Modification of or Addition to Improvement Standards and Details

Modification Number: 090905-1

Effective Date of Change: September 16, 2005

Modification:

1. Add standard details ST-11 through ST-19, Street Lights – Zone 2

2. Add standard details ST-20 through ST-27, Street Lights (both Zone 1 and Zone 2 facilities)

All Zone 2 street lights shall be City-furnished with installation by project’s contractor. Orders shall be paid for and initiated prior to approval of street lighting plan and/or encroachment permit.

Effect of Modification:

Adds a decorative light standard for use in Zone 2. Zone 2 is the area bounded to the north by Elk Grove Boulevard (inclusive) and to the east and west by Highway 99 andBruceville Road, respectively. Additionally, modifies County standards regarding the location of street lighting and details for the design and installation of the street lighting system. The City will be the owner and provide all inspection and maintenance of all street lighting within the City effective October 1, 2005.

Request for Modification Initiated By: ________________

Date

Modification Reviewed for Conformity and Consistency to Standards: ________________

Manager – Development Engineering

Date

Modification to Improvement Standards Approved: ________________

City Engineer

Date
SPECIFICATIONS

POST BASE

POST SHAFT
THE POST SHAFT SHALL BE 11-GAUGE STEEL WITH A STEEL PLATE FOR MOUNTING TO THE BASE. THE OCTAGONAL SHAFT TAPERS FROM 8" (FLAT TO FLAT) AT THE BOTTOM TO 4-3/8" AT THE TOP, WITH A DECORATIVE OCTAGONAL FINIAL.

CROSSARM
THE CLAMP ON CROSSARM SHALL BE ALUMINUM PIPE CONSTRUCTION WITH FLAT BAR SCROLLS AND 1-1/2" X 1/2" FLAT BAR CLAMP-ON BRACE. ARMS SHALL HAVE A 2" PIPE SLEEVE FOR LUMINAIRE MOUNTING. THE CROSSARM MEASURES 8" FROM POST TO LUMINAIRE CENTERS. A LUMINAIRE LEVELING FITTER SHALL BE MOUNTED TO THE END OF THE PIPE ARM FOR LUMINAIRE MOUNTING.

FINISH
THE POST SHALL BE SHIPPED FINISHED WITH A STANDARD HOLOPHANE BLACK POWDER COAT FINISH.

NOTE
ALL HARDWARE STAINLESS STEEL. ALL EXTERIOR HARDWARE TAMPER RESISTANT. BASE AND SHAFT TO BE SHIPPED AS A ONE-PIECE UNIT.

ALL LIGHTING SHALL BE CITY FURNISHED. CONTRACTOR SHALL PURCHASE FROM CITY AND CONSTRUCT FOUNDATIONS AND INSTALL.

CITY OF ELK GROVE - PUBLIC WORKS
STREET LIGHTS - ZONE 2
MEDIAN LOCATION (DUAL ARM)

9/9/2005
NOT TO SCALE

REVISION | BY | APPROVED | DATE
---------|----|----------|------

ST - 11

CITY ENGINEER

APPROVED BY:
SPECIFICATIONS

POST BASE

POST SHAFT
THE POST SHAFT SHALL BE 11-GAUGE STEEL WITH A STEEL PLATE FOR MOUNTING TO THE BASE. THE OCTAGONAL SHAFT TAPERS FROM 8" (FLAT TO FLAT) AT THE BOTTOM TO 4-3/8" AT THE TOP, WITH A DECORATIVE OCTAGONAL FINIAL.

CROSSARM
THE CLAMP ON CROSSARM SHALL BE ALUMINUM PIPE CONSTRUCTION WITH FLAT BAR SCROLLS AND 1-1/2" X 1/2" FLAT BAR CLAMP ON BRACE. ARMS SHALL HAVE A 2" PIPE SLEEVE FOR LUMINAIRE MOUNTING. THE CROSSARM MEASURES 52" FROM POST TO LUMINAIRE CENTERS. A LUMINAIRE LEVELING FITTER SHALL BE MOUNTED TO THE END OF THE PIPE ARM FOR LUMINAIRE MOUNTING.

FINISH
THE POST SHALL BE SHIPPED FINISHED WITH A STANDARD HOLOPHANE BLACK POWDER COAT FINISH.

NOTE
ALL HARDWARE STAINLESS STEEL. ALL EXTERIOR HARDWARE TAMPER RESISTANT. BASE AND SHAFT TO BE SHIPPED AS A ONE-PIECE UNIT.

