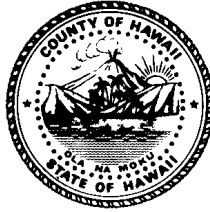


**Mitchell D. Roth**  
*Mayor*

**Lee E. Lord**  
*Managing Director*



**Aaron Takaba**  
*Traffic Division Chief*

**County of Hawai'i**  
**DEPARTMENT OF PUBLIC WORKS**  
**Traffic Division**

108 Railroad Ave. · Hilo, Hawai'i 96720  
(808) 961-8341 · Fax (808) 961-8591  
dpwtrf@hawaiicounty.gov

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# STREET LIGHT STANDARDS

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## TRAFFIC DIVISION

**June 8, 2022**

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Aaron Takaba, P.E.  
Chief, Traffic Division

06/08/22  
Date

## **STREET LIGHT NOTES**

### **NEW INSTALLATIONS:**

1. Submit scaled plans showing street light locations and details of fixture mounting, luminaire type, arm length, and identification tags. For underground circuits, foundations, bases, and poles, approved construction drawings shall be submitted to the Traffic Division prior to the start of construction.
2. To energize the street lights in a subdivision with two (2) or more street lights, the developer shall set up an account with HELCO and provide street names, pole numbers, GPS coordinates, wattages, and billing address. A copy of the street light information shall be provided to the Traffic Division for inspection purposes. Until the roads are officially dedicated to the County, the developer shall be responsible for the pertinent energy costs. After dedication, energy billing shall be transferred to the County.
3. For proposed street lights, submit isoline drawings, showing the illumination within the project area. The street lighting illumination levels shall be calculated according to the most current edition of the AASHTO Roadway Lighting Design Guide or the ANSI/IES RP-8-14: Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting.
4. All street light identification tag numbers for metal poles shall start with "1" and continue numerically along each street. Identification tags numbers shall be a Standard Highway font and have a height of 3". All street light identification tag numbers for wooden poles shall be in accordance with HELCO's sequential numbering system.
5. Any proposed changes to the approved plans shall require proper justification from the developer/consultant/contractor, and submittal of updated drawings to the Traffic Division for final approval.
6. For construction in-progress, the developer/contractor shall direct inquiries and coordinate inspection requests with the Traffic Division's inspectors.
7. For final street light inspections, the developer/contractor shall contact the applicable government agency to schedule inspections with the Traffic Division.
8. Allow for a 3-day minimum lead time on all inspection requests.
9. "As-Built" plans shall be furnished by the developer to the Traffic Division, at the completion of all street light projects.

## Street Light Notes, cont'd

### EXISTING POLE INSTALLATIONS:

1. When street lights are to be installed on existing wooden utility poles within the County ROW, the Traffic Division shall be contacted in order to initiate the joint pole application process with HELCO. No street lights shall be installed until the pertinent joint pole applications have been approved.
2. Upon signed approval by the Traffic Division, street lights on existing wooden utility poles can be installed (4 maximum) by the Traffic Division at a cost of \$2,500 per street light. The developer shall submit a check payable to the County, Director of Finance, along with the subdivision number, DPW folder number, TMK number, utility pole 6 digit ID numbers, and GPS coordinates.
3. When street lights are installed within the County ROW with existing street lights, the new street light installations shall conform to the existing adjacent street light configuration on that roadway.

### STREET LIGHTING ELECTRICAL PRACTICES:

1. The Contractor shall provide all necessary secondary circuit extensions to the nearest HELCO secondary. If street lights are installed before HELCO installs their secondary, the contractor is responsible for coordinating and informing HELCO of street light locations and pole contacts.
2. The contractor shall inscribe the month and year of installation on photoelectric (PE) cells and lamps. All PEs shall have the north index facing north.
3. All overhead wired street light fixtures shall be bonded to the neutral wire in the fixtures. All bonded street light fixtures shall have a 2"X2" reflective green sticker placed at the base of the wire opening on the aluminum street light arms, signifying that the street lights are bonded.
4. All underground street light wiring shall have a #6 AWG (minimum) ground wire routed in series from the neutral ground source point to each street light ground rod for a street light fixture ground point. A ground test measurement should indicate a maximum of 25 ohms to ground.
5. A minimum 8'X5/8" copper ground rod shall be used for each street light foundation.

### MATERIALS:

1. All labor and materials shall have a minimum one-year warranty from date of final acceptance.

## Street Light Notes, cont'd

2. Street light fixtures: Shall be compliant with the current edition of the County of Hawaii Outdoor Lighting Ordinance and approved by the Traffic Division.

### LED Luminaries:

#### E2 Lighting:

E2-HI50-ST-35W-7PD-SF, 35 W  
E2-HI50-ST-70W-7PD-SF, 70 W  
E2-HI50-ST-85W-7PD-SF, 85 W  
E2-HI50-ST-100W-7PD-SF, 100 W

3. Photoelectric cells: Completely solid state, Fail "On", Fisher Pierce: FP-7790B-SPS
4. Aluminum Poles: Shall be approved by the FHWA and comply with the current edition of the AASHTO Street Lighting Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals. The poles shall have the following:
  - 0.188" minimum wall thickness;
  - 12" pole mount-base bolt pattern;
  - Internal mounted vibration damper;
  - Arm length shall be per plan (see below); and
  - All exposed surfaces shall be powder coated gray finish (Any other finish shall be approved by the Traffic Division).

### Pole Types:

Hapco: Single mast arm assembly Part# RTA30D8BFM1\*-GC or approved equal.  
\*Mast arm length is 8' or 10'.

Hapco: Single truss arm assembly Part# RTA30D8BFT1\*-GC or approved equal.  
\*Truss arm length is 12' or 15'.

5. Anchor Bolts: Use galvanized steel anchor bolts.
6. Transformer Bases: Shall be approved by the FHWA and comply with the current edition of the AASHTO Break-Away Specifications. The transformer bases shall have the following:
  - Aluminum;
  - All exposed surfaces shall be powder coated gray finish (any other finish shall be approved by the Traffic Division) and
  - 14" foundation base bolt circle.

### Types:

Hapco: 70501 (TB1-17).

Valmont: M093 (TB1-17).

## Street Light Notes, cont'd

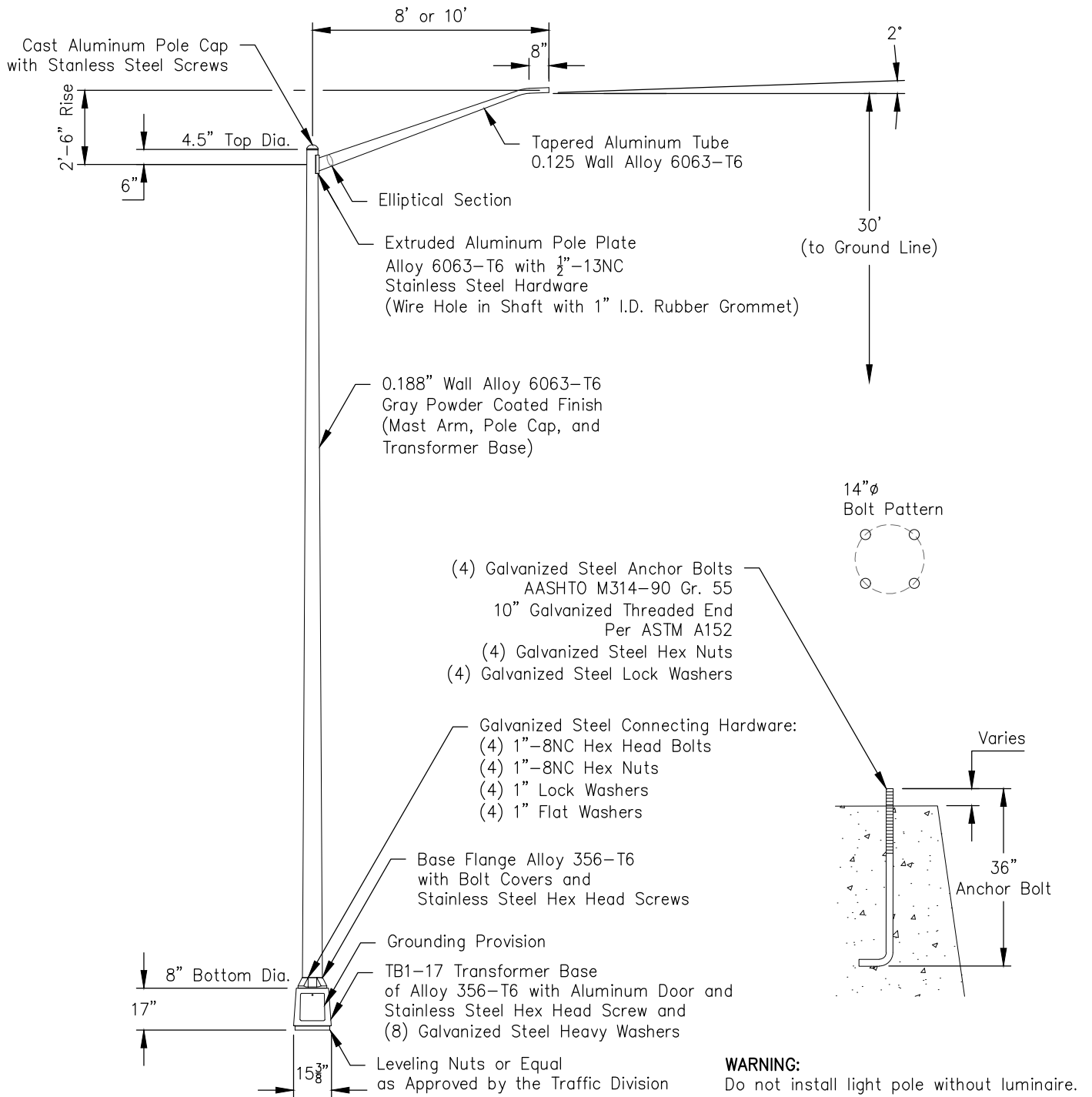
7. Transformer Bases shall use leveling nuts or equal as approved by the Traffic Division.
8. Wooden Poles:
  - 35' in length;
  - Southern Yellow Pine or Douglas Fir;
  - Class III;
  - Penta-treated per AWPA Use Category System, UC4B; and
  - Commodity Specification D.
9. Wire:
  - #12-AWG RHW-stranded copper wire;
  - Size shall be per plan; and
  - Insulation color of conductor and wire shall conform to the latest edition of the National Electrical Code (NEC).

### REFERENCES:

1. When specific street light information is not covered in this document, refer to the HDOT 2008 Specifications, the 2005 Standard Plans, or contact the Traffic Division at 808-961-8341.

**\*NOTE: ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC).**

**Dated:** 8-June-22; supersedes all previous versions.

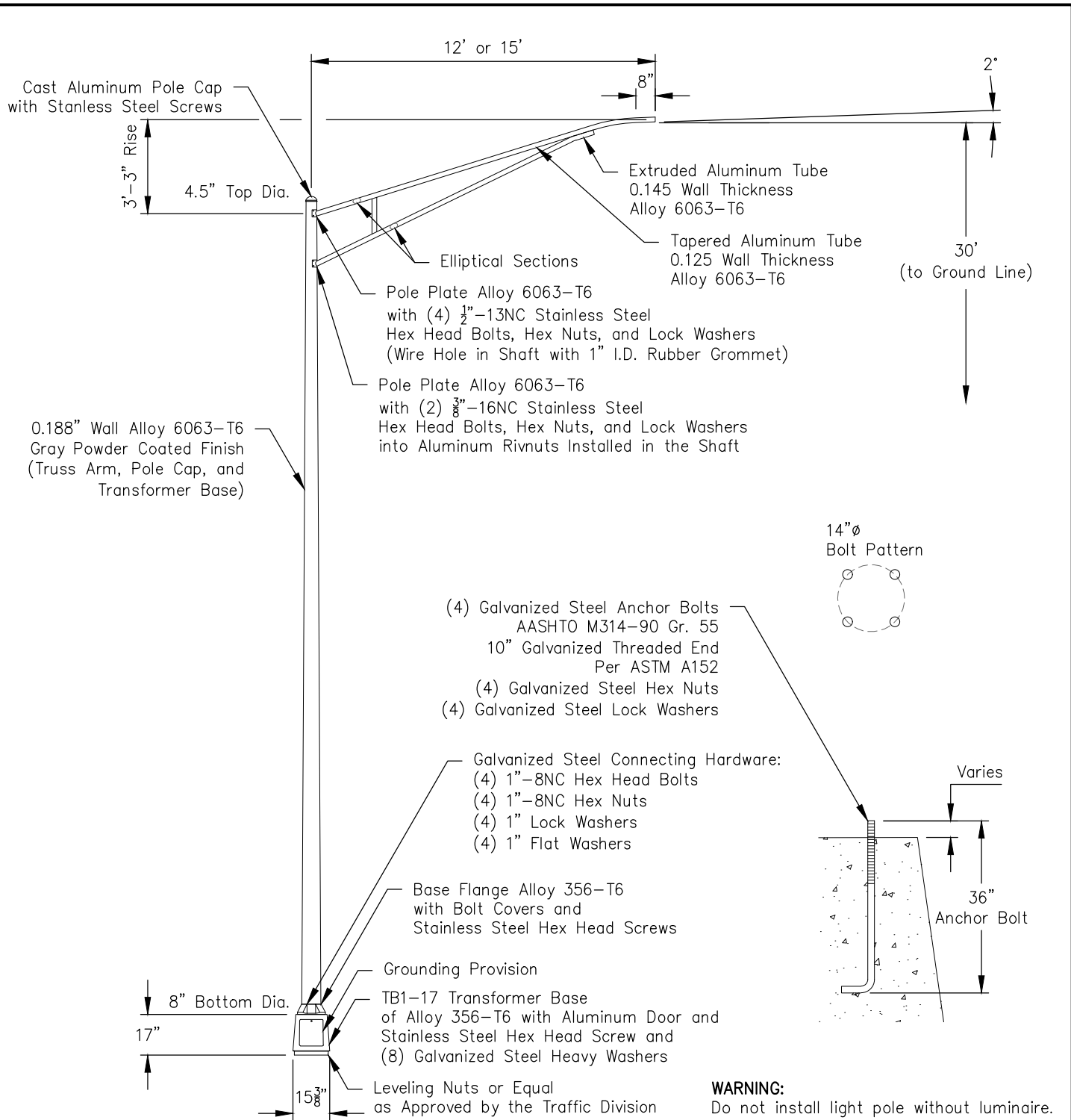


STREET LIGHT POLE WITH MAST DETAIL  
N.T.S.

