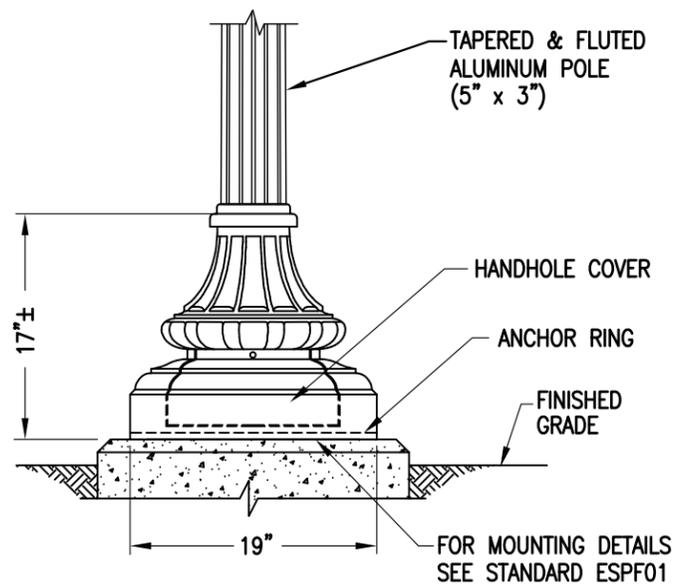
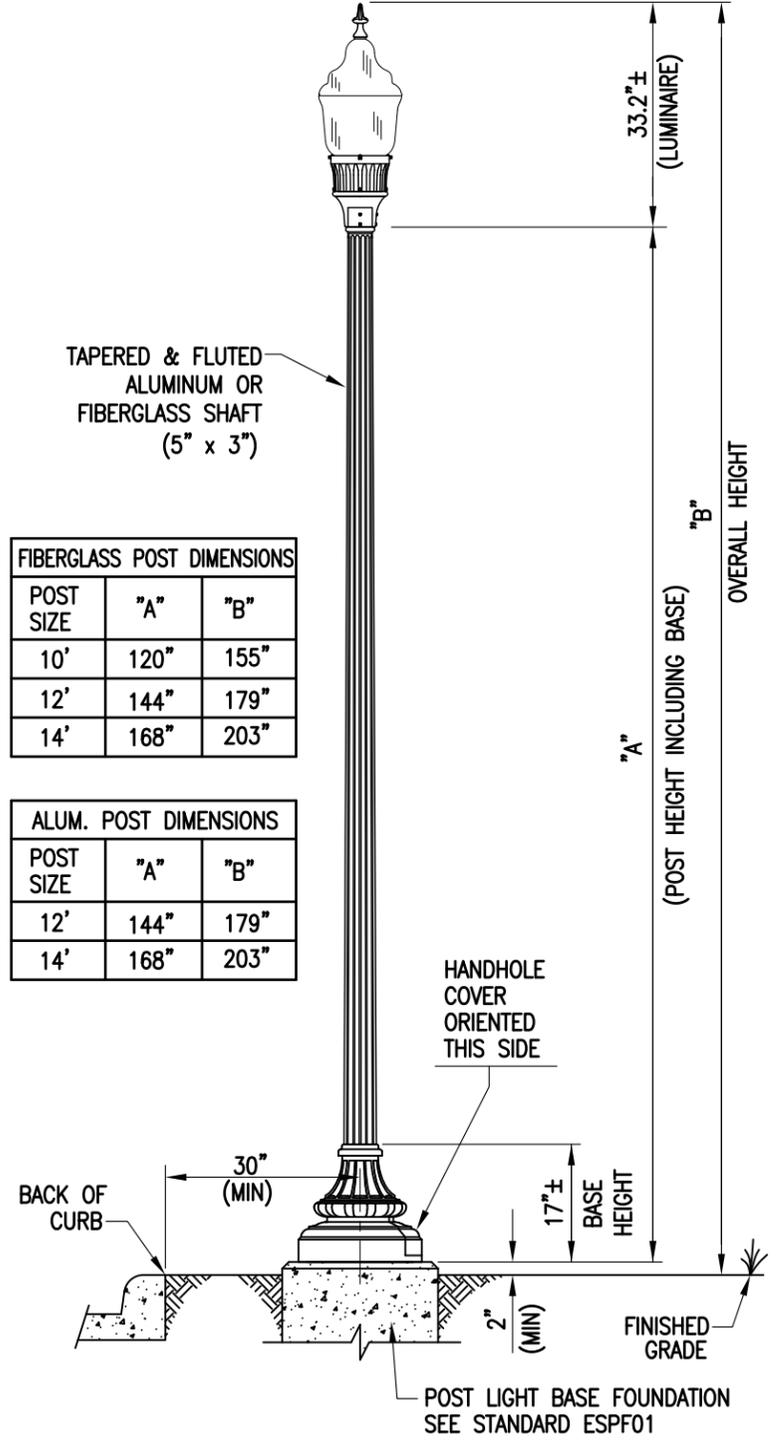