ALL LIGHTING SHALL BE CITY FURNISHED. CONTRACTOR SHALL PURCHASE FROM CITY AND CONSTRUCT FOUNDATIONS AND INSTALL.

DESCRIPTION
THE ESPANADE LUMINAIRE IS STYLED TO REPLICATE THE "TEARDROP" LUMINAIRES THAT LIGHTED BOULEVARDS IN THE FIRST HALF OF THIS CENTURY. DESIGNED FOR LIGHT CONTROL AND EASE OF INSTALLATION AND MAINTENANCE, THE ESPANADE HAS A PRECISION OPTICAL SYSTEM FOR TRUE STREET LIGHTING PERFORMANCE.

FOR COMPLETE LUMINAIRE SPECIFICATIONS, SEE STANDARD DETAIL ST - 14 AND ST - 15.

CITY OF ELK GROVE - PUBLIC WORKS

STREET LIGHTS - ZONE 2
ARTERIAL (REDUCED MEDIAN) AND COLLECTOR STREET LIGHT POLE

9/9/2005 NOT TO SCALE

REVISION BY APPROVED DATE

STREET LIGHT POLE

APPROVED BY: CITY ENGINEER

ST - 12 DRAWING NUMBER
**SPECIFICATIONS**

**POST DESCRIPTION**
The lighting post shall be all aluminum, one-piece construction, with a classic fluted base design. The shaft shall be Ø4" smooth. The post shall be shipped with a standard halophane black powder coat finish.

**MATERIALS**
The base shall be heavy wall, cast aluminum produced from certified ASTM 356.1 ingot per ASTM B-179-95A or ASTM B20-95. The straight shafts shall be extruded from aluminum, ASTM 6061 alloy, heat treated to a T6 temper. All hardware shall be tamper resistant stainless steel. Anchor bolts to be completely hot dip galvanized.

**CONSTRUCTION**
The shaft shall be double welded to the base casting and shipped as one piece for maximum structural integrity. The shaft shall be circumferentially welded inside the base casting at the top of the access door, and externally where the shaft exits the base. All exposed welds below 8' shall be ground smooth. All welding shall be per ANSI/AWS DI.2.90. All welders shall be certified per section 5 of ANSI/AWS DI.2.90.

**DIMENSIONS**
The post shall be 14' in height with an 11-1/2" diameter base. The shaft diameter shall be 4" at the top of the post, an integral 3" O.D. tenon with a transitional donut shall be provided for luminaire mounting.

**INSTALLATION**
The post shall be provided with four, hot dip galvanized L-type anchor bolts to be installed on an 8" diameter bolt circle. A door shall be provided in the base for anchorage and wiring access. A grounding screw (5/8") shall be provided inside the base opposite the door.

**NOTE**
All lighting shall be city furnished. The contractor shall purchase from city and construct foundations and install.
maximum effective projected area - 2.37 ft²
maximum weight - 66 lbs

cover type
esu = esplanade utility

ballast type
(mogul base)
100hp = 100w hps
15ahp = 150w 55v hps
250hp = 250w hps

voltage
12 = 120 volt

housing
color
black

optics
4 = teardrop asymmetric
6 = sag clear symmetric
7 = sag clear asymmetric

options
ds = deep skirt
ss = shallow skirt
ps = protected starter (hps only)
r = turn-lock photocontrol receptacle (required)

specifications

description
the esplanade luminaire is styled to replicate the "teardrop" luminaires that lighted boulevards in the first half of this century. designed for light control and ease of installation and maintenance, the esplanade has a precision optical system for true street lighting performance.

wiring chamber
the wiring chamber has a 1-1/2 inch, gasketed, npt threaded entry for pendant mounting. a stainless steel set screw locks the unit in position. a three station terminal block will accept #14 through #2 wires and is prewired to one half of the plug assembly that connects to the removable electrical module.

electrical / reflector assembly
the electrical / reflector assembly hinges down from the wiring chamber for ease in wiring and to facilitate the removal of the electrical module. the assembly is secured in place by a stainless steel latch. the unitized electrical module consists of the ballast mounted to an aluminum plate that is easily removed by loosening two screws in keyhole slots. the disconnect plug connects the ballast to the terminal block in the wiring chamber. the socket is street lighting grade with nickel plated lamp grip shell, center contact backed by a coiled spring and glazed porcelain body. the anodized and brightened reflector is formed with flutes to control voltage rise in the lamp and to work in conjunction with the reflector to provide the desired distribution of light.