NOTES

1. Pole shaft shall be constructed of extruded tube of 6063 aluminum alloy per ASTM B221 and shall be full-length heat-treated after welding on the base flange to T-6 temper.
2. Pole shaft shall be free of longitudinal welds.
3. Pole shaft cap, when required, shall be 443 or 356 cast aluminum alloy and attached using stainless steel hardware.
4. Equivalency reference: Hapco RTA30D8BFM1\*-GC.  
\*Mast arm length is 8' or 10'.

|                         |  |                                    |                     |
|-------------------------|--|------------------------------------|---------------------|
| <p>COUNTY OF HAWAII</p> | <p><b>STREET LIGHT DETAIL</b><br/><b>Aluminum Pole with Mast</b></p> <p>N.T.S. <span style="float: right;">05/26/21</span></p> | <p><b>STANDARD<br/>DETAILS</b></p> | <p><b>SL-01</b></p> |
|-------------------------|--|------------------------------------|---------------------|

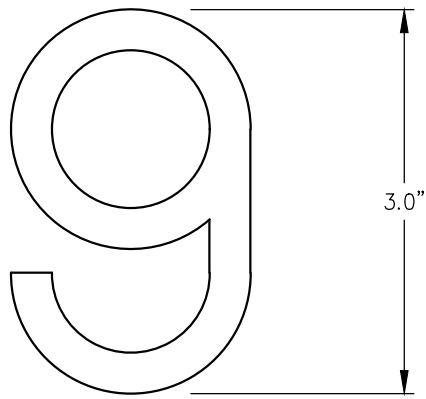


STREET LIGHT POLE WITH TRUSS DETAIL  
N.T.S.

NOTES

1. Pole shaft shall be constructed of extruded tube of 6063 aluminum alloy per ASTM B221 and shall be full-length heat-treated after welding on the base flange to T-6 temper.
2. Pole shaft shall be free of longitudinal welds.
3. Pole shaft cap, when required, shall be 443 or 356 cast aluminum alloy and attached using stainless steel hardware.
4. Equivalency reference: Hapco RTA30D8BFT1\*-GC  
\*Truss arm length is 12' or 15'.

|                         |   |   |                     |
|-------------------------|---|---|---------------------|
| <p>COUNTY OF HAWAII</p> | <p><b>STREET LIGHT DETAIL</b><br/><b>Aluminum Pole with Truss</b></p> <p>N.T.S. <span style="float: right;">05/26/21</span></p> | <p><b>STANDARD</b><br/><b>DETAILS</b></p> | <p><b>SL-02</b></p> |
|-------------------------|---|---|---------------------|



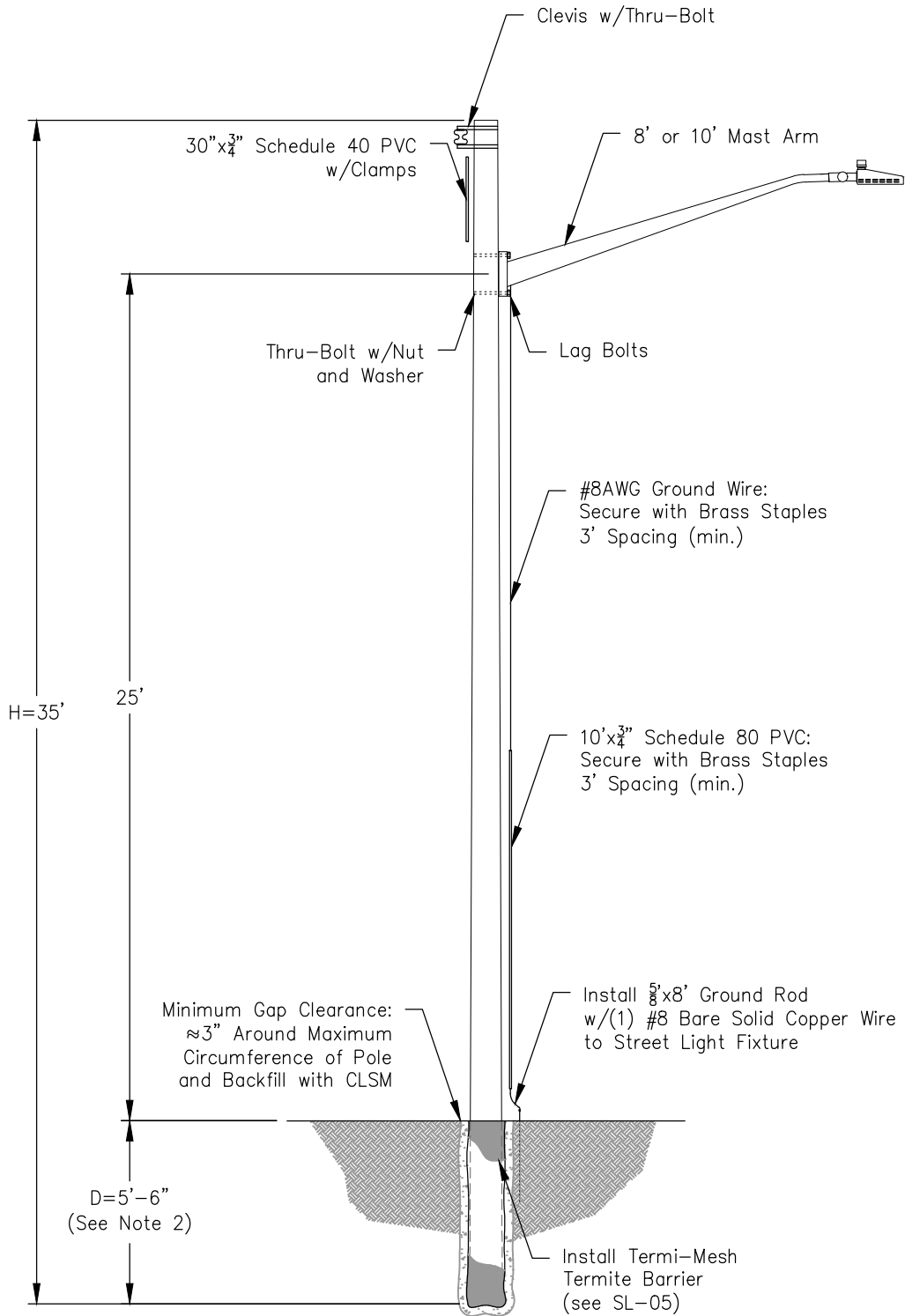
STREET LIGHT I.D. TAG DETAIL  
N.T.S.

NOTES

1. Font Style: Standard Highway.
2. Font Size: 3" (height).
3. Machine cut on black adhesive Scotchlite (or equal) sheeting.
4. Affix number to clean surface of pole 6'-0" above finish grade.
5. Street light number to face street.

|                         |   |                                   |              |
|-------------------------|---|-----------------------------------|--------------|
| <b>COUNTY OF HAWAII</b> | <b>STREET LIGHT DETAIL</b><br><b>Pole Identification</b><br>N.T.S. 10/15/19 | <b>STANDARD</b><br><b>DETAILS</b> | <b>SL-03</b> |
|-------------------------|---|-----------------------------------|--------------|



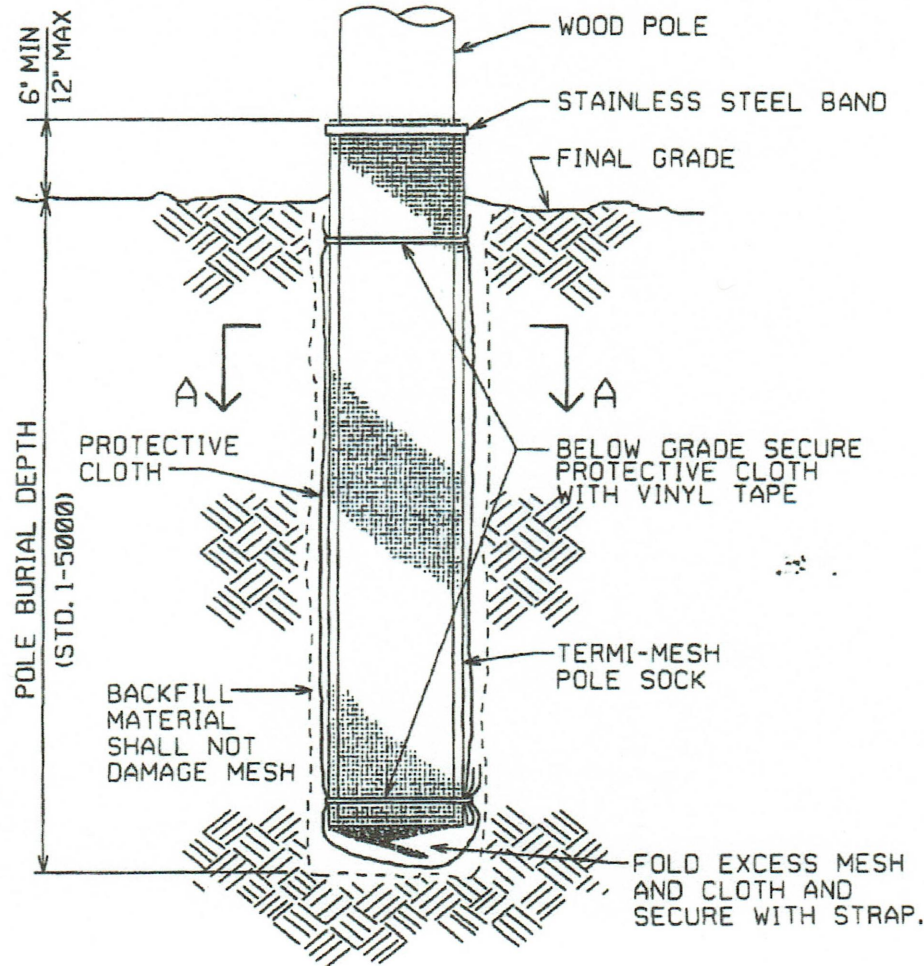


WOODEN POLE DETAIL  
N.T.S.

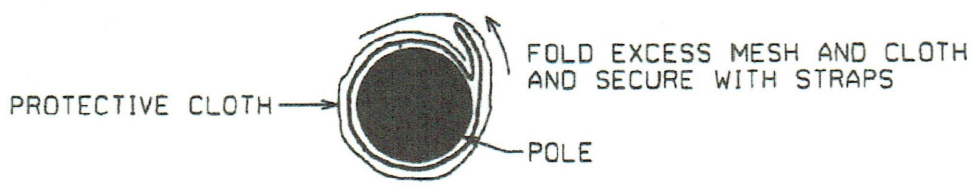
NOTES

1. For more information, contact the Traffic Division at 808-961-8341.
2.  $D = H \times 0.10 + 2'$ .

|                                |   |   |                     |
|--------------------------------|---|---|---------------------|
| <p><b>COUNTY OF HAWAII</b></p> | <p><b>STREET LIGHT DETAIL</b><br/><b>Wooden Pole Installation</b></p> <p>N.T.S.</p> <p>05/26/21</p> | <p><b>STANDARD</b><br/><b>DETAILS</b></p> | <p><b>SL-04</b></p> |
|--------------------------------|---|---|---------------------|



TYPICAL BARRIER INSTALLATION



SECTION A-A EXHIBIT P-1

SEE SHEET 3 FOR GROUND WIRE/RISER DETAIL AND NOTES

|          |          |       |
|----------|----------|-------|
| DATE     | 11-30-99 | 06-13 |
| INITIAL  | CT LHM   | FRCS  |
| REVISION |          |       |

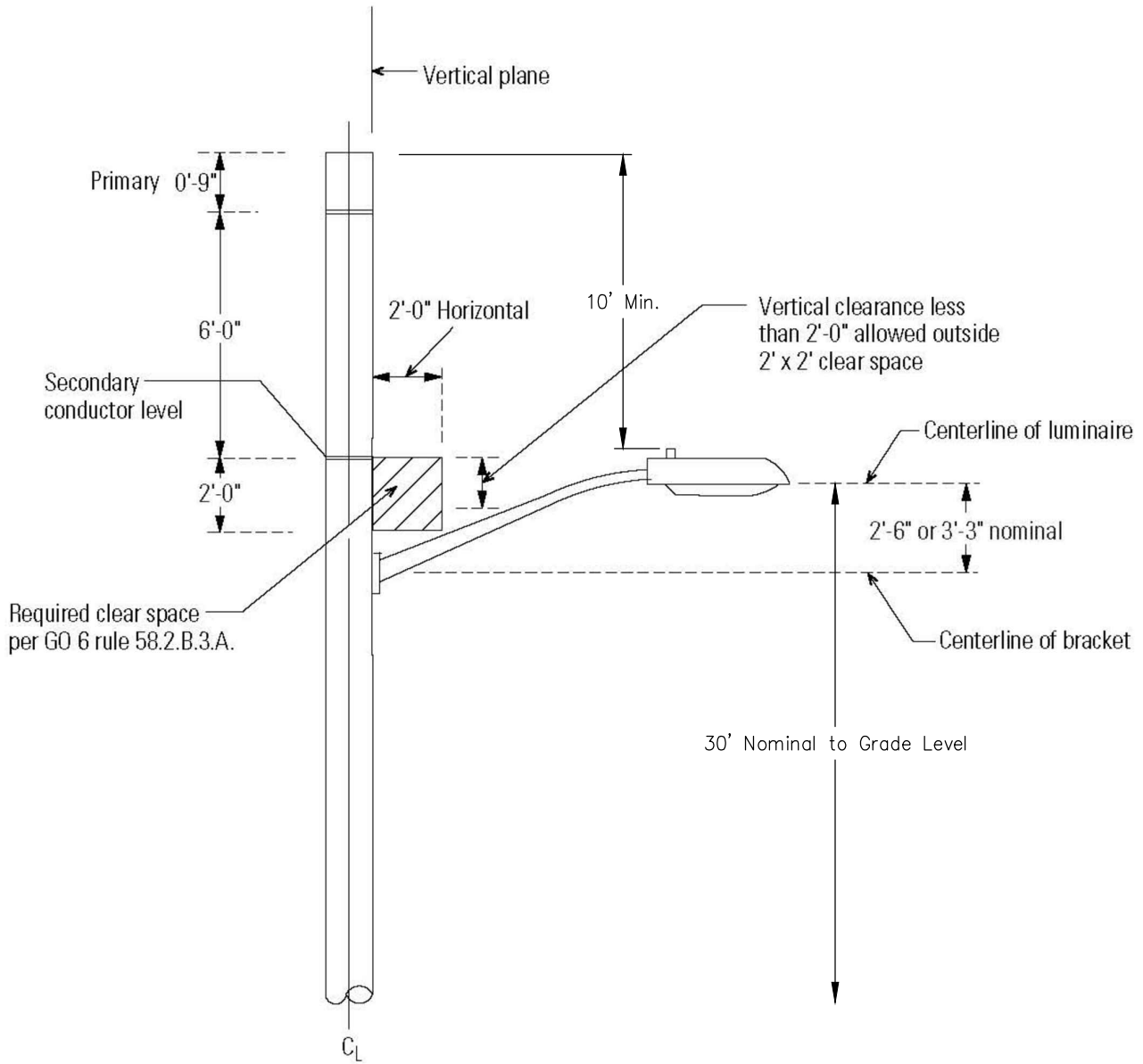
|  |    |          |    |      |    |          |          |
|--|----|----------|----|------|----|----------|----------|
| DRAWN  | CT | DESIGNED | RM | APPO | FK | REDRAWN  |          |
| SUPERSEDES   |    |          |    |      |    | ORIGINAL | 2-96     |
| ENGINEERING STANDARD<br>HAWAIIAN ELECTRIC CO. INC. |    |          |    |      |    | 1-5156   | REV<br>2 |
|  |    |          |    |      |    | SHEET    | 2 OF 3   |