LUMINAIRE DETAILS
(HOLOPHANE GRANVILLE CLASSIC SERIES)



POST LIGHT BASE DETAILS
(WADSWORTH STYLE BASE)
(COMPOSITE POLE IS ONE PIECE BASE & SHAFT)



FIBERGLASS POST DIMENSIONS

POST SIZE	"A"	"B"
10'	120"	155"
12'	144"	179"
14'	168"	203"

ALUM. POST DIMENSIONS

POST SIZE	"A"	"B"
12'	144"	179"
14'	168"	203"

SPECIFICATIONS:

- LUMINAIRE:** GRANVILLE CLASSIC SERIES, 70-150W HPS, FLUTED STYLE CAST ALUMINUM BALLAST HOUSING, DARK GREEN FINISH, WITH STANDARD FINIAL, AND POST CAPITAL ADAPTER GVA1A73X, SERIES GVO70HP24FN3NSN OR EQUAL.
- OPTICS:** DURABLE BOROSILICATE GLASS OPTICS, INTEGRAL ISD SUPERGLASS REFLECTOR, TYPE III (ASYMMETRIC) LIGHT DISTRIBUTION.
- LAMP HOLDER:**
HPS: MEDIUM BASE PORCELAIN.
- LAMPS:**
HPS: 70W, 100W, OR 150W
- BALLAST/DRIVER:**
HPS: ELECTRONIC BALLAST, PEAK LEAD, AUTOTRANSFORMER TYPE, MULTI-TAP VOLTAGE WIRED FOR 240V.
- SHAFT (ALUM):** FLUTED, TAPERED 5"-3" DIA. (.250 WALL), 6063-T6 ALLOY ALUMINUM. SHAFT HEAT TREATED TO PRODUCE A T6 TEMPER. SHAFT IS CIRCUMFERENTIALLY WELDED TO BASE. WIRE CLAMPS PROVIDED INSIDE PRE-WIRED POLE.
- BASE (ALUM):** ONE PIECE CORROSION RESISTANT, DURABLE CAST ALUMINUM CONSTRUCTION. MINIMUM .250 WALL THICKNESS. WITH FLUSH HAND HOLE, GROUNDING LUG TO BE PROVIDED INSIDE BASE OPPOSITE THE HAND-HOLE. CAST ALUMINUM ACCESS DOOR PROVIDED WITH AN 18" PLASTIC SHEATHED KEEPER CHAIN AND TAMPER RESISTANT HARDWARE. (HOLOPHANE WADSWORTH STYLE BASE OR EQUAL)
- BASE AND SHAFT (COMPOSITE):** ONE PIECE FIBERGLASS COMPOSITE CONSTRUCTION, WITH WITH FLUSH HANDHOLE ACCESS DOOR AND SHEATHED KEEPER CHAIN. WADSWORTH STYLE BASE. MAGEE HERMITAGE ROAD SERIES OR EQUAL.
- WIRING:** 2'-0" (24") MIN. BEYOND BASE, 14/2, WITH GROUND, (TYPE UF-B) WIRE LEADS TO BE PROVIDED, POLE AND LUMINAIRE TO BE PRE-WIRED.
- ANCHORING:** FOUR (4) 3/4"(NOM) X 18" LG (MIN), HOT-DIPPED, FULLY GALVANIZED, ANCHOR BOLTS, EACH SUPPLIED WITH NUTS AND WASHERS.
- FINISH:** PAINT TO MATCH FEDERAL STANDARD 595L, HOLOPHANE PAINT# Y979A "FEDERAL GREEN", OR EQUAL