refractor / door assembly
the cast aluminum door cradles a teardrop or sag shaped, thermal resistant borosilicate glass refractor that controls the light to provide an i.e.s. symmetric or asymmetric cut off distribution. the combination of reflector, refractor and vertical burning lamp maximize efficiency and uniformity of illumination while controlling luminaire brightness. the reflector assembly and decorative skirt (when applicable) assembly hinges from the electrical / reflector assembly and is latched by a stainless steel, captive, wing nut assembly.

ballast
(refer to ballast data sheet for specific operating characteristics)
150 watt and below 120 volt high pressure sodium (hps) ballasts are high power factor reactor type. all other 150 watt and below are high power factor autotransformer type. 250 and 400 watt hps ballasts are lead type. all metal halide (mh) ballasts are peak lead autotransformer type.

finish / material
the luminaire is finished with polyester powder paint applied after a seven stage pretreatment process to insure maximum durability. all castings utilize alloy #356 aluminum for maximum corrosion resistance and all exposed hardware is stainless steel.

cul.u.l. listing
cul.u.l. listing suitable for wet locations at 40 degrees c.
UTILITY GRANVILLE® SERIES
LUMINAIRE WITH LUNAR OPTICS™
MAXIMUM WEIGHT - 48 LBS.
MAXIMUM EFFECTIVE PROJECTED AREA - 1.38 S.F.

SPECIFICATIONS

GENERAL DESCRIPTION
THE UTILITY GRANVILLE IS DESIGNED FOR EASE OF MAINTENANCE WITH THE PLUG-IN ELECTRICAL MODULE COMMON TO EACH OF THE LUMINAIRES IN HOLOPHANE'S UTILITY LUMINAIRES SERIES. THE TRADITIONAL ACORN-SHAPED LUMINAIRE, WHILE REMINISCENT OF THE 1920'S, CONTAINS A PRECISION OPTICAL SYSTEM THAT MAXIMIZES POST SPACINGS WHILE MAINTAINING UNIFORM ILLUMINATION.

OPTICAL SYSTEM
THE OPTICAL SYSTEM CONSISTS OF A PRECISELY MOLDED THERMAL RESISTANT BOROSILICATE GLASS REFRACTOR AND TOP REFLECTOR. THE GLASS TOP REFLECTOR REDIRECTS OVER 50% OF THE UPWARD LIGHT INTO THE CONTROLLING REFRACTOR WHILE ALLOWING A SOFT UPLIGHT COMPONENT TO DEFINE THE TRADITIONAL ACORN SHAPE OF THE LUMINAIRE. TWO DECORATIVE ALUMINUM COVERS ARE AVAILABLE. THE LOWER REFRACTOR USES PRECISELY MOLDED PRISMS TO MAXIMIZE POLE SPACINGS WHILE MAINTAINING UNIFORM ILLUMINATION. THREE REFRACTORS ARE AVAILABLE, DESIGNED FOR I.E.S. TYPE II, III, AND V DISTRIBUTIONS. THE LUMINAIRE ASSEMBLY (IES CUTOFF) IS STANDARD, IT CONSISTS OF AN ALUMINUM PLATE AND ANODIZED HYDROFORMED REFLECTOR DESIGNED TO RESTRICT INTENSITY AT THE CRITICAL ANGLE.

LUMINAIRE HOUSING
THE LUMINAIRE HOUSING, CAST OF ALUMINUM, PROVIDES AN ENCLOSURE FOR THE PLUG-IN ELECTRICAL MODULE. FOUR UNIQUELY DESIGNED STAINLESS STEEL SPRING CLIPS ENCLODED IN A CLEAR POLYVINYL CHLORIDE SLEEVE AND ADJUSTED BY HEX HEAD 1/4-20 BOLTS SECURELY CRADLE THE PRISMATIC GLASS REFRACTOR. THE NICKEL PLATED LAMP GRIP SOCKET AND THREE STATION INCOMING LINE TERMINAL BLOCK ARE PREWIRIED TO A FIVE CONDUCTOR RECEPTACLE FOR EASE IN CONNECTION THE ELECTRICAL MODULE. THE SLIPFITTER WILL ACCEPT A 3" BY 2-7/8" TO 3-1/8" O.D. TENON.

LUMINAIRE HOUSING / DOOR
CAST OF ALUMINUM, THE HOUSING / DOOR IS REMOVABLE WITHOUT THE USE OF TOOLS AND IS RETAINED BY A NONCONDUCTIVE LANYARD. FOR UNITS WITH AN E.E.I.-N.E.M.A. TWIST LOCK PHOTOCELL RECEPTACLE, THE DOOR CONTAINS AN ACRYLIC "WINDOW" TO ALLOW LIGHT TO REACH THE CELL.