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cesoka  
03-JUN-2013 09:55

NOTES

1. For more information, contact the Traffic Division at 808-961-8341.
2. REFERENCE: HELCO Engineering Standard (Rev. 11/30/99).

|                  |   |          |                     |       |
|------------------|---|----------|---------------------|-------|
| COUNTY OF HAWAII | STREET LIGHT DETAIL<br>Wooden Pole-Termi-Mesh Install |          | STANDARD<br>DETAILS | SL-05 |
|                  | N.T.S.  | 05/26/21 |                     |       |



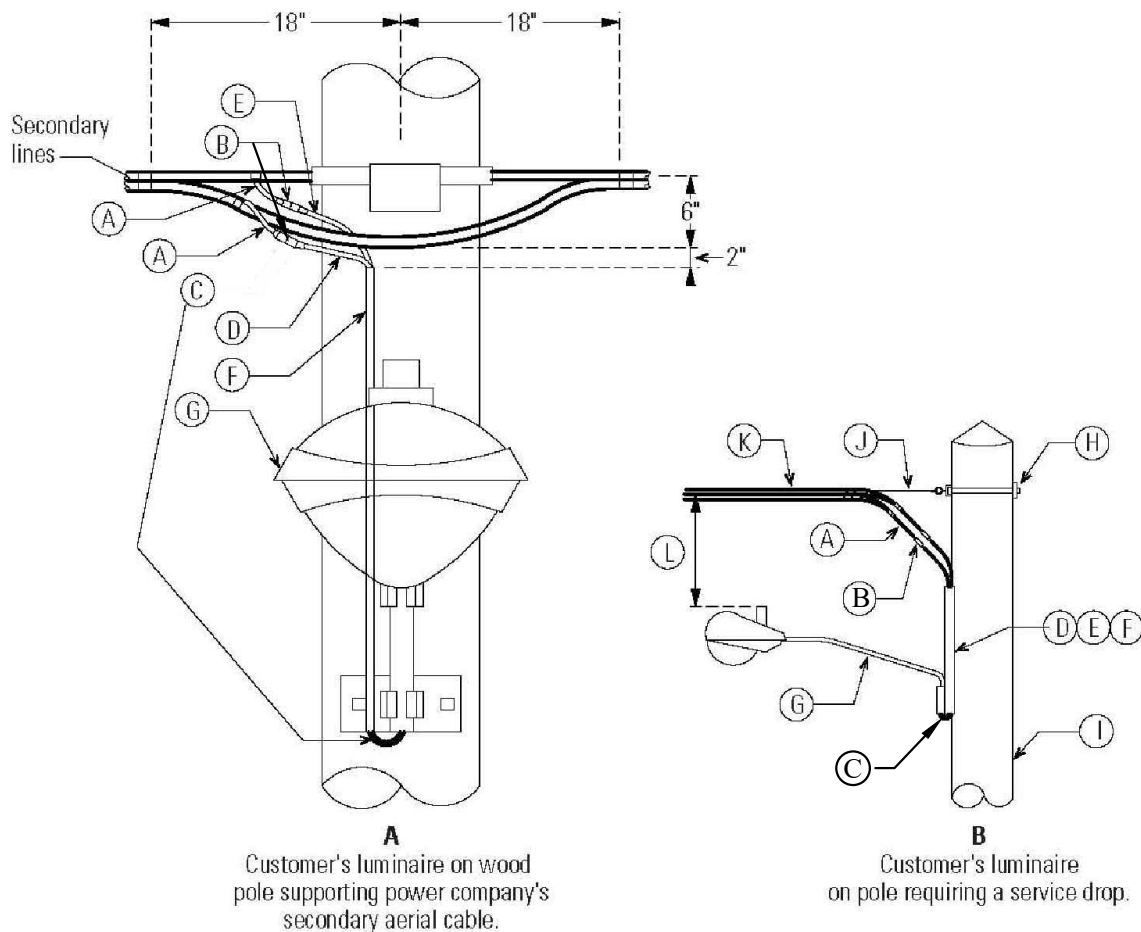
**Figure 5-11. Street lighting from an overhead electrical source.**

WOODEN POLE DETAIL  
N.T.S.

NOTES

1. For more information, contact the Traffic Division at 808-961-8341.
2. REFERENCE: HELCO Electric Service Installation Manual, Eighth Edition.

|                                |  |   |                     |
|--------------------------------|--|---|---------------------|
| <p><b>COUNTY OF HAWAII</b></p> | <p><b>STREET LIGHT DETAIL</b><br/><b>Wooden Pole</b></p> | <p><b>STANDARD</b><br/><b>DETAILS</b></p> | <p><b>SL-06</b></p> |
| <p>N.T.S.</p>                  | <p>05/26/21</p>  |   |                     |



- A. No. 8 AWG 7-strand aluminum wire, RHW, of sufficient length to splice to the power company's lines. Coil the wire at the pole, pending splicing by utility.
- B. In the line unfused, insulated separable connector, suitable for No. 8 AWG stranded aluminum wire on line side, No. 12 copper wire on load side.
- C. In the line fuse holder and fuse suitable for No. 8 AWG stranded aluminum wire on line side and No. 12 AWG copper on load side.
- D. No. 12 AWG RHW black, single conductor stranded wire.
- E. No. 12 AWG RHW white, single conductor stranded wire
- F. 3/4" PVC Schedule 80 conduit.
- G. Luminaires and bracket.
- H. Aluminum service drop anchor bolt, assembly furnished and installed by customer.
- I. Wood pole by customer.
- J. Preformed grip by customer.
- K. Aluminum service drop by customer.
- L. 12" minimum clearance between the light fixture and the utility service conductor. If not possible when service drop passes over luminaires, the utility will select a splicing point which will provide a passage to the right or left of luminaires to provide a 12" clearance.

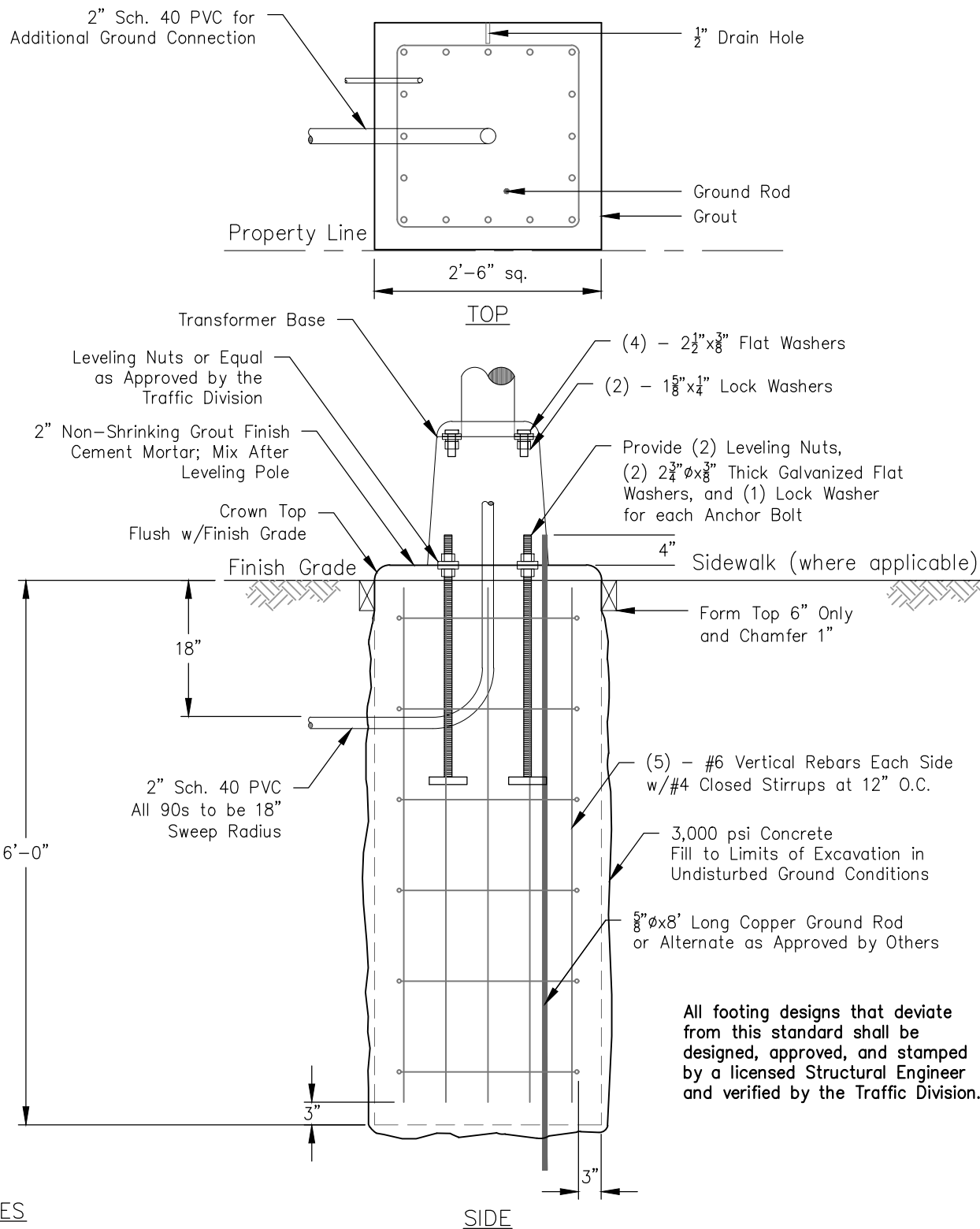
**Figure 5-12. Street lighting from an overhead electrical source, details.**

WOODEN POLE DETAIL  
N.T.S.

NOTES

1. For more information, contact the Traffic Division at 808-961-8341.
2. REFERENCE: HELCO Electric Service Installation Manual, Eighth Edition.
3. Modifications to fuse holder were approved by HELCO (as shown above).

|                         |  |                                   |              |
|-------------------------|--|-----------------------------------|--------------|
| <b>COUNTY OF HAWAII</b> | <b>STREET LIGHT DETAIL</b><br><b>Wooden Pole</b> | <b>STANDARD</b><br><b>DETAILS</b> | <b>SL-07</b> |
|                         | N.T.S.   |                                   | 05/26/21     |



**NOTES**

1. If foundations are precast, manufacturer and materials suppliers shall be in compliance with the most current edition of the Hawaii Standard Specifications for Road, Bridge and Public Works Construction and where applicable the National Precast Concrete Association.
2. 3,000 psi 28-day compression strength concrete shall be used.
3. Each foundation shall not be handled or transported until at least 80% of the 28-day concrete compression strength has been reached.
4. Each foundation shall not be installed until the 28-day concrete compression strength has been achieved.
5. CLSM or equivalent shall be used to backfill around each foundation (cast-in-place or precast).
6. For inspections, contact the Traffic Division at 808-961-8341, and plan for 3-day minimum lead time.