MATERIAL LIST

QTY	DESCRIPTION
1	LUMINAIRE, GRANVILLE CLASSIC, HPS, HOLOPHANE
1	POLE, FLUTED AND TAPERED, 10 FT, FG ONLY
1	POLE, FLUTED AND TAPERED, 12 FT, ALUM/FG
1	POLE, FLUTED AND TAPERED, 14 FT, ALUM/FG
4	NUT, 3/4" NOM., HEX, HEAVY, HRS, GALV.
4	FLATWASHER, 3/4" NOM, SS
A/N	WIRE, 14/2 TYPE UF-B, COPPER, WITH NEUTRAL

REVIEWED & APPROVED
ENGINEERING: _____ SIGNED COPY ON FILE



REFERENCES:
ESMA01, ESMA04, ESPF01

STANDARD FIXTURE ASSEMBLY DETAILS
THE "GRANVILLE" STYLE LIGHTING FIXTURE
HIGH PRESSURE SODIUM TYPE LUMINAIRE



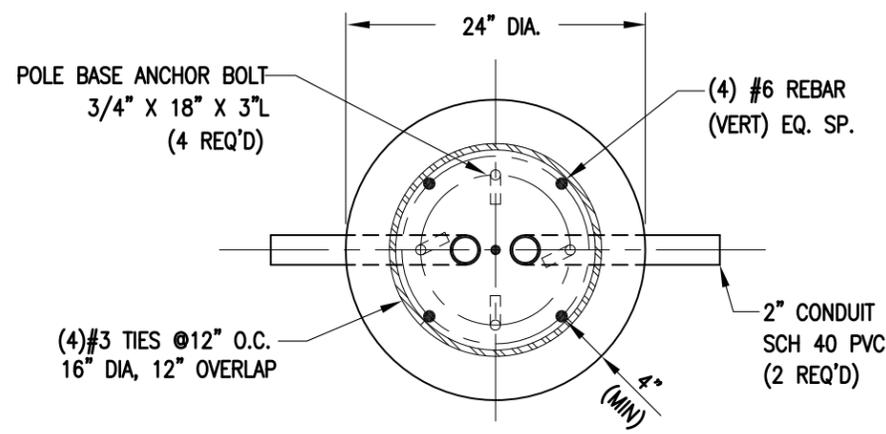
CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION DATE
12/2017