ELECTRICAL MODULE
THE BALLAST COMPONENTS ARE MOUNTED ON A STEEL PLATE THAT IS REMOVABLE WITHOUT THE USE OF TOOLS. A MATCHING FIVE CONDUCTOR PLUG CONNECTS TO THE RECEPTACLE IN THE LUMINAIRE HOUSING TO COMPLETE THE WIRING. WHERE A STARTING AID IS REQUIRED, IT IS PROVIDED WITH A SEPARATE PLUG-IN CONNECTOR AND CAN BE REPLACED WITHOUT THE USE OF TOOLS. FOR PHOTOELECTRIC OPERATION, THE ELECTRICAL MODULE IS PROVIDED WITH AN E.E.I.-N.E.M.A. TWIST LOCK PHOTOCELL RECEPTACLE.

BALLASTS
(REFER TO BALLAST DATA SHEET FOR SPECIFIC OPERATION CHARACTERISTICS)
50 WATT 120 VOLT HIGH PRESSURE SODIUM (HPS) BALLASTS ARE HIGH POWER FACTOR REACTOR TYPE. ALL OTHER HPS BALLAST ARE HIGH POWER FACTOR AUTOTRANSFORMER TYPE.

FINISH
THE LUMINAIRE IS FINISHED WITH POLYESTER POWDER PAINT APPLIED AFTER A SEVEN STAGE PRETREATMENT PRECESS TO INSURE MAXIMUM DURABILITY.

UL LISTING
THE LUMINAIRE IS UL LISTED AS SUITABLE FOR WET LOCATIONS AT A MAXIMUM 40 DEGREES C AMBIENT TEMPERATURE.

9/12/2005
NOT TO SCALE

CITY OF ELK GROVE - PUBLIC WORKS

STREET LIGHTS - ZONE 2
PEDESTRIAN AND LOCAL COLLECTOR ROADWAY
STREET LIGHT FIXTURE

APPROVED BY:  
CITY ENGINEER

ST - 15
TEARDROP GLASS
ASYMMETRIC

STANDARD

SHALLOW SKIRT*

DEEP SKIRT*

SAG GLASS
SYMMETRIC

*OPTIONAL UPON WRITTEN APPROVAL OF PLANNING DIRECTOR AND CITY ENGINEER

SKIRT DIMENSIONS (OPTIONAL)

4"

2.7"

7"

2.7"

9/13/2005 NOT TO SCALE CITY OF ELK GROVE - PUBLIC WORKS

REVISION BY APPROVED DATE

STREET LIGHTS - ZONE 2 FIXTURE OPTIONS

ST - 16
STREET LIGHT PLACEMENT
ON SPECIAL THOROUGHFARE,
THOROUGHFARE, & ARTERIAL STREETS
(INCLUDES COLLECTORS WITH MEDIAN)

LOCATE ON TRAFFIC SIGNAL POLE WHEN PRESENT

PEDESTRIAN LIGHT (WHERE REQUIRED)

S/W

D/2

D/2

DOUBLE ARM

WITH MEDIAN ISLAND

*SEE STANDARD DRAWING ST - 19 FOR DISTANCE "D"

SPECIAL THOROUGHFARE, THOROUGHFARE, OR ARTERIAL STREET

C.R.

D

D

STREET LIGHT LOCATION AT BUS STOP

LOCATE ON TRAFFIC SIGNAL POLE WHEN PRESENT

MAIL BOX

S/I

D

D

WITHOUT MEDIAN ISLAND
(SINGLE ARM)

CITY OF ELK GROVE - PUBLIC WORKS

STREET LIGHTS - ZONE 2
TYPICAL LOCATIONS THOROUGHFARES AND ARTERIALS
(INCLUDES COLLECTORS WITH MEDIANS)

09/13/2005 NOT TO SCALE

REVISION BY APPROVED DATE

CITY ENGINEER

ST - 17

DRAWING NUMBER
STREET LIGHT PLACEMENT
ON MAJOR COLLECTOR, COLLECTOR (NO MEDIAN), & RESIDENTIAL STREETS

TYPE III

SELECT ONE (1) LOCATION ONLY

SELECT TWO (2) LOCATIONS

POINT OF INTERSECTION

TYPE III

PLACE ON NEAREST LOT LINE. (D/W TO BE 8' MIN. FROM STREET LIGHT)