**Precast Polymer Concrete Pull Box, 17"x 30"x 18"**

**Precast Polymer Concrete Pull Box Cover, 17"x 30"**

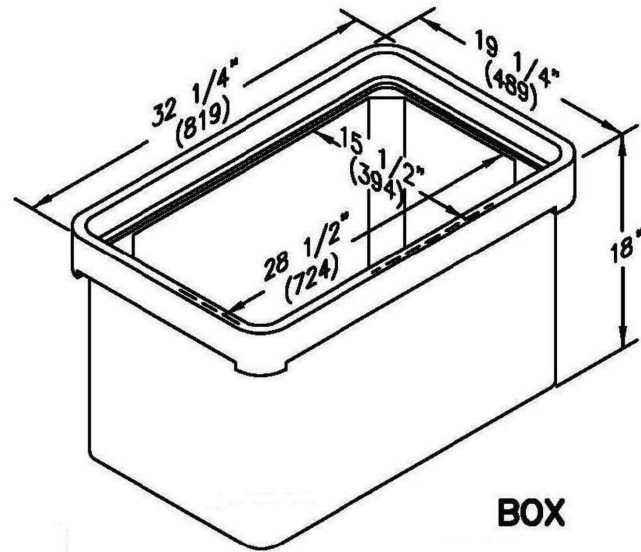
**Precast Polymer Concrete Pull Box, 12"x 12"x 12"**

**Precast Polymer Concrete Pull Box Cover, 12"x 12"**

**Specifications**

Description: Heavy Duty w/ Open Bottom  
 Composition: Polymer Concrete  
 Load Rating: Design, 22,500 lbs / Test Loading, 33,750 lbs  
 Compliance: UL listed,  
 ANSI/SCTE 77, ANSI Tier 22

Dimensions:

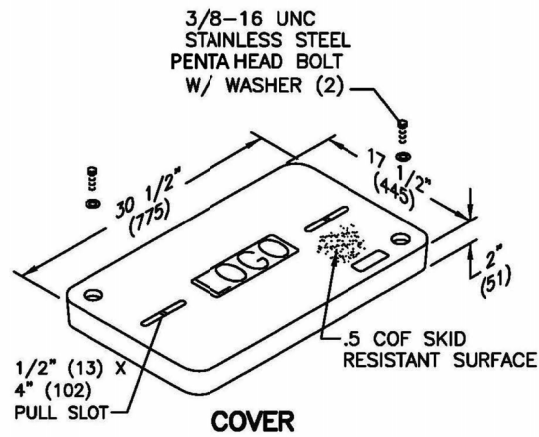


**BOX**

**Specifications**

Description: Heavy Duty w/2 Bolts  
 Composition: Polymer Concrete  
 Logo: STREET LIGHT  
 Load Rating: Design, 22,500 lbs / Test Loading, 33,750 lbs  
 Compliance: UL listed,  
 ANSI/SCTE 77, ANSI Tier 22

Dimensions:



**COVER**

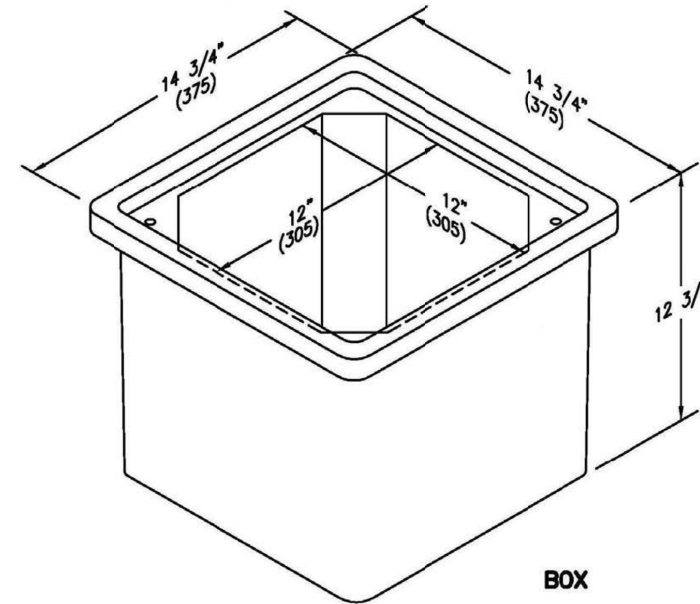
**EQUIVALENCY REFERENCE:**

Quazite Precast Polymer Concrete Cover, Part# PG1730HH00P

**Specifications**

Description: Heavy Duty w/ Open Bottom and Lifting Bolts  
 Composition: Polymer Concrete  
 Load Rating: Design, 15,000 lbs / Test Loading, 22,500 lbs  
 Compliance: UL listed,  
 ANSI/SCTE 77, ANSI Tier 15

Dimensions:



**BOX**

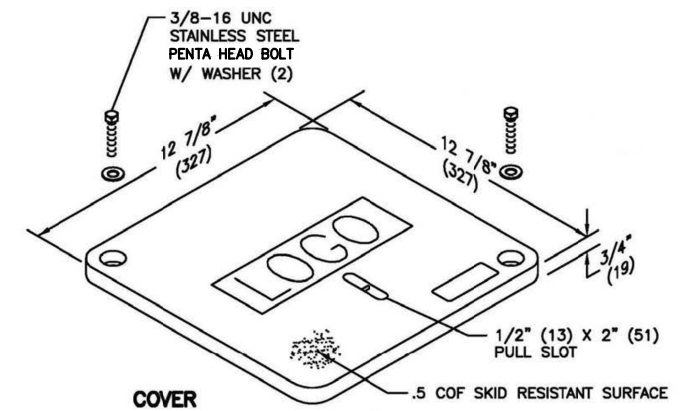
**EQUIVALENCY REFERENCE:**

Quazite Precast Polymer Concrete Box, Part # PC1212BA12

**Specifications**

Description: Heavy Duty w/2 Bolts  
 Composition: Polymer Concrete  
 Logo: TRAFFIC SIGNAL  
 Load Rating: Design, 15,000 lbs / Test Loading, 22,500 lbs  
 Compliance: UL listed,  
 ANSI/SCTE 77, ANSI Tier 15

Dimensions:



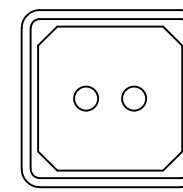
**COVER**

**EQUIVALENCY REFERENCE:**

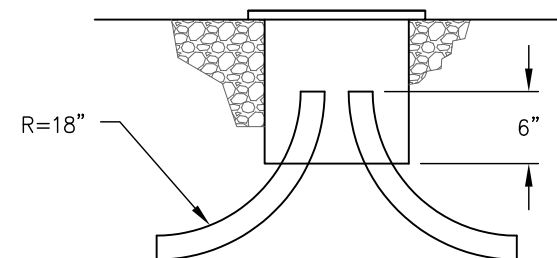
Quazite Precast Polymer Concrete Cover, Part # PG1212HA00

**EQUIVALENCY REFERENCE:**

Quazite Precast Polymer Concrete Box, Part # PG1730BA18



**TOP**



**SIDE**

**PULLBOX INSTALLATION (TYPICAL)**  
 N.T.S.

**NOTES**

- All conduits shall enter vertically at the bottom of the pullboxes.
- All dimensions and lines are approximate.
- Field-adjust pullboxes locations and conduit clearances as required.
- Conduit 90° bend radii shall be a minimum of 18".
- Pullbox covers shall be labeled "Traffic Signals" or "Street Lights" as appropriate.
- Pullbox covers shall use penta head bolts.
- Install ground rods in each pullbox.
- All pullboxes shall be Quazite with Tier 22 rating.
- Use of 12"x12" pullboxes are for repairing existing 12"x12" pullboxes, new installations shall be approved by the Traffic Division..
- For more information, contact the Traffic Division at 808-961-8341.

**STREET LIGHT DETAIL**  
**Pullbox Details**

**TRAFFIC DIVISION, Department of Public Works**



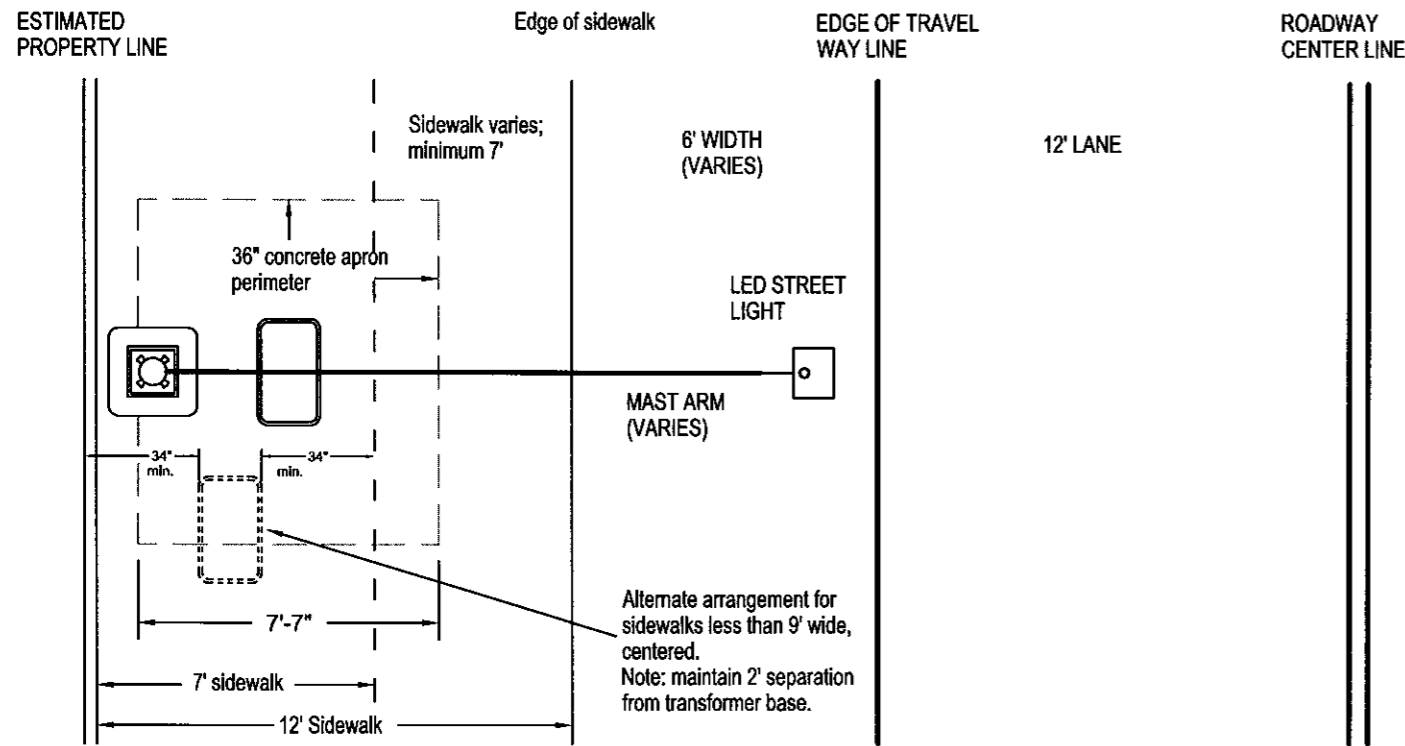
COUNTY OF HAWAII

IR No: N/A  
 WO No: N/A  
 Date: 05/26/21  
 Scale: N.T.S.

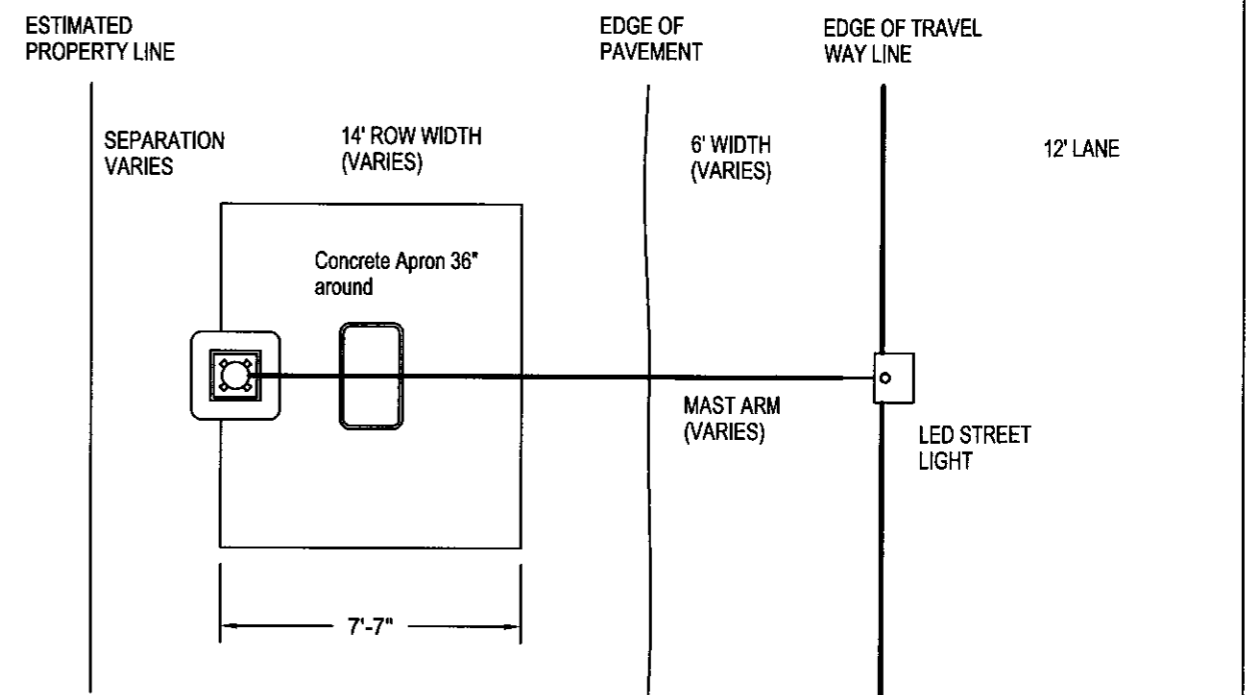
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**SL-09**

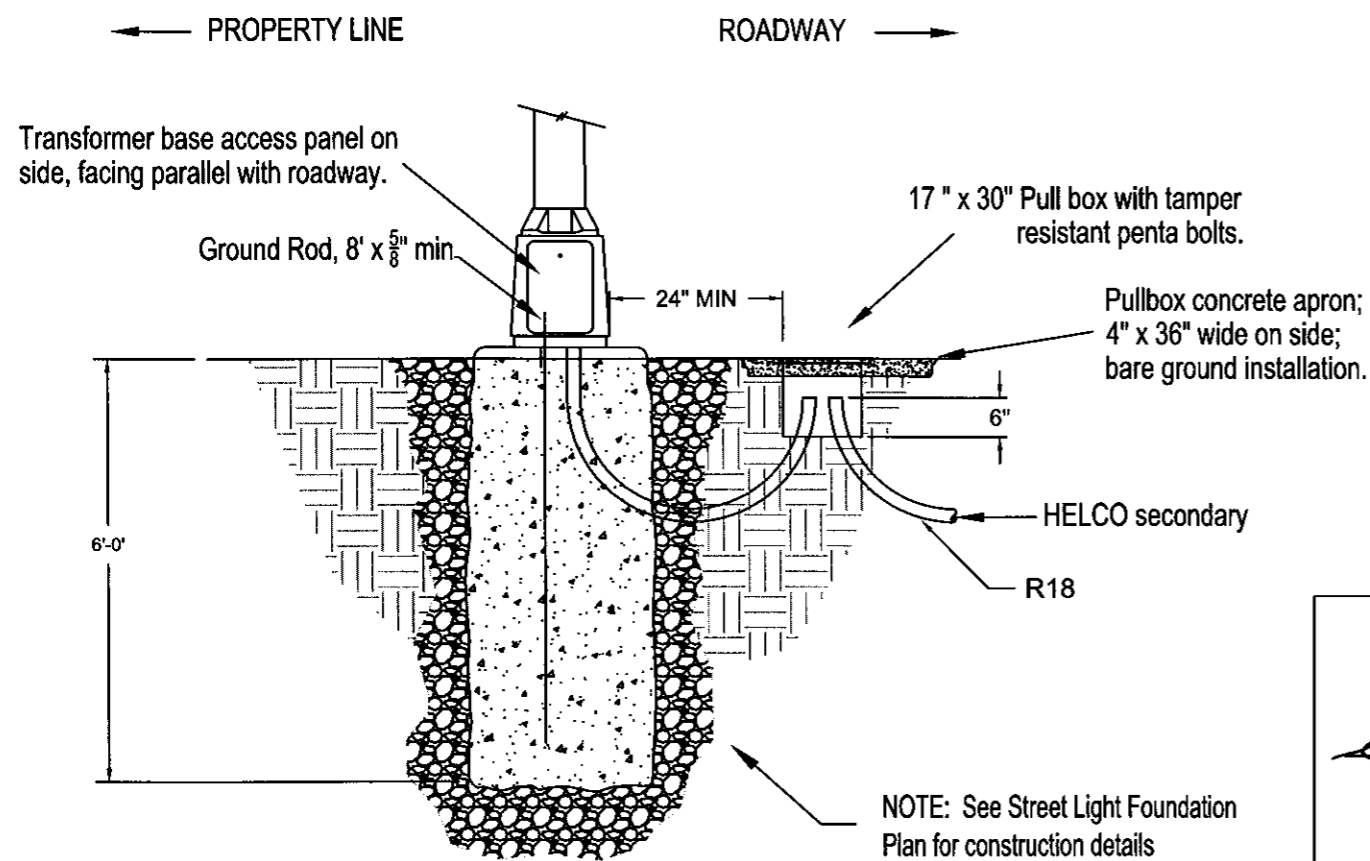
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TYPICAL ARRANGEMENT WITH SIDEWALK



