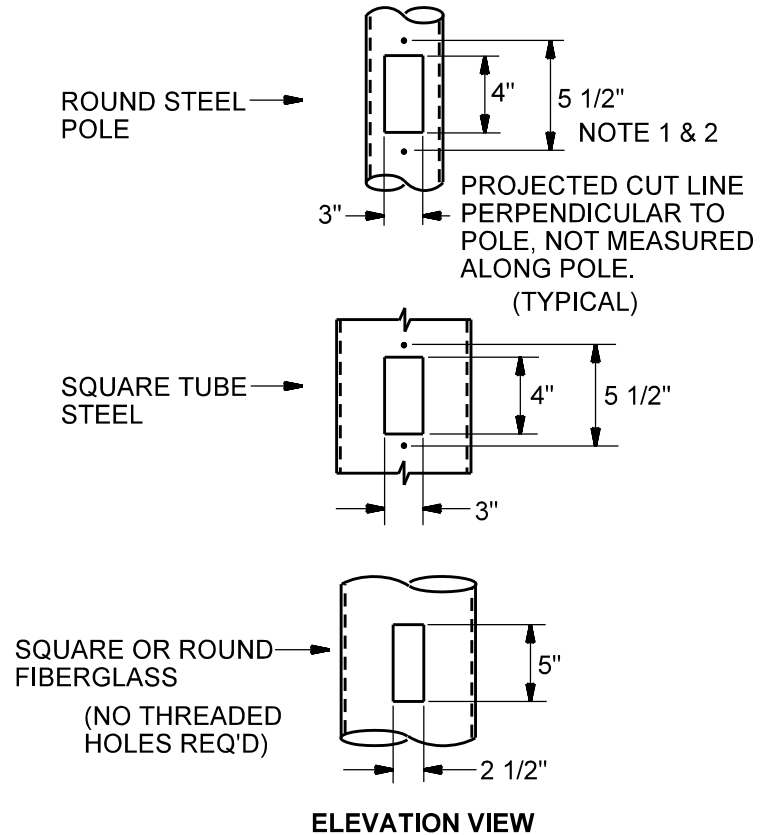
APPROVAL: W. LARAMIE

8518E275.DGN

HANDHOLE PLACEMENT



HANDHOLE OPENING DIMENSIONS

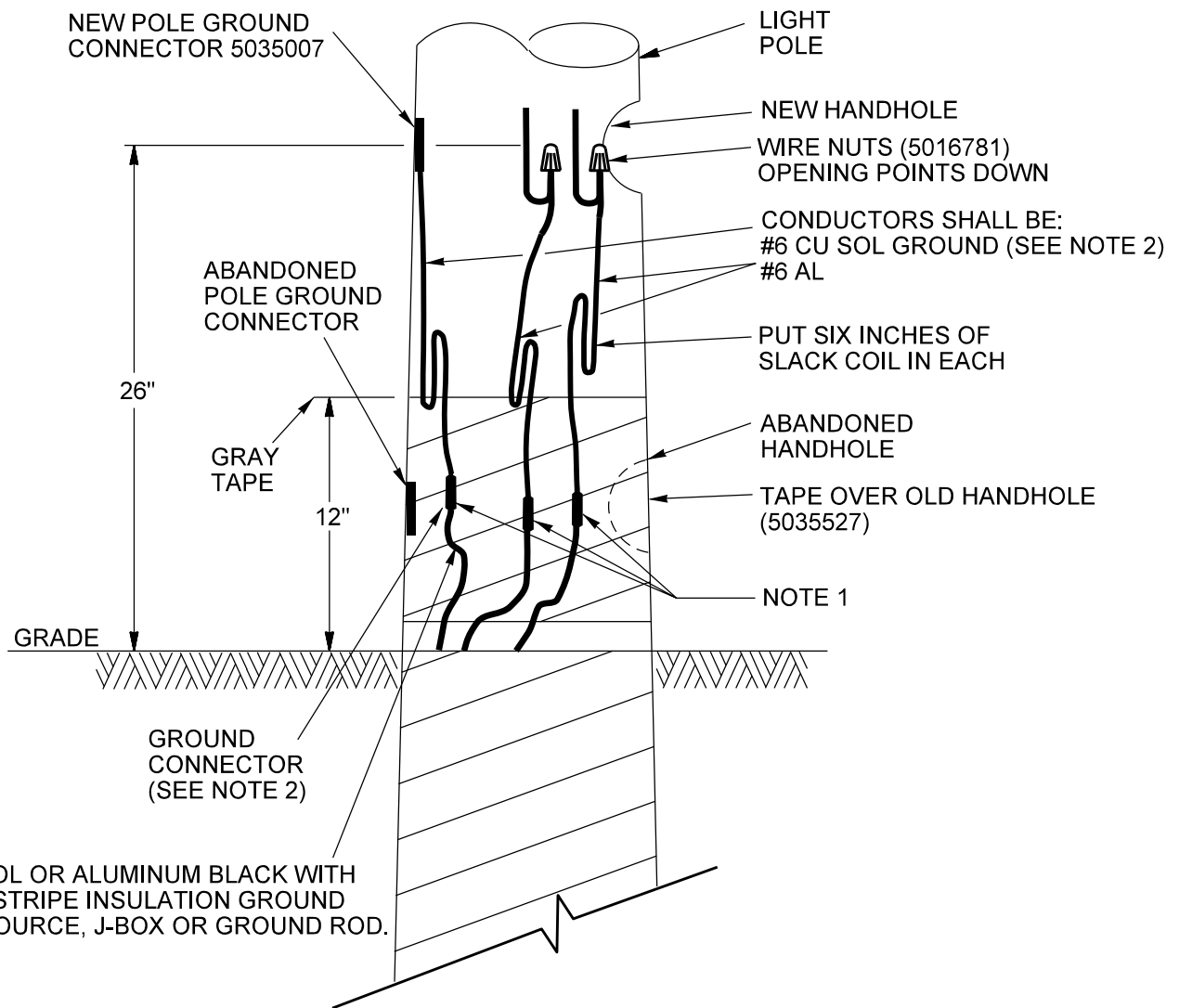


FABRICATION NOTES

1. Drill and tap for 1/4-20 UNC threaded hole for 1/4" dia. Stainless steel hex head bolt (typical only with steel poles).
2. All handhole cut edges shall be ground smooth with no sharp edges.
3. Personnel safety shall be observed when cutting fiberglass. Safety masks shall be worn to prevent fiberglass fines from entering the lungs. Safety masks shall be approved per OSHA (Occupational Safety and Health Administration).

Pole Diameter (O.D.)	Approximate Pole Circumference	Handhole Cover Stock Code
3 1/2"	11"	5035016
4 1/2"	14"	5034014
5 9/16"	17 1/2"	5035014
6 5/8"	20 1/2"	5035014
Square Tube Steel Poles	All square poles have the same size handhole cover	5035020
All Fiberglass Poles	All fiberglass poles have the same size handhole cover	5035022

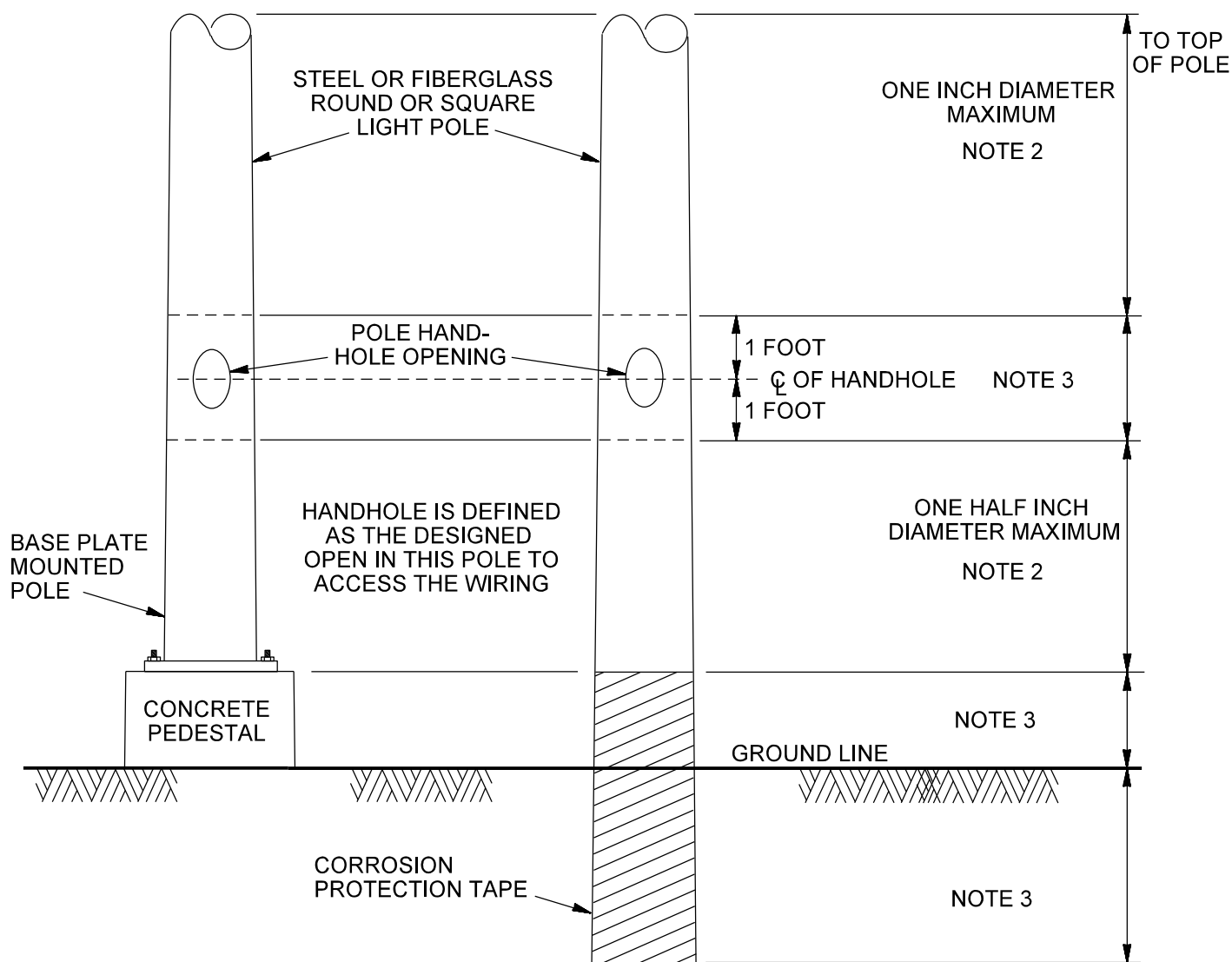
Outdoor Lighting Standards  PROPRIETARY MATERIAL	MAINTENANCE HANDHOLE RELOCATION		ISSUE DATE: 02/01/05
			REV. DATE: 10/31/13
			APPROVAL: N. SABBAH
	4-3-1		8518E171.DGN



NOTES

1. Connector with 2 heat shrinks (5071583).
2. For aluminum ground wire from source use connector and heat shrink (5071583) and continue to pole ground lug at handhole with #6 CU SOL.

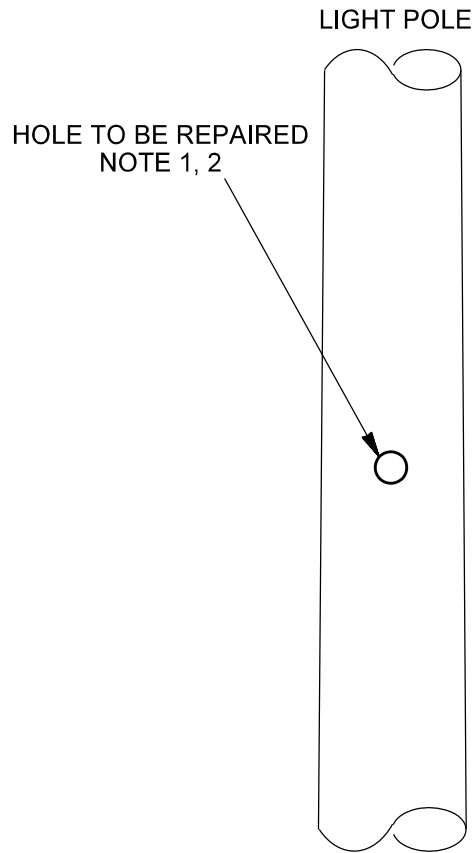
Outdoor Lighting Standards  PROPRIETARY MATERIAL	MAINTENANCE HANDHOLE RELOCATION WIRING 4-4-1	ISSUE DATE: 05/21/10 REV. DATE: 10/31/13 APPROVAL: W. LARAMIE 8518E273.DGN
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NOTES

1. This standard pole replacement / repair guide is intended for existing light poles with non-standard holes discovered in the field by the pole maintenance crews.
2. Holes in these areas must be directly above or below the handhole or on the exact opposite side of the pole from handhole. Maintenance crews to replace pole if holes are larger than indicated above.
3. Replace pole if holes are discovered in this area (other than the handhole opening).
4. Hole is defined as the complete opening in the wall thickness of the pole, exposing the inside of the pole. Complete corrosion into the wall thickness is to be considered a hole.
5. Some holes or openings in the steel pole may be oblong or other shape. This shall also be considered as a hole or opening.
6. See "Maintenance, Hole Repair" for methods to repair holes.

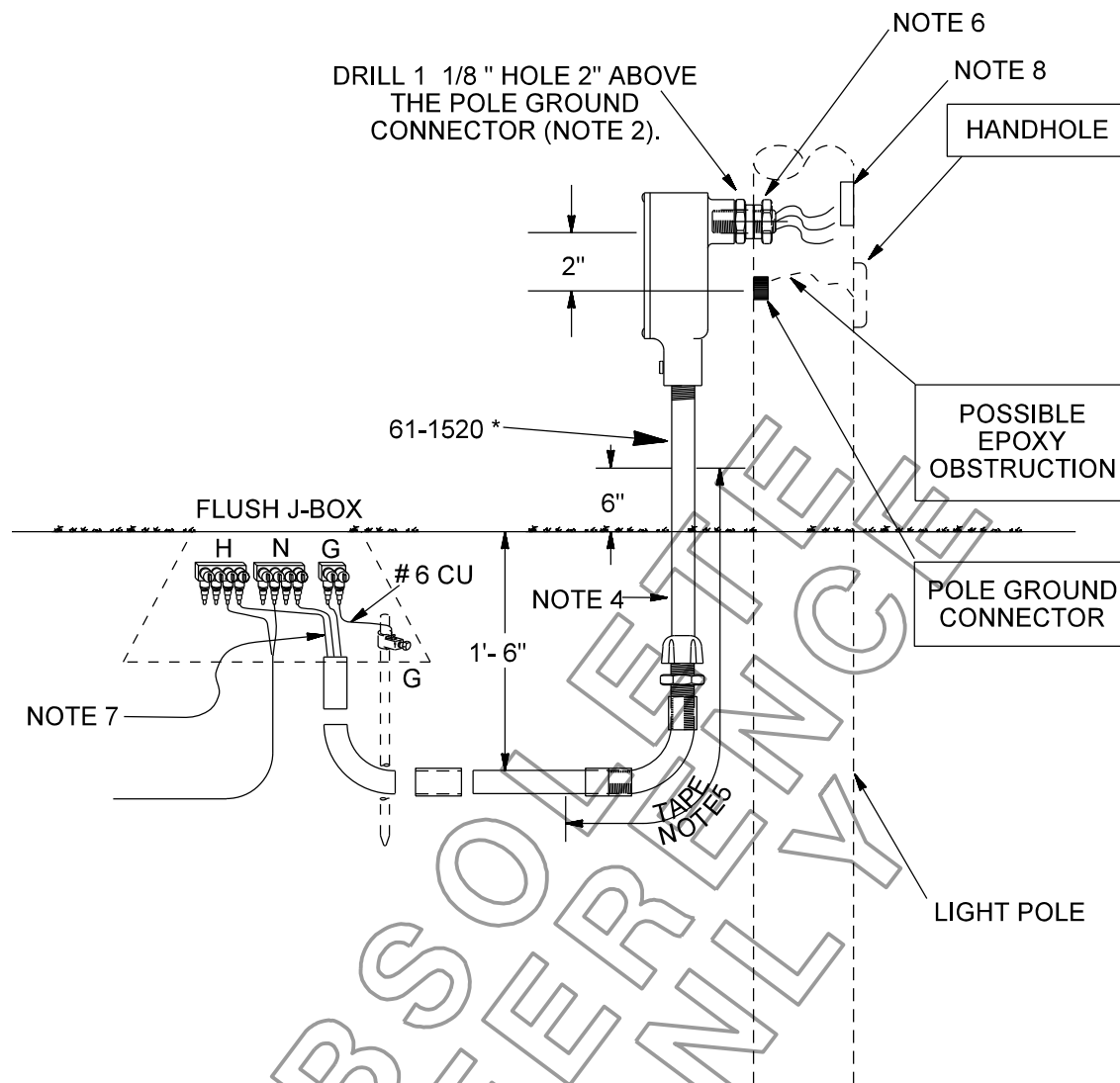
Outdoor Lighting Standards  PROPRIETARY MATERIAL	MAINTENANCE SRP LIGHT POLE (WITH NON-STANDARD HOLES) REPAIR / REPLACEMENT GUIDELINES 4-5-1	ISSUE DATE: 01/08/14 REV. DATE: 0 APPROVAL: W. LARAMIE 8518E322.DGN
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NOTES

1. Follow guidelines on "Maintenance, SRP Light Pole (with Non-Standard Holes), Repair / Replacement Guidelines" Section 4 to determine if holes can be repaired or pole must be replaced.
2. If the hole edges are rough, smooth them (file).
3. Clean area to be covered with brush and cleaner (5003004).
4. Following silicone (permatex clear rtv silicone 5012185) instructions. Apply silicone in the hole. Smooth silicone around the outside edges of the hole.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	MAINTENANCE STEEL POLE HOLE REPAIR	ISSUE DATE: 01/23/14 REV. DATE: 08/07/20 APPROVAL: J. LUERA
		8518E323.DGN



* No stock code equivalent in SAP

NOTES

1. To replace a failed service cable when the inside of the pole is obstructed, as it is when the pole has been repaired by filling it with epoxy and a carbon fiber sleeve.
2. Drill 1/4 " pilot hole and then ream out to 1 1/8 " with Greenlee electrician's step bit (1 1/8 ") or equivalent.
3. Cut PVC to length and glue on 3/4" elbow to j-box.
4. Cut 3/4" rigid conduit to length.
5. One half overlap tape as shown from 6" above grade to just past the buried coupling where rigid steel elbow transitions to PVC.
6. Insert threaded nipple into pole and fasten with insulation of nuts facing pole.
7. Remove #8 AL TX from conduit (CIC) and install in riser.
8. Place warning sign 5039125 above handhole.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	MAINTENANCE LIGHT POLE REPAIR EPOXY BYPASS RISER 4-5-3	ISSUE DATE: 12/08/04 REV. DATE: 02/02/16 APPROVAL: S. DURAN 8518E167.DGN
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SECTION 5: HARDWARE AND BASIC UNITS

Title / Description	Page
Luminaire Replacement Maintenance Chart.....	5-1-1
Streetlights, Refractors, Lamps, Covers	5-2-1
Lamp and Photocell Coding.....	5-3-1
Streetlight Luminaire Lamp Information	5-4-1
Various Part Material Item Numbers	5-5-1
Replacement, Streetlight Pole Handhole Cover.....	5-6-1
Streetlights, Bird Diverter and Light Shield.....	5-7-1
Lighting Shields	5-7-2
Streetlights, Vandal Deterrent.....	5-8-1
Conductor.....	5-9-1
Vaults, Manholes and Boxes, Junction Box Installation	5-10-1
Cable and Accessories, 0-600 V Tap Mole Connectors	5-11-1
Lighting Connector and Die Chart for Outdoor Light Conductors	5-12-1
Outdoor Light Poles.....	5-13-1
Lighting Repair Codes	5-14-1
Protective Collars and Bolt Skirts.....	5-15-1
Conduit Codes.....	5-16-1
Overhead Point of Attachment.....	5-17-1
Streetlights, Refractors, Lamps, Covers – Reference Only	5-18-1
Replacement, Streetlight Pole Handhole Cover, 5035020	5-19-1

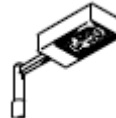
Maintenance Chart

Type	Luminaire Material Item	Wattage and Type	Compatible Unit Overhead	Compatible Unit Underground
Floodlight 	5035136	400 W HPS. C.O.	LBF4	ULBF4
Contemporary 	5035145	100 W HPS.	-	ULBC1
	5035146	150 W HPS.	-	ULBC15
Early American 	5035143	100 W HPS	-	ULBE1
Streamline 	5035147	100 W HPS	LBS1	ULBS1
	5035148	150 W HPS	LBS15	ULBS15
	5035247	250 W HPS	LBS25	ULBS25
	5035248	400 W HPS	LBS4	ULBS4
Architectural 	5035250	100 W HPS	LBA1	ULBA1
	5035251	150 W HPS	LBA15	ULBA15
	5035252	250 W HPS	LBA25	ULBA25
	5035253	400 W HPS	LBA4	ULBA4

NOTE: These compatible units are for the maintenance replacement of luminaires of the same type and size. These units include luminaire, lamp and photocell.

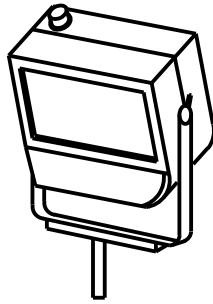
Outdoor Lighting Standards  PROPRIETARY MATERIAL			
	HARDWARE AND BASIC UNITS LUMINAIRE REPLACEMENT MAINTENANCE CHART		ISSUE DATE: 01/14/00
			REV. DATE: 10/31/13
			APPROVAL: W. Laramie
	5-1-1	OL5-1-1.doc	

Maintenance Chart

Type	Luminaire Material Item	Wattage and HPS Equivalent	Lumen Class	Mfg.	Compatible Unit	Voltage	Current Draw
Floodlight 	5088002	184 W 400 W HPS	25,000	Eaton	LBFL25EAN	120	1.53
Early American 	5087988	31 W 100 W HPS	3,000	Eaton	LBEL3EAN	120	0.26
Streamline 	5087994	32 W 100 W HPS	4,000	Eaton	LBSL4EAN	120	0.27
	5087995	54 W 150 W HPS	6,500	Eaton	LBSL65EAN	120	0.45
	5087941	101 W 250 W HPS	13,000	Eaton	LBSL13EAN	120	0.84
	5087943	201 W 400 W HPS	22,000	Eaton	LBSL22EAN	120	1.675
Architectural 	5088015	32 W 100 W HPS	4,000	Eaton	LBAL4EAN	120	0.27
	5088008	54 W 150 W HPS	65,00	Eaton	LBAL65EAN	120	0.45
	5087987	101 W 250 W HPS	13,000	Eaton	LBAL13EAN	120	0.84
	5087998	201 W 400 W HPS	22,000	Eaton	LBAL22EAN	120	1.675

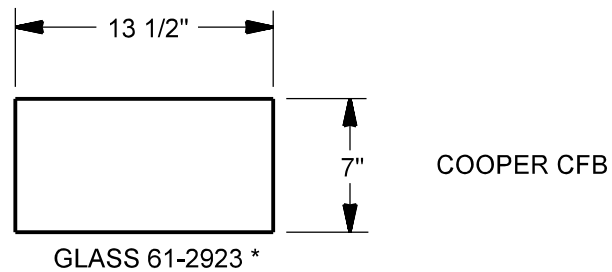
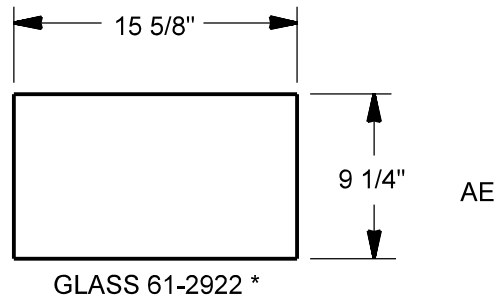
NOTE: These compatible units are for the maintenance replacement of luminaires of the same type and size (not new construction). LED streetlight mastheads are to be replaced as a whole.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS LUMINAIRE REPLACEMENT MAINTENANCE CHART	ISSUE DATE: 01/06/20
		REV. DATE:
		APPROVAL: N. Sabbah
	5-1-2	OL5-1-2.doc



FLOOD

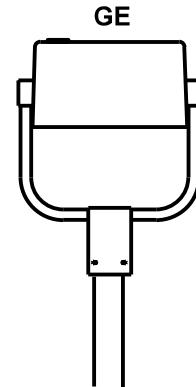
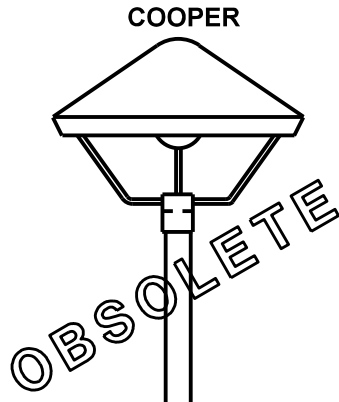
Luminaire			Replacement Parts		
Stock No.	Manufacturer	Wattage and Type	Lamp	Lens or Refractor	
				Glass	Plastic
5035136	Cooper	400w HPS	5035135	61-2923 *	None



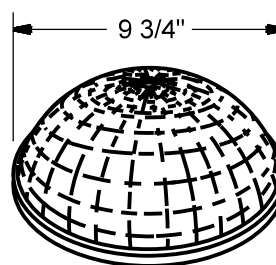
* No stock code equivalent in SAP.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS STREETLIGHTS REFRACTORS, LAMPS, COVERS	
	ISSUE DATE: 11/24/99 REV. DATE: 01/26/16 APPROVAL: S. DURAN	
	5-2-1	8518E112.DGN

CONTEMPORARY



Luminaire			Replacement Parts		
Stock No.	Manufacturer	Wattage and Type	Lamp	Lens or Refractor	
				Glass	Plastic
5035145	Cooper	100w HPS	5035132	None	None
5035145	GE	100w HPS	5035524	None	None
5035146	GE	150w HPS	5035525	None	None

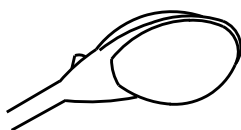


GLASS 0615042

NOTES

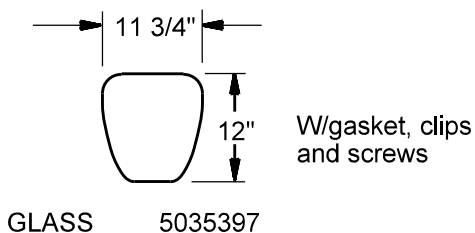
1. The Cooper version of the contemporary luminaire and its replacement refractor 0615042 are obsolete.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS STREETLIGHTS REFRACTORS, LAMPS, COVERS	ISSUE DATE: 01/17/00 REV. DATE: 10/31/13 APPROVAL: W. LARAMIE
	5-2-2	8518E108.DGN

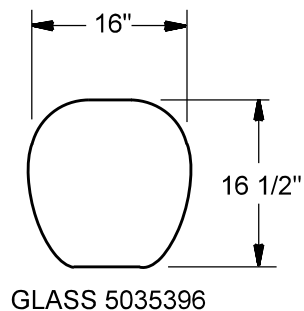
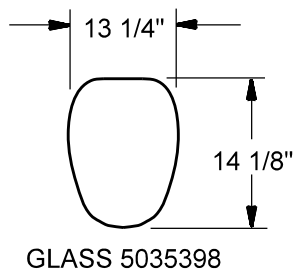
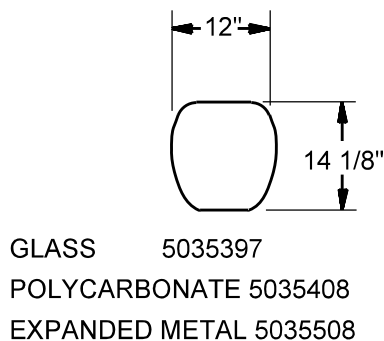


STREAMLINE HPS

Luminaire			Replacement Parts			
Stock No.	Manufacturer	Wattage and Type	Lamp	Lens or Refractor		
				Glass	Plastic	Expanded Metal
5035147	GE	100w HPS CO	5035132	None	None	
	American Electric			5035397	5035408	5035508
	Thomas & Betts			None	None	
	Hubbell			None	5035408	5035508
	Cooper				None	
5035148	GE	150w HPS CO	5035524	None	None	
	American Electric			5035397	None	5035508
	Cooper				None	
5035247	GE	250w HPS CO	5035525	None	None	
	American Electric			5035398	None	
	Cooper				None	
5035248	GE	400w HPS CO		5035396	None	
	American Electric			5035398	None	
	Cooper			5035403	None	



W/gasket, clips
and screws

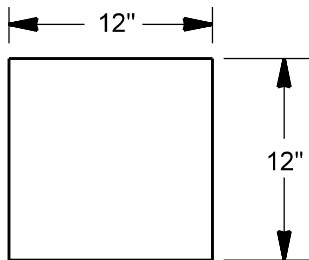


Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS	ISSUE DATE: 01/18/00
	STREETLIGHTS	REV. DATE: 10/31/13
	REFRACTORS, LAMPS, COVERS	APPROVAL: W. LARAMIE
	5-2-3	8518E109.DGN