*SEE STANDARD DRAWING ST - 19 FOR DISTANCE "D"

CITY OF ELK GROVE - PUBLIC WORKS
STREET LIGHTS - ZONE 2
TYPICAL LOCATIONS COLLECTOR AND LOCAL RESIDENTIAL

9/13/2005 NOT TO SCALE
REVISION BY APPROVED DATE
<table>
<thead>
<tr>
<th>STREET CLASSIFICATION</th>
<th>NUMBER OF LANE</th>
<th>TYPE STREET LIGHT</th>
<th>STANDARD POLE HEIGHT</th>
<th>HIGH PRESSURE SODIUM LAMP WATTAGE</th>
<th>MEDIAN</th>
<th>NO MEDIAN (SINGLE ARM) (BOTH SIDES)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MAXIMUM SPACING (&quot;D&quot;) (FEET)</td>
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<tr>
<td>SPECIAL THOROUGHFARE</td>
<td>8</td>
<td>DUAL ARM</td>
<td>28'</td>
<td>250</td>
<td>160</td>
<td>160</td>
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<tr>
<td>THOROUGHFARE</td>
<td>6</td>
<td>DUAL ARM</td>
<td>28'</td>
<td>250</td>
<td>160</td>
<td>160</td>
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<tr>
<td>ARTERIAL</td>
<td>2 - 4</td>
<td>DUAL ARM</td>
<td>28'</td>
<td>250</td>
<td>180</td>
<td>180</td>
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<td></td>
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<td></td>
<td></td>
<td>SPACING (BOTH SIDES) (FEET)</td>
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<tr>
<td>COLLECTOR</td>
<td>2, 3</td>
<td>SINGLE ARM**</td>
<td>28'</td>
<td>150</td>
<td>180</td>
<td>180</td>
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<tr>
<td></td>
<td>2, 3</td>
<td>ACORN*</td>
<td>14'</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>SINGLE ARM**</td>
<td>14'</td>
<td>100</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>ACORN**</td>
<td>14'</td>
<td>100</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>LOCAL RESIDENTIAL</td>
<td>2</td>
<td>ACORN</td>
<td>14'</td>
<td>100</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>SINGLE ARM</td>
<td>14'</td>
<td>100</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>PASEO, BIKE TRAILS, AND SEPARATED PEDESTRIAN PATHS</td>
<td>-</td>
<td>ACORN</td>
<td>14'</td>
<td>100</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>PEDESTRIAN PATHS ON 4 - 8 LANE STREETS</td>
<td>-</td>
<td>ACORN</td>
<td>14'</td>
<td>100'</td>
<td>160 - 180***</td>
<td></td>
</tr>
</tbody>
</table>

1. LAMP WATTAGE SHOWN IS FOR HIGH PRESSURE SODIUM LAMP ONLY.

* BOTH SIDES OF STREET, NO ALTERNATING (2 PER LOCATION). NOT FOR USE ON STREETS LONGER THAN 800 FEET.

** SINGLE, ALTERNATING SPACING.

*** MATCH STREET SPACING. LOCATE HALFWAY BETWEEN STREET LIGHT LOCATIONS.
NOTES

1. BACKFILL FOR CONDUIT TRENCH LOCATED UNDER CURB, GUTTER & SIDEWALK AND IN UNIMPROVED AREAS SHALL BE COMPACTED TO 90% RELATIVE COMPACTION. BACKFILL FOR CONDUIT TRENCH LOCATED IN PAVEMENT SHALL BE COMPACTED TO 95% RELATIVE COMPACTION.

2. LANDSCAPING IN THE AREA OF THE STREET LIGHT STANDARD TO MATCH BASE ELEVATION AND HAVE A MINIMUM OF 12" OF CLEARANCE FROM THE BASE.

3. IF THIS LENGTH IS 12" OR LESS, PLACE 3-1/2" THICK CONCRETE FROM STREET LIGHT BASE TO EDGE OF SIDEWALK. WIDTH TO MATCH CONCRETE AROUND STREET LIGHT FOUNDATION.