TYPICAL ARRANGEMENT FOR BARE GROUND WORK



TYPICAL UNDERGROUND ARRANGEMENT

NOTES:

1. For new street light installations, use 17" x 30" pull boxes; existing installations may use 12" x 12" pull boxes.
2. Pull box cover shall be secured with tamper resistant stainless steel penta bolts.
3. Install a 4" thick x 36" wide surrounding concrete apron around the pull box.
4. The top of the pull box surface shall be flush with the surface of the concrete apron.
5. Pull boxes and concrete aprons shall be installed to minimize water from collecting and pooling over the pull box. Use 2% drainage slope of the concrete apron from the pullbox to outside edge of the apron for bare ground applications.
6. When the pullbox is installed in a sidewalk, conform to applicable sidewalk construction plans.
7. The design shall allow the street light fixture to be located approximately above the Edge-of-Travel white line.
8. The separation between the street light foundation and property line may be adjusted as necessary.
9. Coordinate any changes with the County Traffic Division, 961-8341.

APPROVALS

*Ronald L. Shiel* 7/24/14  
Division Chief, DPW, Traffic Division  
County of Hawaii

*Ann S Okamura* 7/24/14  
Manager, Engineering Department  
Hawaii Electric Light

**STREET LIGHT UNDERGROUND PLAN**  
**Typical Arrangement**  
**TRAFFIC DIVISION, Department of Public Works**

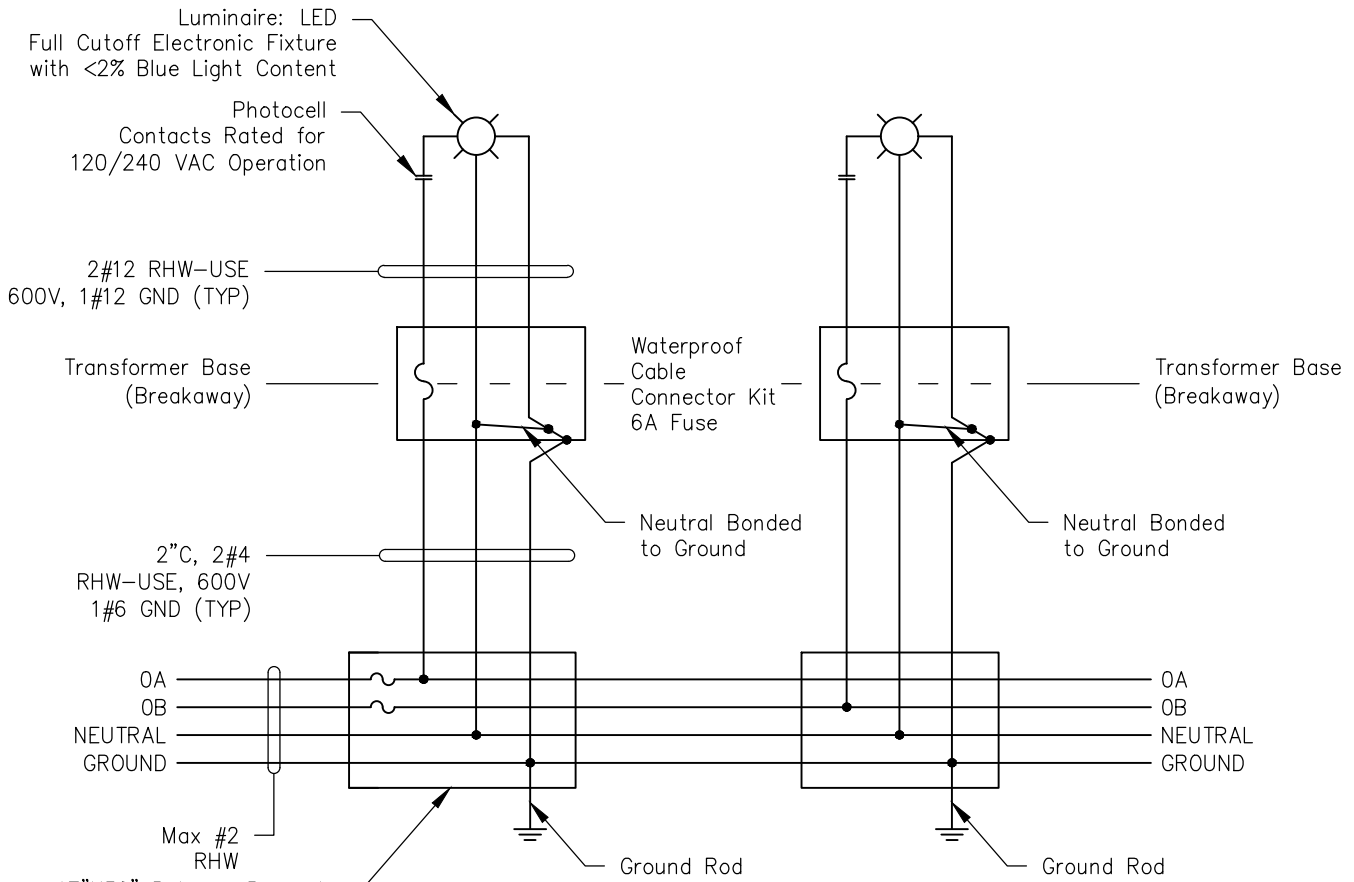
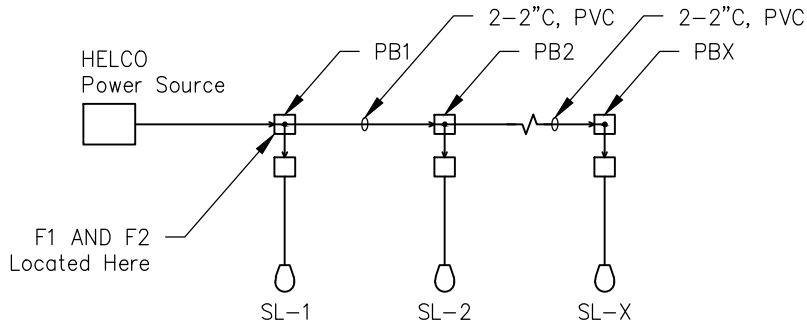


COUNTY OF HAWAII

IR No:  
WO No:  
Date: 24-Jul-14  
Scale: NTS

Drawn by:  
KTT

SL-10

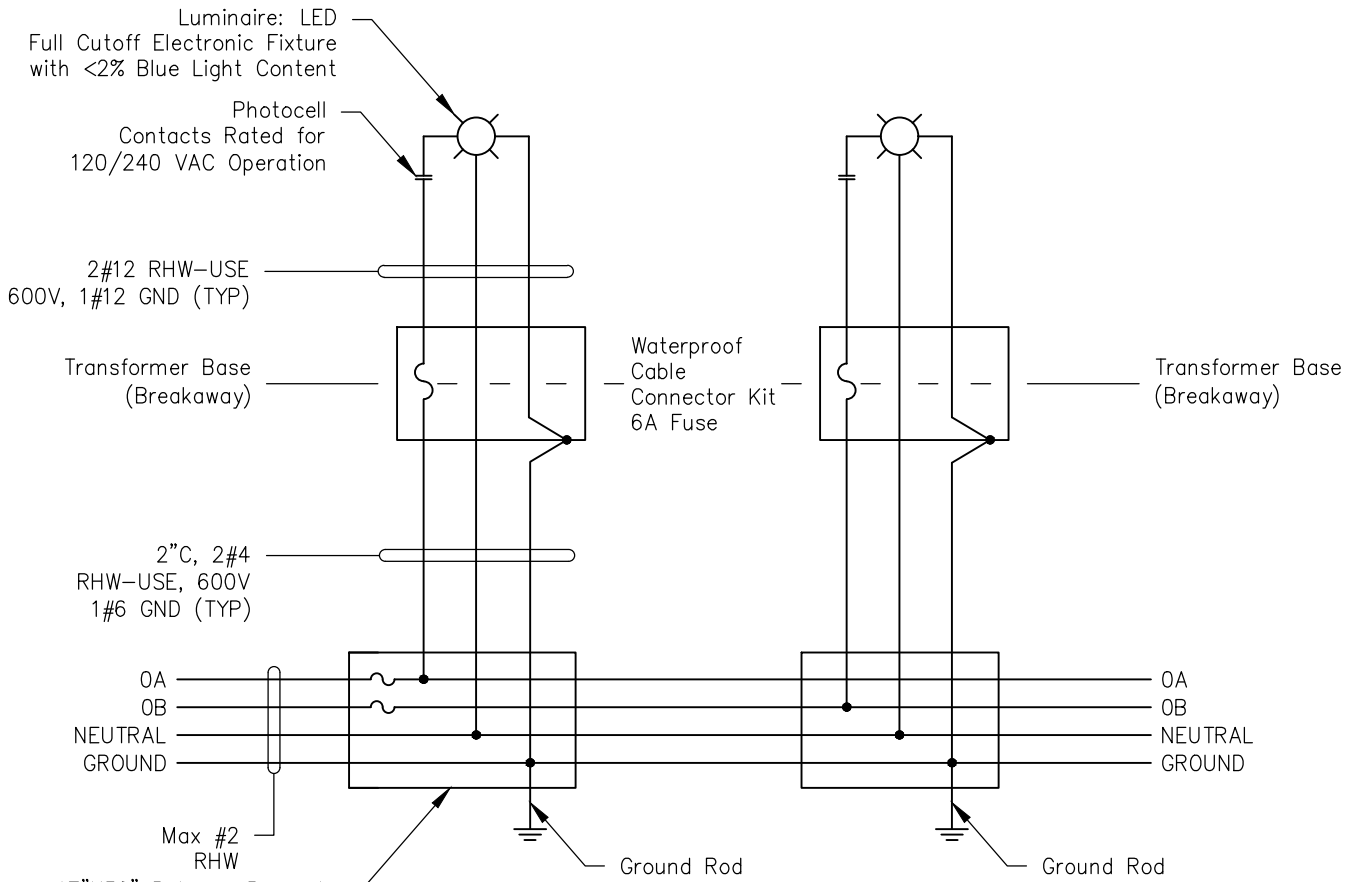
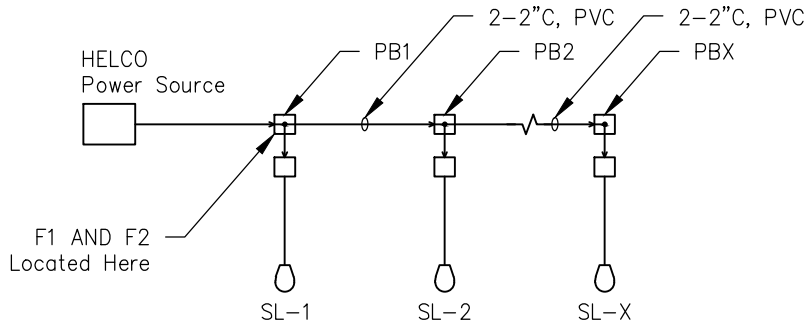


WIRING AND CONDUIT DETAIL (UNMETERED)  
N.T.S.

NOTES

1. Maintain street light underground conduit system separate from other conduit installations.
2. Street light pullbox apron required per HELCO specifications.
3. Disconnect fuses F1 and F2, type and amperage to be determined by street light circuit loading.
4. For more information, contact the Traffic Division at 808-961-8341.





WIRING AND CONDUIT DETAIL (METERED)  
N.T.S.

NOTES

1. Maintain street light underground conduit system separate from other conduit installations.
2. Street light pullbox apron required per HELCO specifications.
3. Disconnect fuses F1 and F2, type and amperage to be determined by street light circuit loading.
4. For more information, contact the Traffic Division at 808-961-8341.

## **REFERENCES**

1. County of Hawaii Outdoor Lighting Ordinance
2. LED Street Light Specifications
  - 35 W
  - 70 W
  - 85 W
  - 100 W
3. HELCO Electric Service Installation Manual, Eighth Edition, Page 93
4. HELCO Electric Service Installation Manual, Eighth Edition, Page 94
5. Pullbox Detail: PG1730BA18
6. Pullbox Cover Detail: PG1730HH00P
7. Pullbox Detail: PC1212BA12
8. Pullbox Cover Detail: PG1212HA00

**Article 9. Outdoor Lighting.****Section 14-50. Applicability and scope of article.**

- (a) This article shall apply to the installation of all outdoor lighting fixtures within the County.
  - (b) The provisions of this article, including provisions for the imposition upon any person of the penalties by fine for any violation of this article, shall not be construed to exclude the operation of applicable State statutes or other County ordinances. In the case of conflict with other County ordinances, the stricter ordinance shall apply.
- (1988, ord 88-122, sec 3.)