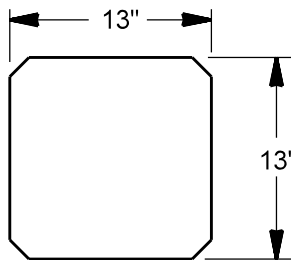


EARLY AMERICAN

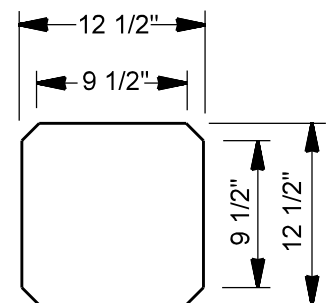
Luminaire			Replacement Parts			
Stock No.	Manufacturer	Wattage and Type	Lamp	Lens or Refractor		
				Glass	Plastic	Expanded Metal
Obsolete	American Electric	70w HPS	5035131	5035394	5035406	5035507
	Cooper			5035400	5035407	
	GE			5035401	None	
				None	5035409	
5035143	American Electric	100w HPS	5035132	5035394	5035406	5035507
	Cooper			5035400 or 5035399	5035404	
	GE			5035401	None	
				5071585	5035409	



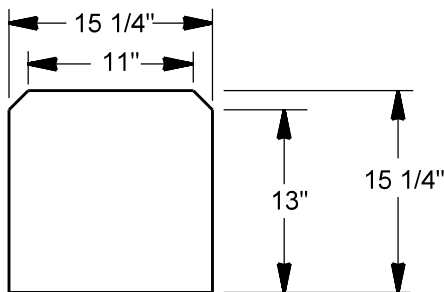
GLASS 5035394
POLYCARBONATE 5035406
EXPANDED METAL 5035507



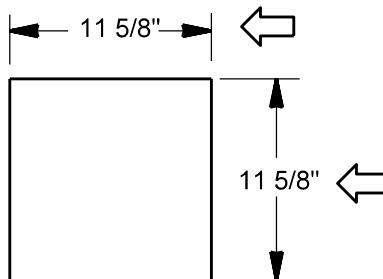
POLYCARBONATE 5035407 &
GLASS 5035401



GLASS 5035399 &
POLYCARBONATE 5035404



GLASS 5035400



POLYCARBONATE 5035409
GLASS 5071585

Outdoor Lighting
Standards



PROPRIETARY MATERIAL

HARDWARE AND BASIC UNITS
STREETLIGHTS
REFRACTORS, LAMPS, COVERS

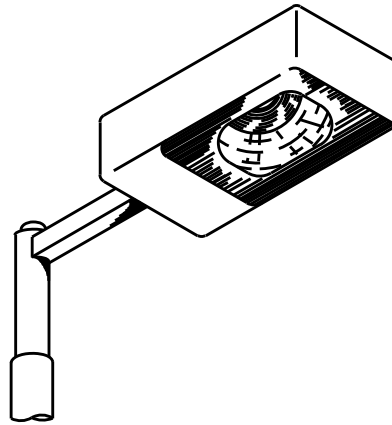
5-2-4

ISSUE DATE: 01/18/00

REV. DATE: 09/25/13

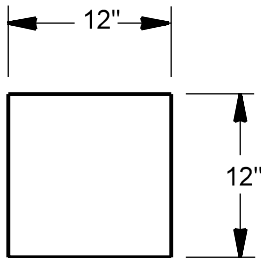
APPROVAL: W. LARAMIE

8518E114.DGN

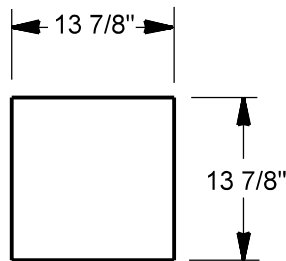


ARCHITECTURAL

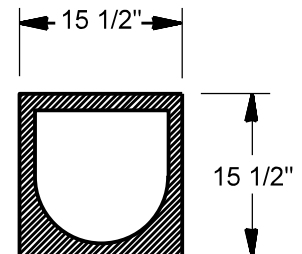
Luminaire			Replacement Parts				
Stock No.	Manufacturer	Wattage and Type	Power Door American Electric Only	Lamp	Lens or Refractor		
					Glass	Plastic	Expanded Metal
5035249	American Electric	70w HPS	5035139	5035131	5035394	5035406	
	Cooper				5035402	None	
5035250	American Electric	100w HPS	5035140	5035132	5035394	5035406	
	Cooper				5035402	None	
5035251	American Electric	150w HPS	5035141	5035133	5035394	5035406	
	Cooper				5035402	None	
5035252	American Electric	250w HPS	5035142	5035134	5075635	None	
	Cooper				5035402	None	
5035253	American Electric	400w HPS	5035143	5035135	5075635	None	
	Cooper				5035402	None	



GLASS 5035394
 POLYCARBONATE 5035406
 EXPANDED METAL 5035507

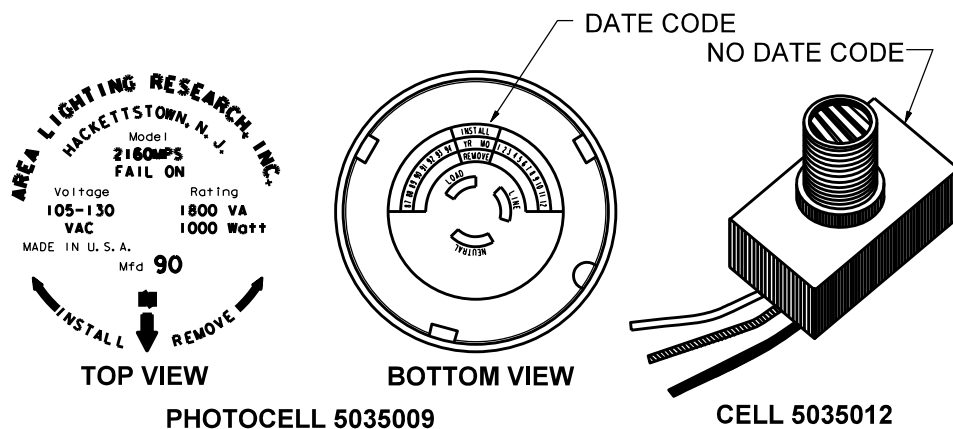


GLASS 5035402



GLASS 5075635

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS	ISSUE DATE: 01/18/00
	STREETLIGHTS	REV. DATE: 09/25/13
	REFRACTORS, LAMPS, COVERS	APPROVAL: W. LARAMIE
	5-2-5	8518E113.DGN

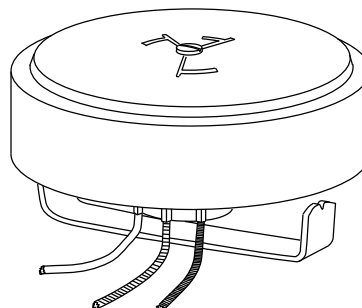
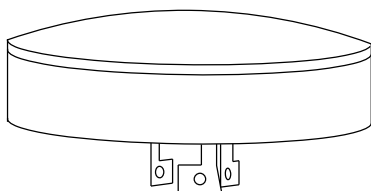


All luminaires, except the previously installed contemporary style (Cooper), will use photocell stock No. 5035009. The previously installed contemporary style (Cooper) will use photocell stock no. 5035012.

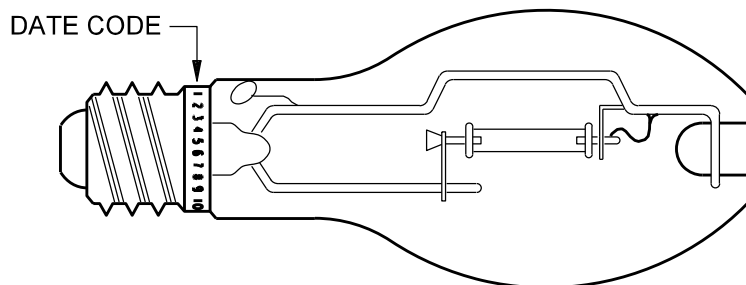
These photocells are solid state and rated for long life with a five year replacement warranty. To realize the benefits of these photocells:

1. Mark the date code during installation by scratching a mark next to the year and month numbers.
2. Do not remove from service unless known to be bad order or older than 5 years when bulb is replaced.
3. Place all failed photocells in the failed material bins.
4. Upward facing photocell 5035010 to be used where artificial light source causes the normal 5035009 to switch the luminaire off.

TWIST LOCK SHORTING CAP
SRP STOCK CODE # 5035001



PC RECEPTACLE
SRP STOCK CODE # 5035002



HIGH PRESSURE SODIUM LAMP

High pressure sodium lamps have a two year warranty. To obtain warranty benefits:

1. Mark the date code during installation by scratching a mark next to the number which is the last digit of the year and another mark next to the first letter of the installation month.
2. Place all lamps that fail within two years of installation in the failed material bins.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	HARDWARE AND BASIC UNITS LAMP AND PHOTOCELL CODING 5-3-1	ISSUE DATE: 01/21/00 REV. DATE: 10/31/13 APPROVAL: W. LARAMIE 8518E115.DGN
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Maintenance Chart

Watts	Type	Lumens	Voltage	Operating Current
70	High Pressure Sodium	5,800	120	.89
100	High Pressure Sodium	9,500	120	1.25
150	High Pressure Sodium	16,000	120	1.8
250	High Pressure Sodium	30,000	120	2.8
400	High Pressure Sodium	50,000	120	4.3

NOTES

1. All luminaires have a photocell receptacle.
2. The standard practice shall be to use an individual photocell with each luminaire.

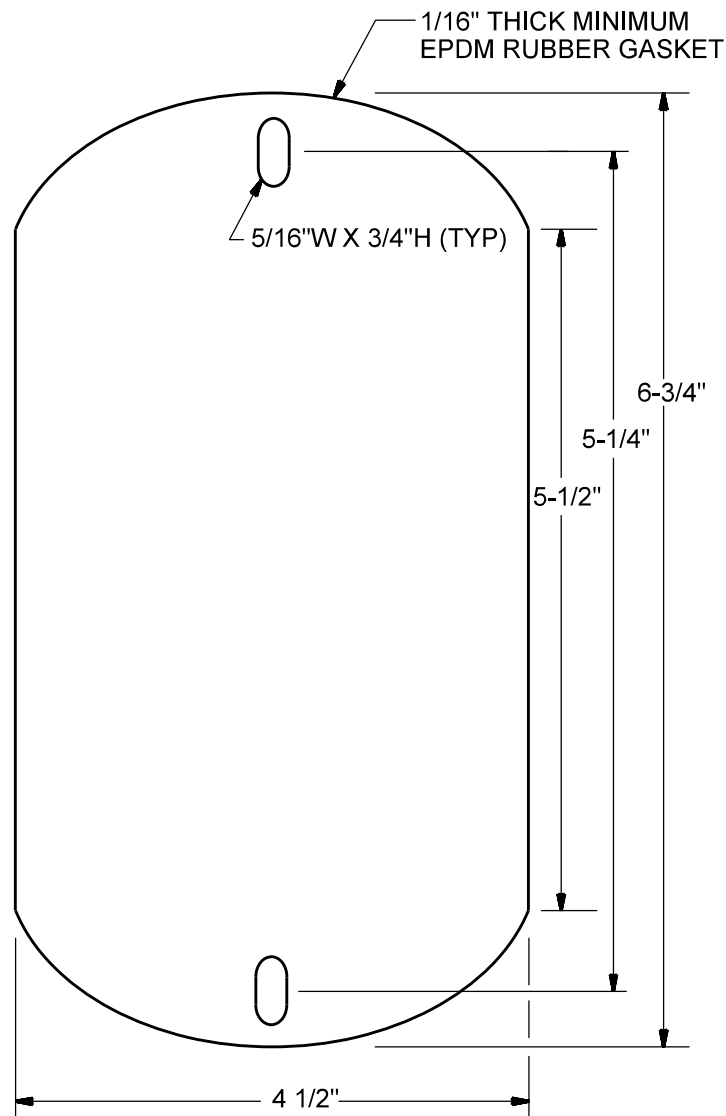
 PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS STREETLIGHT LUMINAIRE LAMP INFORMATION	ISSUE DATE: 01/21/00 REV. DATE: 01/18/13 APPROVAL: W. Laramie
	5-4-1	OL5-4-1.doc

Type	Size/Description	Material Item
Streetlighting Arm Set Screws	1/2" X 1" NC (National Coarse Thread)	5069770
Streetlighting Arm Set Screws	3/8" X 1" NC	5069654
Streetlighting Arm Set Screws	5/16" X 1" NC	61-0556
Lighting Flush Mount J-Box Penta Head Bolts	3/8" X 1 1/4"	5034051
Lighting Flush Mount J-Box Penta Head Bolts	3/8" X 1 1/2"	5034052
Lighting Flush Mount J-Box Penta Head Bolts	3/8" X 2 1/2"	5034053
Pole Handhole Grounding Connector	Connector #14 Solid to #6 Stranded AL/CU	5035007
Pole Handhole Security Screw	Screw, Machine, 1/4-20 X 1/2" LONG, Button Head, Allen Drive, Stainless	5035509
Pole Handhole Security Screw	Screw, Machine, 1/4-20 X 1/2" LONG, Hex Head, Stainless	5069771
Pole Handhole Rubberized Washers	Washer 1/4" X 9/16" O. D.	5035124
Pole Handhole Rubberized Washers	Washer 5/16" X 11/16" O. D.	5035122

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS VARIOUS PART MATERIAL ITEM NUMBERS	ISSUE DATE: 02/15/07 REV. DATE: 10/31/13 APPROVAL: W. Laramie
	5-5-1	OL5-5-1.doc

Handhole Cover Replacement

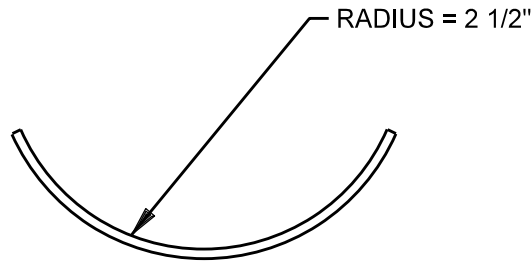
Pole Material Item	Pole Length	Pole Shape and Finish	Handhole Cover	
			Steel	Fiberglass
SM-613492-5035263	17'-6"	Round / Black	5035015	5035022
SM-613493-5035264	17'-6"	Round / Galvanized/Gray	5035016	5035024
SM-613494-5035265	23'-6"	Round / Galvanized / Gray	5035016	5035024
SM-613495*	23'-6"	Round / Black	5035015	—
SM-613625-5035266	18'	Square/ Bronze	5035019	5035023
SM-613627-5035267	25'-6"	Round / Galvanized / Gray	5035014	5035024
SM-613628-5035268	25'-6"	Square / Bronze	5035019	5035023
SM-613629-5035269	28'-6"	Square / Bronze	5035019	5035023
SM-613631-5035270	36'	Square / Bronze	5035019	5035023
SM-613635-5035271	40'	Square / Bronze	5035019	—
SM-613685-5035279	14'	Round / Black	5035015	—
SM-613690-5035375	26'-6"	Round / Galvanized / Gray	5035021	5035024
SM-613691-5035376	26'-6"	Round / Galvanized / Gray	5035021	5035024
SM-613694-5035377	31'	Round / Galvanized / Gray	5035021	5035024
SM-613697-5035379	31'	Round / Galvanized / Gray	5035021	5035024
SM-613695-5035378	35'	Round / Galvanized / Gray Rectangle Oval	5035021 5035014	5035024
SM-613698-5035380	35'	Round / Galvanized / Gray Rectangle Oval	5035021 5035014	5035024
SM-613696*	35'	Round /Pink	5035014	—
SM-613681-5035275	12'	Square / Gray	5035019	—
SM-613682-5035276	10'	Square / Gray	5035019	—
SM-613683-5035277	12'	Square / Black	5035019	—
SM-613684-5035278	10'	Square / Black	5035019	—
SM-613701-5035381	12'	Square / Brown	5035019	5035023
SM-613702-5035382	10'	Square / Brown	5035019	5035023
SM-614092-5035391	17'-6"	Round / Black	—	5035022
SM-614093-5035392	17'-6"	Round / Gray	—	5035024
SM-614025-5035385	18'	Square / Bronze	—	5035023
SM-614081-5035386	12'	Square / Bronze	—	5035023
SM-614082-5035387	10'	Square / Gray	—	5035019
SM-614083-5035388	12'	Square / Black	—	5035018
SM-614084-5035389	10'	Square / Black	—	5035018
SM-614001-5035383	12'	Square / Brown	—	5035023
SM-614002-5035384	10'	Square / Brown	—	5035023



SM-061-5076104

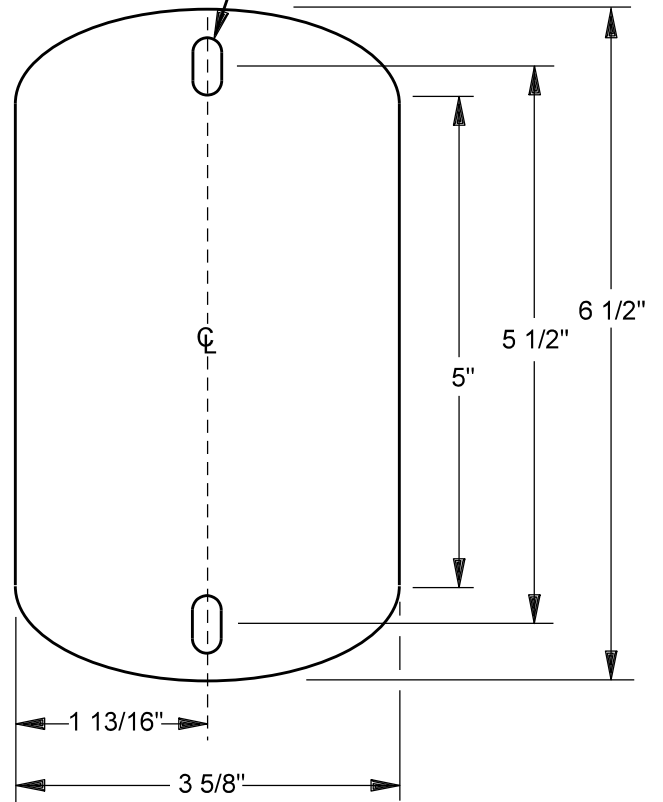
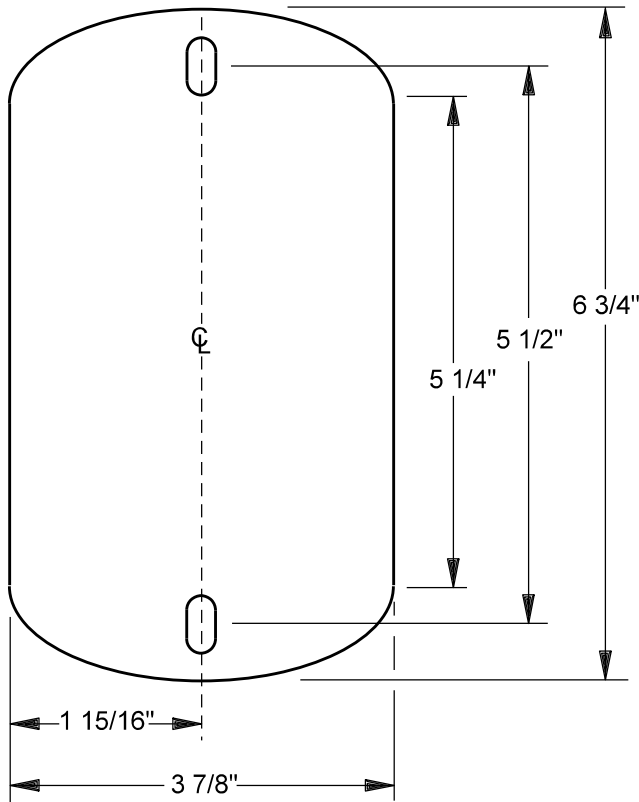
Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS REPLACEMENT STREETLIGHT POLE HANDHOLE COVER GASKET	ISSUE DATE: 02/07/14 REV. DATE: 0 APPROVAL: W. LARAMIE
	5-6-2	8518E318.DGN

HANDHOLE COVER



1/16" THICK EPDM
RUBBER HANDHOLE
COVER GASKET

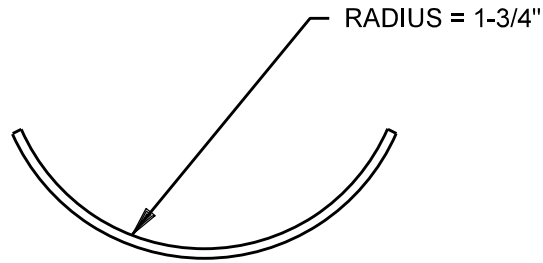
5/16"W X 3/4"H (TYP)



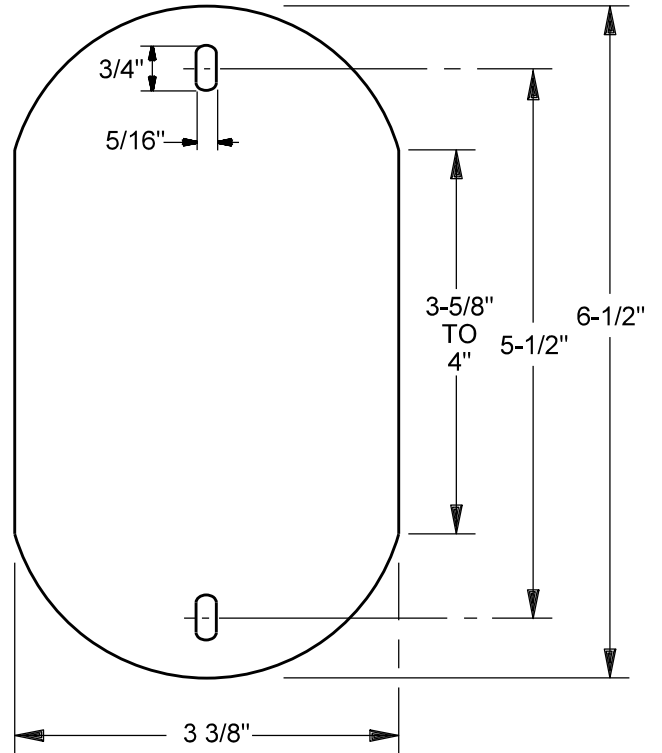
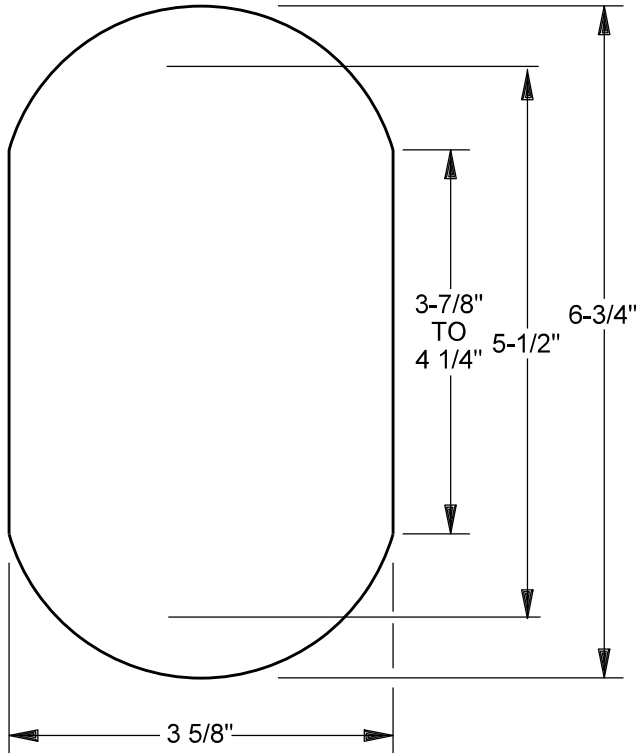
GREY 5035014
BLACK 5035015

Outdoor Lighting Standards  PROPRIETARY MATERIAL	HARDWARE AND BASIC UNITS REPLACEMENT STREETLIGHT POLE HANDHOLE COVER	ISSUE DATE: 01/21/00
		REV. DATE: 10/16/13
	5-6-3	APPROVAL: W. LARAMIE 8518E117.DGN

HANDHOLE COVER



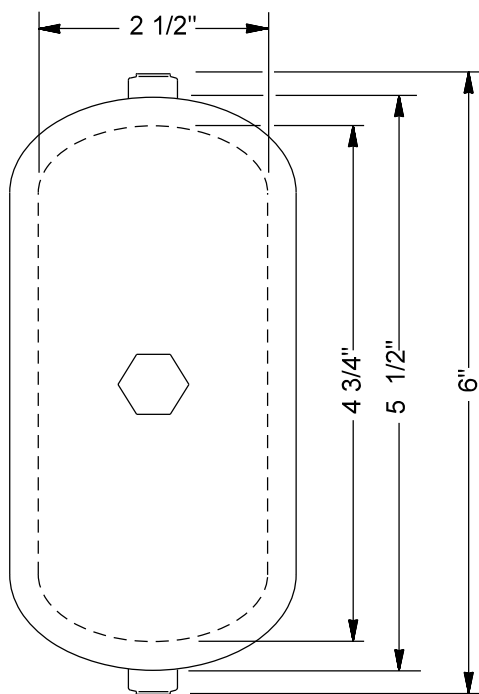
1/16" THICK EPDM RUBBER
HANDHOLE COVER GASKET



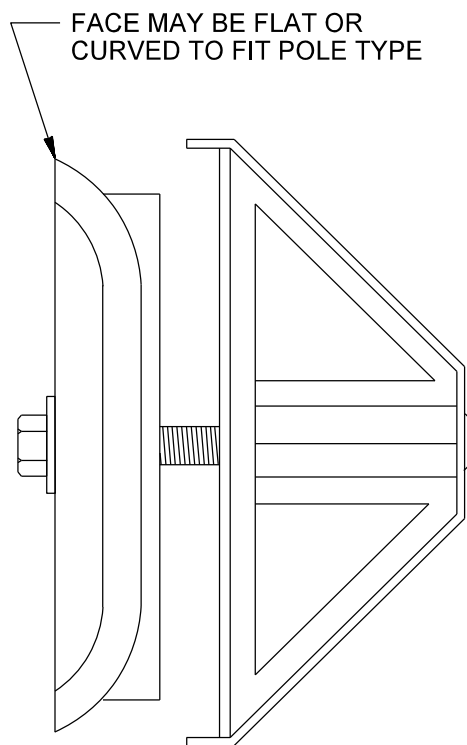
NOTES

1. Stock code 5035016

Outdoor Lighting Standards  PROPRIETARY MATERIAL	HARDWARE AND BASIC UNITS REPLACEMENT STREETLIGHT POLE HANDHOLE COVER - GRAY 5-6-4	ISSUE DATE: 01/21/00 REV. DATE: 10/18/13 APPROVAL: W. LARAMIE 8518E118.DGN
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FRONT VIEW