4. IF CONDUIT IS LOCATED BENEATH THE SIDEWALK, IT MAY BE PLACED AT 18" DEPTH INSTEAD OF 2'.

5. IF THE PLANTER AREA IS LESS THAN 6" WIDE, THEN PLACE STREET LIGHT SO THAT THE BASE PLATE ALIGNS WITH THE EDGE OF SIDEWALK. TOP OF FOUNDATION TO MATCH SIDEWALK GRADE.
RESIDENTIAL SERVICE

COMMERCIAL SERVICE

NOTES:
1. ALL CITY OWNED FACILITIES SHALL BE WITHIN RIGHT-OF-WAY (R/W) OR PUBLIC UTILITY EASEMENT (PUE).
2. SEE STANDARD DRAWING ST - 23 FOR SERVICE POINT PULL BOX DETAILS AND WIRING DIAGRAM.
3. SEE STANDARD DRAWING ST - 24 FOR PULL BOX DETAILS.
4. SEE STANDARD DRAWINGS ST - 26 AND ST - 27 FOR STREET LIGHT AND INSTALLATION DETAILS.
5. THE SERVICING UTILITY WILL INSTALL AND MAINTAIN CONDUCTORS FROM THEIR UNDERGROUND SERVICE PEDESTAL, TRANSFORMER, OR POWER POLE TO THE SERVICE POINT PULL BOX.
SERVICE POINT PULL BOX DETAILS

<table>
<thead>
<tr>
<th>LAMP WATTAGE</th>
<th>FUSE SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 WATT OR LESS</td>
<td>6 AMP</td>
</tr>
<tr>
<td>250 WATT-400 WATT</td>
<td>10 AMP</td>
</tr>
</tbody>
</table>

NOTES:
1. FUSE SHALL BE A MIDGET FERRULE TYPE. RATED AT 600 VOLTS.
2. ATTACH GROUND CONDUCTOR TO THE ELECTROLIER.
3. ALL PULL BOXES SHALL HAVE PROVISIONS FOR LOCKING.

WIRING DIAGRAM

FROM SMUD SERVICE POINT

15A FUSE IN A WEATHERPROOF FUSE HOLDER

1/2" X 8' GROUND ROD

TO STREET LIGHT

TO LUMINAIRE WITH PHOTO CELL

FUSE AND HOLDER LOCATED IN HANDHOLE PER STANDARD SPECIFICATIONS. SEE TABLE FOR FUSE SIZE.

SERVICE POINT PULL BOX

N 120/277 V

STREET LIGHT STANDARD

GROUND ROD

PULL BOX (WHEN REQUIRED)

STREET LIGHTS - ZONE 1 AND ZONE 2
DETAILS FOR DIRECT SERVICE INSTALLATION STREET LIGHTING POWER

CITY OF ELK GROVE - PUBLIC WORKS

APPROVED BY:

CITY ENGINEER

DRAWING NUMBER
ST - 23
# Reinforced Concrete Box vs Composite Box vs Reinforced Conc. or Composite Cover

<table>
<thead>
<tr>
<th>PULL BOX NO.</th>
<th>MIN. ** THICKNESS</th>
<th>MIN. DEPTH BOX AND EXTENSION</th>
<th>LO</th>
<th>WO</th>
<th>MIN. ** THICKNESS</th>
<th>MIN. DEPTH BOX AND EXTENSION</th>
<th>L ***</th>
<th>W ***</th>
<th>R</th>
<th>EDGE THICKNESS</th>
<th>EDGE TAPER</th>
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<tbody>
<tr>
<td>3-1/2</td>
<td>1&quot;</td>
<td>NO EXTENSION</td>
<td>20&quot;</td>
<td>14&quot;</td>
<td>5/16&quot;</td>
<td>NO EXTENSION</td>
<td>15-3/8&quot;</td>
<td>10-1/8&quot;</td>
<td>1-1/8&quot;</td>
<td>1-3/4&quot;</td>
<td>1/8&quot;</td>
</tr>
<tr>
<td>5</td>
<td>1&quot;</td>
<td>22&quot;</td>
<td>28&quot;</td>
<td>18&quot;</td>
<td>5/16&quot;</td>
<td>20&quot;</td>
<td>23-1/4&quot;</td>
<td>13-3/4&quot;</td>
<td>1-1/4&quot;</td>
<td>2&quot;</td>
<td>1/8&quot;</td>
</tr>
<tr>
<td>5A</td>
<td>1&quot;</td>
<td>22&quot;</td>
<td>25-1/4&quot;</td>
<td>15-3/4&quot;</td>
<td>5/16&quot;</td>
<td>20&quot;</td>
<td>20-5/8&quot;</td>
<td>10-1/2&quot;</td>
<td>1-1/4&quot;</td>
<td>2&quot;</td>
<td>1/8&quot;</td>
</tr>
<tr>
<td>6</td>
<td>1-1/2&quot;</td>
<td>24&quot;</td>
<td>36&quot;</td>
<td>23&quot;</td>
<td>3/8&quot;</td>
<td>20&quot;</td>
<td>30-5/8&quot;</td>
<td>17-5/8&quot;</td>
<td>1-1/4&quot;</td>
<td>2&quot;</td>
<td>1/8&quot;</td>
</tr>
</tbody>
</table>