**Section 14-51. Definitions.**

- (a) As used in this article, unless the context clearly indicates otherwise:
  - (1) “Outdoor lighting fixture” means any outdoor artificial lighting device, fixture, lamp, or other similar device, permanently installed or portable, which is intended to provide illumination for either visibility or decorative effects. Such device shall include, but not be limited to, search, spot, and flood lighting used for:
    - (A) Buildings and structures;
    - (B) Recreational facilities;
    - (C) Parking lots;
    - (D) Landscape lighting;
    - (E) Business and advertising signs;
    - (F) Roadways;
    - (G) Walkways.
  - (2) “Class I lighting” means all outdoor lighting used for, but not limited to, outdoor sales and eating areas, assembly or repair areas, advertising or business signs, recreational facilities, and other similar applications in which color rendition is important.
  - (3) “Class II lighting” means all outdoor lighting used for, but not limited to, illumination for walkways, roadways, equipment yards, parking lots, outdoor security, and other similar applications in which general illumination of the grounds is the primary concern.
  - (4) “Class III lighting” means any outdoor lighting used for decorative effects. It includes, but is not limited to, waterfall and pond lighting and architectural highlighting for buildings and landscapes.
  - (5) “Building official” means the director of public works or the director’s designated representative.
  - (6) “Individual” means any private individual, governmental entity, tenant, lessee, owner, or any commercial entity including, but not limited to, companies, partnerships, joint ventures, or corporations.

- (7) “Fully shielded” means that the outdoor lighting fixture is constructed so that all of the light emitted by the fixture is projected below the horizontal plane of the lowest point of the fixture.
- (8) “Partially shielded” means that the outdoor lighting fixture is constructed so that at least ninety percent of the light emitted by the fixture is projected below the horizontal plane of the lowest point of the fixture.
- (9) “Blue light content” means the ratio of the amount of energy emitted by the outdoor light fixture between 400 and 500 nm divided by the amount of energy between 400 and 700 nm.
- (10) “Traffic color compliant” means the 1931 CIE x y color coordinates of the outdoor light fixture is outside of any of the traffic signal color boxes as defined by ITE ST-052 500/AGS-PM/1105.

(1988, ord 88-122, sec 3; am 2001, ord 01-108, sec 1; am 2011, ord 11-18, sec 1.)

**Section 14-52. General requirements.**

- (a) Standard fixture. All class types of outdoor light fixtures shall follow the requirements set forth in Table 14-A.
- (b) Shielding. All outdoor lights shall be shielded pursuant to the requirements set forth in Table 14-A.
- (c) Hours of operation. All outdoor light fixtures shall be subject to the hours of operation as required by Table 14-A.
- (d) Mercury vapor lights prohibited. Mercury vapor lamps shall not be used for any new outdoor lighting installations or for the replacement of any existing installation. All existing mercury vapor outdoor lighting fixtures shall be removed by August 17, 1998.
- (e) Blue light content. The blue light content of the outdoor light fixture shall be pursuant to the requirements set forth in Table 14-A.
- (f) Traffic color compliant. The color of the outdoor light fixture shall be pursuant to the requirements set forth in Table 14-A.

(1988, ord 88-122, sec 3; am 2011, ord 11-18, sec 2.)

**Section 14-53. Exemptions.**

- (a) Existing light fixtures. All outdoor light fixtures planned and approved by the County or existing and legally installed prior to September 1, 1988, are exempt from the installation and shielding requirements of this article, except that when existing outdoor light fixtures become inoperable, the outdoor light fixtures which replace them shall comply with the requirements of this article.
- (b) Fossil fuel light. All outdoor light fixtures producing light directly by the combustion of fossil fuels, such as kerosene and gasoline, shall be exempt from the requirements of this article.
- (c) Holiday decorative lighting. Low wattage fixtures used for holiday decorations shall be exempt from the requirements of this article.

- (d) Residential incandescent illumination. Private residential incandescent light fixtures which are fully shielded or have a lumen output of less than eight thousand one hundred lumens for each acre of property that is intended to be illuminated shall be exempt from the requirements of this article.
- (e) Business signs. Outdoor advertising signs, if constructed of translucent material, and illuminated totally from within and colored with an opaque background using translucent letters or symbols, shall be exempt from the requirements of this article, except that the hours of operation shall be the same as those for Class I outdoor lighting.
- (f) Searchlights. Searchlights used for advertising purposes shall be exempt from the requirements of this article, except that the operation of such lights is limited to the hours of 6:00 p.m. to 10:00 p.m.
- (g) Emergency lighting. Emergency lighting required for public safety is exempt from the requirements of this article.

(1988, ord 88-122, sec 3.)

**Section 14-54. Submission of plans.**

- (a) All outdoor lighting fixtures shall be installed in conformance with the provisions of this article and those of the electrical code of the County as applicable and subject to the appropriate permit and inspection requirements thereof. The applicant for any permit required by the County for work involving nonexempt outdoor light fixtures shall submit to the building official proof that the proposed work will comply with the article requirements. The submission shall contain, but not be limited to, the following:
  - (1) The location of the site where the outdoor light fixtures will be installed;
  - (2) Plans indicating the type(s) of outdoor light fixtures to be used and their location on the premises;
  - (3) A description of the outdoor light fixtures including, but not limited to, manufacturer's catalog cuts and drawings.
- (b) The plans and descriptions required by subsection (a) sufficiently complete to enable the building official to readily determine whether compliance with the requirements of this article will be secured. If such plans and descriptions cannot enable this ready determination, by reason of the nature or configuration of the devices or fixtures proposed, the applicant shall be required to submit further proof of compliance. Furthermore, any design, material, or method of installation not specifically forbidden by this article may be used, provided any such alternate has first been approved by the building official. The building official may approve any such proposed alternate provided:
  - (1) It is at least approximately equivalent to the applicable specific requirements of this article; and
  - (2) It is otherwise satisfactory and complies with the intent of this article.

(1988, ord 88-122, sec 3.)

## Section 14-55. Tables.

| <b>Table 14-A</b>   |                              |   |
|---|------------------------------|---|
| <b>Lamp Type</b>  | <b>Shielding Requirement</b> | <b>Operation Restrictions</b>   |
| <b>Class I</b>  |                              |   |
| Low pressure sodium   | Fully shielded               | None  |
| Low pressure sodium   | Partially shielded           | Existing fixtures only. New installations as of October 2010 prohibited |
| Others above 4,050 lumens   | Fully shielded               | Off from 11:00 p.m. to sunrise*   |
| Others above 4,050 lumens   | Fully shielded               | Off from 11:00 p.m. to sunrise*   |
| LED fixtures with less than 2% blue light content                             | Fully shielded               | Off at 11:00 p.m. to sunrise*   |
| <b>Class II</b>   |                              |   |
| Low pressure sodium   |                              |   |
| 90 watts or less  | None                         | Existing fixtures only. New installations as of October 2010 prohibited |
| greater than 90 watts   | Partially shielded           | Existing fixtures only. New installations as of October 2010 prohibited |
| Low pressure sodium   | Fully shielded               | None  |
| LED fixtures with less than 2% blue light content and traffic color compliant | Fully shielded               | None  |
| Others above 4,050 lumens   |                              | Prohibited  |
| Others below 4,050 lumens   |                              | Prohibited  |
| <b>Class III</b>  |                              |   |
| Low pressure sodium   | Fully shielded               | None  |
| Others above 4,050 lumens   |                              | Prohibited  |
| Others below 4,050 lumens   | Fully shielded               | Off from 11:00 p.m. to sunrise*   |
| Neon  | None                         | Off from 11:00 pm to sunrise*   |

\*These lights may remain on after 11:00 p.m. if bona fide business or recreational activities are taking place.

(1988, ord 88-122, sec 3; am 2011, ord 11-18, sec 3; am 2013, ord 13-60, sec 2.)

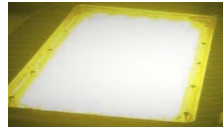
**Section 14-55.1. Penalty.**

Any person violating any provision of this article shall, upon conviction, be punished by a fine not to exceed \$500. Such person shall be deemed guilty of a separate offense for each and every day any violation of this article is committed. Furthermore, payment of such a fine shall not relieve the individual from the responsibility of correcting the violative condition, nor shall it preclude the County from instituting any action for its removal.

(1988, ord 88-122, sec 3.)

# 35W STREET LIGHT

E2-HI50-ST-35W-7PD-SF



Color: Silver

Weight: 14.33lbs.

Project Name:

Catalogue Number:

Fixture Schedule:

Comments:

## Specifications

|                      |               |                    |                  |
|----------------------|---------------|--------------------|------------------|
| Light Output         | 4,725 + LM    | Frequency          | 50-60 Hz <       |
| Efficacy             | 135+ LPW      | THD                | <15%             |
| Wattage              | 35 W          | L70 Lifespan       | 80,000+ hr @     |
| Color Accuracy (CRI) | ≥ 52          |                    | 64 Celsius       |
| Kelvin (CCT)         | 2600K         | IP Rating          | IP66             |
| Power Factor         | > 0.90        | Beam Angle         | Type II, III, IV |
| Working Environment  | -22° F~149° F | Dimming Compatible | Yes              |
| Input Voltage        | See below     | Blue Light Content | <2%              |
|                      |               | Lens               | Tempered Glass   |

## Product Description

E2 Lighting's line of Street Lighting feature ready-to-use LED light source solutions for field-installed fixtures in a variety of applications. This 35-watt model utilizes LM-80-rated LEDs to ensure long life and high thermal endurance. The fixture features a high-impact lens over a series of LED modules, sealed in a durable die cast aluminum alloy A360 ploymetric housing. Applications include illuminating streets, roadways, pedestrian walkways, bikeways and parking lots in parks, corporate and school campuses and municipalities. In addition to diminishing energy costs, the fixtures virtually eliminate maintenance expenses with an L70 lifetime of 80,000+ hours at 64 Celsius. UL listed and RoHs compliant.

## Product Features

- Type II and III distributions available
- L70 lifespan projected to be 80,000+ hours at 64 degrees C
- Universal 120-277V, 180-480V models available
- 10kV surge protection standard
- Power factor >0.9
- BUG rating : U=0
- IP66 rating
- Seven year warranty
- Mean Well Driver
- UL wet location listed
- Mounting with Mast arm fitter for 2-3/8" OD, 3/8" stainless steel hex head bolts
- Housing : EPA 2.45
- Housing : Die cast aluminum alloy A360 ploymetric
- Housing : Finish, Polyester Triglycidyl Isocyanurate (TGIC) super durable polyester powder coat or equivalent.
- Coast finish by ASTM G85 gray color
- 3 port UL listed Terminal block

## Applications

- Primary use: City expressway, trunk road, factories, schools, garden, parking lots, public parks, etc.
- Advertising Lighting, Architectural Lighting, Bridge, Car Park, Garden, Highway, Highway Lighting, Mining, Park, Petrol Station, Pooling Lighting, Sport Lighting, Sport Yard, Square, Square Lighting, Tunnel Lighting

## Available Options

- AC100-277V, 180-480V models available
- Beam Angle Type II, Type III, Type IV
- Dimmable and non-dimmable
- Photocell sensor: 5 pin twist lock

## Warranty

E2 warrants that our LED products will be free from defects in materials and workmanship for a period of Seven (7) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. Please see our full warranty terms located at [www.e2lightingusa.com](http://www.e2lightingusa.com).

## Technical Support

Need help? Please contact our technical support team for assistance at (213) 270-1938 .

## Cautions

- Installation by a licensed electrician only.
- Product failure caused by misuse, modification or power surges are not covered under warranty.
- Actual product performance may differ as a result of end-user environment and application.
- Input voltage may vary depending on photocell configuration.

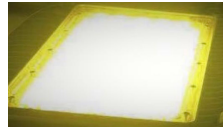
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2045 Lauwiliwili St. #1201. Kapolei, HI 96707/ E: [sales@ledhawaii.com](mailto:sales@ledhawaii.com) / Phone: (808) 306-7873



# 70W STREET LIGHT

E2-HI50-ST-70W-7PD-SF



Color: Silver

Weight: 14.33lbs.

Project Name:

Catalogue Number:

Fixture Schedule:

Comments:

## Specifications

|                      |               |                    |                |
|----------------------|---------------|--------------------|----------------|
| Light Output         | 9,450+ LM     | Frequency          | 50-60 Hz <     |
| Efficacy             | 135+ LPW      | THD                | <15%           |
| Wattage              | 70 W          | L70 Lifespan       | 80,000+ hrs @  |
| Color Accuracy (CRI) | ≥ 52          |                    | 64Celsius      |
| Kelvin (CCT)         | 2600K         | IP Rating          | IP66           |
| Power Factor         | > 0.90        | Beam Angle         | Type II or III |
| Working Environment  | -22° F~149° F | Dimming Compatible | Yes            |
| Input Voltage        | See below     | Blue Light Content | <2%            |
|                      |               | Lens               | Tempered Glass |

## Product Description

E2 Lighting's line of Street Lighting feature ready-to-use LED light source solutions for field-installed fixtures in a variety of applications. This 70-watt model utilizes LM-80-rated LEDs to ensure long life and high thermal endurance. The fixture features a high-impact lens over a series of LED modules, sealed in a durable die cast aluminum alloy A360 ploymetric housing. Applications include illuminating streets, roadways, pedestrian walkways, bikeways and parking lots in parks, corporate and school campuses and municipalities. In addition to diminishing energy costs, the fixtures virtually eliminate maintenance expenses with an L70 lifetime of 80,000+ hours at 64 degrees Celsius. UL listed and RoHs compliant.