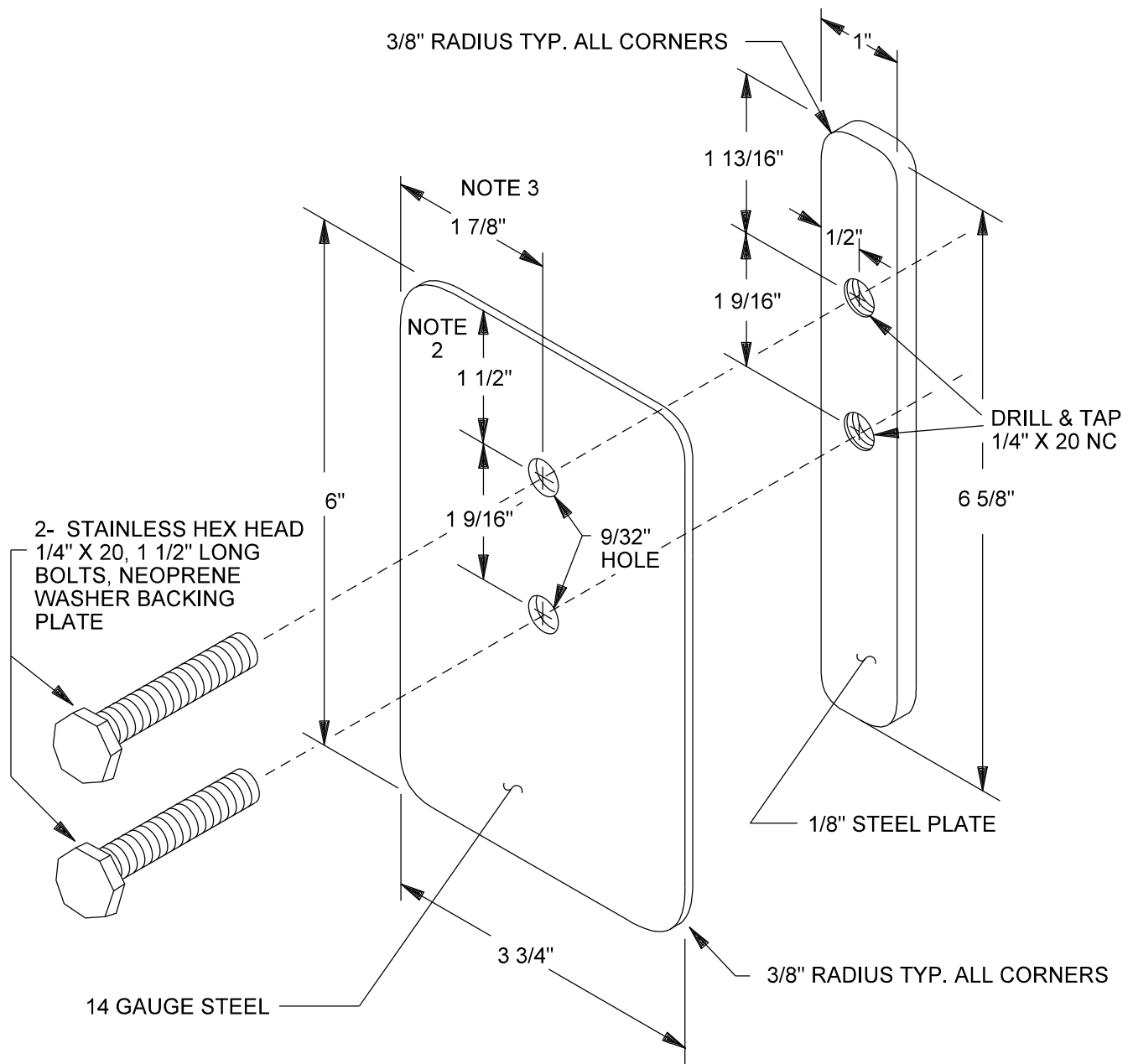


SIDE VIEW

NOTES

1. For Shakespeare fiberglass poles.
2. SRP stock code 5035022, black for round pole.
3. SRP stock code 5035024, grey for round pole.
4. SRP stock code 5035023, brown for square pole.
5. SRP stock code 5076416, grey for square pole.
6. Bolt is captive, stainless steel.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	HARDWARE AND BASIC UNITS REPLACEMENT STREETLIGHT POLE HANDHOLE COVER 5-6-5	ISSUE DATE: 02/17/05 REV. DATE: 12/04/13 APPROVAL: W. LARAMIE 8518E176.DGN
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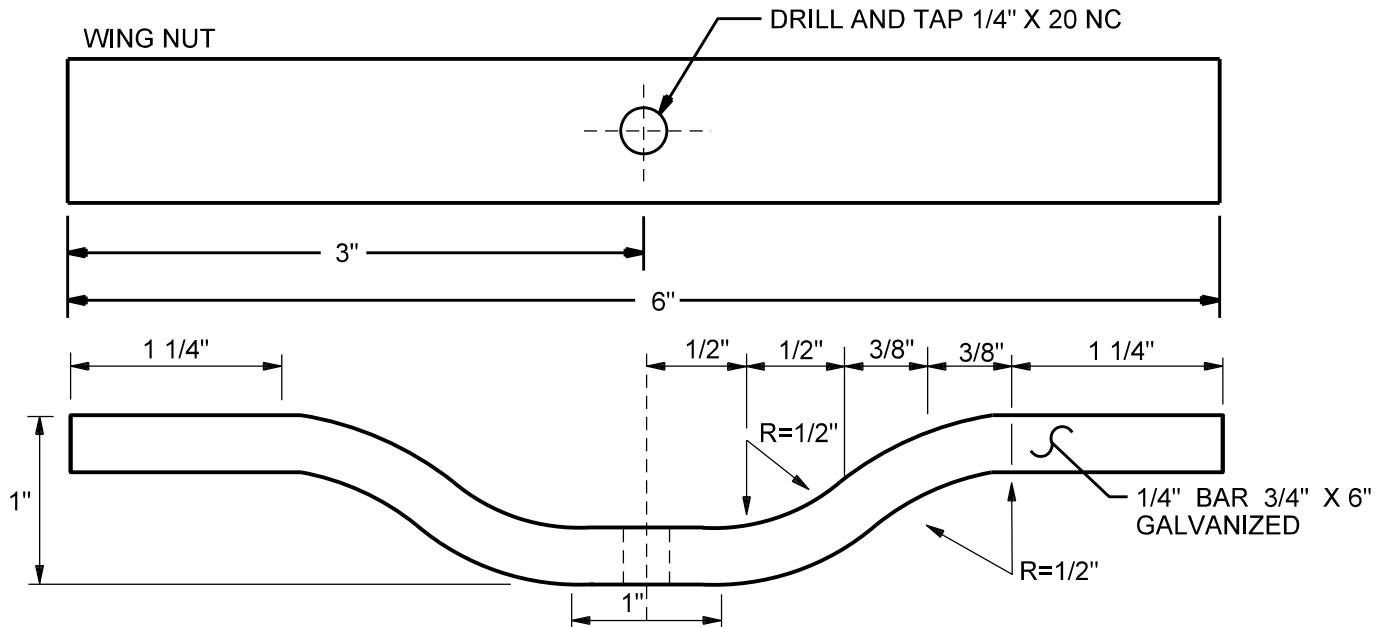
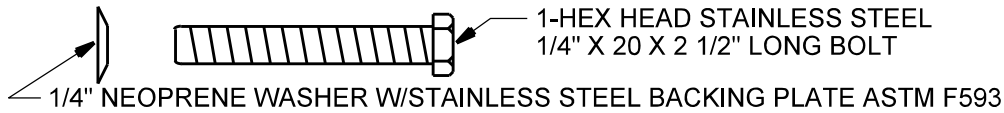
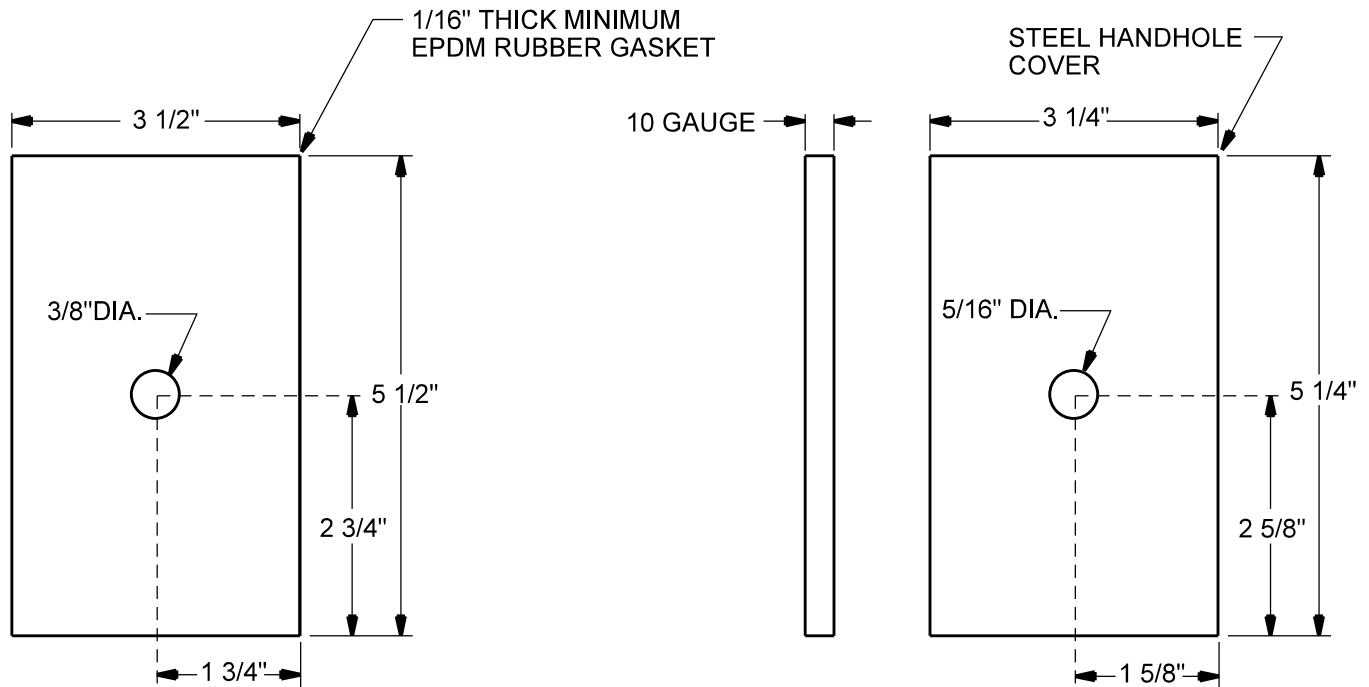


SM-611505-5035018

NOTES

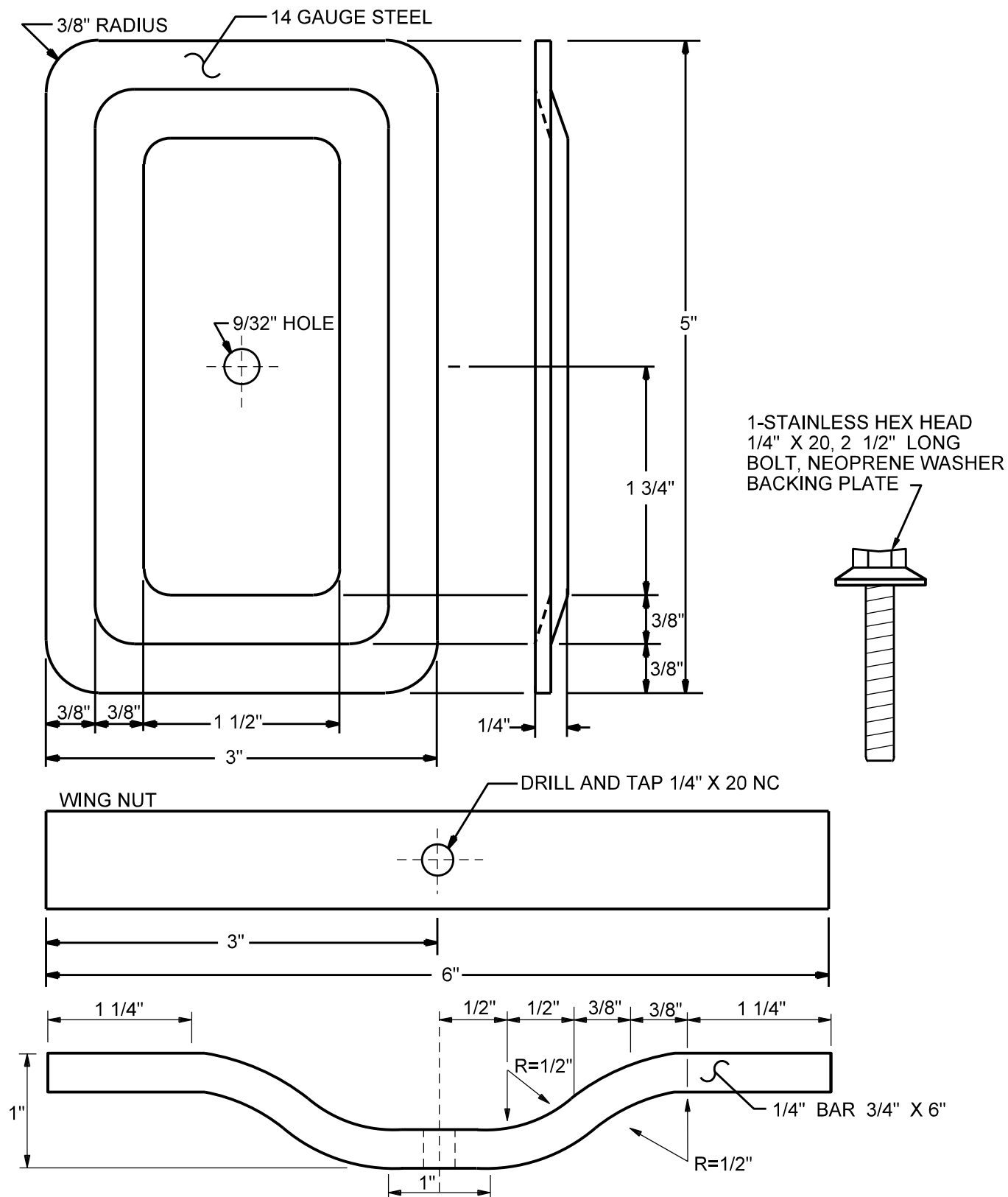
1. 5035018 to include a 1/16" thick EPDM rubber handhole cover gasket dimensions (4" x 6 1/4").
2. This dimension for rubber gasket is 1 5/8".
3. This dimension for rubber gasket is 2".

Outdoor Lighting Standards  PROPRIETARY MATERIAL			
	HARDWARE AND BASIC UNITS REPLACEMENT 5035018 STREETLIGHT POLE HANDHOLE COVER - BROWN		ISSUE DATE: 01/21/00
			REV. DATE: 02/10/14
			APPROVAL: W. LARAMIE
	5-6-6	8518E121.DGN	



SM-611506-5035019

Outdoor Lighting Standards  PROPRIETARY MATERIAL	HARDWARE AND BASIC UNITS REPLACEMENT 5035019 STREETLIGHT POLE HANDHOLE COVER - GRAY	
	5-6-7	ISSUE DATE: 01/21/00 REV. DATE: 10/18/13 APPROVAL: W. LARAMIE
	8518E116.DGN	

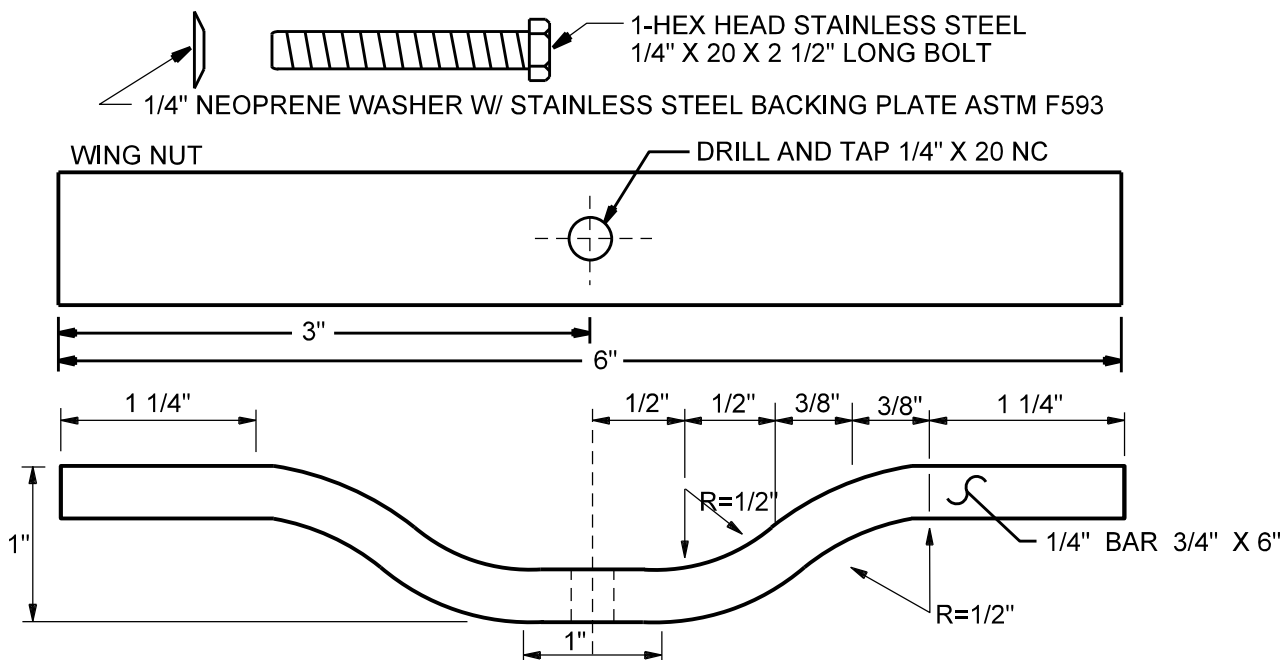
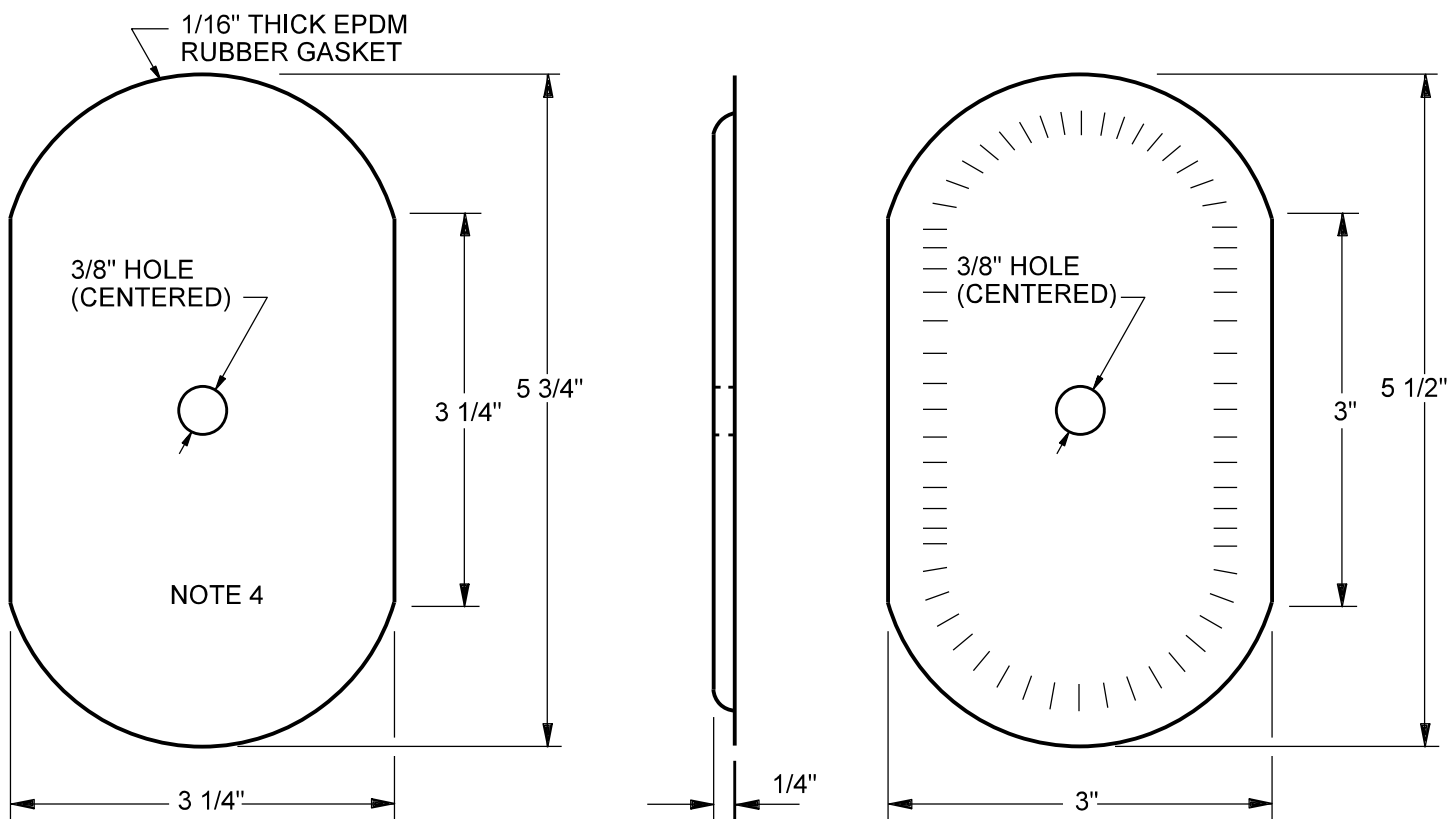


NOTES

- 5035021 to include a 1/16" thick EPDM rubber handhole cover gasket dimensions (3 1/4" x 5 1/4") with 9/32" hole in center. Gasket is larger than handhole.

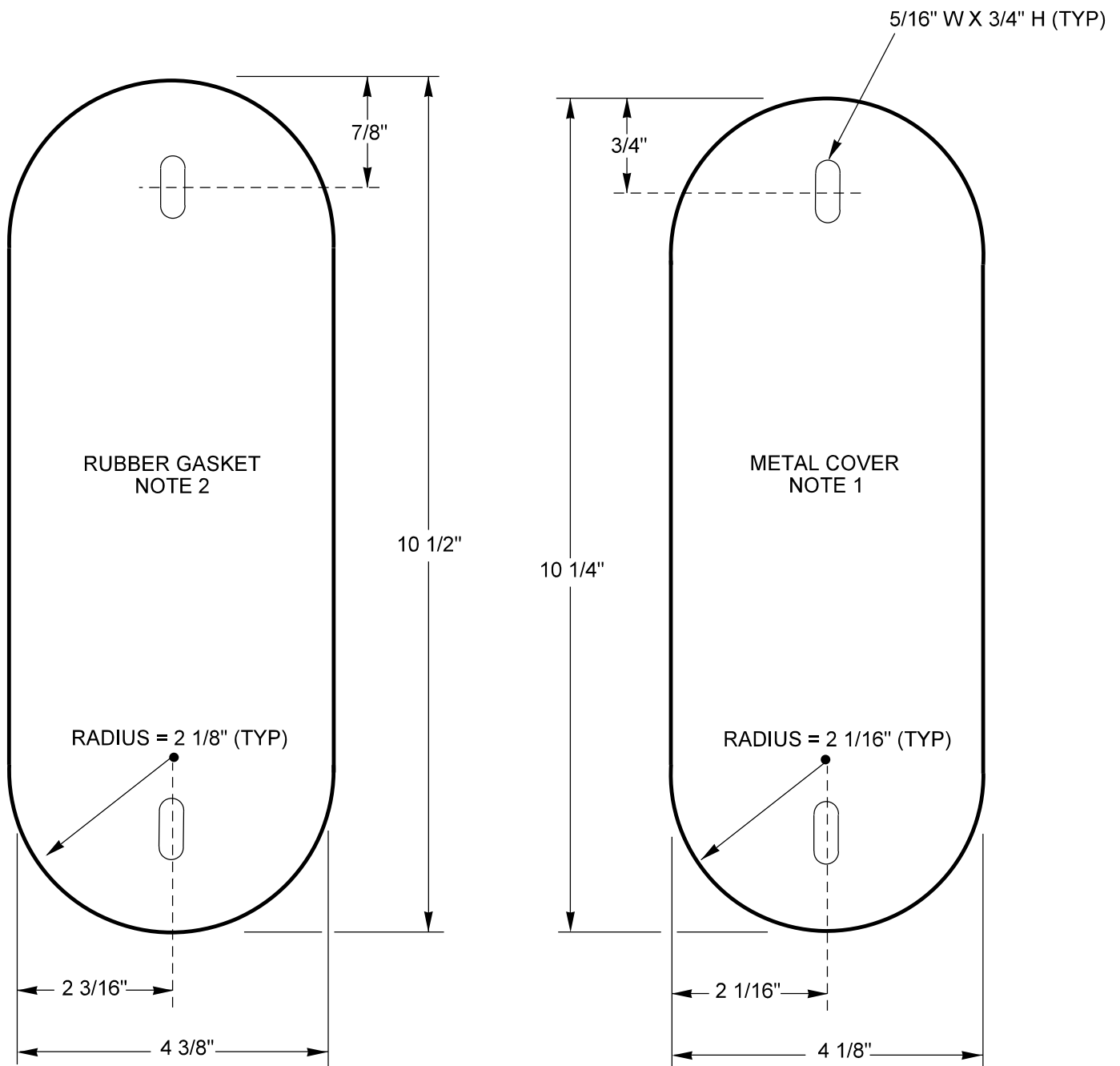
SM-611510-5035021

Outdoor Lighting Standards  PROPRIETARY MATERIAL	HARDWARE AND BASIC UNITS REPLACEMENT 5035021 STREETLIGHT POLE HANDHOLE COVER - GRAY 5-6-8	ISSUE DATE: 01/21/00 REV. DATE: 03/26/14 APPROVAL: W. LARAMIE 8518E120.DGN
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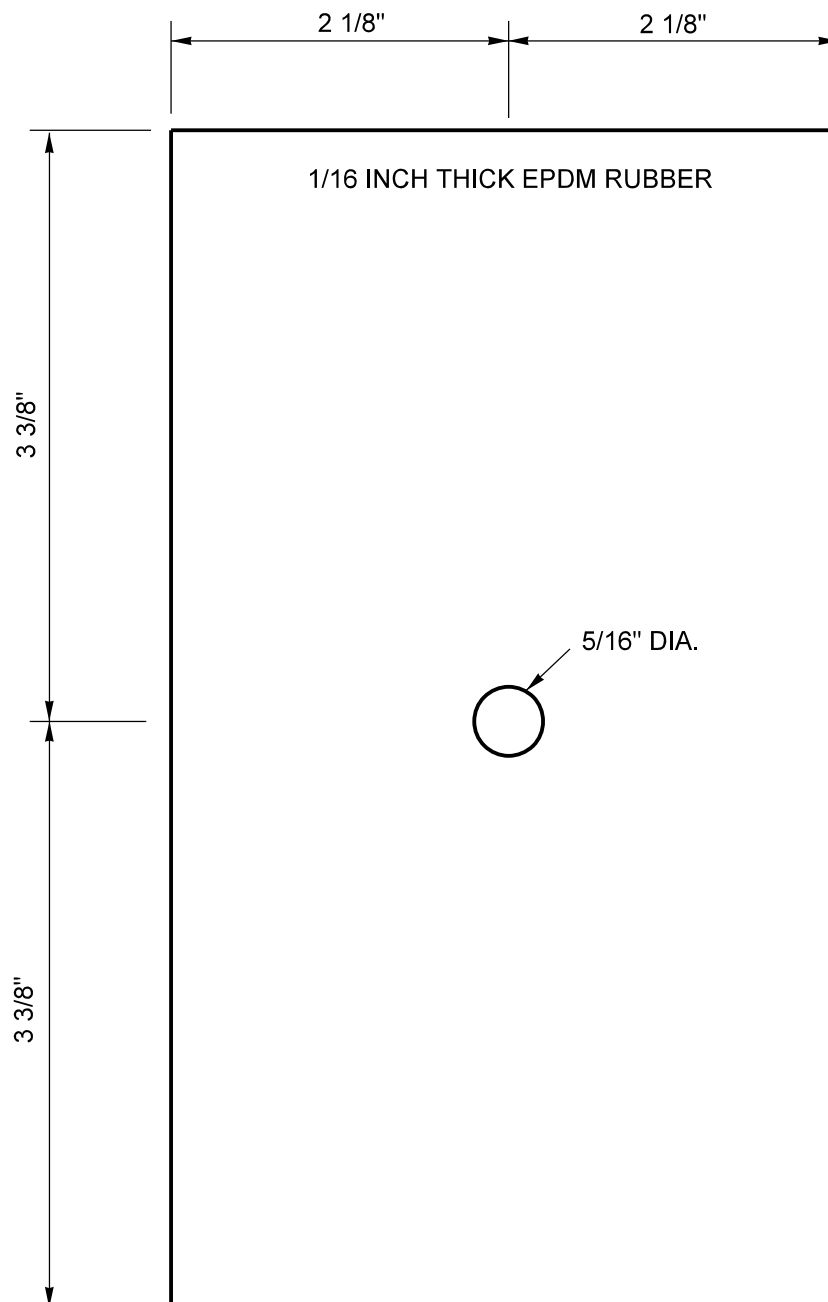
SM-611503-5035017

Outdoor Lighting Standards  PROPRIETARY MATERIAL	HARDWARE AND BASIC UNITS REPLACEMENT 5035017 STREETLIGHT POLE HANDHOLE COVER GILBERT - BROWN 5-6-9	ISSUE DATE: 01/21/00 REV. DATE: 02/07/14 APPROVAL: W. LARAMIE 8518E122.DGN
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SM-611504-5071584

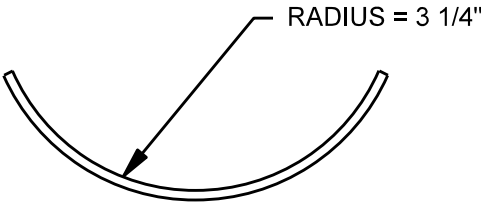
Outdoor Lighting Standards  PROPRIETARY MATERIAL	HARDWARE AND BASIC UNITS REPLACEMENT 5071584 STREETLIGHT POLE HANDHOLE COVER - BROWN GILBERT, LARGE	
	5-6-10	ISSUE DATE: 01/25/13 REV. DATE: 10/25/13 APPROVAL: W. LARAMIE
		8518E316.DGN



SM-611514-5035118

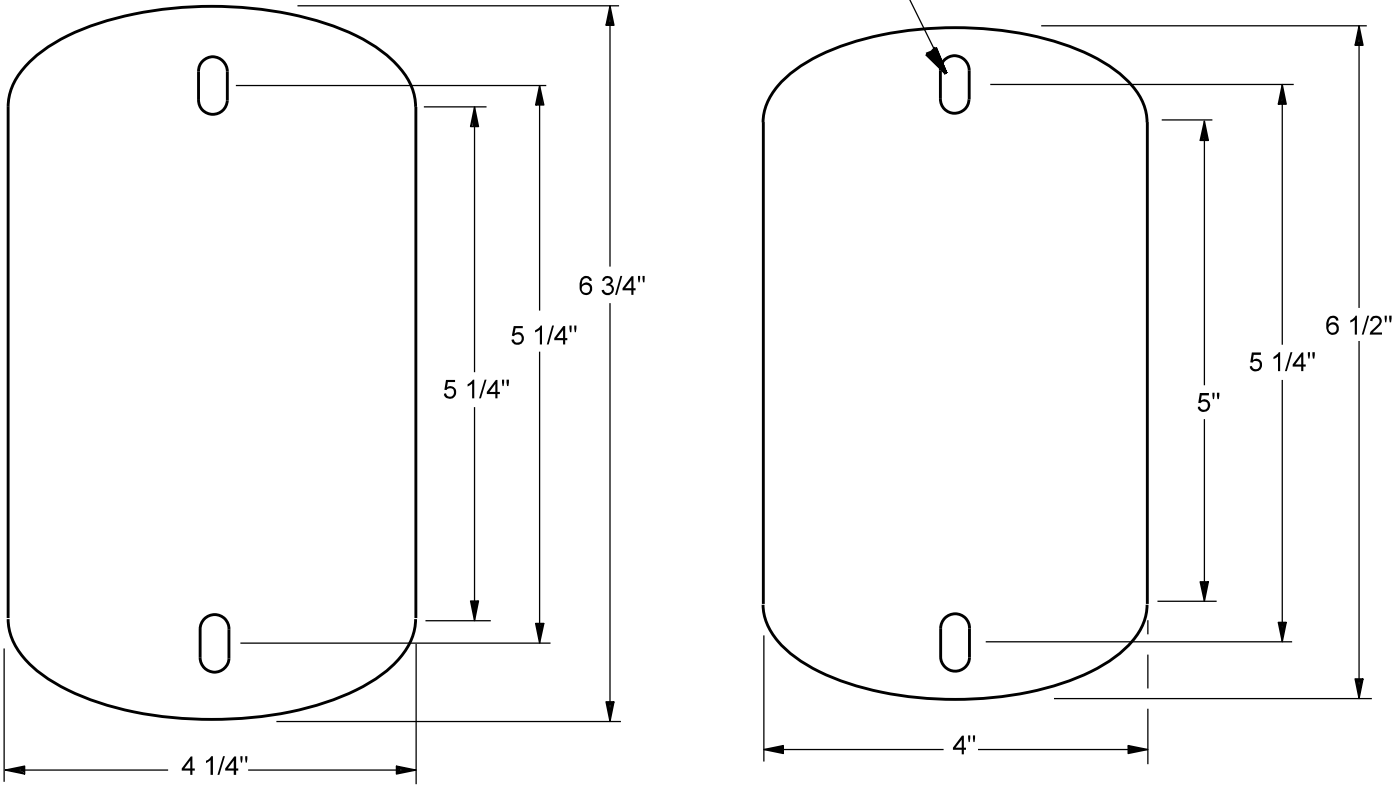
Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS REPLACEMENT RECTANGLE LIGHT POLE HANDHOLE COVER GASKET	
	5-6-11	ISSUE DATE: 10/18/13 REV. DATE: 0 APPROVAL: W. LARAMIE
		8518E320.DGN