** EXCLUDING CONDUIT WEB  *** TOP DIMENSION

### Notes:
1. In unimproved areas and planters, the top of pull boxes shall be placed 0.10 foot above the surrounding grade or, when adjacent to a curb, flush with the top of the curb. The surrounding grade shall be ramped up to match the top of the concrete collar. Unless otherwise noted, and where practical, pull boxes shown in the vicinity of curbs shall be placed adjacent to the back of curb, and pull boxes shown adjacent to standards shall be placed on the side of the foundation facing away from traffic.

2. In sidewalk areas, the top of pull boxes shall be placed flush with the sidewalk grade.

3. Placement of pull boxes in areas subject to vehicular traffic loads (includes traffic lanes, bike lanes, shoulders, and driveways) shall be avoided whenever possible. If unavoidable, then a traffic rated pull box with steel traffic cover shall be used. See standard drawing ST-25.

4. Pull boxes shall not be placed within the boundaries of sidewalk ramps.

5. Pull boxes should not be placed within planter areas whenever possible.

6. Pull box covers shall be marked as follows:
   
   a) "Traffic Signal" traffic signal circuits with or without street lighting circuits.
   
   b) "Street Lighting" street lighting circuits where no voltage is above 600V.
   
   c) "Street Lighting-High Voltage" street lighting circuits where voltage is above 600V.
   
   d) "Service" service circuits between service point and service disconnect.
   
   e) "Sprinkler Control" sprinkler control circuits, 50 volts or less.
   
   f) "Irrigation" irrigation controller, 120 volts or more.
   
   g) "Ramp Meter" ramp meter circuits.
   
   h) "Count Station" count and/or speed monitor circuits.
   
   i) "Telephone" telephone service.
   
   j) "Tos Communications" Tos Communications trunk line.
   
   k) "Tos Power" Tos Power.
   
   l) "Tdc Power" telephone demarcation cabinet power.
   
   m) "Signal Interconnect" traffic signal interconnect circuit.

7. Covers shall fit flush with the top of pull boxes. There shall be 1/8 maximum clearance all around between covers and pull box openings.

8. All covers and boxes shall be interchangeable with California standard male and female gauges. When interchanged with standard male or female gauge, the top surfaces shall be flush within 1/8 inch.

9. The top edges of all concrete covers and pull boxes shall have a 1/4 inch minimum radius.

10. Stacking of pull boxes is permitted (two pull boxes minimum).

11. Steel reinforcing shall be a regularly used in the standard products of the respective manufacturer.

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**SECTION B-B**

- **Lift Holes (2 Reqs.)**
- **Ground Bushing and Bonding jumper, required only when use of metallic conduit is specified on the plans or in the special provisions.**
- **Concrete Collar to be used in unimproved areas and planters**

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**City of Elk Grove - Public Works**

**Street Lights - Zone 1 and Zone 2 Pull Box**

9/13/2005  NOT TO SCALE

**Revision**  **By**  **Approved**  **Date**

**Drawing Number**  **ST - 24**
NOTES:
1. STEEL COVER SHALL HAVE EMBOSSED NON-SKID PATTERN.
2. STEEL REINFORCING SHALL BE AS REGULARLY USED IN THE STANDARD PRODUCTS
   OF THE RESPECTIVE MANUFACTURER.
3. PULL BOX COVERS SHALL BE MARKED AS DESCRIBED IN NOTE 6 ON STANDARD
   DRAWING ST-24. MARKING SHALL BE APPLIED TO EACH COVER PRIOR TO
   GALVANIZING BY SEAM WELDING THE LETTERS ON THE COVERS. THE LETTERS
   SHALL BE RAISED AT LEAST 3/32 INCH.
4. BONDING JUMPER FOR COVER SHALL BE A MIN. OF 36" LONG. WHEN NON-METALLIC
   CONDUIT IS USED, THE BONDING JUMPER FOR THE COVER SHALL BE SPACED TO THE
   BOND WIRE IN THE CONDUITS. WHEN THE USE OF METALLIC CONDUIT IS SPECIFIED
   ON THE PLANS OR IN THE SPECIAL PROVISIONS, THE BONDING JUMPER FOR THE
   COVER SHALL BE CONNECTED TO THE CONDUIT GROUND BUSHING, AND THE
   CONDUITS SHALL BE BONDED TOGETHER WITH GROUND BUSHINGS AND A BONDING
   JUMPER.
5. CONDUITS SHALL ENTER AT BOTTOM OF PULL BOX AS SHOWN IN THE DRAWING.