## Product Features

- Type II and III distributions available
- L70 lifespan projected to be 80,000+ hours at 64 degrees C
- Universal 120-277V, 180-480V models available
- 10kV surge protection standard
- Power factor >0.9
- BUG rating : U=0
- IP66 rating
- Seven year warranty
- Mean Well Driver
- UL wet location listed
- Mounting with Mast arm fitter for 2-3/8" OD, stainless steel hex head bolts
- Housing : EPA 2.45
- Housing : Die cast aluminum alloy A360 ploymetric
- Housing : Finish, Polyester Triglycidyl Isocyanurate (TGIC) super durable polyester powder coat or equivalent.
- Coast finish by ASTM G85 gray color
- 3 port UL listed Terminal block

## Applications

- Primary use: City expressway, trunk road, factories, schools, garden, parking lots, public parks, etc.
- Advertising Lighting, Architectural Lighting, Bridge, Car Park, Garden, Highway, Highway Lighting, Mining, Park, Petrol Station, Pooling Lighting, Sport Lighting, Sport Yard, Square, Square Lighting, Tunnel Lighting

## Available Options

- AC100-277V, 180-480V models available
- Beam Angle Type II, Type III
- Dimmable and non-dimmable
- Photocell sensor: 5 pin twist lock

## Warranty

E2 warrants that our LED products will be free from defects in materials and workmanship for a period of Seven (7) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. Please see our full warranty terms located at [www.e2lightingusa.com](http://www.e2lightingusa.com).

## Technical Support

Need help? Please contact our technical support team for assistance at (213) 270-1938 .

## Cautions

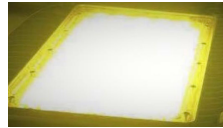
- Installation by a licensed electrician only.
- Product failure caused by misuse, modification or power surges are not covered under warranty.
- Actual product performance may differ as a result of end-user environment and application.
- Input voltage may vary depending on photocell configuration.

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# 85W STREET LIGHT

E2-HI50-ST-85W-7PD-SF



Color: Silver

Weight: 14.33lbs.

Project Name:

Catalogue Number:

Fixture Schedule:

Comments:

## Specifications

|                      |               |                    |                |
|----------------------|---------------|--------------------|----------------|
| Light Output         | 11,475+ LM    | Frequency          | 50-60 Hz <     |
| Efficacy             | 135+ LPW      | THD                | <15%           |
| Wattage              | 85 W          | L70 Lifespan       | 80,000+ hrs @  |
| Color Accuracy (CRI) | ≥ 52          | IP Rating          | IP66           |
| Kelvin (CCT)         | 2600K         | Beam Angle         | Type II or III |
| Power Factor         | > 0.90        | Dimming Compatible | Yes            |
| Working Environment  | -22° F~149° F | Blue Light Content | <2%            |
| Input Voltage        | See below     | Lens               | Tempered Glass |

## Product Description

E2 Lighting's line of Street Lighting feature ready-to-use LED light source solutions for field-installed fixtures in a variety of applications. This 85-watt model utilizes LM-80-rated LEDs to ensure long life and high thermal endurance. The fixture features a high-impact lens over a series of LED modules, sealed in a durable die cast aluminum alloy A360 ploymetric housing. Applications include illuminating streets, roadways, pedestrian walkways, bikeways and parking lots in parks, corporate and school campuses and municipalities. In addition to diminishing energy costs, the fixtures virtually eliminate maintenance expenses with an L70 lifetime of 80,000+ hours at 64 Celsius. UL listed and RoHs compliant.

## Product Features

- Type II and III distributions available
- L70 lifespan projected to be 80,000+ hours at 64 degrees C
- Universal 120-277V, 180-480V models available
- 10kV surge protection standard
- Power factor >0.9
- BUG rating : U0
- IP66 rating
- Seven year warranty
- Mean Well Driver
- UL wet location listed
- Mounting with Mast arm fitter for 2-3/8" OD, 3/8" stainless steel hex head bolts
- Housing : EPA 2.45
- Housing : Die cast aluminum alloy A360 ploymetric
- Housing : Finish, Polyester Triglycidyl Isocyanurate (TGIC) super durable polyester powder coat or equivalent. Coast finish by ASTM G85 gray color
- 3 port UL listed Terminal block

## Applications

- Primary use: City expressway, trunk road, factories, schools, garden, parking lots, public parks, etc.
- Advertising Lighting, Architectural Lighting, Bridge, Car Park, Garden, Highway, Highway Lighting, Mining, Park, Petrol Station, Pooling Lighting, Sport Lighting, Sport Yard, Square, Square Lighting, Tunnel Lighting

## Available Options

- AC100-277V, 180-480V models available
- Beam Angle Type II, Type III
- Dimmable and non-dimmable
- Photocell sensor: 5 pin twist lock

## Warranty

E2 warrants that our LED products will be free from defects in materials and workmanship for a period of Seven (7) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. Please see our full warranty terms located at [www.e2lightingusa.com](http://www.e2lightingusa.com).

## Technical Support

Need help? Please contact our technical support team for assistance at (213) 270-1938 .

## Cautions

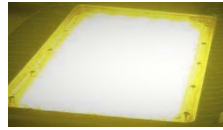
- Installation by a licensed electrician only.
- Product failure caused by misuse, modification or power surges are not covered under warranty.
- Actual product performance may differ as a result of end-user environment and application.
- Input voltage may vary depending on photocell configuration.

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# 100W STREET LIGHT

## E2-HI50-ST-100W-7PD-SF



Color: Silver

Weight: 14.33lbs.

Project Name:

Catalogue Number:

Fixture Schedule:

Comments:

### Specifications

|                      |               |                    |                |
|----------------------|---------------|--------------------|----------------|
| Light Output         | 13,500+ LM    | Frequency          | 50-60 Hz <     |
| Efficacy             | 135+ LPW      | THD                | <15%           |
| Wattage              | 100 W         | L70 Lifespan       | 80,000+ hrs @  |
| Color Accuracy (CRI) | ≥ 52          | IP Rating          | IP66           |
| Kelvin (CCT)         | 2600K         | Beam Angle         | Type II or III |
| Power Factor         | > 0.90        | Dimming Compatible | Yes            |
| Working Environment  | -22° F~149° F | Blue Light Content | <2%            |
| Input Voltage        | See below     | Lens               | Tempered Glass |

### Product Description

E2 Lighting's line of Street Lighting feature ready-to-use LED light source solutions for field-installed fixtures in a variety of applications. This 100-watt model utilizes LM-80-rated LEDs to ensure long life and high thermal endurance. The fixture features a high-impact lens over a series of LED modules, sealed in a durable die cast aluminum alloy A360 ploymetric housing. Applications include illuminating streets, roadways, pedestrian walkways, bikeways and parking lots in parks, corporate and school campuses and municipalities. In addition to diminishing energy costs, the fixtures virtually eliminate maintenance expenses with an L70 lifetime of 80,000+ hours at 64 Celsius. UL listed and RoHs compliant.

### Product Features

- Type II and III distributions available
- L70 lifespan projected to be 80,000+ hours at 64 degrees C
- Universal 120-277V, 180-480V models available
- 10kV surge protection standard
- Power factor >0.9
- BUG rating : U0
- IP66 rating
- Seven year warranty
- Mean Well Driver
- UL wet location listed
- Mounting with Mast arm fitter for 2-3/8" OD, 3/8" stainless steel hex head bolts
- Housing : EPA 2.45
- Housing : Die cast aluminum alloy A360 ploymetric
- Housing : Finish, Polyester Triglycidyl Isocyanurate (TGIC) super durable polyester powder coat or equivalent.
- Coast finish by ASTM G85 gray color
- 3 port UL listed Terminal block

### Applications

- Primary use: City expressway, trunk road, factories, schools, garden, parking lots, public parks, etc.
- Advertising Lighting, Architectural Lighting, Bridge, Car Park, Garden, Highway, Highway Lighting, Mining, Park, Petrol Station, Pooling Lighting, Sport Lighting, Sport Yard, Square, Square Lighting, Tunnel Lighting

### Available Options

- AC100-277V, 180-480V models available
- Beam Angle Type II, Type III
- Dimmable and non-dimmable
- Photocell sensor: 5 pin twist lock

### Warranty

E2 warrants that our LED products will be free from defects in materials and workmanship for a period of Seven (7) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. Please see our full warranty terms located at [www.e2lightingusa.com](http://www.e2lightingusa.com).

### Technical Support

Need help? Please contact our technical support team for assistance at (213) 270-1938 .

### Cautions

- Installation by a licensed electrician only.
- Product failure caused by misuse, modification or power surges are not covered under warranty.
- Actual product performance may differ as a result of end-user environment and application.
- Input voltage may vary depending on photocell configuration.

## 5.5 Street Lighting

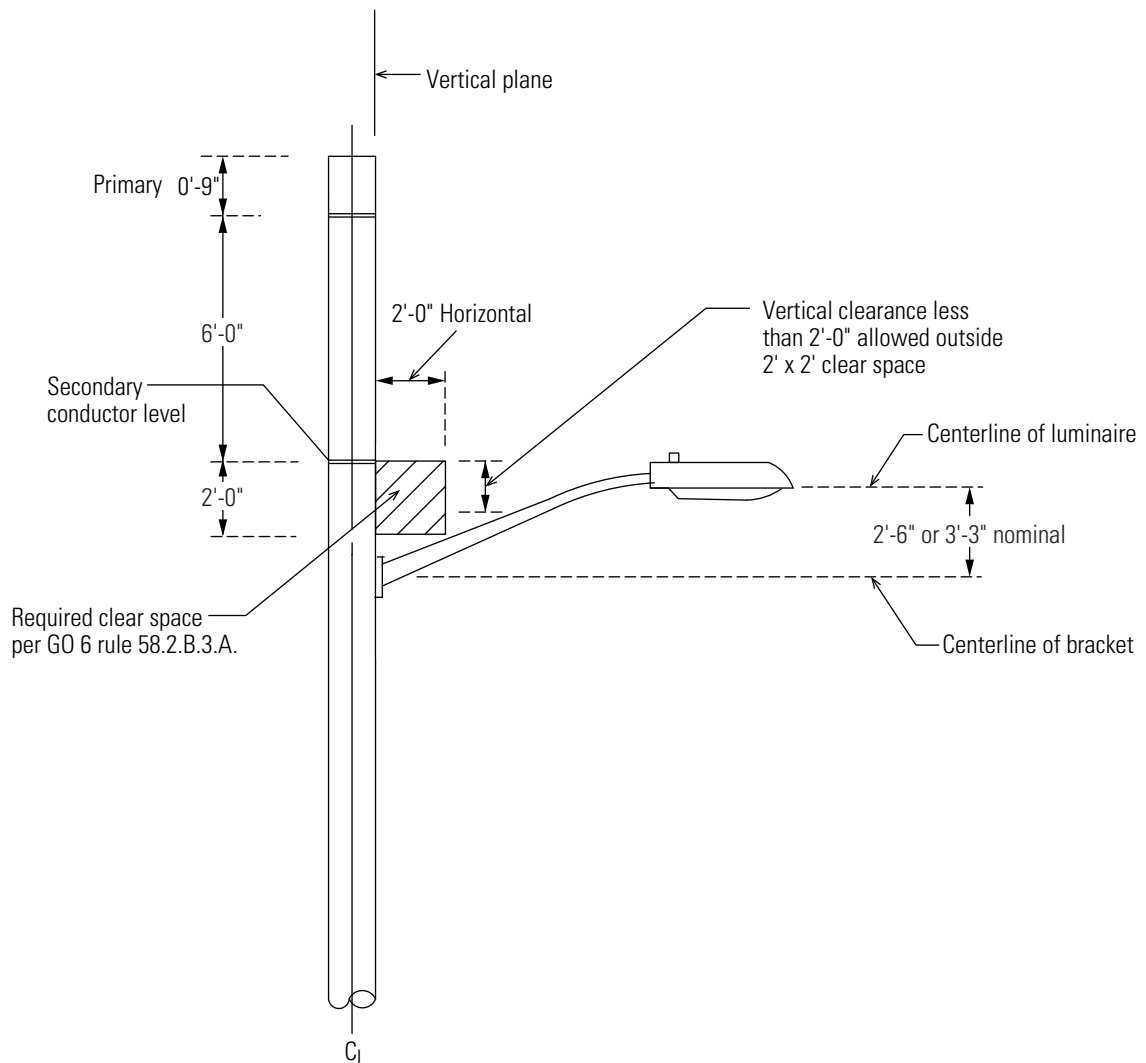
### A. Street Lighting From an Overhead Electrical Source

The customer installs and maintains conductors, conduits, separable connectors, fuse holders, and fuses between the luminaries and the utility's overhead secondary lines or service drop.

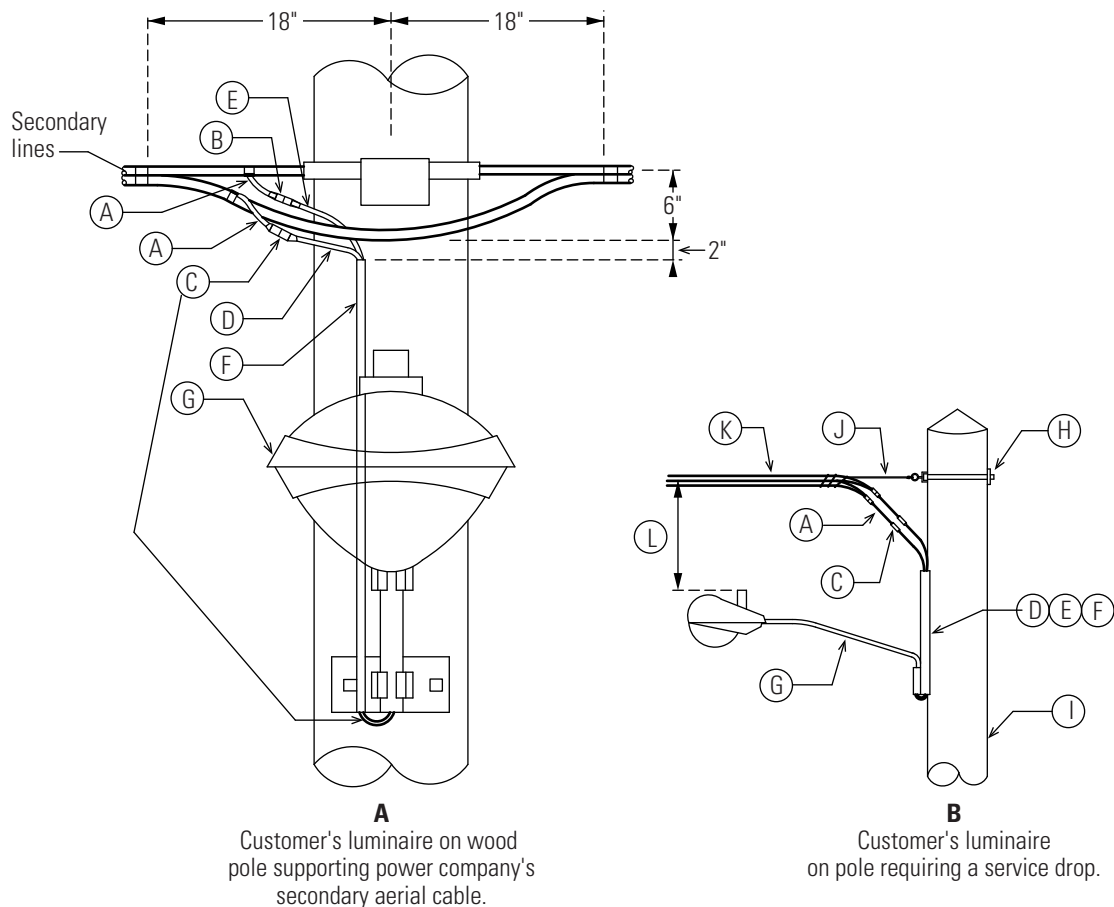
All parts of street light service drop, street lamps, and their supporting fixtures (including rods, braces and guys) must not be less than 1 foot above, or 2 feet below the level of messenger or conductors supported by messengers.