HANDHOLE COVER AND GASKET



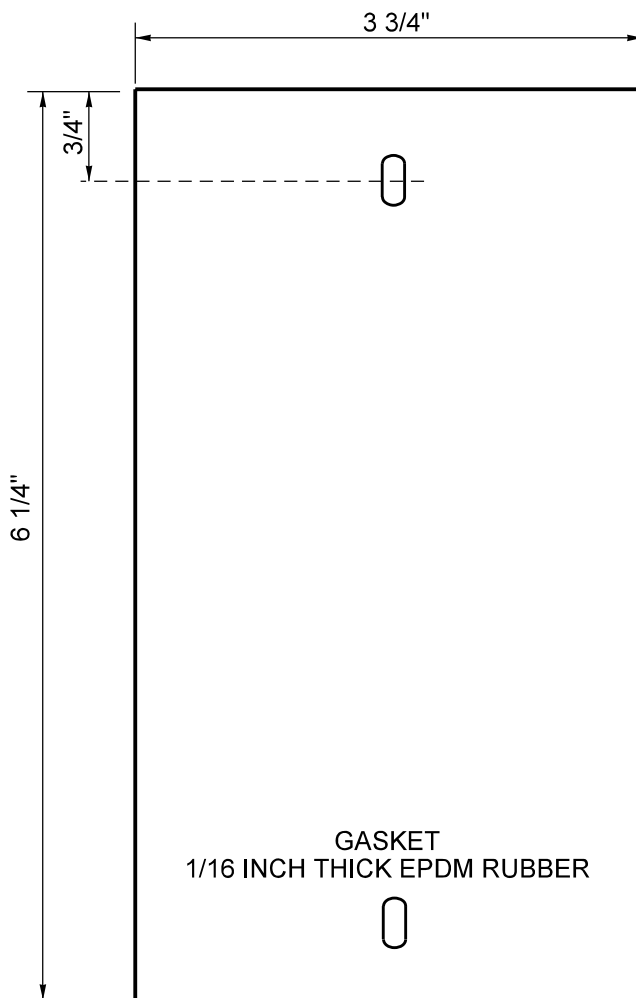
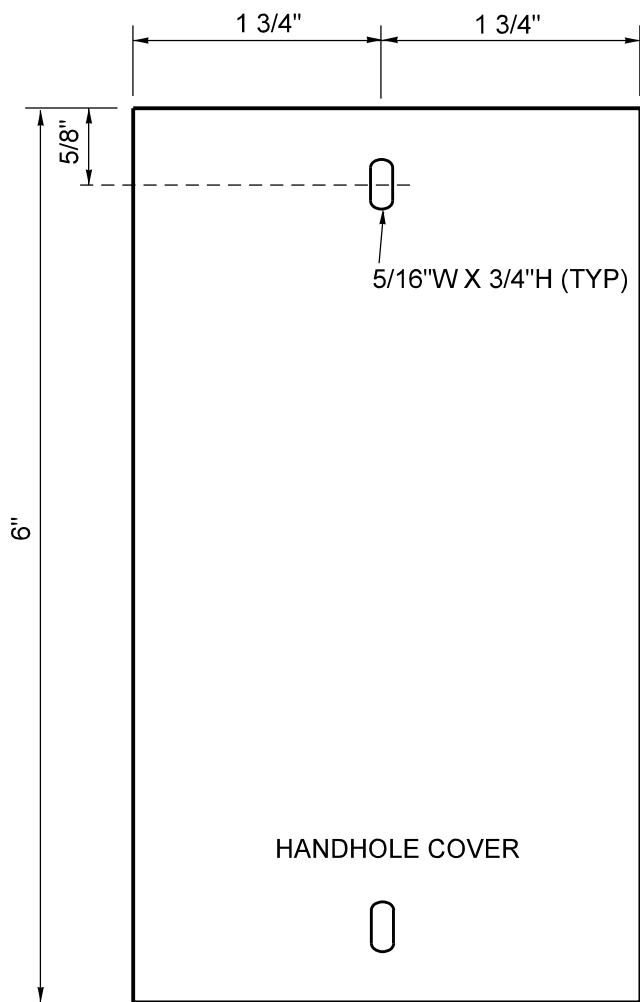
1/16" THICK EPDM
RUBBER HANDHOLE
COVER GASKET

5/16" W X 3/4" H (TYP)



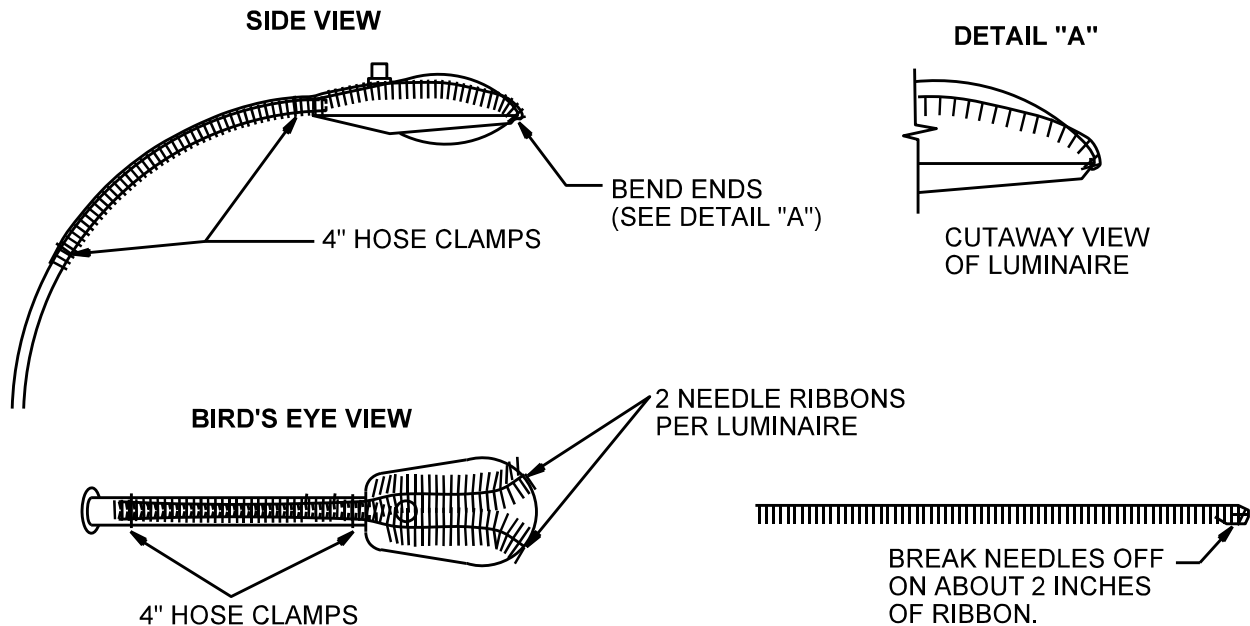
SM-611515-5035119

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS REPLACEMENT STREETLIGHT POLE HANDHOLE COVER	ISSUE DATE: 10/29/13 REV. DATE: 0 APPROVAL: W. LARAMIE
	5-6-12	8518E319.DGN



SM-0061-5075849

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS REPLACEMENT STREETLIGHT POLE HANDHOLE COVER	
	5-6-13	ISSUE DATE: 02/07/14 REV. DATE: 0 APPROVAL: W. LARAMIE
		8518E207.DGN



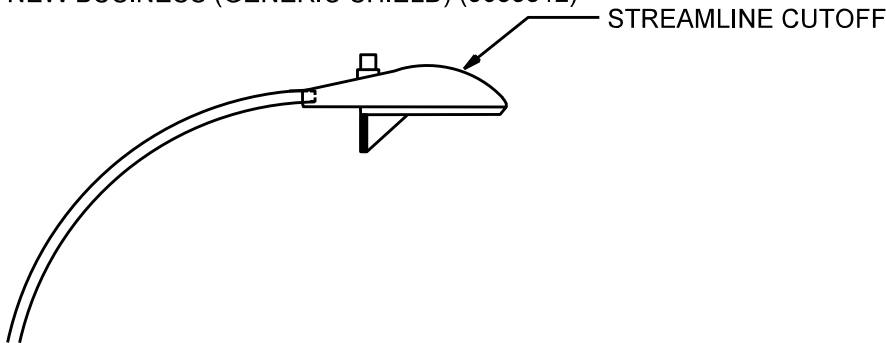
1. FORM TWO 1" GAPS IN THE NEEDLE RIBBONS FOR HOSE CLAMPS AND ONE 2" GAP AT THE END TO CONNECT TO THE LUMINAIRE BY BREAKING THE NEEDLES OFF THE RIBBON.
2. BEND THE 2" GAP AT THE END BACK TO FORM A HOOK WHICH WILL CATCH THE LIP OF THE LUMINAIRE. (DETAIL "A").
3. PLACE HOOK IN LUMINAIRE AND TENSION RIBBONS BACK TOWARD ARM ON EACH SIDE OF PHOTOCELL. USE BLACK TAPE TO TEMPORARILY HOLD UNTIL THE TWO 4" HOSE CLAMPS CAN BE PLACED.
4. SAFETY GLASSES AND LEATHER GLOVES ARE RECOMMENDED.

LS

LIGHT SHIELD - MAINTENANCE ON EXISTING POLES (GENERIC SHIELD) (5035512)

LSN

LIGHT SHIELD - NEW BUSINESS (GENERIC SHIELD) (5035512)



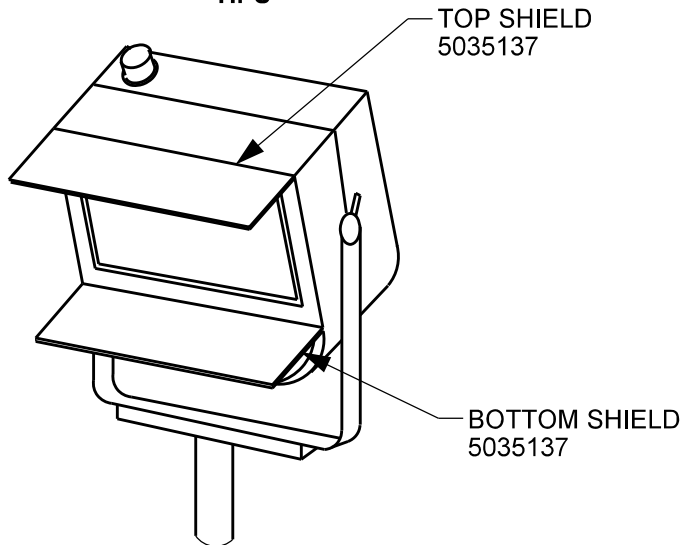
LSAE1015

LIGHT SHIELD - MAINTENANCE ARCHITECTURAL - AEL - 70W TO 150W (5035513)

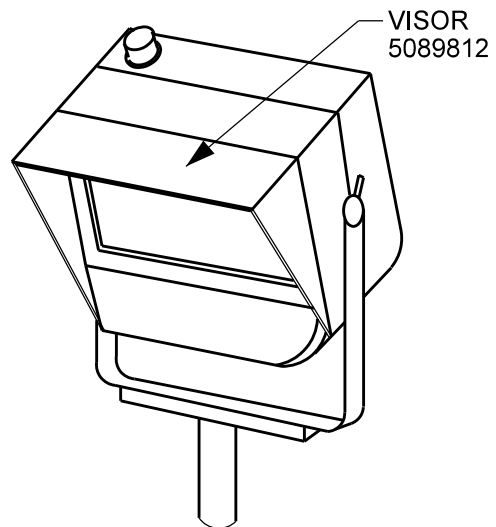
LSAE2540

LIGHT SHIELD - MAINTENANCE ARCHITECTURAL - AEL - 250W TO 400W (5035514)

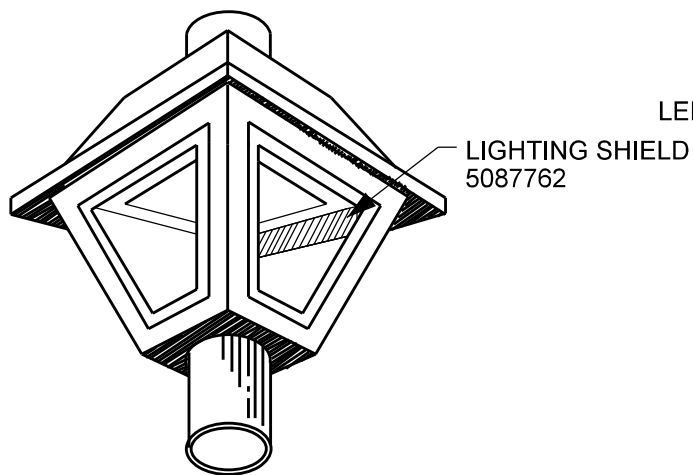
**Floodlight Style
HPS**



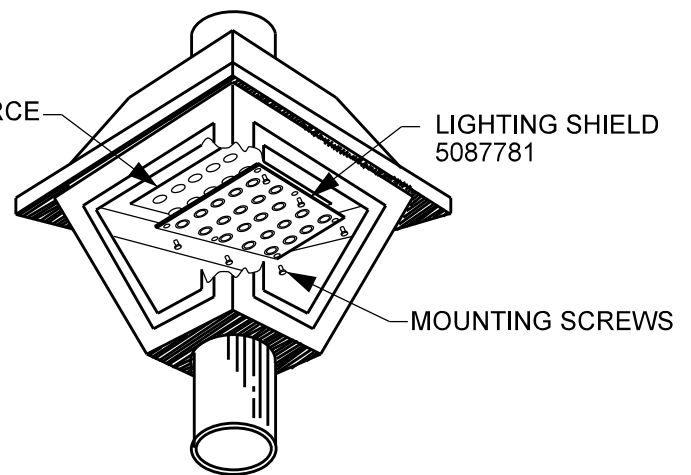
**Floodlight Style
LED**



**Early American
LED Type 5**



**Early American
LED Type 2**



Outdoor Lighting
Standards



PROPRIETARY MATERIAL

**HARDWARE AND BASIC UNITS
LIGHTING SHIELDS**

5-7-2

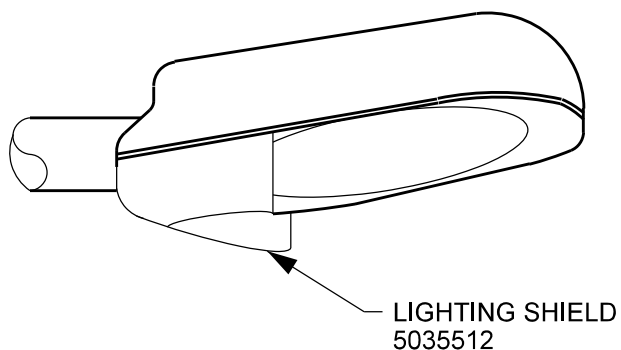
ISSUE DATE: 10/17/19

REV. DATE: 0

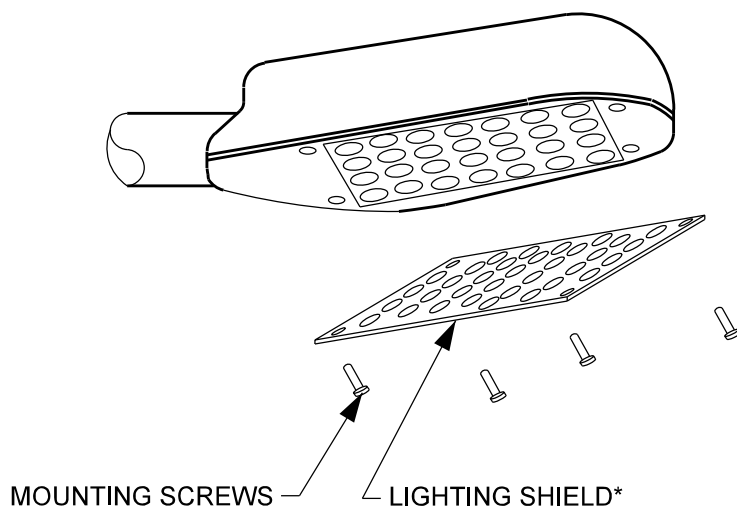
APPROVAL: N. SABBAAH

8518E329.DGN

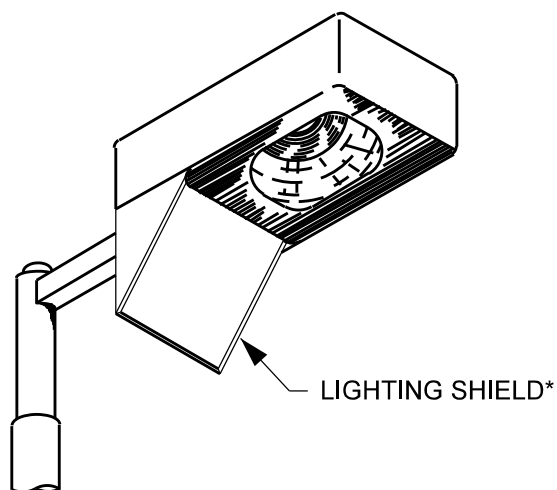
**Streamline Style
HPS**



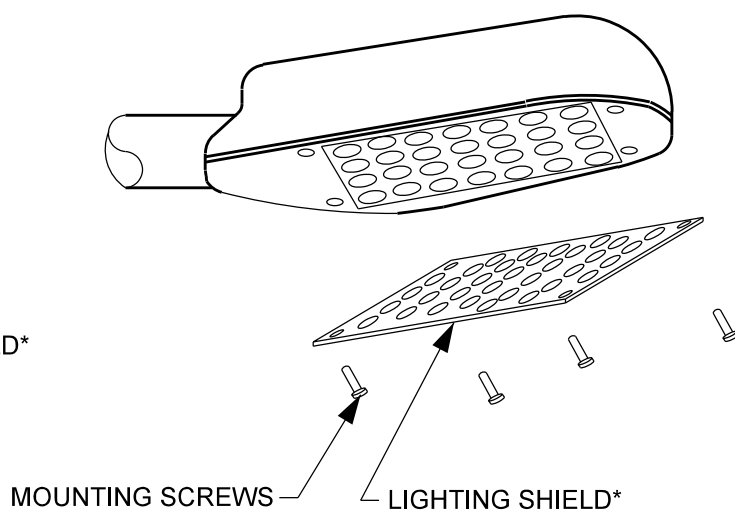
**Streamline Style
LED**



**Architectural Style
HPS**



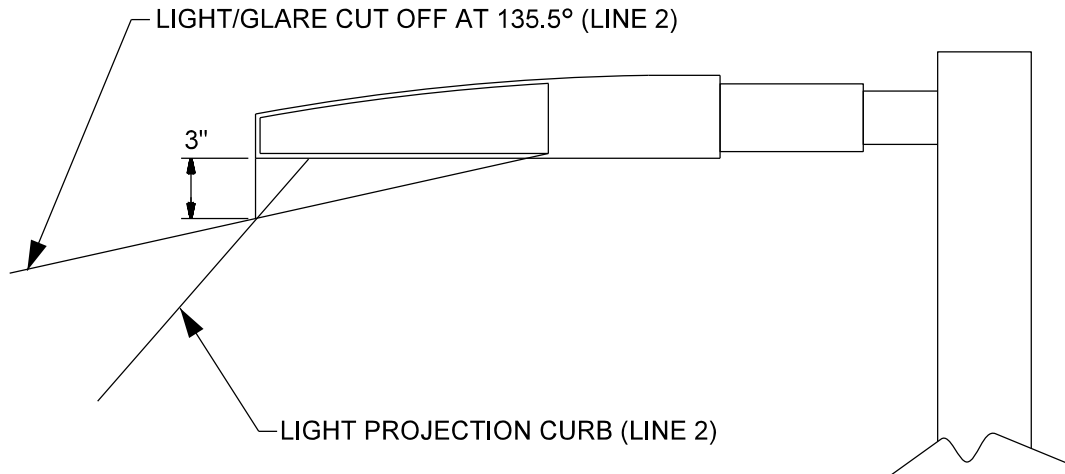
**Architectural Style
LED**



* See available sheilds table for material item number.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	HARDWARE AND BASIC UNITS LIGHTING SHIELDS 5-7-3	ISSUE DATE: 10/17/19 REV. DATE: APPROVAL: N. SABBAH 8518E330.DGN
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STREET SIDE LIGHT SHIELD (NOTE 3)



Available Shields		
Material Item	Description	Associated Lights
5087781	House Side (HSS), Early American LED, Lexington Style, Needs 1 HSS Per Head	Early American LED Type 2 - Lexington
5087763	Early American - Type 5, Traditionaire Style, Black Powder Coat Aluminum, Bracket, Rectangular Board, Short Side	Early American LED Type 5
5087762	Early American - Type 5, Traditionaire Style, Black Powder Coat Aluminum, Bracket, Rectangular Board, Long Side	Early American LED Type 5
5035517	Bullet Proof, Cobra Streetlight, Vandal Deterrent Lexan	Streamline HPS
5035512	0.01 To 0.025 IN THK Sheet, Aluminum, Streetlight for Streamline Cut Off	Streamline HPS
5035137	Streetlight, AEL Flood, Must Be Purchased and Issued W/0612940	Flood HPS
5035515	Bullet Proof, Streetlight, Lexan Flood, 61-2940, AEL ACP FLOOD STYL	Flood HPS
5035513	100 to 150 W, Luminaire, Architectural Shoe Box, American Electric LGHTG	Architectural HPS
5035514	250 to 400 W, Luminaries, AMER ELEC LGHTG ARCHTRL	Architectural HPS
5035511	0.01 IN THK, Luminaries, Aluminum, Streetlight, ARCHTRL CO	Architectural HPS
5089809	House Side (HSS), LED Polymer Shield, Need 1 HSS Per Head	LED Streamline/ Architectural 32 Watt
5089810	House Side (HSS), LED Polymer Shield, Need 1 HSS Per Head	LED Streamline/ Architectural 54 Watt
5089811	House Side (HSS), LED Polymer Shield, Need 2 for 101 Watt, Need 3 for 201 Watt Head	LED Streamline/Architectural 10 Watt, 201 Watt
5089812	Top Side, Floodlight Visor, Need 1 Per Head	LED Floodlight, 184 Watt

NOTES

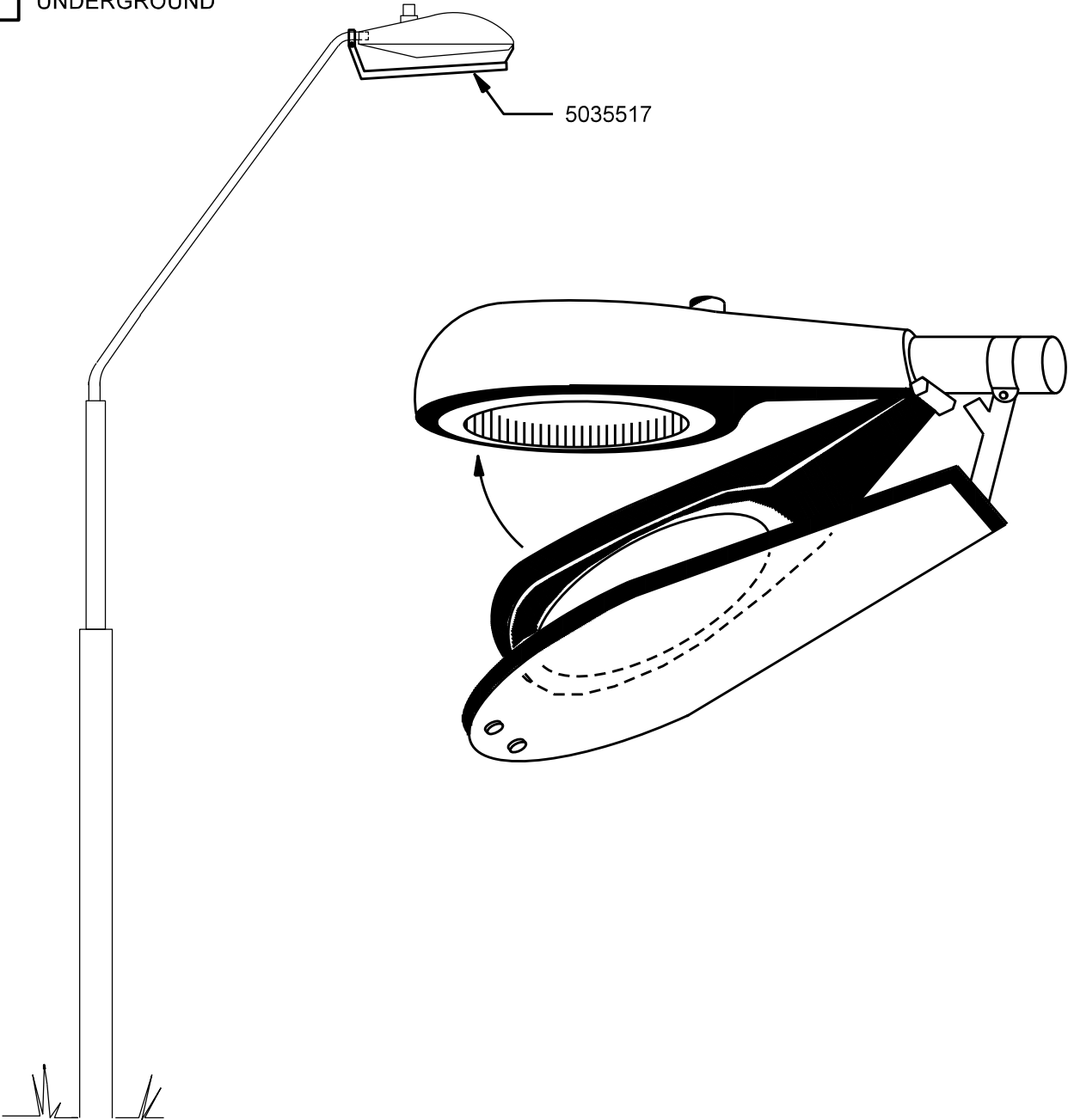
1. Light shielding may be used to prevent reflection onto Customer-owned property or to prevent glare reflected into a driver's field of vision.
2. Shielding shall not restrict lighting on roadways as designed.
3. Shield may be customized to prevent reflection of light onto properties opposite to the roadway illuminated. Contact Lighting Maintenance for custom design work (see image above for Street Side Shield).
4. Street Side Shield to reduce glare on opposite side of road.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS LIGHTING SHIELDS	
	5-7-4	ISSUE DATE: 10/17/19 REV. DATE: APPROVAL: N. SABBAH 8518E331.DGN

- LVD

OVERHEAD
- ULVD

UNDERGROUND



- NOTES**
- 1. Will fit existing cutoff type cobra head lighting fixtures of GE and American Lighting with 70 to 250 Watt bulbs.
 - 2. Will withstand repeated small arm fire from .22 caliber to .44 magnum.
 - 3. A Lexan refractor is available for the 100 W HPS streamline and early american that will withstand air rifles or rocks. See Hardware and Basic Units, "Streetlights, Lamps and Refractors".

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS	
	STREETLIGHTS	
	VANDAL DETERRENT	
	5-8-1	ISSUE DATE: 01/21/00
		REV. DATE: 11/01/13
		APPROVAL: W. LARAMIE
		8518E124.DGN

Overhead

Conductor Type & Size 600 V Insulated	Weight lbs./ft. (Note 1)	Diameter Inches (Note 1)	Maximum Ampacity Conductor (Note 2)
#6AA XLP DX	0.078	0.548 Nom.	87
1/0AA XLP TX	0.446	0.986 Nom.	204

Underground

Conductor Type & Size 600 V	Weight lbs./ft. (Note 1)	Diameter Inches (Note 1)	Maximum Ampacity	
			Direct Burial	In Conduit
#6 TX AL (obsolete)	0.139	0.65 Nom.	95	70
#6 DX AL.	0.091	0.62 Nom.	83	59
1/0 TX AL	0.388	1.06 Nom.	182	136
4/0 TX AL	0.678	1.35 Nom.	267	205

NOTES

- The diameter is for a single conductor except those marked "Nom". This diameter is over all conductors in duplex or triplex construction. Likewise, the weight is for single conductor except for duplex and concentric construction where it is the total of all conductors.
- Ampacity basis
 - Overhead

Type	Conductor Temperature	Ambient Degrees	Ft./Second Wind	Emissivity	Solar Absorption
Bare	90°	40°C	2.5 ft.	0.5	0.5
Insulated	90°	40°C	2.5 ft.	0.91	0.95

- Underground: 90°C conductor temperature, 35°C ambient, earth RHO 120, 100% load factor. Buried depth is 36" with minimum 2.5" PVC conduit.