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** EXCLUDING CONDUIT WEB

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CITY OF ELK GROVE - PUBLIC WORKS

STREET LIGHTS - ZONE 1 AND ZONE 2
TRAFFIC RATED PULL BOX WITH STEEL TRAFFIC COVER

ST-25

9/13/2005
NOT TO SCALE

REVISION BY APPROVED DATE

BOLT HOLE DETAIL

COVER SHALL COVER ENTIRE TOP OF BOX

WELD ALL FOUR EDGES OF EACH PLATE TO COVER

SECTION B-B

STEEL COVER

1/2" DIA. GALV. NUT AND GALV. FLAT WASHER

PRECAST REINFORCED CONCRETE BOX

1/2" DIA. GALVANIZED THREAD ROD

PRECAST REINFORCED CONCRETE BOX

6" CONCRETE ALL AROUND

CONCRETE SHALL BE FLUSH WITH SURROUNDING GRADE

POUR IN FIELD

BONDING JUMPER

1/4" STEEL PLATE COVER, GALVANIZED AFTER FABRICATION AND SET FLUSH WITH CONCRETE

1/2" MIN
26" MAX

1/2" DIA. LIFT HOLE

LETTERS TO BE 1" MIN. TO 3" MAX. HIGH.
SEE NOTE 3.

1/32" DIA.

STEEL PLATE

2 x 2" x 1/4" STEEL PLATE

2 3/4" x 2 3/4" x 1/2" STEEL PLATE

1/32" DIA.

COVER

WELD ALL FOUR EDGES OF EACH PLATE TO COVER

SECTION B-B

COVER DETAIL

PLAN VIEW
(BOTTOM OF COVER)

BOLT HOLE

WELD (TYP)

LIFT HOLE

THIS 1-3/4" FLAT SURFACE TO BE AGAINST INSIDE EDGE OF PULL BOX OPENING (TYP)

1-3/4" x 1-3/4" x 3/16" ANGLE

SECTION C-C

STRAW NO. | MIN ** | MIN. DEPTH BOX | LO | WO | L | W
--- | --- | --- | --- | --- | --- | ---
3-1/2 | 1" | NO EXTENSION | 20" | 14" | 15-1/2" | 10-1/2"
5 | 1" | 22" | 28" | 18" | 23" | 10-1/2"
5A | 1" | 22" | 25-1/4" | 15-3/4" | 21" | 10-1/2"
BASE DETAILS

FOUNDATION DIMENSIONS

<table>
<thead>
<tr>
<th>'B' SERIES</th>
<th>SQUARE</th>
<th>ROUND</th>
</tr>
</thead>
<tbody>
<tr>
<td>B' SERIES</td>
<td>2' x 2' x 4'</td>
<td>30' x 3'-6&quot;</td>
</tr>
</tbody>
</table>

B' SERIES

- 4" x 6-1/2" HANDBOHE REINFORCED WITH NO. 3 GAUGE RING 1-1/2" WIDE WELDED TO OUTSIDE OF POLE. COVER OF 11 GAUGE PLATE.
- BOND WIRE
- TOP OF CONDUIT SHALL EXTEND 4" ABOVE TOP OF GROUT
- GROUT 2" MIN. TO 3" MAX. WITH 1/2" DIA. DRAIN HOLE
- 1" DIA. x 36" x 4" GALV. A36 ANCHOR BOLT WITH (2) A307 GALV. HEX NUTS (1"-8) AND 2 GALV. FLAT WASHERS (4 PLACES)

NOTES:
1. STANDARD SHALL BE INSTALLED SO HANDBOHE FACES THE STREET.
2. FOR USE IN ALL IN-FILL PROJECTS EAST OF HIGHWAY 99 OR NORTH OF ELK GROVE BLVD WEST OF HIGHWAY 99 (ZONE 1).

9/14/2005
NOT TO SCALE
CITY OF ELK GROVE - PUBLIC WORKS
STREET LIGHTS - ZONE 1
TYPE "B" STREET LIGHT STANDARD

ST - 26
APPROVED BY:
CITY ENGINEER