For street lighting systems in new subdivisions and roadway extensions, the customer must submit a set of drawings of his street lighting plans to the utility.

Height requirements for pole-mounted street light meter sockets are: 5' minimum, 6' maximum, with preferred mounting height of 5'-6" similar to outdoor meters accessible to pedestrian traffic, as shown in the Metering chapter of this manual.



**Figure 5-11. Street lighting from an overhead electrical source.**



- A. No. 8 AWG 7-strand aluminum wire, RHW, of sufficient length to splice to the power company's lines. Coil the wire at the pole, pending splicing by utility.
- B. In the line unfused, insulated separable connector, suitable for No. 8 AWG stranded aluminum wire on line side, No. 12 copper wire on load side.
- C. In the line fuse holder and fuse suitable for No. 8 AWG stranded aluminum wire on line side and No. 12 AWG copper on load side.
- D. No. 12 AWG RHW black, single conductor stranded wire.
- E. No. 12 AWG RHW white, single conductor stranded wire
- F. 3/4" PVC Schedule 80 conduit.
- G. Luminaries and bracket.
- H. Aluminum service drop anchor bolt, assembly furnished and installed by customer.
- I. Wood pole by customer.
- J. Preformed grip by customer.
- K. Aluminum service drop by customer.
- L. 12" minimum clearance between the light fixture and the utility service conductor. If not possible when service drop passes over luminaries, the utility will select a splicing point which will provide a passage to the right or left of luminaries to provide a 12" clearance.

**Figure 5-12. Street lighting from an overhead electrical source, details.**

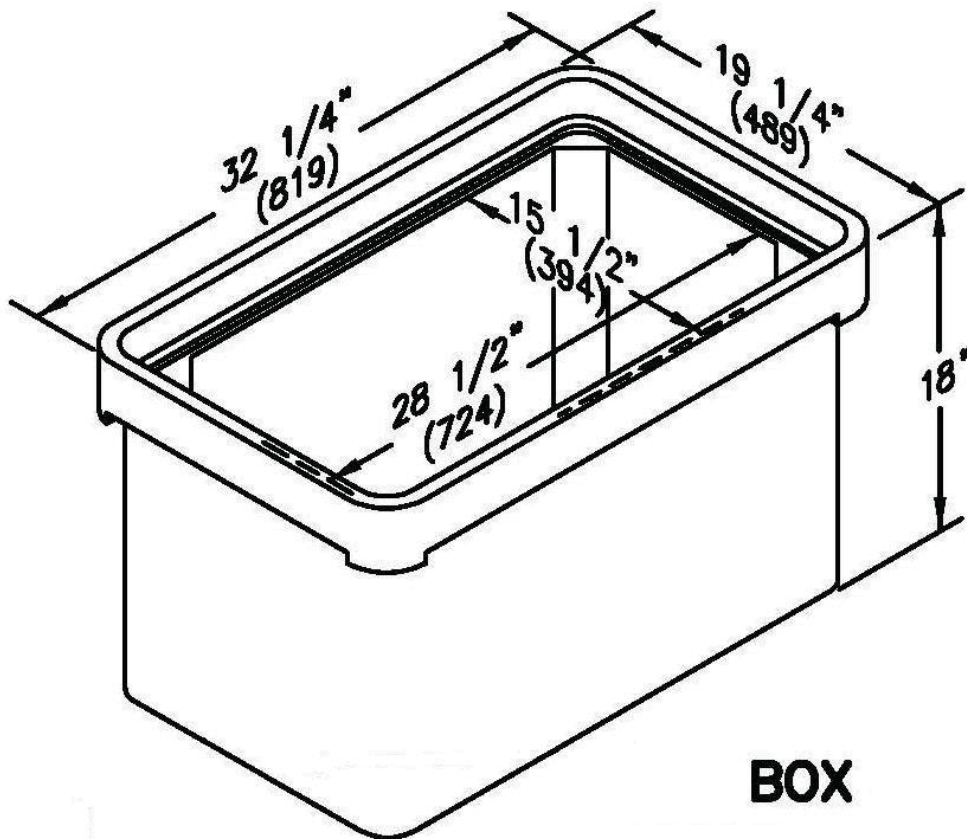
**SPECIFICATIONS ITEM NO. 61**

**Precast Polymer Concrete Pull Box, 17"x 30"x 18"**

**Specifications**

Description: Heavy Duty w/ Open Bottom  
Composition: Polymer Concrete  
Load Rating: Design, 22,500 lbs / Test Loading, 33,750 lbs  
Compliance: UL listed,  
ANSI/SCTE 77, ANSI Tier 22

Dimensions:



**EQUIVALENCY REFERENCE:**

Quazite Precast Polymer Concrete Box, Part # PG1730BA18

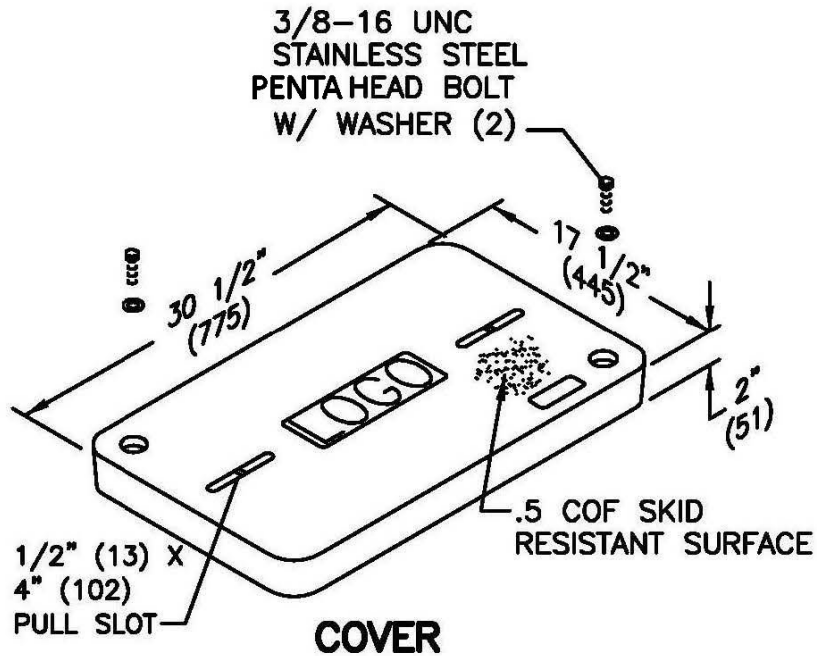
**SPECIFICATIONS ITEM NO. 62**

**Precast Polymer Concrete Pull Box Cover, 17"x 30"**

**Specifications**

Description: Heavy Duty w/2 Bolts  
Composition: Polymer Concrete  
Logo: STREET LIGHT  
Load Rating: Design, 22,500 lbs / Test Loading, 33,750 lbs  
Compliance: UL listed,  
ANSI/SCTE 77, ANSI Tier 22

Dimensions:



**EQUIVALENCY REFERENCE:**

Quazite Precast Polymer Concrete Cover, Part # PG1730HH00P

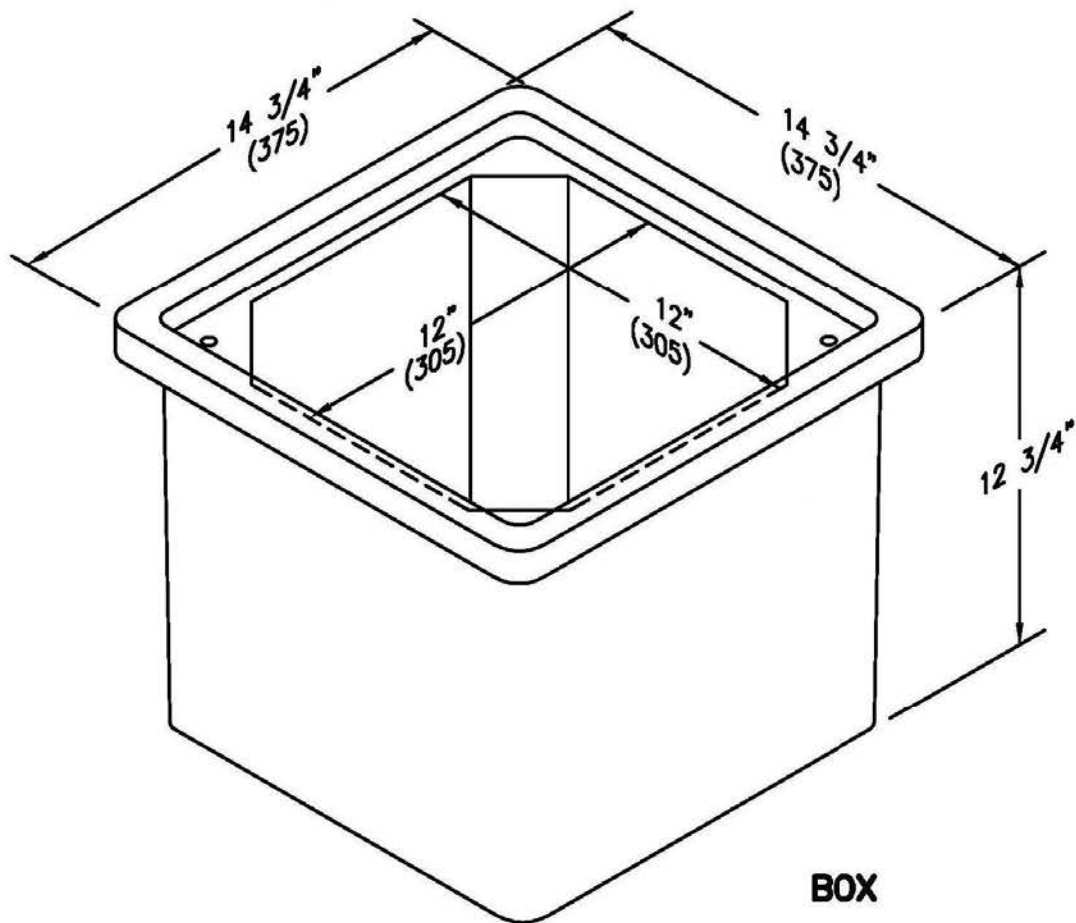
## SPECIFICATIONS ITEM NO. 2

### Precast Polymer Concrete Pull Box, 12"x 12"x 12"

#### Specifications

Description: Heavy Duty w/ Open Bottom and Lifting Bolts  
Composition: Polymer Concrete  
Load Rating: Design, 15,000 lbs / Test Loading, 22,500 lbs  
Compliance: UL listed,  
ANSI/SCTE 77, ANSI Tier 15

Dimensions:



#### EQUIVALENCY REFERENCE:

Quazite Precast Polymer Concrete Box, Part # PC1212BA12



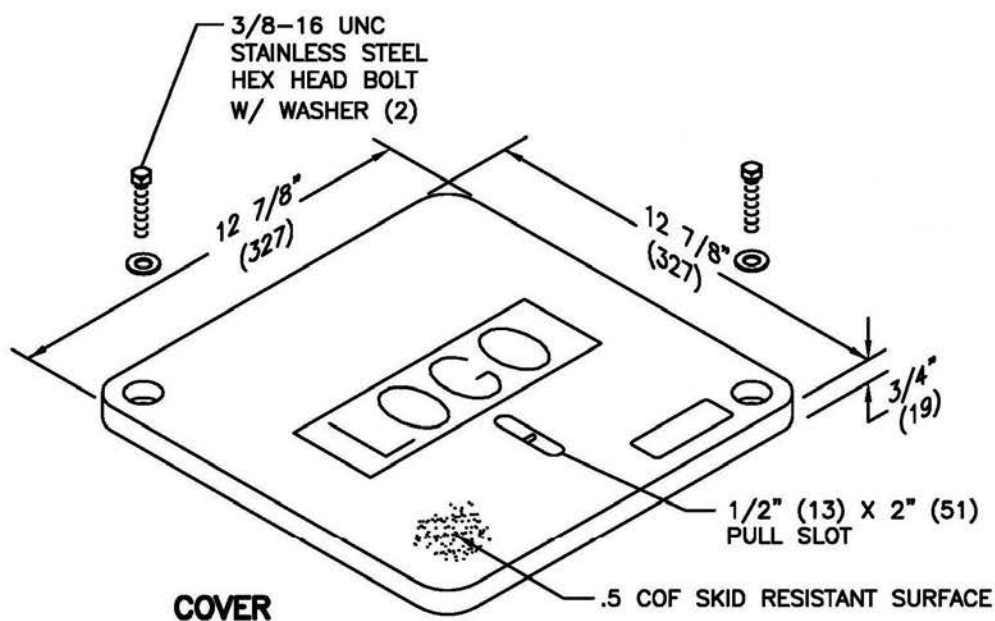
## SPECIFICATIONS ITEM NO. 1

### Precast Polymer Concrete Pull Box Cover, 12"x 12"

#### Specifications

Description: Heavy Duty w/2 Bolts  
Composition: Polymer Concrete  
Logo: TRAFFIC SIGNAL  
Load Rating: Design, 15,000 lbs / Test Loading, 22,500 lbs  
Compliance: UL listed,  
ANSI/SCTE 77, ANSI Tier 15

Dimensions:



#### EQUIVALENCY REFERENCE:

Quazite Precast Polymer Concrete Cover, Part # PG1212HA00