- The weights shown do not include the weight of the conduit for "cable in conduit" assemblies.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	HARDWARE AND BASIC UNITS CONDUCTOR		ISSUE DATE: 01/26/00
			REV. DATE: 07/17/21
			APPROVAL: J. Luera
	5-9-1	OL5-9-1.doc	

Conductors for Light Circuitry

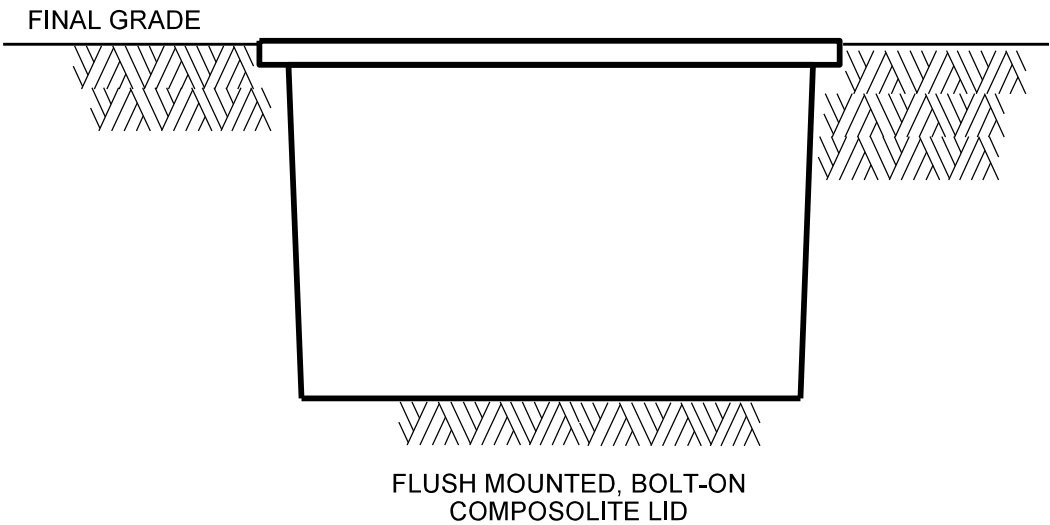
Type	Description	Material Item
Overhead	#6 DX Alum	5028149
Overhead	1/0 TX Alum	5028375
Overhead	#6 Bare Copper	5033845
Underground	#6 DX Alum	5034032
Underground	1/0 TX Alum	5034035
Underground	4/0 TX Alum	5034038
Underground	#6 Bare Copper	5033845

NOTES

1. The #6 TX C-I-C, material item 5035033 (Obsolete).
2. The #6 DX conductor is used for all underground light installations when SRP is to install the entire system.
3. The #6 DX is to be used only for 120V (single-phase) underground light circuits serving one or more lights (as limited by voltage drop). The #6 DX consists of 1-phase conductor and a neutral. The ground, used for grounding steel light poles or the luminaire on fiberglass light poles, is supplied from a ground rod in the pole's j-box.
4. The 1/0 TX aluminum is generally used to minimize voltage drop when serving multiple lights from the same cable run on overhead or underground light circuits. Light connections will be made on alternate legs (phases) along the circuit.
5. All steel light poles or the luminaire on a fiberglass pole served by 1/0 TX underground conductors will be grounded using #6 bare copper connected to a 5/8" x 8' driven ground rod in the J-box.
6. All steel light poles served overhead will be grounded using #6 bare copper connected to a 5/8" x 8' driven ground rod adjacent to each pole.
7. Existing C-I-C installations were not necessarily installed as a continuous conduit system. Therefore, the ability to pull out damaged conductor is dependent on the original installation of the C-I-C with respect to the length of run, previous fault repairs and number of turns.
8. The Compatible Units standards for underground risers do not include wire. The Designer must call for enough additional cable length to include the riser and make terminations to the overhead facilities.
9. When upgrading streetlight circuits, a maximum 4/0 TX shall be used in a flush mounted streetlight j-box.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS CONDUCTOR	ISSUE DATE: 01/26/00 REV. DATE: 07/17/21 APPROVAL: J. Luera
	5-9-2	OL5-9-1.doc

UVJB4	5034692
UVJB4G	CONTRACTOR INSTALLED
	FLUSH MOUNTED-BOLT ON COMPOSOLITE LID (APPROX. 15" X 21" X 12")
UVJB4C	REPLACEMENT COVER FOR ARMORCAST 5034683



NOTES

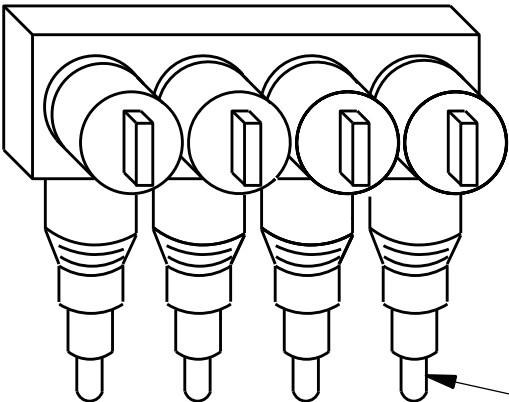
1. Take care to provide a smooth, level and well-compacted base for placing the box. Compact around the sides of the box to prevent settling.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS VAULTS, MANHOLES AND BOXES JUNCTION BOX INSTALLATION	ISSUE DATE: 01/21/00 REV. DATE: 11/01/13 APPROVAL: W. LARAMIE
	5-10-1	8518E95.DGN

UWMB SET OF 3 (5034923)
#12 - 350 MCM

UWMB2 SET OF 2 (5034923)
#12 - 350 MCM

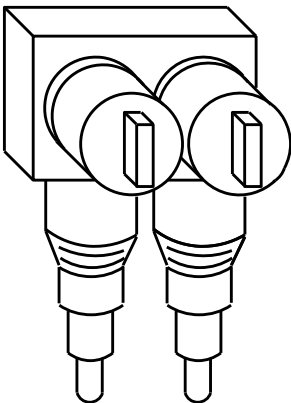
4 PLACE MOLE



CUTTING TO
PROPER WIRE
SIZE IS CRUCIAL
TO PERFORMANCE

UWMC SET OF 2 (5034921)
#12 - 350 MCM

2 PLACE MOLE

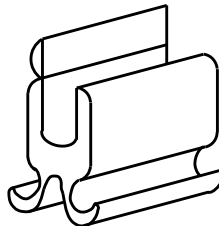
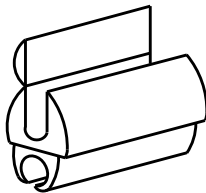


Outdoor Lighting Standards  PROPRIETARY MATERIAL			
	HARDWARE AND BASIC UNITS CABLE AND ACCESSORIES 0-600 V TAP MOLE CONNECTORS		ISSUE DATE: 01/21/00
			REV. DATE: 11/01/13
			APPROVAL: W. LARAMIE
	5-11-1	8518E126.DGN	

RUN

CONDUCTOR (DIAMETER INCHES)	CONDUCTOR SIZE	CONDUCTOR CONFIGURATION					
.184	6	7 STR.	1				
.198	6	6/1 ACSR					
.204	4	SOL.					
.235	4	7 STR.					
.292	2	7 STR.					
.316	2	6/1 ACSR	2				
.340	1/0	STR. COMP.					
.368	1/0	7 STR.					
.382	2/0	STR. COMP.					
.398	1/0	6/1 ACSR					
.414	2/0	7 STR.	3				
.447	2/0	4/3 ACSR					
.454	3/0	STR.					
.481	4/0	STR. COMP.					
.502	3/0	6/1 ACSR					
.522	4/0	STR.					
TAP			CONDUCTOR CONFIGURATION	SOL.	SOL.	SOL.	SOL.
			CONDUCTOR (DIAMETER INCHES)	.0641	.0808	.1019	.1285
			CONDUCTOR SIZE	14	12	10	8

RANGE NO.	STOCK NO.	APPROVED CONNECTOR	REQUIRED DIE	NO. OF CRIMPS
1	5033809	BLACKBURN WR9	BG DIE	3
		BURNDY YPC2A8U	W-BG DIE	2
			BG DIE	2
			W-BG DIE	1
2	5033810	BLACKBURN WR139	D DIE	4
		BURNDY YPC26R8U	D DIE	2
3	5033811	BLACKBURN WR502	D DIE	4



NOTES

1. With WR139, combinations of small tap conductors (i.e. #12 to #8 Str.) can be made in "B" & "C" groove by using a short piece of 2AA filler wire in "A" groove.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS LIGHTING CONNECTOR & DIE CHART FOR OUTDOOR LIGHT CONDUCTORS	
	5-12-1	ISSUE DATE: 06/19/74 REV. DATE: 11/01/13 APPROVAL: W. LARAMIE 8512E331.DGN

Streetlight Poles

Material Item	Length	Material	Finish	Style (See Legend)	Maximum EPA (sq. ft.)	Luminaire Weight (lb.)
5035391	17'-6"	Fiberglass	Black	AR/ART	1.1	28
5035392	17'-6"	Fiberglass	Galvanized/Gray	CONT	1.0	20
5035393	23'-6"	Fiberglass	Galvanized/Gray	CONT	1.0	20
5035385	18'-0"	Fiberglass	Brown	AR/ART	1.1/2.2	28/56
5035267	25'-6"	Steel	Galvanized/Gray	SL/SLOH	0.9	30
5035268	25'-6"	Steel	Brown	AR	2.1	42
5035269	28'-6"	Steel	Brown	AR/ART	1.1	28
5035270	36'-0"	Steel	Brown	AR/ART	2.1	42
5035271	40'-0"	Steel	Brown	AR	2.1	45
5035386	12'-0" (5)	Fiberglass	Galvanize/Gray	CONT	1.0	20
5035387	10'-0" (5)	Fiberglass	Galvanize/Gray	CONT	1.0	20
5035388	12'-0"	Fiberglass	Black	E.A.	1.8	21
5035389	10'-0" (5)	Fiberglass	Black	E.A.	1.8	21
5035390	14'-0"	Fiberglass	Black	E.A.	1.8	21
5035375	26'-6"	Steel	Galvanized/Gray	AR/ART/OH	1.1	28
5035375	26'-6"	Steel		SL	0.87	19
5035376 (2)	26'-6"	Steel	Galvanize/Gray	SL	0.87	19
5035377 (1)	31'-0"	Steel	Galvanized/Gray	AR/ART/OH	1.8	42
5035377 (1)	31'-0"	Steel		FD/FDT	2.4	53
5035377 (1)	31'-0"	Steel		SLOH/SLOHT	0.9	41
5035378	35'-0"	Steel	Galvanized/Gray	SLOH/SLOHT	1.1	41
61-3696	35'-0"	Steel	Black	AR/ART	1.8	45
5035379 (3)	31'-0"	Steel	Galvanized/Gray	AR/ART/UG	2.1	42
5035379 (3)	31'-0"	Steel		FD/FDT	2.75	37
5035379 (3)	31'-0"	Steel		SLUG/SLUGT	0.9	41
5035380 (4)	35'-0"	Steel	Galvanized/Gray	SLUG/SLUGT	1.1	41
5035383	12'-0" (6)	Fiberglass	Brown	AR	1.1	28
5035384	10'-0" (6)	Fiberglass	Brown	AR	1.1	28

Style Codes Legend:

ARArchitectural

ARTArchitectural Twin fixture, opposite sides of pole, same arm length each side

CONTContemporary

E.A.Early American

 Outdoor Lighting Standards SLP[®] PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS OUTDOOR LIGHT POLES	ISSUE DATE: 01/21/00 REV. DATE: 11/01/13 APPROVAL: W. Laramie
	5-13-1	OL5-13-1.doc

Style Codes Legend (*cont'd.*):

FD Flood
FDT Flood, Twin fixture, mounted opposite sides on top of 8'3" extension bracket
OH Overhead
SL Streamlined
SLOH Streamlined, Pole Served Overhead
SLOHT Streamlined, Pole Served Overhead, Twin fixture, opposite sides of pole
SLUG Streamlined, Pole Served Underground
SLUGT Streamlined, Pole Served Underground, Twin fixture, opposite sides of pole
UG Underground

NOTES

1. This pole is used for architectural, flood and streamlined fixtures.
2. Underground equivalent of 5035375
3. Underground equivalent of 5035377
4. Underground equivalent of 5035378
5. Base Plate Mounted

 PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS OUTDOOR LIGHT POLES	ISSUE DATE: 01/21/00
		REV. DATE: 11/01/13
		APPROVAL: W. Laramie
	5-13-2	OL5-13-1.doc

The following material item numbers and compatible units in the “Steel or Fiberglass” columns are obsolete and replaced by those in the “Fiberglass Poles” columns.

Steel or Fiberglass Pole Material Item Old Compatible Unit	Fiberglass Pole Material Item New Compatible Unit	Steel or Fiberglass Pole Material Item Old Compatible Unit	Fiberglass Pole Material Item New Compatible Unit
5035263	5035391	5035279	5035390
ULAH1705D	ULAHF1705D	ULAH1405D	ULAHF1405D
ULAH1705P	ULAHF1705P	ULAH1405P	ULAHF1405P
ULAH1705TP	ULAHF1705TP	ULEHC1405D	ULEHCF1405D
ULAH1709D	ULAHF1709D	ULEHC1405P	ULEHCF1405P
ULAH1709P	ULAHF1709P	ULEHC1409D	ULEHCF1409D
ULAH1709TP	ULAHF1709TP	ULEHC1409P	ULEHCF1409P
ULEHC1709	ULEHCF1709	5035266	5035385
ULEHC1709D	ULEHCF1709D	ULAH1805TP	ULAHF1805TP
ULEHC1709P	ULEHCF1709P	ULAH1809	ULAHF1809
5035264	5035392	ULAH1809D	ULAHF1809D
ULCHC1709D	ULCHCF1709D	ULAH1809P	ULAHF1809P
ULCHC1709P	ULCHCF1709P	ULAH1809TP	ULAHF1809TP
ULCHC1716D	ULCHCF1716D	ULAH1809TD	ULAHF1809TD
ULCHC1716P	ULCHCF1716P	ULAH1830P	ULAHF1830P
5035265	5035393	ULAH1830TP	ULAHF1830TP
ULAH2309	ULAHF2309	ULAH2309	ULAHF2309
ULAH2309P	ULAHF2309P	ULCHC1809	ULCHCF1809
ULAH2316D	ULAHF2316D	ULCHC1809D	ULCHCF1809D
ULAH2316P	ULAHF2316P	ULCHC1809P	ULCHCF1809P
ULAHB2309P	ULAHBF2309P	5035275	5035386
ULCHC2309	ULCHCF2309	ULCHP1209D	ULCHPF1209D
ULCHC2309D	ULCHCF2309D	ULCHP1209P	ULCHPF1209P
ULCHC2316	ULCHCF2316	ULCHP1216D	ULCHPF1216D
ULCHC2316D	ULCHCF2316D	ULCHP1216P	ULCHPF1216P
ULCHC2316P	ULCHCF2316P	5035381	5035383
5035276	5035387	ULS1209D	ULSF1209D
ULCHP1009P	ULCHPF1009P	ULS1209P	ULSF1209P
5035277	5035388	ULS1209TD	ULSF1209TD
ULEHP1209P	ULEHPF1209P	ULS1209TP	ULSF1209TP
ULEHP1209D	ULEHPF1209D	5035382	5035384
5035278	5035389	ULS1005D	ULSF1005D
ULEHP1009P	ULEHPF1009P	ULS1005P	ULSF1005P
ULEHP1009D	ULEHPF1009D	ULS4009D	ULSF1009D
-	-	ULS1009P	ULSF1009P
-	-	ULS1030P	ULSF1030P

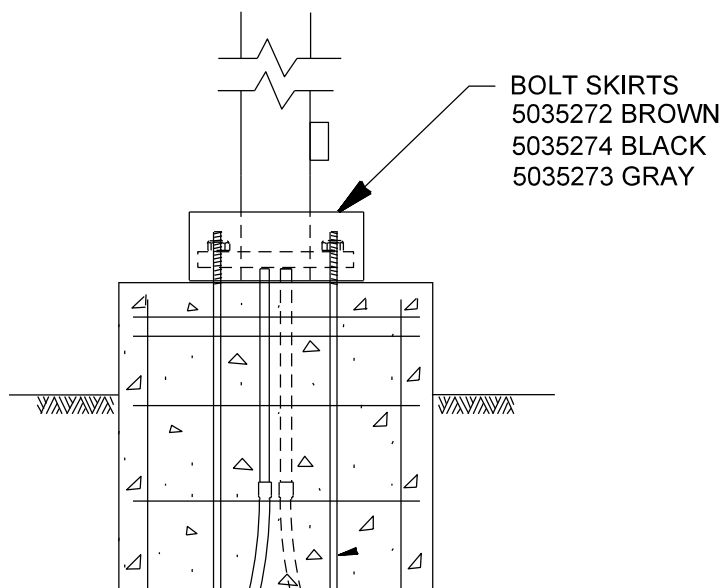
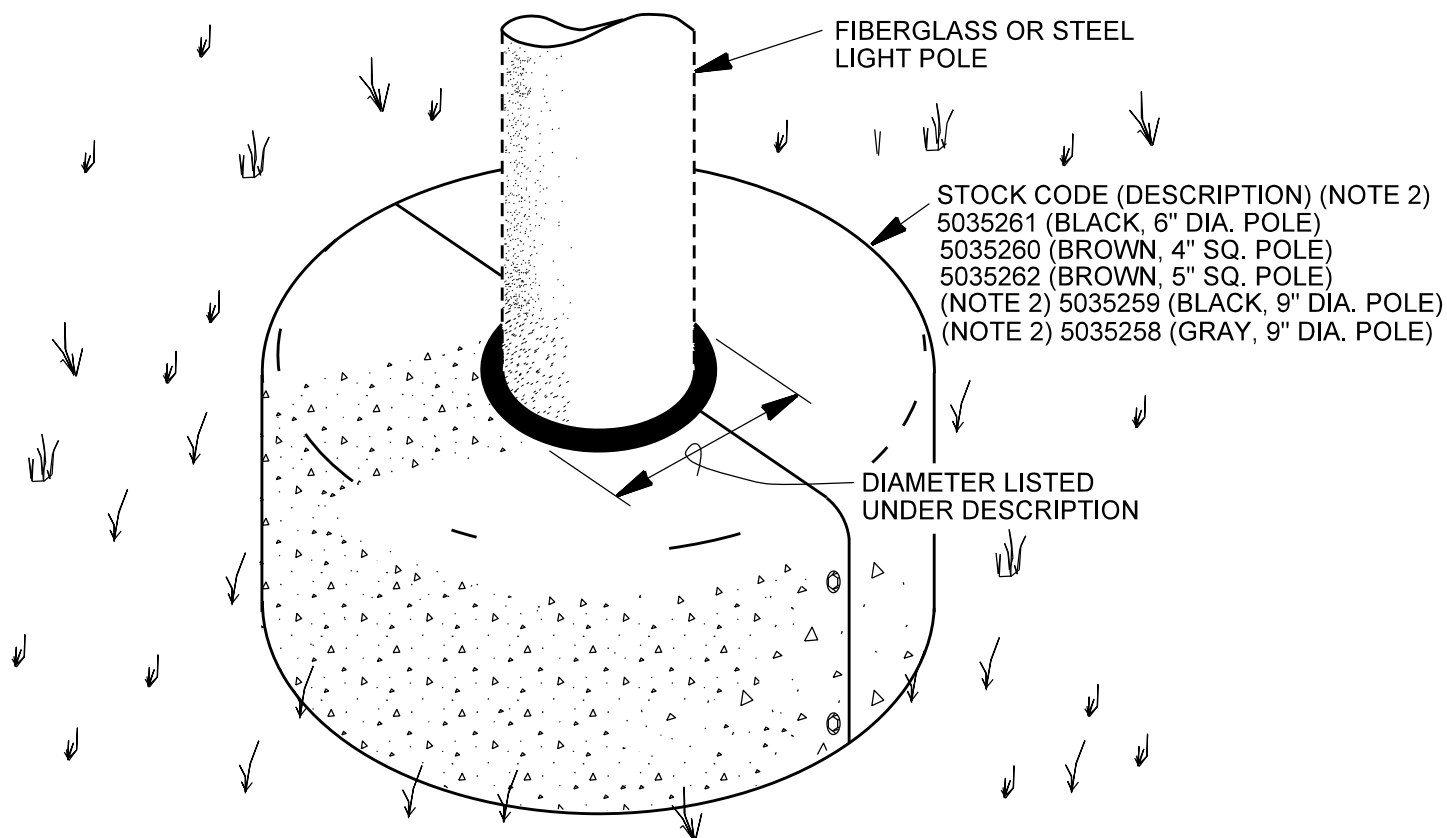
The following material item numbers are set up to track repair functions for light maintenance.

Lighting Repair Codes

Material Item	Maintenance Function	Code Material
00-5810*	No Power to Light/Repaired	Blue wire nut
00-4259*	Bad Order Underground/Send Fault	Red tape
00-4260*	Duplicate Order	White tape
61-0911*	Vandalism	None

* No material item number equivalent exists in SAP.

 PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS LIGHTING REPAIR CODES	ISSUE DATE: 04/07/03
		REV. DATE: 03/25/14
		APPROVAL: W. Laramie
	5-14-1	OL5-14-1.doc



NOTES

1. See 6-12-1: Fiberglass or Steel Pole Protective Collar for installation.
2. On new fiberglass poles a collar, or other ground line protection, is included and does not need to be ordered.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	HARDWARE AND BASIC UNITS PROTECTIVE COLLARS AND BOLT SKIRTS 5-15-1	ISSUE DATE: 12/10/09 REV. DATE: 11/01/13 APPROVAL: W. LARAMIE 8518E175.DGN
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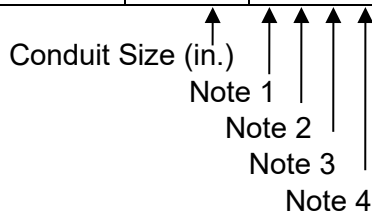
Conduit Codes

Conduit	Compatible Unit Code		
Straight PVC	UK1	- - - -	(5035464)
	UK2	- - - -	(5035466)
	UK25	- - - -	(5035468)
Polyethylene Spooled - Duct	UKF2	- * - -	(5031714)
	UKF25	- * - -	(5031713) *Not applicable

To obtain the complete code number, select the appropriate suffixes. Do not leave blank spaces if suffix does not apply.

Example:

For a streetlight duct bank of two straight 2.5" PVC conduit concrete encased: UK252FL



NOTES

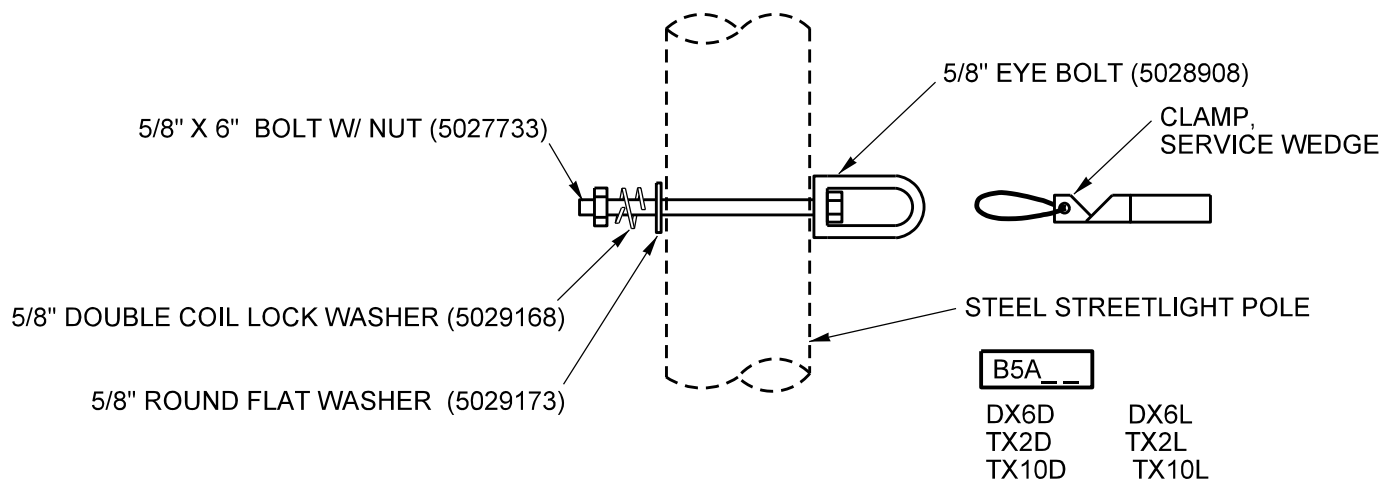
- Number of conduits
 Straight PVC = 2-2 1/2" = 1 or 2
 Spooled Duct = 2-2 1/2" = 1 or 2
- Conduit easement
 E = lean mix backfill (1 1/2 sack 5075315).
 F = 2,000 psi concrete (5075320) or MAG C may be used with 2, 2.5, 3 and 4" straight PVC conduit, developer or contractor installed.
 FE = red concrete (El Paso Gas Crossing only, see Red Concrete, Trenching Special Codes)
- Account (1 or 2 conduits only)
 D = Private/Security
 L = Streetlighting
- Conduit supplied by SRP and installed by others
 G = Developer or contractor installed (maximum conduits = same as Note 1)

Flexible Conduit (Corrugated)

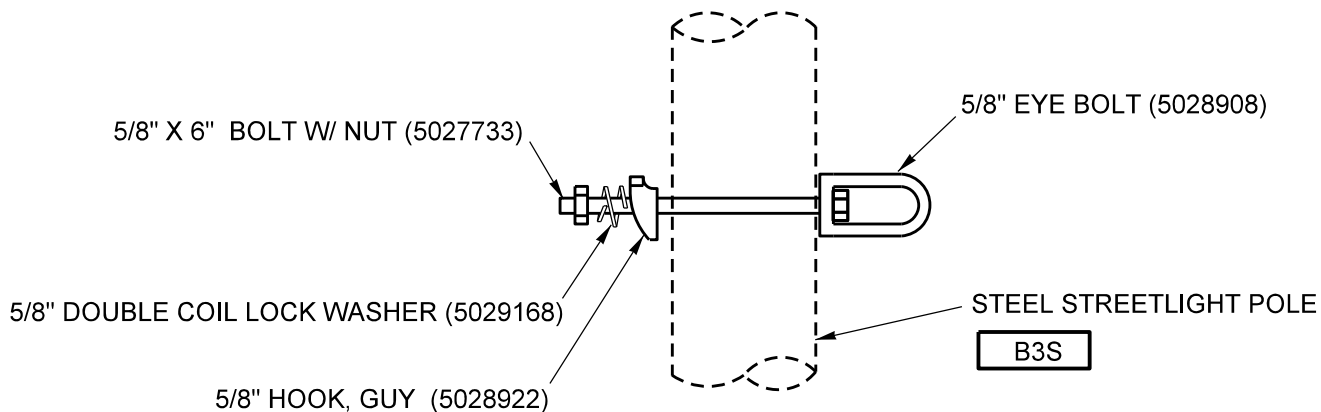
Compatible Unit	Conduit Size	Material Item
UKX1L	1"	5033732
UKX1LG	1" installed by contractor (Note 4)	5033732
UKX1D	1" Private/Security	5033732
UKX1DG	1" Private/Security, installed by contractor (Note 4)	5033732
-	2"	5033733
-	2.5"	5033734
-	3"	5033735
-	4"	5033736

	HARDWARE AND BASIC UNITS CONDUIT CODES		ISSUE DATE: 07/31/90
			REV. DATE: 01/26/16
	5-16-1		APPROVAL: S. Duran
			OL5-16-1.doc

DEADEND



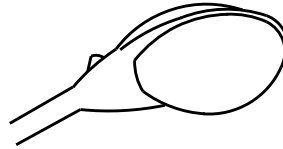
TANGENT / DEADEND



NOTES

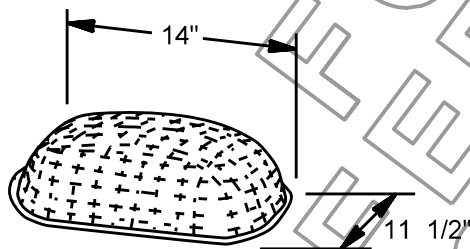
1. All hardware shown is hot dip galvanized.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS	
	OVERHEAD POINT OF ATTACHMENT	
	5-17-1	ISSUE DATE: 09/08/10 REV. DATE: 01/25/13 APPROVAL: W. LARAMIE 8518E274.DGN

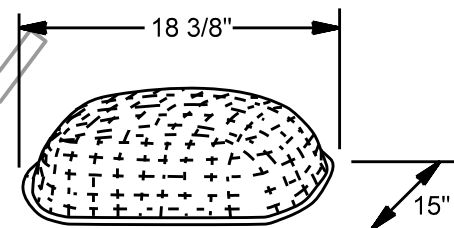


STREAMLINE HPS

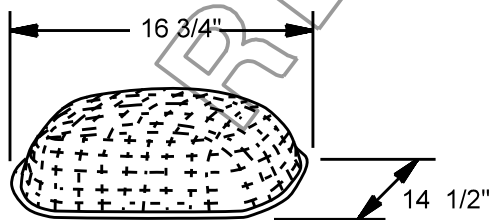
LUMINAIRE			REPLACEMENT PARTS		
STOCK NO.	MANUFACTURER	WATTAGE AND TYPE	LAMP	LENS OR REFRACTOR	
				GLASS	PLASTIC
OBSOLETE		175w MV 2-WAY	5035127	61-4740 *	61-5035 *
OBSOLETE		175w MV 4-WAY	5035127	NONE	61-5035 *
OBSOLETE		250w MV 2-WAY	5035128	61-4740 *	61-5035 *
OBSOLETE		250w MV 4-WAY	5035128	NONE	61-5035 *
OBSOLETE	G.E.	400w MV 2-WAY	5035129	61-4800 *	61-5037 *
OBSOLETE	WESTINGHOUSE	400w MV 2-WAY	5035129	61-5025 *	61-5039 *
OBSOLETE	G.E.	400w MV D-D	5035130	61-4800 *	61-5037 *
OBSOLETE	AMERICAN ELECTRIC			61-5025 *	61-5039 *
OBSOLETE	WESTINGHOUSE			61-5025 *	61-5039 *



REFRACTOR 61-4740 * AND 61-5035 *



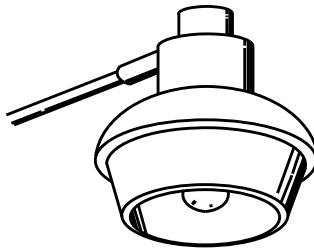
REFRACTOR 61-4800 * AND 61-5037 *



REFRACTOR 61-5025 * AND 61-5039 *

* NO STOCK CODE EQUIVALENT IN SAP.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	HARDWARE AND BASIC UNITS STREETLIGHTS REFRACTORS, LAMPS, COVERS REFERENCE ONLY		ISSUE DATE: 12/01/99
	5-18-1		REV. DATE: 01/26/16 APPROVAL: S. DURAN 8518E110.DGN



OPEN BOTTOM

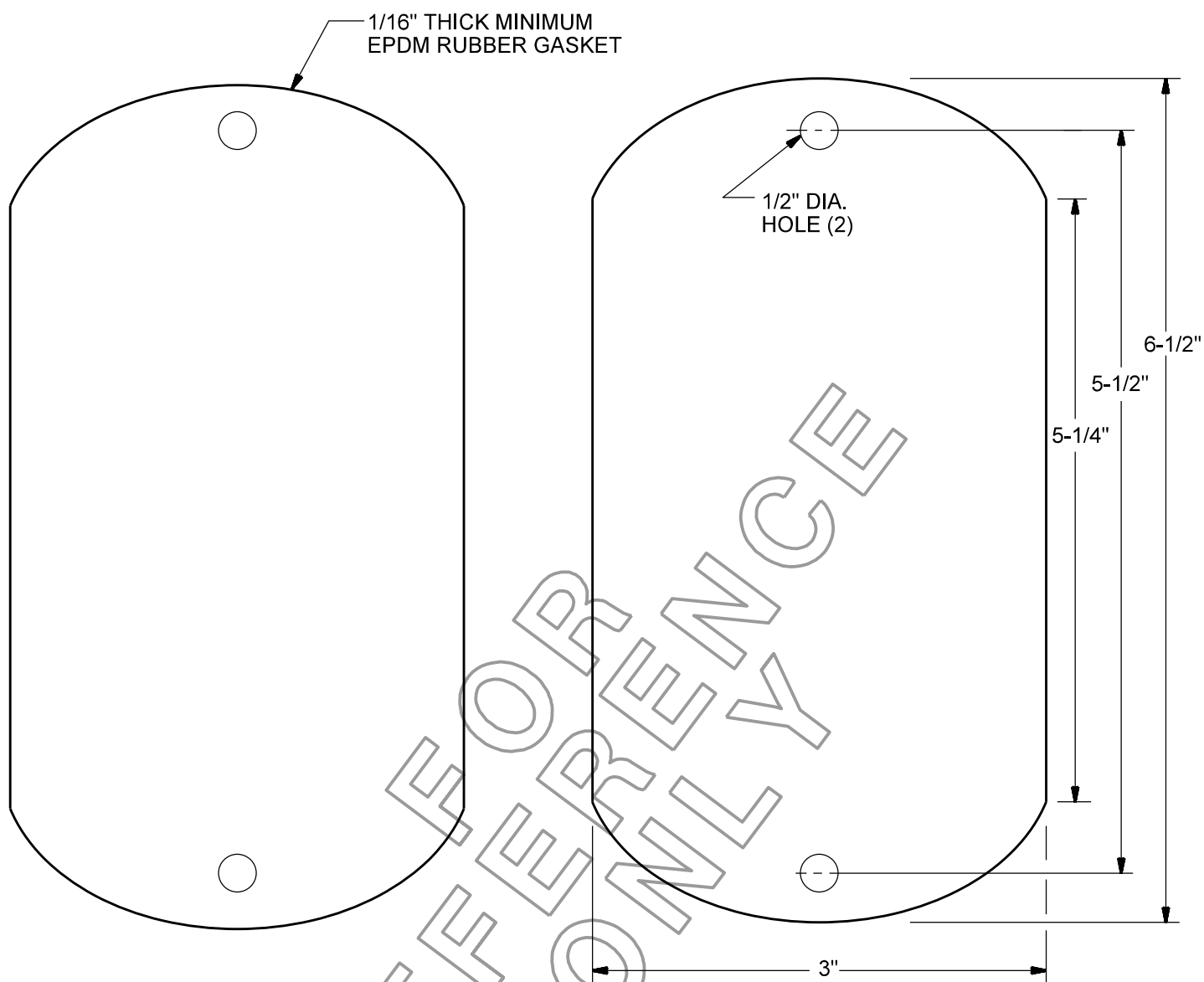
LUMINAIRE			REPLACEMENT PARTS		
STOCK NO.	MANUFACTURER	WATTAGE AND TYPE	LAMP	LENS OR REFRACTOR	
				GLASS	PLASTIC
OBSOLETE		175w MV	5035127	NONE	61-3460 *



REFRACTOR 61-3460 *

* NO STOCK CODE EQUIVALENT IN SAP.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	HARDWARE AND BASIC UNITS STREETLIGHTS REFRACTORS, LAMPS, COVERS REFERENCE ONLY	ISSUE DATE: 12/01/99 REV. DATE: 01/26/16 APPROVAL: S. DURAN
	5-18-2	8518E111.DGN



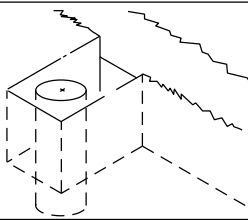
NOTES

1. Handhole cover and bar shall be hot dip galvanized per SRP specification CE05.030 or metal sprayed per srp specification CE05.920 or stainless steel.
2. All burrs and rough edges shall be ground smooth.
3. SRP stock code 5035020.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	HARDWARE AND BASIC UNITS REPLACEMENT STREETLIGHT POLE HANDHOLE COVER		ISSUE DATE: 01/25/05
	5-19-1		REV. DATE: 03/27/14 APPROVAL: W. LARAMIE 8518E173.DGN

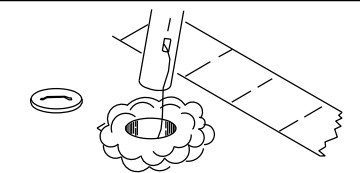
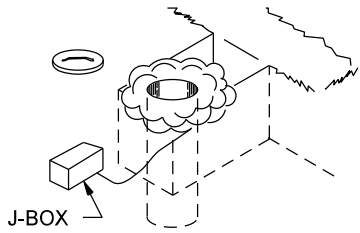
SECTION 6: CONSTRUCTION STANDARDS

Title / Description	Page
Steel Pole Installation Tube	6-1-1
Private Lights Served from an Above Ground J-Box, Steel Pole Installation Tube without Flush J-Box	6-2-1
Private Lights Served from a Transformer, Steel Pole Installation Tube without Flush J-Box.....	6-3-1
Light Pole Setting Depth	6-4-1
Light Pole, New Ground Connection	6-5-1
J-Box Connections	6-6-1
Light Poles in Proximity of Metallic Apparatus, Bonding.....	6-7-1
Connections at Steel Pole Handhole	6-8-1
Connections, Wire Nut Orientation in Handhole.....	6-9-1
Connections at Fiberglass Pole Handhole	6-10-1
Overhead Served Light Pole Ground Connection	6-11-1
Fiberglass or Steel Pole, Protective Collar.....	6-12-1
Light Pole Numbering	6-13-1
“A” Lights – Underground, Cities of Phoenix and Tempe, Connections at Handhole, Reference Only	6-14-1
“A” Lights – Underground, Cities of Phoenix and Tempe, Connections at Handhole, Reference Only	6-15-1



SONO-TUBE INSTALLATION

1. Dig hole for tube in streetlight stub out trench.
2. Install tube flush to final landscape grade.
3. As the tube is being installed, the flexible duct from the j-box should be inserted into the tube through the cable entrance hole. Do not make sharp bends in this duct. Coil 4' of flexible duct inside. Shown below.
4. Compact the tube backfill by tamping the earth firm.
5. Backfill the inside of the tube with native soil to pole embedment depth.
6. Secure the electronic marker to the lid with the tie provided and place lid on the tube.
7. SRP locator will mark the lid location through blue stake notice.



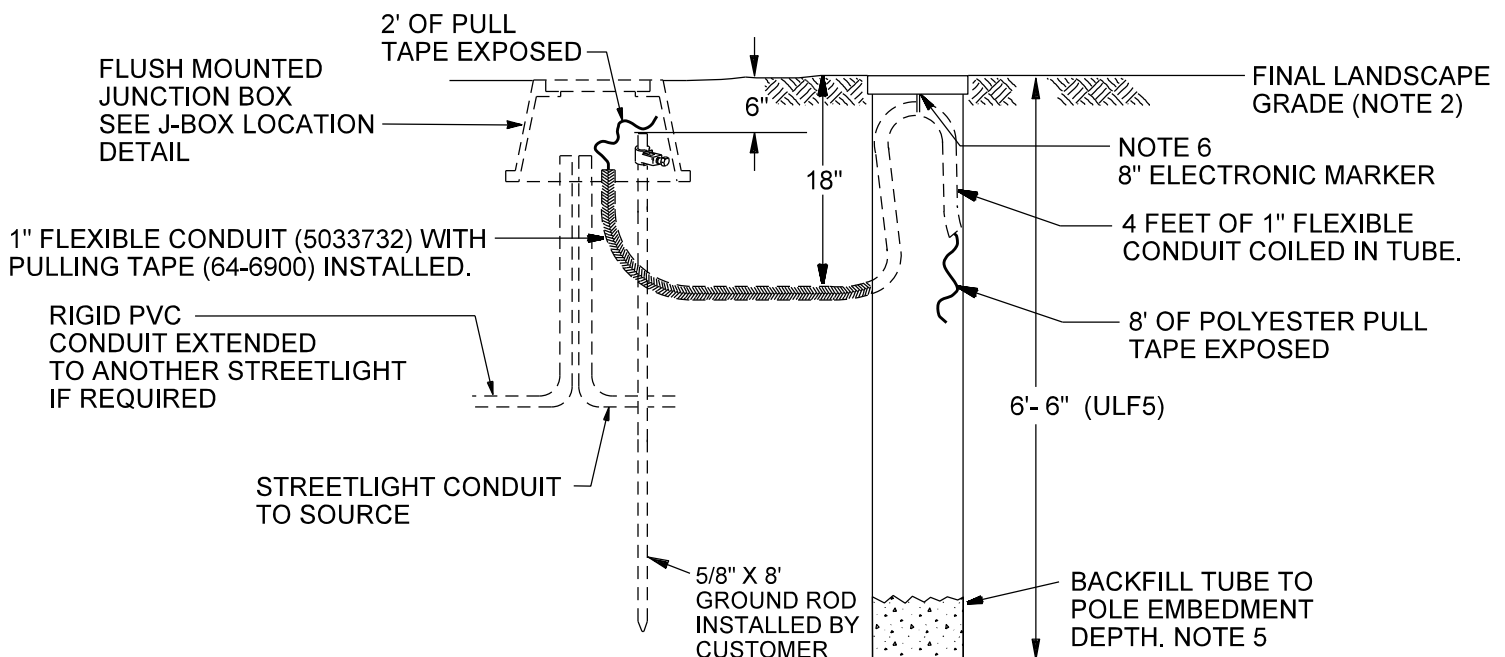
POLE INSTALLATION IN TUBE

8. Light installer digs down to lid, removes lid, pulls duct from tube.
9. End of duct is inserted through light pole cable access hole and pushed up to handhole as light pole is lowered into tube.
10. The pole has a 3/4" red tape band to mark the final landscape grade embedment depth. This tape should be at final landscape grade.
11. Pole is held securely vertical in center of tube while backfilling with pole set foam.
12. If the pole is fiberglass, place the collar around the base. See "Fiberglass or Steel Pole Protective Collar" for installation standard.

ULF5 6'- 6" TUBE

ULF5G (INSTALLED BY CONTRACTOR)

ULFH NO MATERIAL, HOLE ONLY, 1 MAN-HOUR.



Outdoor Lighting
Standards



PROPRIETARY MATERIAL

CONSTRUCTION STANDARDS STEEL POLE INSTALLATION TUBE

6-1-1

ISSUE DATE: 01/14/00

REV. DATE: 01/21/13

APPROVAL: W. LARAMIE

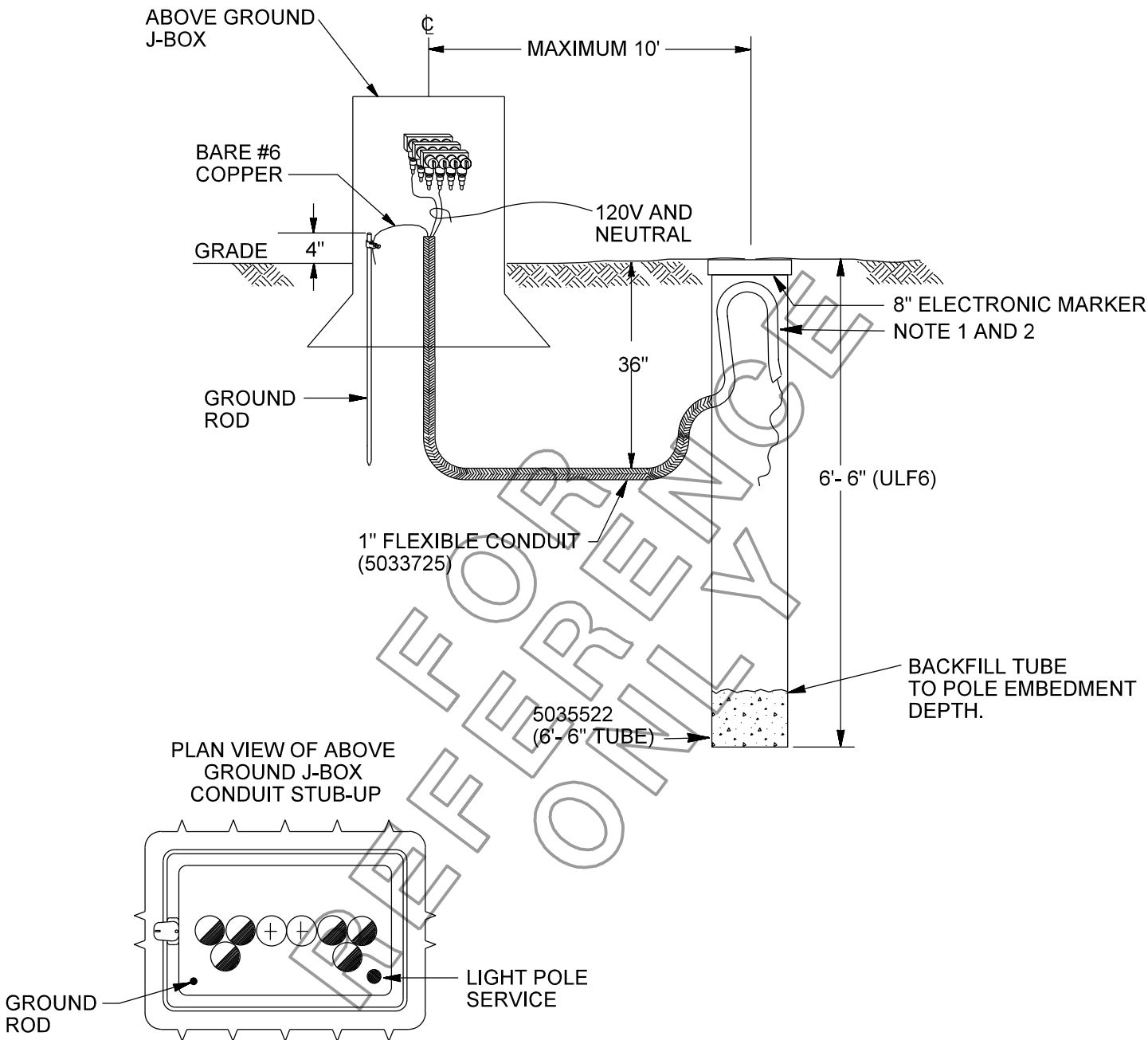
8518E91.DGN

ULF6

6'- 6" TUBE

ULF6G

6'- 6" TUBE CONTRACTOR INSTALLED



NOTES

1. For private lights, served from an above ground j-box within 10 feet of the pole, the flush mounted j-box is not required.
2. Insert approximately 4 feet of flexible conduit, with polyester pull tape (0646900). Bend end of conduit over and insert down into tube as shown.
3. Fasten electronic mini-marker inside lid with tie wraps. This item is to be salvaged when streetlight pole is set.

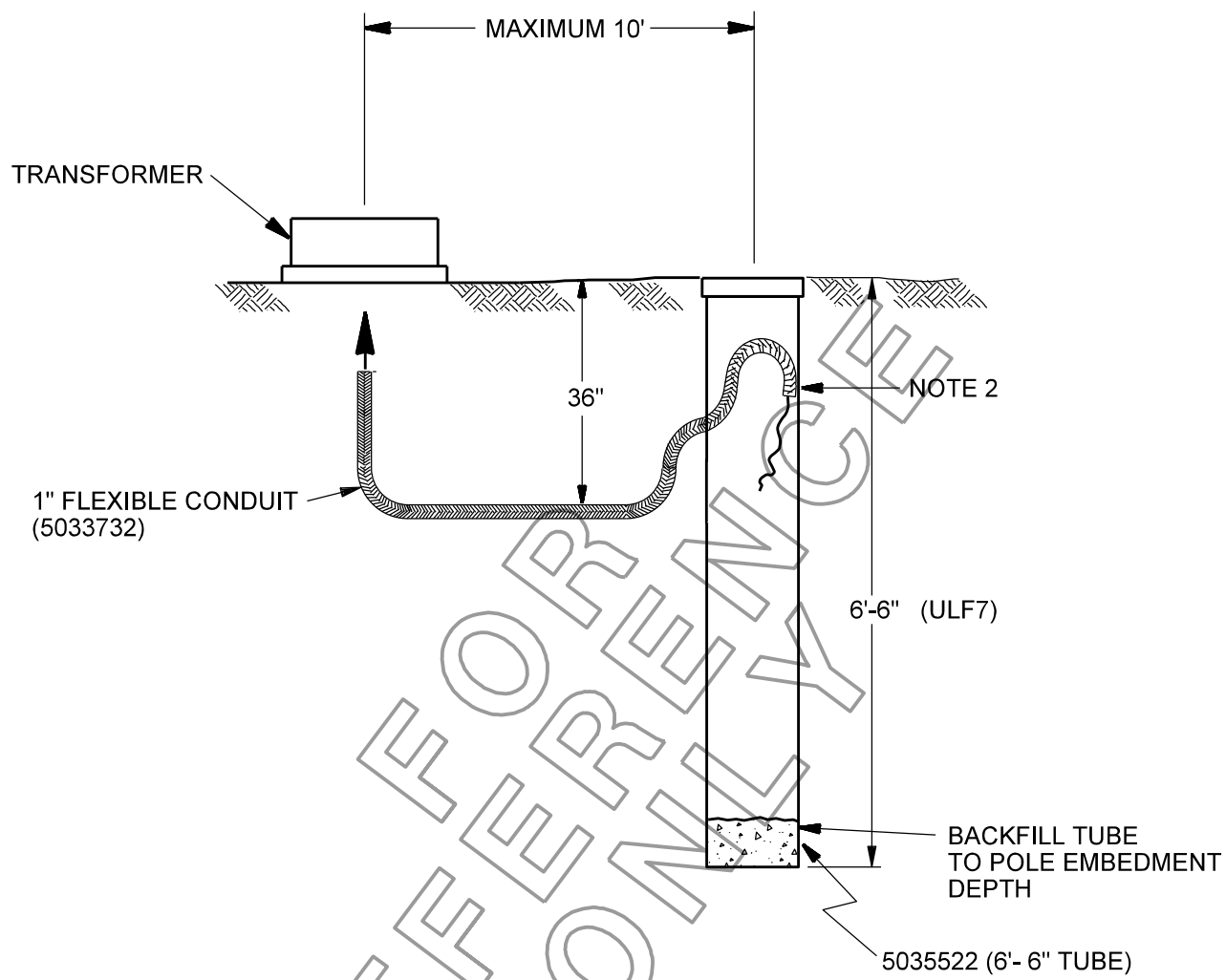
Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	CONSTRUCTION STANDARDS PRIVATE LIGHTS SERVED FROM AN ABOVE GROUND J-BOX STEEL POLE INSTALLATION TUBE WITHOUT FLUSH J-BOX	ISSUE DATE: 05/07/99
		REV. DATE: 05/10/17
		APPROVAL: S. DURAN
	6-2-1	8518E92.DGN

ULF7

6'- 6" TUBE

ULF7G

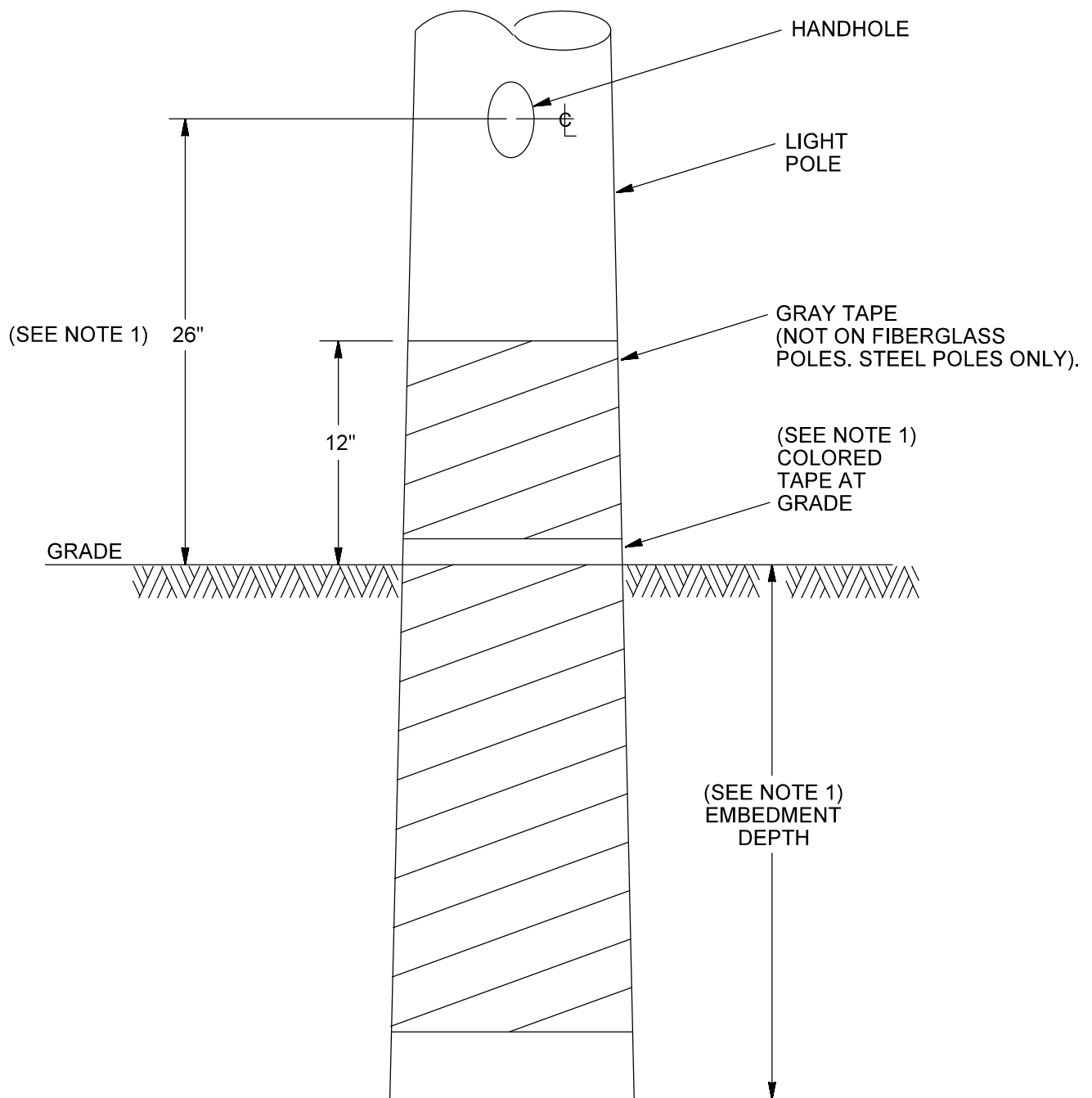
6'- 6" TUBE CONTRACTOR INSTALLED



NOTES

1. For private lights served from a transformer within 10 feet of the pole a flush mounted j-box is not required.the metal pole shall be bonded to the transformer ground bus. Compatible units ULF7 and ULF7G install #6 AL Duplex, hot and neutral, and #6 copper ground wire to the transformer ground rod from pole handhole ground connection and satisfy bonding requirements.
2. Insert approximately 4 feet of flexible conduit, with polyester pull tape (0646900), up into tube bend end of conduit over and insert down into tube as shown.
3. Fasten electronic mini-marker inside lid with tie wraps. This item is to be salvaged when streetlight pole is set.
4. If pole is placed within 6 feet of transformer see Design Section, "Municipal Pole Placement," "Dusk to Dawn Pole Placement" and Construction Standards section "Light Poles in Proximity of Metallic Apparatus, Bonding".

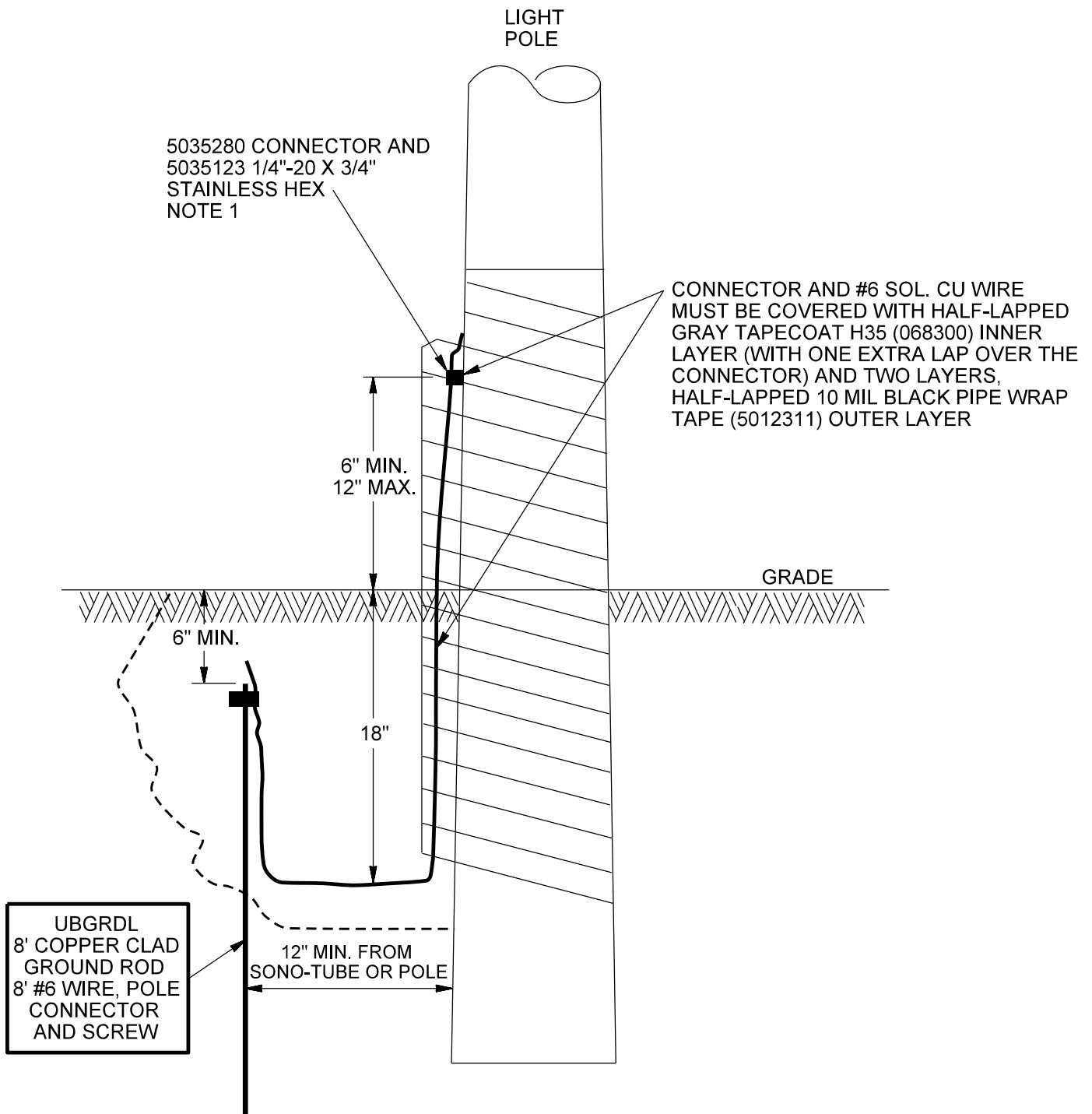
Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	CONSTRUCTION STANDARDS	
	PRIVATE LIGHTS SERVED FROM A TRANSFORMER	
	STEEL POLE INSTALLATION TUBE WITHOUT FLUSH J-BOX	
	6-3-1	ISSUE DATE: 09/20/99
		REV. DATE: 05/10/17
		APPROVAL: S. DURAN
		8518E93.DGN



NOTES

1. When centerline of handhole is 26" above final grade and colored marking tape is at grade, the pole will be set to the proper embedment depth.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	CONSTRUCTION STANDARDS LIGHT POLE SETTING DEPTH 6-4-1	ISSUE DATE: 05/25/06 REV. DATE: 01/21/13 APPROVAL: W. LARAMIE 8518E205.DGN
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NOTES

1. Use die J on Y2MR Burndy press or equivalent.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	CONSTRUCTION STANDARDS LIGHT POLE, NEW GROUND CONNECTION 6-5-1	ISSUE DATE: 12/04/09 REV. DATE: 01/21/13 APPROVAL: W. LARAMIE 8518E268.DGN
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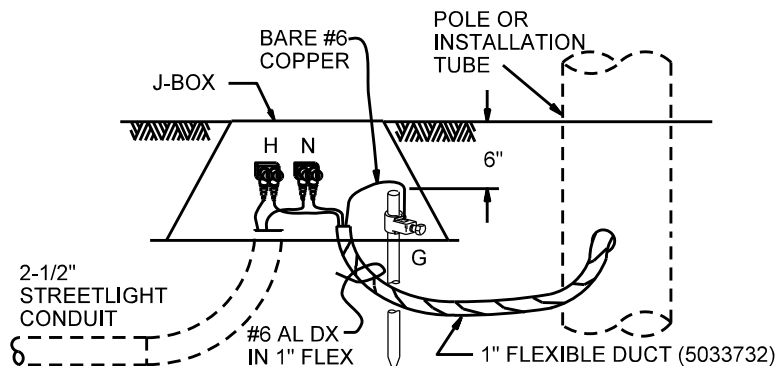
RADIAL LIGHT

SOURCE CABLE H = 120V
DOES NOT HAVE N = NEUTRAL
GROUND CONDUCTOR G = GROUND
(#6 DX) ROD

ULR6D FLEX DUCT

ULR6DG CONTRACTOR

NOTE 2



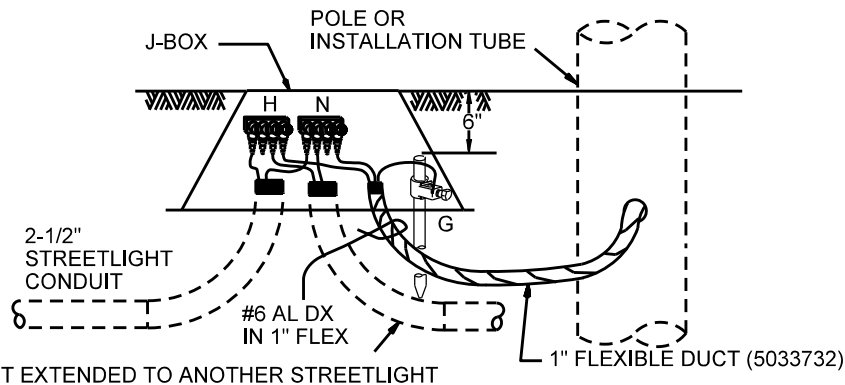
SERIES LIGHTS

SOURCE CABLE H = 120V
DOES NOT HAVE N = NEUTRAL
GROUND CONDUCTOR G = GROUND
(#6 DX) ROD

ULS6D FLEX DUCT

ULS6DG CONTRACTOR

NOTE 2



2 1/2" CONDUIT EXTENDED TO ANOTHER STREETLIGHT

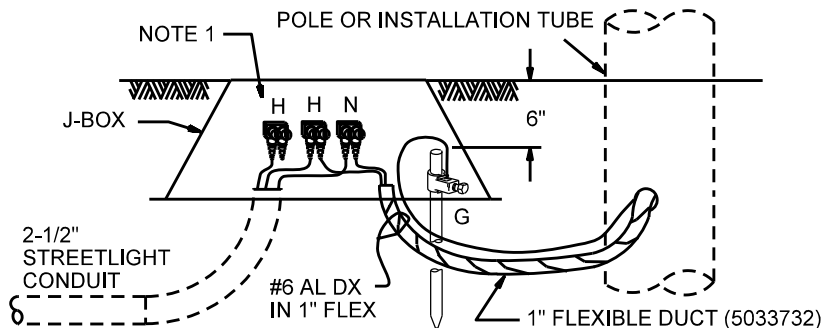
RADIAL LIGHT

SOURCE CABLE H = 120V
DOES NOT HAVE N = NEUTRAL
GROUND CONDUCTOR G = GROUND
(1/0 TX) ROD

ULR10 FLEX DUCT

ULR10G CONTRACTOR

NOTE 2



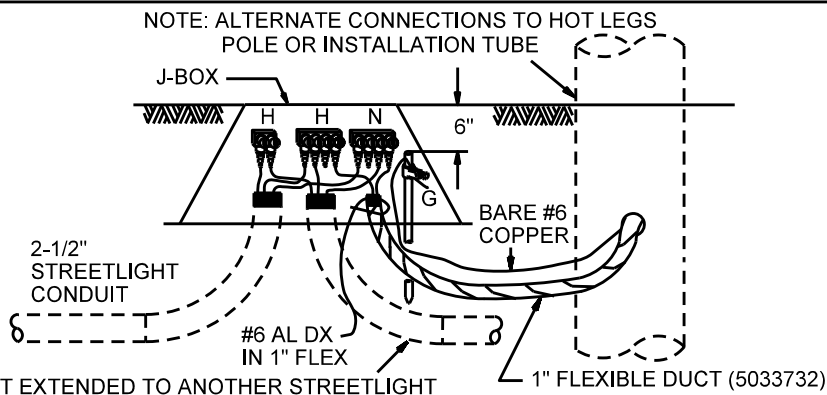
SERIES LIGHTS

SOURCE CABLE H = 120V
DOES NOT HAVE N = NEUTRAL
GROUND CONDUCTOR G = GROUND
(1/0 TX) ROD

ULS10 FLEX DUCT

ULS10G CONTRACTOR

NOTE 2



2 1/2" CONDUIT EXTENDED TO ANOTHER STREETLIGHT

NOTES

1. Second (unused) hot leg of 1/0 AL TX must be insulated with mole assembly.
2. If pole is placed within 6 feet of any above ground metallic power or communications apparatus see design and miscellaneous section, "Non-Municipal Luminaire Pole Placement", and construction standards section "Light Poles in Proximity of Metallic Apparatus, Bonding"

Outdoor Lighting
Standards



PROPRIETARY MATERIAL

CONSTRUCTION STANDARDS J-BOX CONNECTIONS

6-6-1

ISSUE DATE: 01/21/00

REV. DATE: 11/01/13

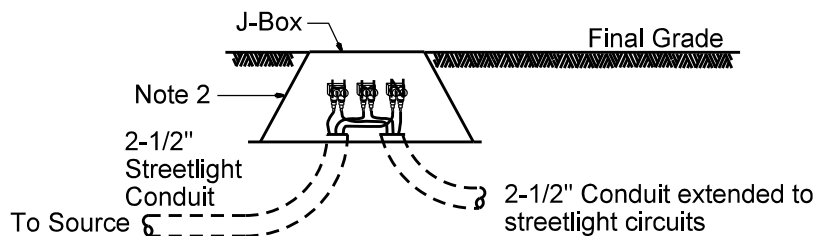
APPROVAL: W. LARAMIE

8518E128.DGN

ONE CIRCUIT FED

- UL16D Duplex
- UL16DG Duplex Contractor
- UL110 Triplex (Note 1)
- UL110G Triplex Contractor

H = 120V
N = Neutral

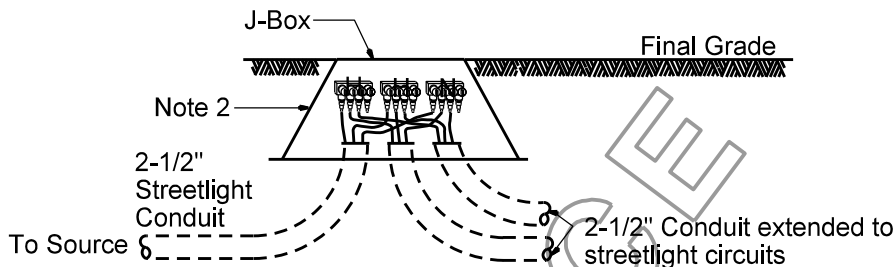


Source cable does not have ground conductor.

TWO CIRCUITS FED

- UL26D Duplex
- UL26DG Duplex Contractor
- UL210 Triplex (Note 1)
- UL210G Triplex Contractor

H = 120 V
N = Neutral

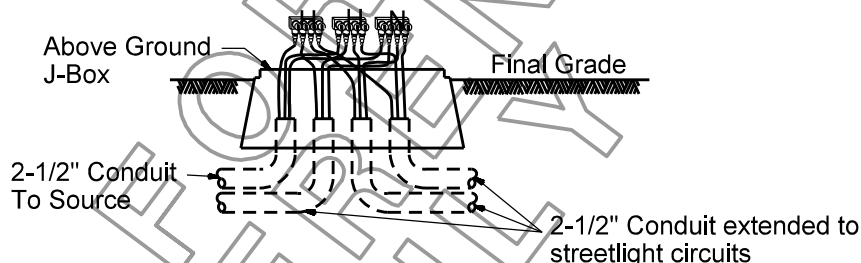


Source cable does not have ground conductor.

THREE CIRCUITS FED

- UL310 Triplex (Note 1)
- UL310G Triplex Contractor

H = 120 V
N = Neutral

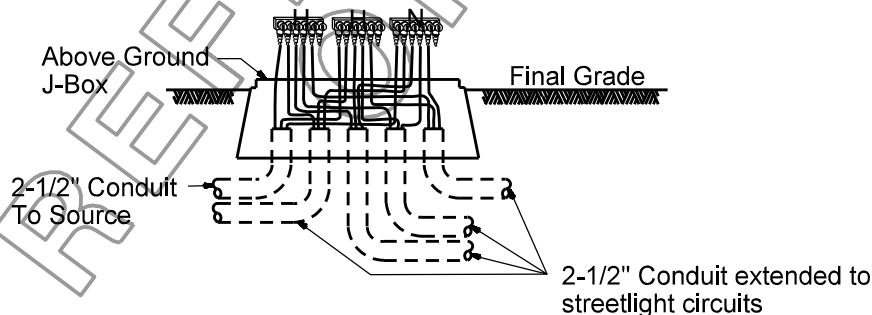


Source cable does not have ground conductor.

FOUR CIRCUITS FED

- UL410 Triplex (Note 1)
- UL410G Triplex Contractor

H = 120 V
N = Neutral



Source cable does not have ground conductor.

NOTES

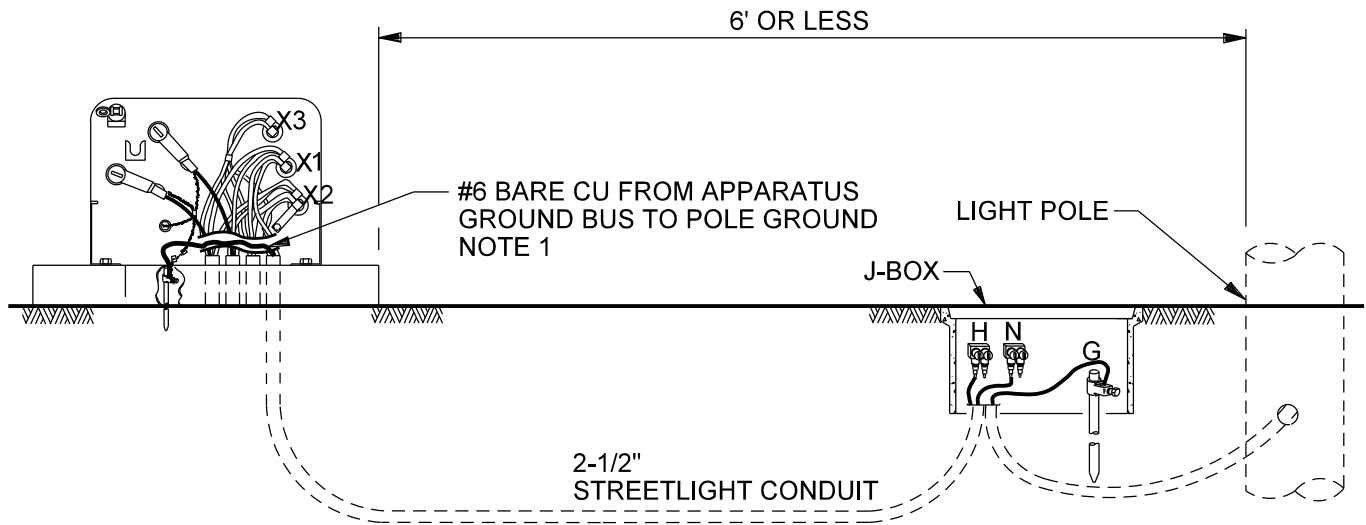
1. When triplex cable is installed, lights shall be connected to alternate 120 V legs on each run. Load between each 120 V leg shall be balanced as possible.
2. Three mole assemblies only required when j-box is served with triplex cable.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	CONSTRUCTION STANDARDS POINT OF FEED J-BOX CONSTRUCTION	ISSUE DATE: 07/13/16
		REV. DATE: 04/04/19
	6-6-2	APPROVAL: N. SABBAAH

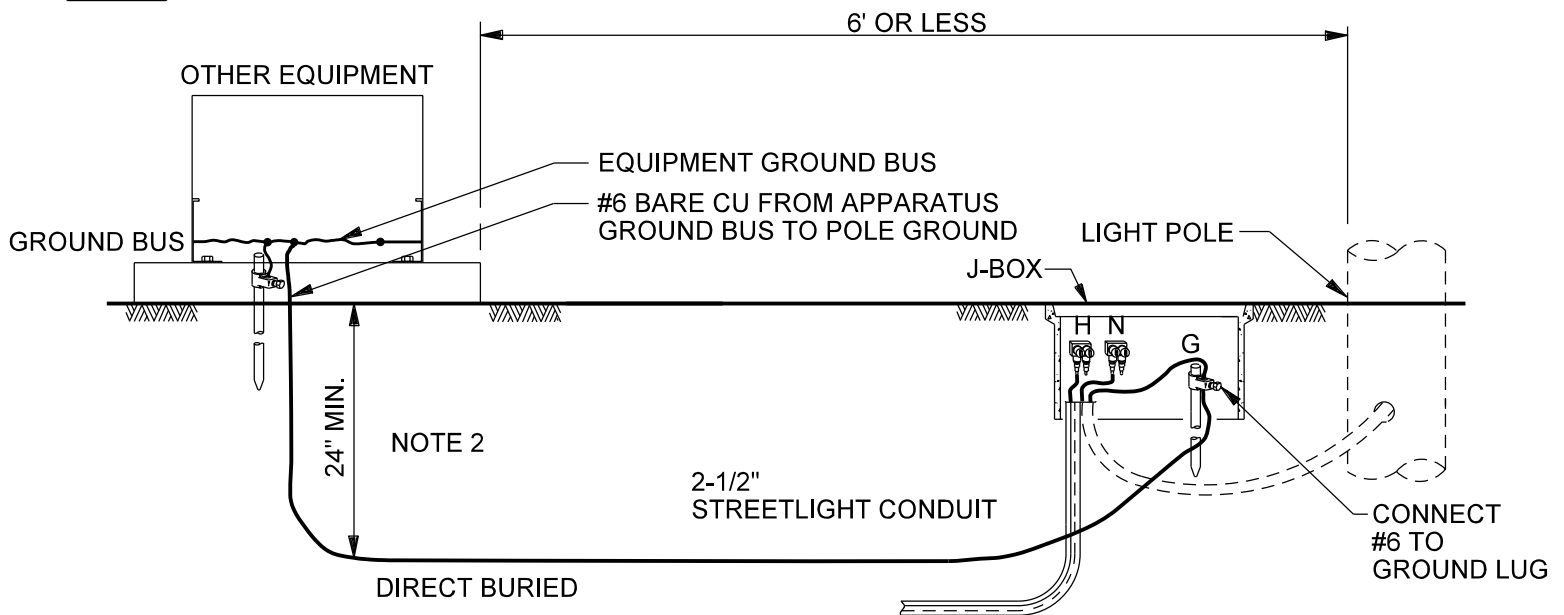
8518E324.DGN

ULB

12' #6 BARE COPPER
WIRE AND COMPRESSION
CONNECTOR
5035146



ULDB



NOTES

1. Pole and any metallic power and communication apparatus spaced 6' or less and shall be bonded using #6 bare copper.
2. When bonding to the source transformer, install the #6 bare copper with the secondary/streetlight conductors in conduit. When bonding to all other equipment, #6 bare copper shall be buried, installed jointly with other conduits or by itself.

Outdoor Lighting
Standards



PROPRIETARY MATERIAL

CONSTRUCTION STANDARDS
LIGHT POLES IN PROXIMITY OF
METALLIC APPARATUS, BONDING

6-7-1

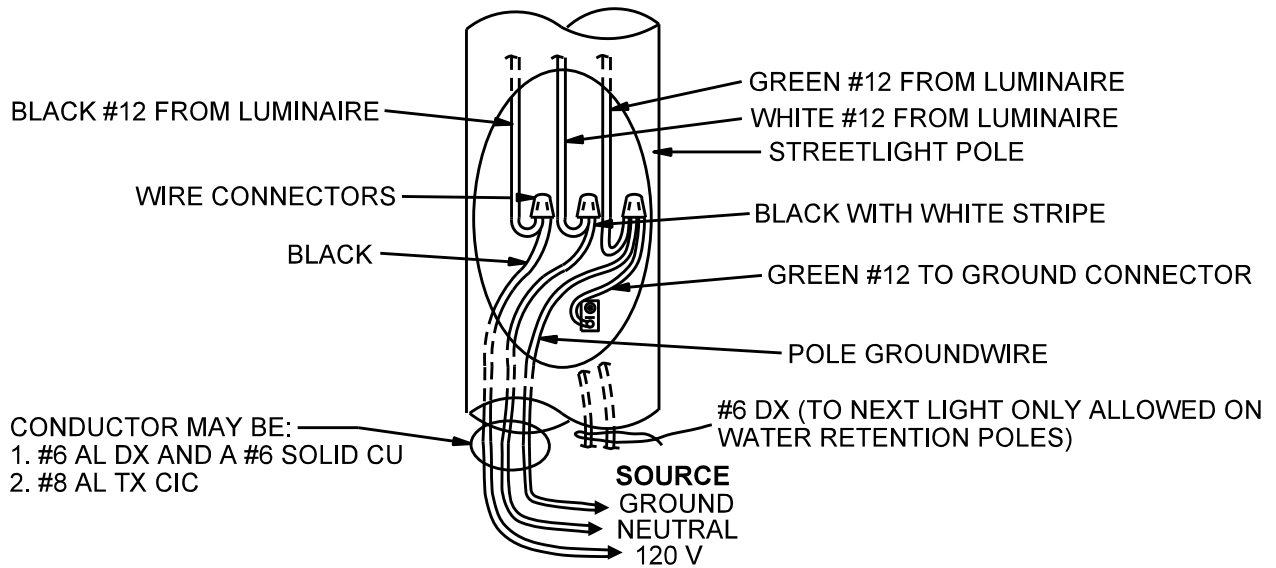
ISSUE DATE: 02/07/08

REV. DATE: 05/06/21

APPROVAL: J. LUERA

8518E249.DGN

CONNECTIONS AT STEEL POLE HANDHOLE



NOTES

Make connections in the pole with wire nuts. Orient the wire nut openings downward to prevent water from entering. Place a small amount of inhibitor grease (5012038) in each wire nut before making the connection.

Source

1. The preferred source is a flush-mounted junction box (j-box) next to the pole.
2. Private lights may be served from an above ground j-box within 10' of the pole (ULF6) or a pad-mounted single-phase transformer within 10' of the pole (ULF7).
3. A flush-mounted j-box above high water level may be used to serve pedestal-mounted poles in the water retention area via 2.5" rigid PVC. In water retention areas all connections shall be above the high water level.
4. In water retention areas poles may be served from another pole with connections made in the handhole.

Connections At Source

In-flush-mount or above ground j-box*:

- #6 Al Dx w/bare #6 solid copper in flex duct between pole and flush j-box.
- Ground - From the steel pole ground connector in the handhole, run the ground wire to the j-box ground rod.
- Bare #6 solid copper may be connected directly to the rod. Use a pig-tail of bare #6 solid copper and a two-place mole bar (5034921) to connect aluminum conductor to the rod.
- 120 V Hot Leg - The black wire from the handhole is connected to the black wire from the transformer's X1 or X3 terminal. Verify voltage.
- Neutral - The black with white stripe wire from the handhole is connected to the black with white stripe wire from the transformer X2 terminal (neutral).

* For connection to 1/0 or 4/0 Tx streetlight secondary, successive lights are to be connected to alternate phase legs.

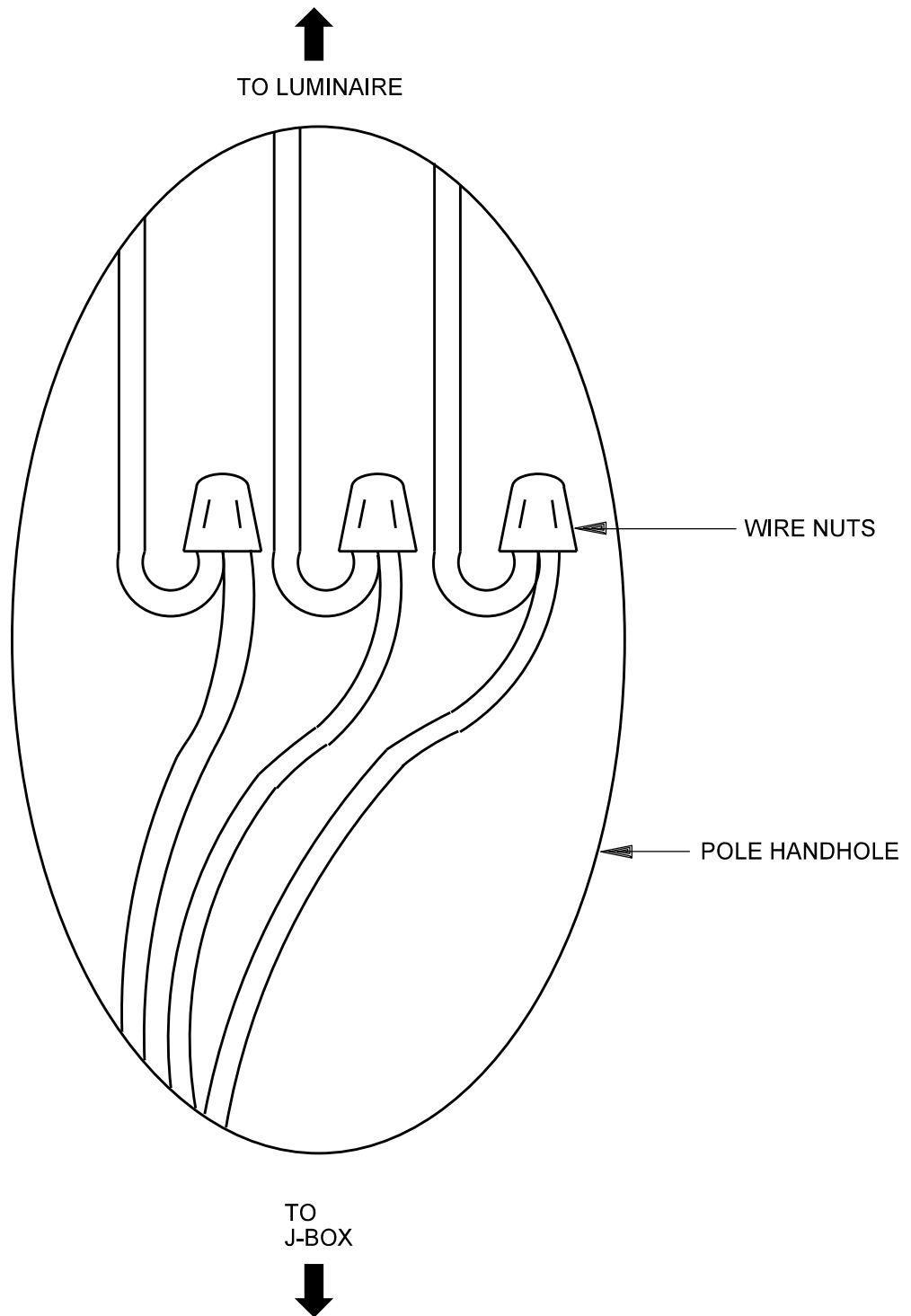
Series poles

- #6 Al Dx in 2.5" rigid PVC
- Ground - Each pole shall have a bare #6 solid copper from its own ground rod or plate, as well as a #12 solid copper connection from the luminaire. Connect these grounds together and then connect to the steel pole ground connector in the handhole.
- 120 V Hot Leg - The black wire from a source pole is connected to the luminaire black wire and the black wire to the next pole fed, if there is one. Verify voltage.
- Neutral - The black with white stripe wire from a source pole is connected to the luminaire white wire and the black with white stripe wire to the next pole fed, if there is one.

In pad-mounted single-phase transformer:

- #6Al Dx (5034032) between the pole and the transformer.
- Ground - #6 Cu wire is connected to the transformer ground.
- 120 V Hot Leg - The black (hot leg) is connected to the transformer X1 or X3 terminal ground.
- Neutral - The black wire with white stripe wire is connected to the X2 terminal.

Outdoor Lighting Standards  PROPRIETARY MATERIAL			
	CONSTRUCTION STANDARDS CONNECTIONS AT STEEL POLE HANDHOLE		ISSUE DATE: 12/09/99
			REV. DATE: 09/05/18
			APPROVAL: S. DURAN
	6-8-1	8518E8.DGN	



WIRE NUT OPENINGS POINT DOWN

PLACE A SMALL AMOUNT OF INHIBITOR GREASE (5012038) IN THE WIRE NUTS

Outdoor Lighting Standards  PROPRIETARY MATERIAL	CONSTRUCTION STANDARDS		ISSUE DATE: 12/12/04
	CONNECTIONS		REV. DATE: 11/01/13
	WIRE NUT ORIENTATION IN HANDHOLE		APPROVAL: W. LARAMIE
	6-9-1		8518E284.DGN

GREEN #12 CU TO
GREEN SCREW ON
LUMINAIRE (GROUND)

STREETLIGHT POLE
HANDHOLE

BLACK #12 CU
(HOT, 120V)

WHITE #12 CU
(NEUTRAL)

WIRE NUTS

BLACK

BLACK WITH
WHITE STRIPE
OR WHITE

#6 BARE COPPER
OR BLACK WITH
GREEN STRIPE

CONDUCTOR MAY BE:

- 1) #6 AL DX AND A
#6 SOLID COPPER
- 2) #8 AL TX CIC

SOURCE

120V
NEUTRAL
GROUND

#6 DX (TO NEXT LIGHT ONLY
ALLOWED ON WATER RETENTION POLES)

Make connections in the pole with wire nuts. Orient the wire nut openings downward to prevent water from entering. Place a small amount of inhibitor grease (5012038) in each wire nut before making the connection.

SOURCE

1. The preferred source is a flush mounted junction box next to the pole.
2. Private lights may be served from an above ground J-box within 10 feet of the pole (ULF6) or a pad mounted single phase transformer within 10 feet of the pole (ULF7).
3. A flush mounted J-box above high water level may be used to serve pedestal mounted poles in the water retention area via 2.5" rigid PVC. In water retention areas all connections shall be above the high water level.
4. In water retention areas poles may be served from another pole with connections made in the handhole.

CONNECTIONS AT SOURCE

In flush mount or above ground J-box*

#6 Al Dx w/bare #6 solid copper in flex duct between pole and flush J-box.

Ground - From the luminaire green ground wire in the handhole run the ground wire to the J-box ground rod. Bare #6 solid copper may be connected directly to the rod. Use a pig-tail of bare #6 solid copper and a two-place mole bar (5034921) to connect aluminum conductor to the rod.

120V Hot Leg - The black wire from the handhole is connected to the black wire from the transformer's X1 or X3 terminal. Verify voltage.

Neutral - The black with white stripe wire from the handhole is connected to the black with white stripe wire from the transformer X2 terminal (neutral).

* For connection to 1/0 or 4/0 Tx streetlight secondary, successive lights are to be connected to alternate phase legs.

Series or radial poles in water retention areas

#6 Al Dx in 2.5" rigid PVC from pole to pole

Ground - Each pole will have a bare #6 solid copper from it's own ground rod or plate. Connect the bare #6 solid copper to the luminaire green ground wire in the handhole.

120V Hot Leg - The black wire from a source pole is connected to the luminaire black wire and the black wire to the next pole fed, if there is one. Verify voltage.

Neutral - The black with white stripe wire from a source pole is connected to the luminaire white wire and the black with white stripe wire to the next pole fed, if there is one.

In pad mounted single phase transformer

#6 Al Dx (5034032)

Ground - #6 Cu wire is connected to the transformer ground.

120V Hot Leg - The black (hot leg) is connected to the transformer X1 or X3 terminal.

Neutral - The black with white stripe wire is connected to the X2 terminal.

Outdoor Lighting
Standards



PROPRIETARY MATERIAL

CONSTRUCTION STANDARDS CONNECTIONS AT FIBERGLASS POLE HANDHOLE

6-10-1

ISSUE DATE: 12/10/99

REV. DATE: 11/01/13

APPROVAL: W. LARAMIE

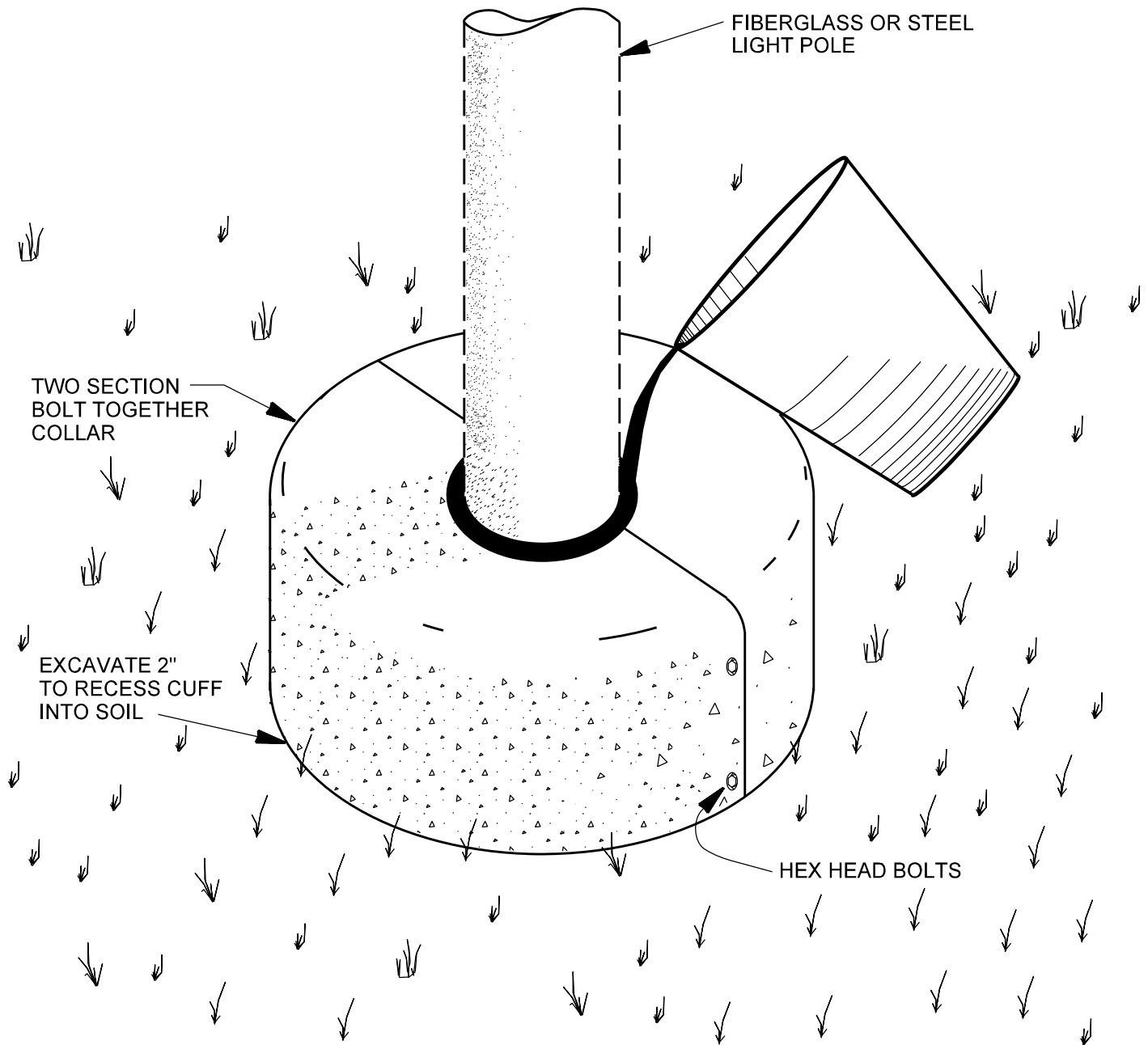
8518E285.DGN

Diagram illustrating the lightning protection system for a steel pole, showing the path of the #6 solid copper conductor and the ground rod connection.

Key components and dimensions:

- GROUND ROD**: Connected to the ground.
- 6" MIN.**: Minimum distance from the ground rod to the conductor.
- 18"**: Vertical distance from the ground level to the conductor.
- 12" MIN. FROM SONO-TUBE OR POLE**: Minimum distance from the conductor to the pole.
- GRADE**: Ground level.
- #6 SOLID COPPER**: The lightning protection conductor.
- SEE "CONNECTIONS AT STEEL POLE HANDHOLE"**: Reference to the connection details at the pole handhole.

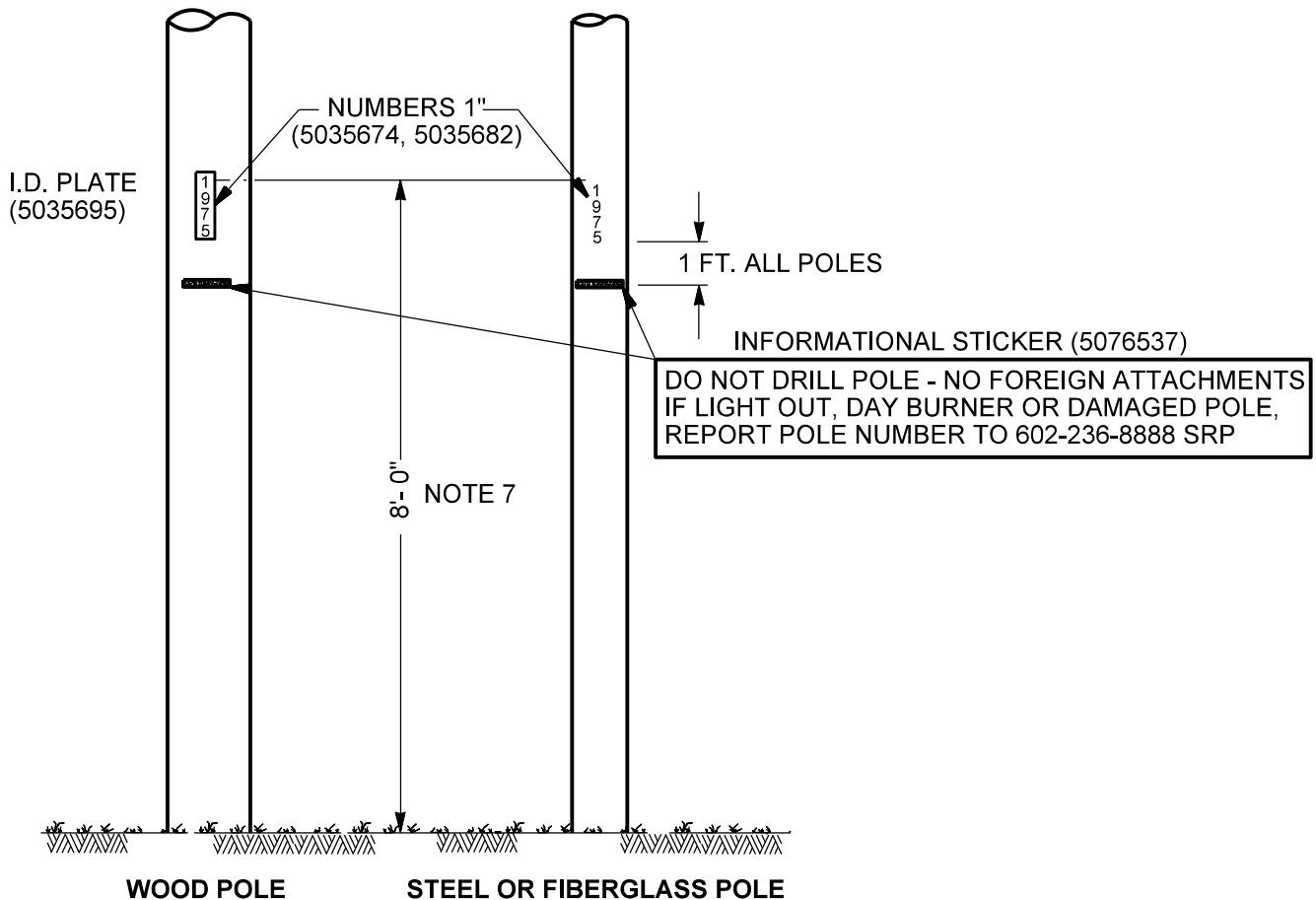
1. Ground plate (UBGRDP) may be used for pole replacements.



NOTES

1. Collar stock codes are on page 5-15-1.
2. All fiberglass poles require ground line protection and it is provided as part of the pole by the manufacturer. Shakespeare provides a collar as appears on this page. Whatley poles have an integral layer of elastomeric urethane one foot above and below ground line.
3. New steel poles do not need a collar but one may be installed by maintenance if ongoing ground-line damage is expected.
4. If the space between the collar and pole is 1/4" or less, the foam is not required. Wrap tape (5035527) around the pole at the collar contact point to tightly fill the space. Make sure collar embedment is always 2"
5. Fill inside collar with pole set foam (5012018).
6. Foam is mixed 2 parts "A" with 1 part "B".
7. Foam mixing bucket is 5071383.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	CONSTRUCTION STANDARDS FIBERGLASS OR STEEL POLE PROTECTIVE COLLAR 6-12-1	ISSUE DATE: 02/12/05 REV. DATE: 11/01/13 APPROVAL: W. LARAMIE 8518E326.DGN
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NOTES

- All un-metered loads, lights served by SRP, will be numbered. The number is assigned by SRP for customer owned lights for billing purposes only and not for material or accounting purposes (do not grid a compatible unit).
 - On customer owned lights the number shall be placed on the pole by the customer.
 - On SRP owned lights the number shall be placed on the pole by srp.
- Installing crew is to number municipal or non-municipal poles at time of installation. Municipal or non-municipal number will be indicated on the work order sketch.
- Municipal light numbers to be placed on side of pole facing street. Non-municipal number is to be placed in the most visible location.
- Surfaces to which numbers and stickers (5076537) are applied must be clean and free of dirt. Use cleaner (5003004). Numbers and stickers for wood poles are to be applied to i.d. plate (5035695) which is then to be nailed to pole. Numbers and stickers for steel or fiberglass poles are to be applied directly to pole.
- Numbers will be attached to customer owned steel or fiberglass poles and srp wood poles which have joint use attachment of city lights. The number to be installed is shown on the mec order or job order and will have the following prefix:

City of Phoenix	=	PH-
City of Peoria	=	PE-
City of Glendale	=	GL-
City of Chandler	=	CH-
City of Gilbert	=	GI-
City of Tempe	=	TE-
- SRP owned streetlight pole numbers have no prefix letter. SRP non-municipal light pole numbers have prefix letter "A".
- Place number at 8' on dedicated light poles (as shown) and at 12' on shared poles.

Outdoor Lighting Standards  PROPRIETARY MATERIAL			
	CONSTRUCTION STANDARDS LIGHT POLE NUMBERING AND INFORMATION STICKER		ISSUE DATE: 11/11/87
			REV. DATE: 01/19/17
			APPROVAL: S. DURAN
	6-13-1	8518E72.DGN	



WARNING



Hazardous voltage
inside.
Can shock, burn,
or cause death.

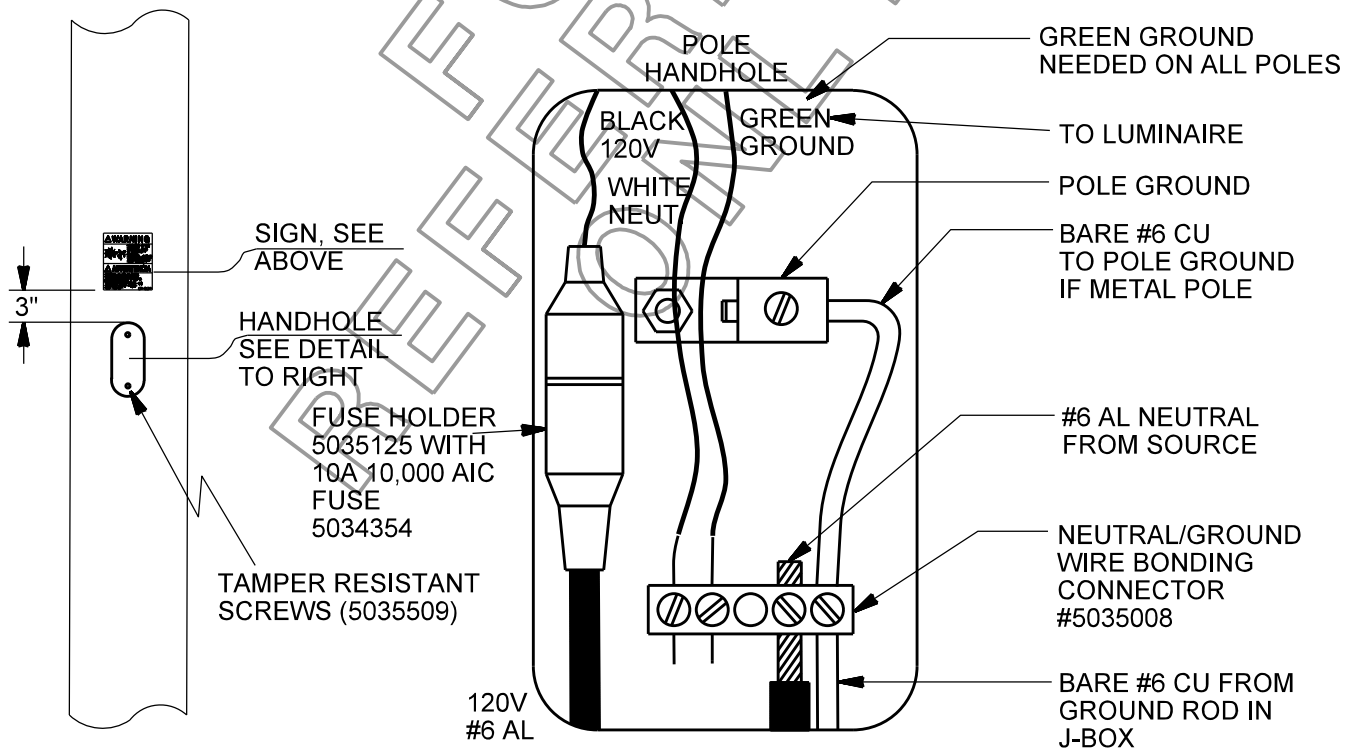
Keep out.
If open or unlocked
immediately call
Salt River Project
(602) 236-8811



ADVERTENCIA

Contiene voltaje peligroso.
Puede producir choques electricos,
quemaduras, o causara la muerte.
Mantengase alejado.
Si se encuentra abierto o sin llave
llame a Salt River Project
(602) 236-8811

SRP # 5039125



Outdoor Lighting
Standards



PROPRIETARY MATERIAL

CONSTRUCTION STANDARDS
"A" LIGHTS - UNDERGROUND
CITIES OF PHOENIX AND TEMPE
CONNECTIONS AT HANDHOLE

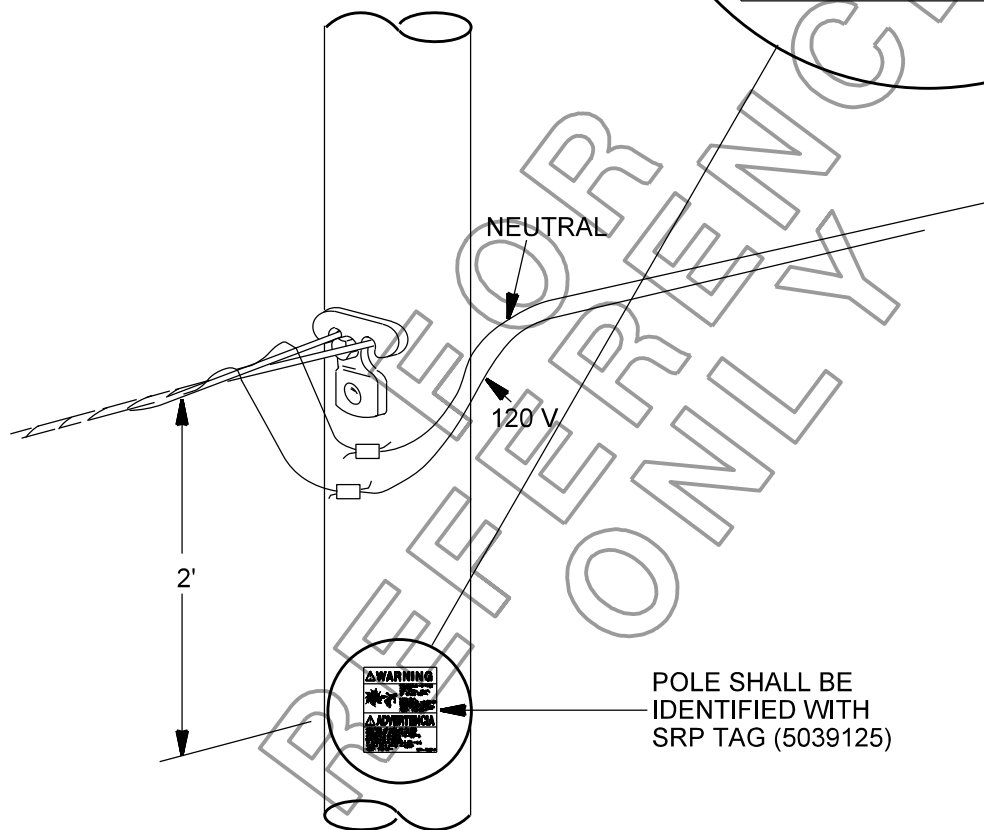
6-14-1

ISSUE DATE: 09/03/99

REV. DATE: 11/01/13

APPROVAL: W. LARAMIE

8518E70.DGN



WARNING



Hazardous voltage inside.
Can shock, burn, or cause death.
Keep out.
If open or unlocked immediately call Salt River Project (602) 236-8811



ADVERTENCIA

Contiene voltaje peligroso.
Puede producir choques eléctricos, quemaduras, o causar la muerte.
Manténgase alejado.
Si se encuentra abierto o sin llave llame a Salt River Project (602) 236-8811

SRP # 5039125

Outdoor Lighting
Standards



PROPRIETARY MATERIAL

CONSTRUCTION STANDARDS
"A" LIGHTS-OVERHEAD
CITY OF PHOENIX
CONNECTIONS AT POLE

6-15-1

ISSUE DATE: 10/22/99

REV. DATE: 11/01/13

APPROVAL: W. LARAMIE

8518E69.DGN

SECTION 7: LIGHTING COMPATIBLE UNITS

Title / Description	Page
Special Compatible Units.....	7-1-1
Water Retention Basin Three Foot Pedestals Details	7-2-1
Steel Pole Guy Application	7-3-1

I. Special Compatible Units

A. **LC** Streetlight Installed by other than SRP

This compatible unit has been established to identify Customer-owned streetlights for which SRP provides power. This shall not be used for SRP-owned streetlights or lights installed by SRP. LC is to be used whenever Customer-owned streetlights are connected to or removed from SRP's electrical system.

EXCEPTION: **LC** is not to be used when Customer-Owned Lights are installed, removed, or transferred by SRP.

1. Removal of SRP Streetlights

The following generic CU's shall be used for removal of SRP streetlights:

Compatible Unit	Type	Description
RW30D, RW35D, RW40D	Private	Customer Private Dusk-to-Dawn/Security – Wood light pole
RULARMD	Private	Customer Private Dusk-to-Dawn/Security – Underground fed mast arm
RLARMD	Private	Customer Private Dusk-to-Dawn/Security – Overhead fed mast arm
RLPOLED	Private	Customer Private Dusk-to-Dawn/Security – Overhead fed steel light pole
RULPOLED	Private	Customer Private Dusk-to-Dawn/Security – Underground fed steel light pole
RW30L, RW35L, RW40L, RW45L	Public	Streetlight – Wood light pole
RULARM	Public	Streetlight – Underground fed mast arm
RLARM	Public	Streetlight – Overhead fed mast arm
RLPOLE	Public	Streetlight – Overhead fed steel light pole
RULPOLE	Public	Streetlight – Underground fed steel light pole

2. Removal or Transfer of Foreign-Owned Streetlights

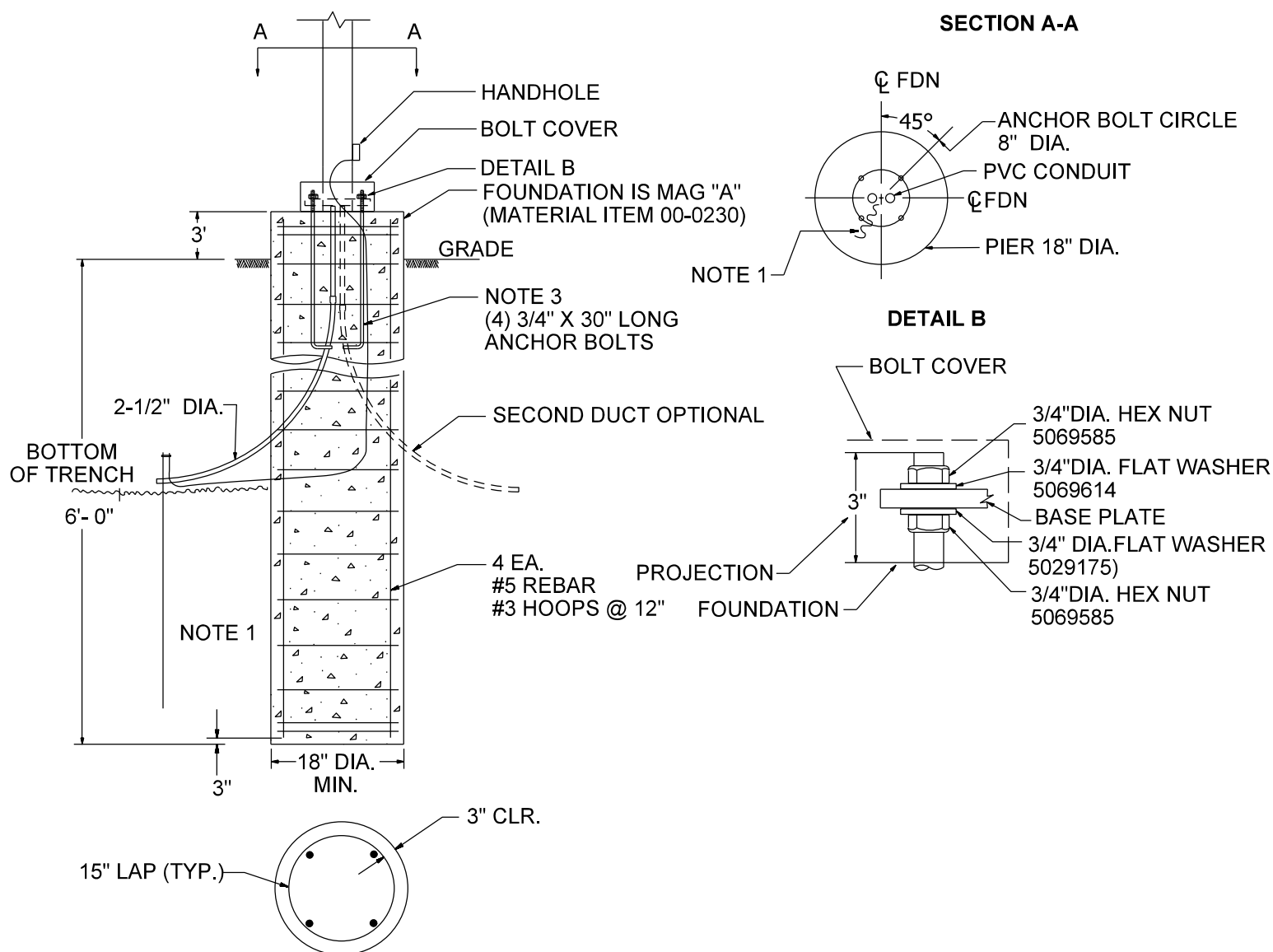
Compatible Unit	Description
RFL	Remove foreign light mast arm and luminaire
RFSL	Remove foreign steel pole and light

NOTE: To transfer these items, enter "T" with quantity on grid.

3. Foreign-Owned Wood Streetlight Poles

W35LF W40LF	To be used on wood streetlight poles with foreign-owned luminaires only (City of Phoenix and City of Glendale). Not to be used on any streetlight pole without foreign-owned luminaires (streetlight conductors only)
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Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LIGHTING COMPATIBLE UNITS SPECIAL COMPATIBLE UNITS	ISSUE DATE: 12/11/19 REV. DATE: APPROVAL: N. Sabbah
	7-1-1	OL7-1-1.doc

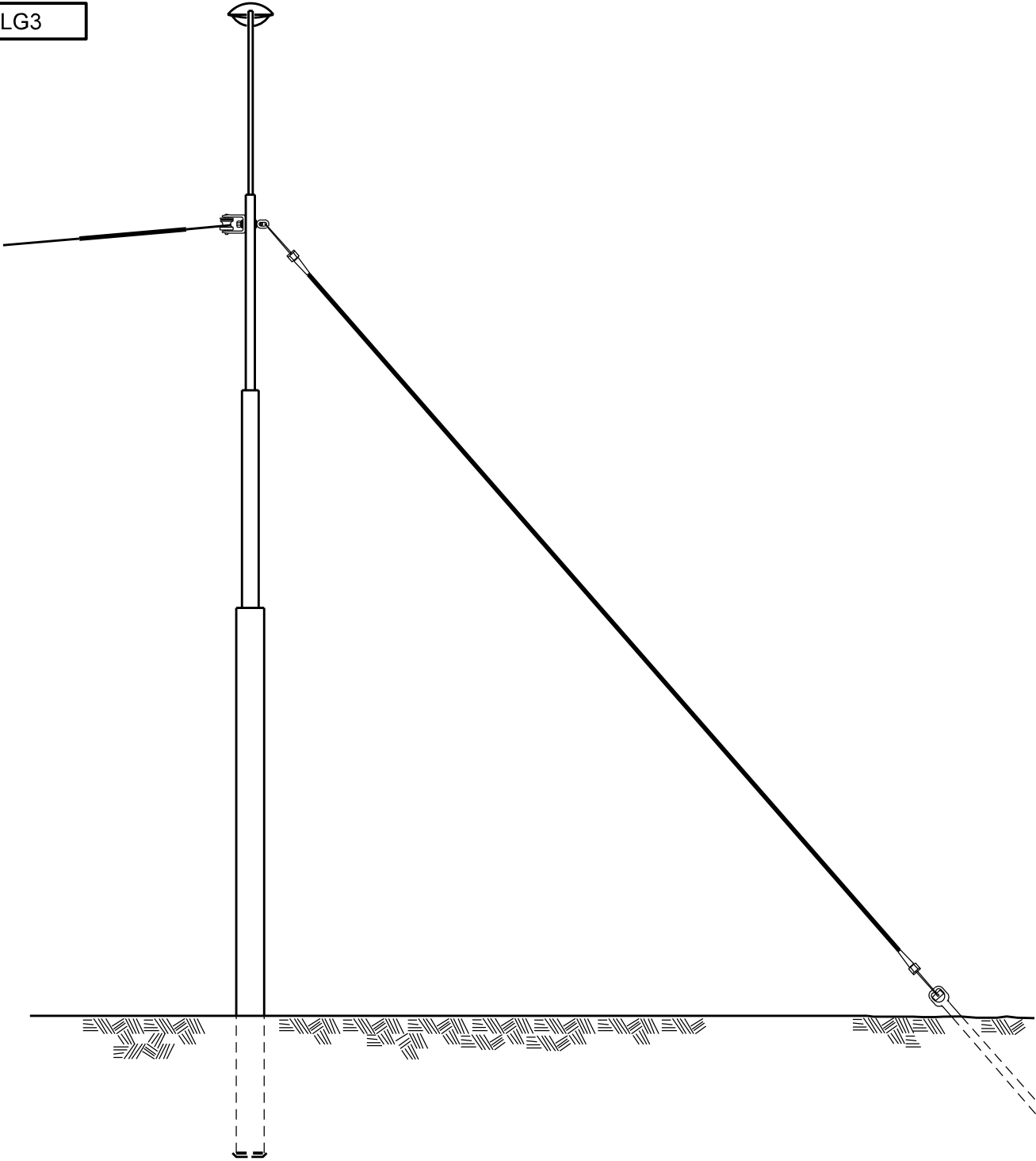


NOTES

1. Run #6 soft drawn bare copper to trench and connect to 5/8" x 8' copper clad ground rod with ground rod connector. Top of rod shall be buried when trench is filled. Leave minimum 2' of the #6 wire projecting from top center of pedestal to be fed into pole base. Also connect the #6 wire to the rebar cage with split bolt connector at any point to be embedded in concrete.
2. Customer to supply rebar cage, j-bolts, 8' of #6 wire, 5/8" x 8' copper clad ground rod, ground rod connector and construct foundation. J-bolts, nuts and washers to be hot dip galvanized.
3. SRP inspector can supply a j-bolt template SRP material item 5031855.
4. These poles shall not be placed within secured (locked) areas where maintenance crews do not have free access. These poles shall not be used for lighting swimming or wading pool areas.
5. On fiberglass poles, from the #6 CU ground wire in the pole handhole, run #12 CU 5008590 to each luminaire ground bond screw, see Section 6, Connections at Fiberglass Pole Handhole.

Outdoor Lighting Standards  PROPRIETARY MATERIAL	LIGHTING COMPATIBLE UNITS WATER RETENTION BASIN THREE FOOT PEDESTAL DETAILS 7-2-1	ISSUE DATE: 01/17/00 REV. DATE: 01/26/16 APPROVAL: S. DURAN 8518E317.DGN
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LG3



NOTES

- 1. Overhead deadend streetlight poles must be guyed.
- 2. See "Pole Guying & Bracing" Section of the Overhead Distribution Line Construction Standards for anchor selection.

Outdoor Lighting Standards  PROPRIETARY MATERIAL		
	LIGHTING COMPATIBLE UNITS STEEL POLE GUY APPLICATION	ISSUE DATE: 12/15/99 REV. DATE: 01/22/13 APPROVAL: W. LARAMIE
	7-3-1	8512E2.DGN