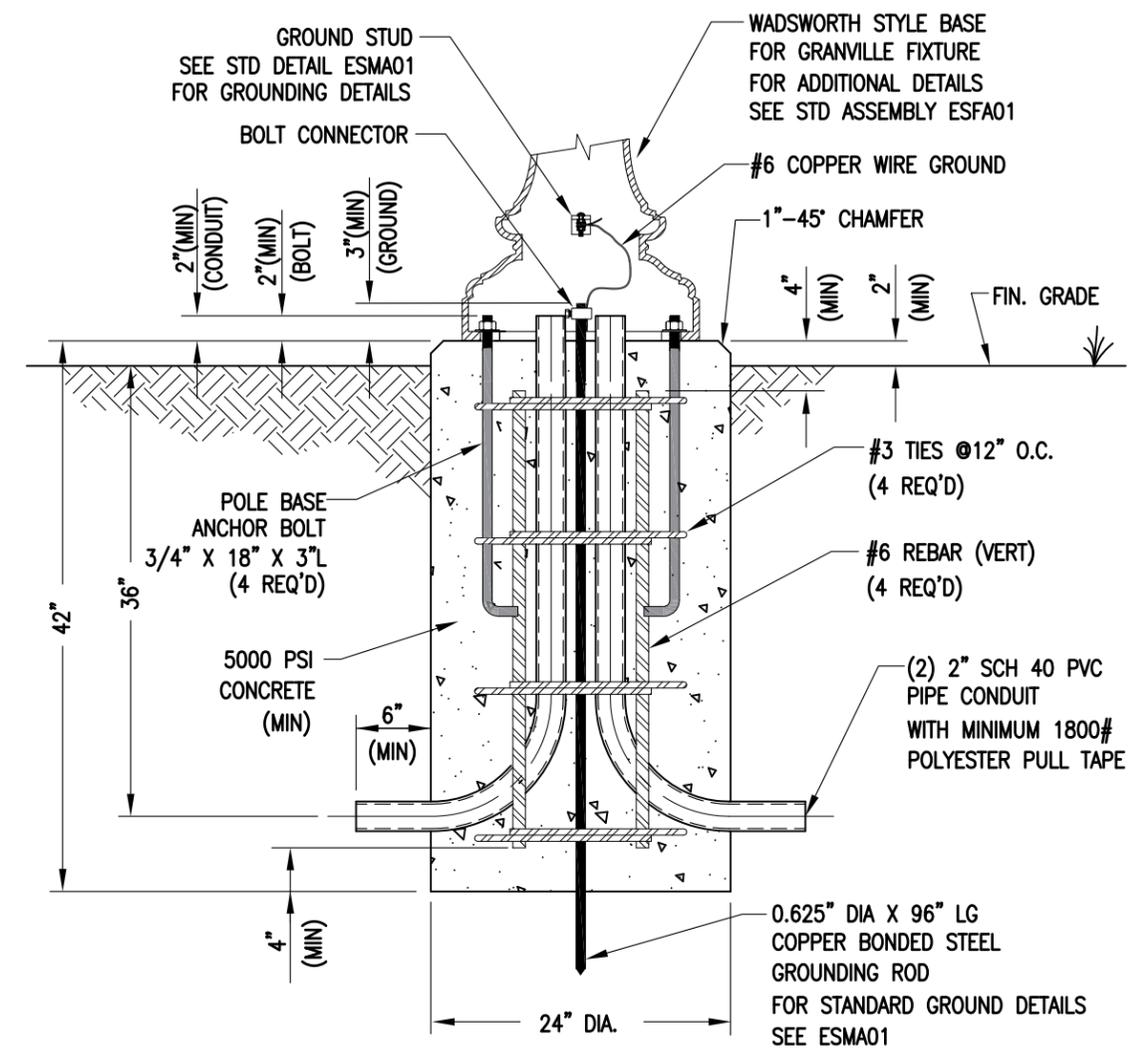
SHEET 1 OF 1
ESFA01

GENERAL NOTES:

1. CONDUIT ELBOWS SHALL HAVE FACTORY 90° BENDS. THE BEND RADIUS SHALL BE IN ACCORDANCE WITH THE NEC SPECIFICATIONS FOR RIGID CONDUITS. (1" = 5.7" MIN RAD; 2" = 9.5" MIN RAD)
2. THE ACTUAL BOLT CIRCLE SHALL BE VERIFIED BY THE CONTRACTOR. A BOLT CIRCLE TEMPLATE SHALL BE FURNISHED BY THE LIGHTING POLE OR THE POLE BASE MANUFACTURER.
3. THE NUMBER, ORIENTATION AND SIZE OF CONDUITS, ENTERING AND EXITING THE FOUNDATION SHALL BE AS SHOWN ON PLAN.
4. CONCRETE PLACEMENT SHALL BE A CONTINUOUS POUR WITH 5000 PSI (MIN) CONCRETE. NO COLD JOINTS WILL BE ALLOWED. INTERNAL CONCRETE VIBRATION REQUIRED DURING PLACEMENT.
5. NO MORTAR, GROUT, OR CEMENT SHALL BE PLACED FOR LEVELING, BETWEEN THE BOTTOM OF THE POLE BASEPLATE, AND THE TOP OF THE FINISHED FOUNDATION PEDESTAL.
6. ALL ANCHOR BOLTS SHALL BE 3/4" X 18" X 3" "L" TYPE, HOT DIPPED GALVANIZED, AND SHALL BE INSTALLED WITH THEIR "L" ORIENTED TOWARDS THE CENTER OF THE FOUNDATION.
7. THE ANCHOR BOLTS WILL PROJECT A MINIMUM OF 2", AS SHOWN AND NOT TO EXCEED 3".
8. THE HORIZONTAL REBARS SHALL BE INSTALLED 4" ABOVE THE BOTTOM OF THE CONCRETE AND 4" BELOW TOP OF FINISHED CONCRETE.
9. THE VERTICAL REINFORCING BARS SHALL HAVE A MINIMUM OF 4" OF CONCRETE COVER.
10. THE CENTERLINE OF THE POLE FOUNDATION SHALL BE A MINIMUM OF 30" FROM THE BACK OF CURB. WHEN NO CURB IS PRESENT, PLACEMENT WILL BE A MINIMUM OF 36" FROM THE EDGE OF PAVEMENT.
11. AN ALTERNATE GROUND INSTALLATION METHOD MAY BE USED ONLY WITH APPROVAL OF THE DEPARTMENT OF PUBLIC UTILITY'S ENGINEER, AND ONLY IF THE GROUND ROD CAN-
-NOT BE INSTALLED WITHIN THE FOUNDATION AS SHOWN.
FOR ALTERNATE GROUNDING METHODS CONTACT DPU ENGINEER.



FOUNDATION TOP VIEW



FOUNDATION DETAILS

NOTE: "SPECIAL" SPREAD FOOTINGS MAY BE REQUIRED UNDER CERTAIN FIELD ENCOUNTERED CONDITIONS. FINAL DESIGN WILL BE ON A CASE-BY-CASE BASIS AND WILL REQUIRE ENGINEER APPROVAL.

ANY ALTERNATE MATERIALS OR CONFIGURATIONS ARE SUBJECT TO THE APPROVAL OF THE ENGINEER OR THE INSPECTOR.

REVIEWED & APPROVED
ENGINEERING: _____ SIGNED COPY ON FILE

REFERENCES:
ESMA01, ESFA01
VDOT 2016 ROAD AND BRIDGE STANDARDS



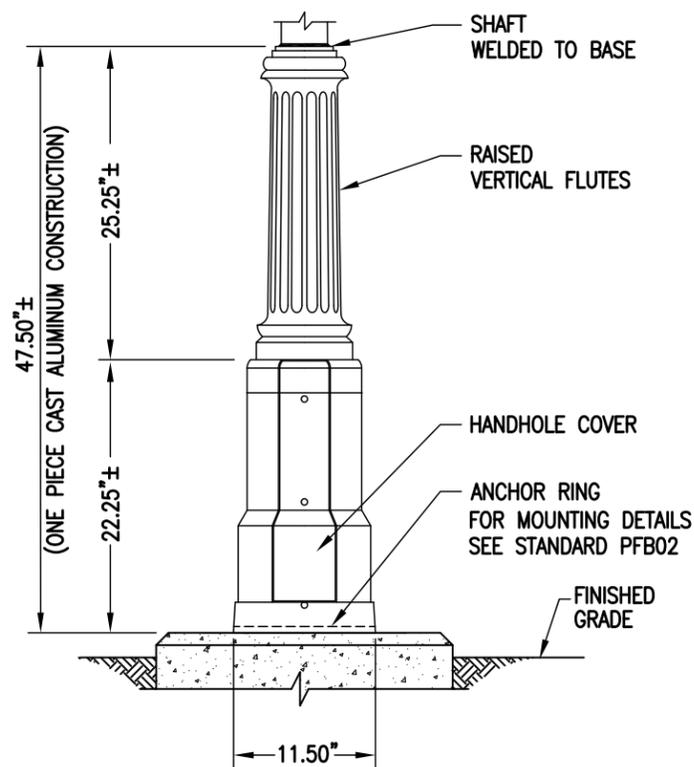
STANDARD POLE FOUNDATION & BASE DETAIL
GRANVILLE STYLE LIGHTING FIXTURE
(WITH "WADSWORTH" STYLE BASE)



CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

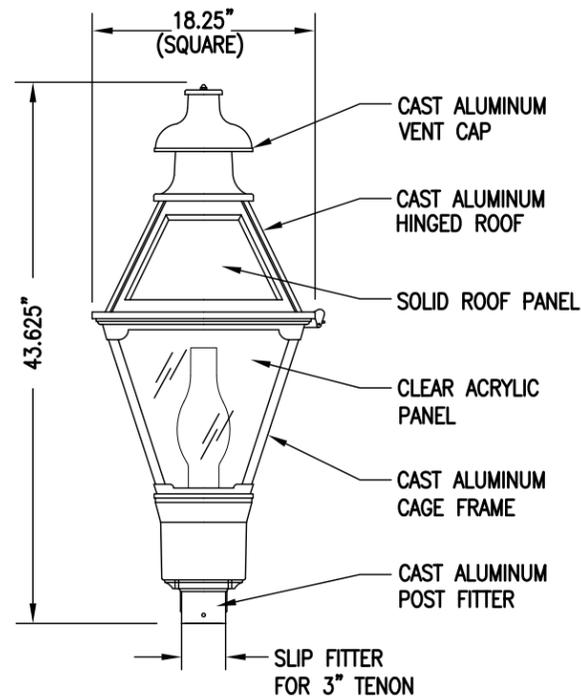
REVISION DATE
12/2017

SHEET 1 OF 1
ESPF01



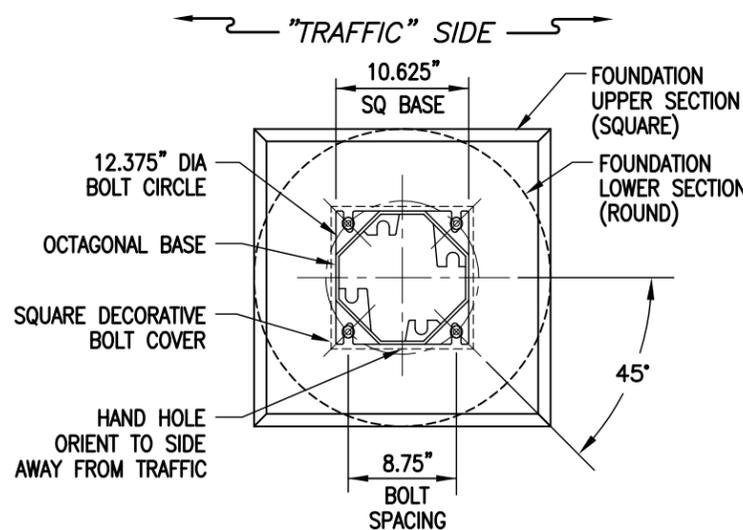
POST LIGHT BASE DETAILS

(PHILIPS HANOVER LANTERN POST STYLE #316)

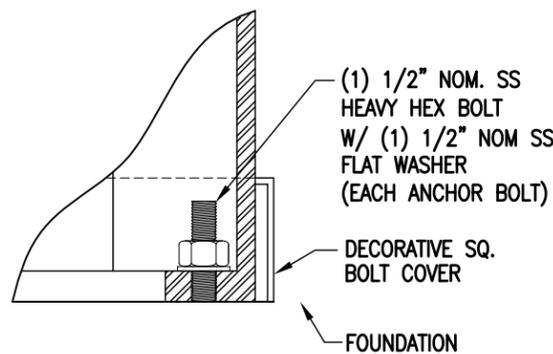


LUMINAIRE DETAILS

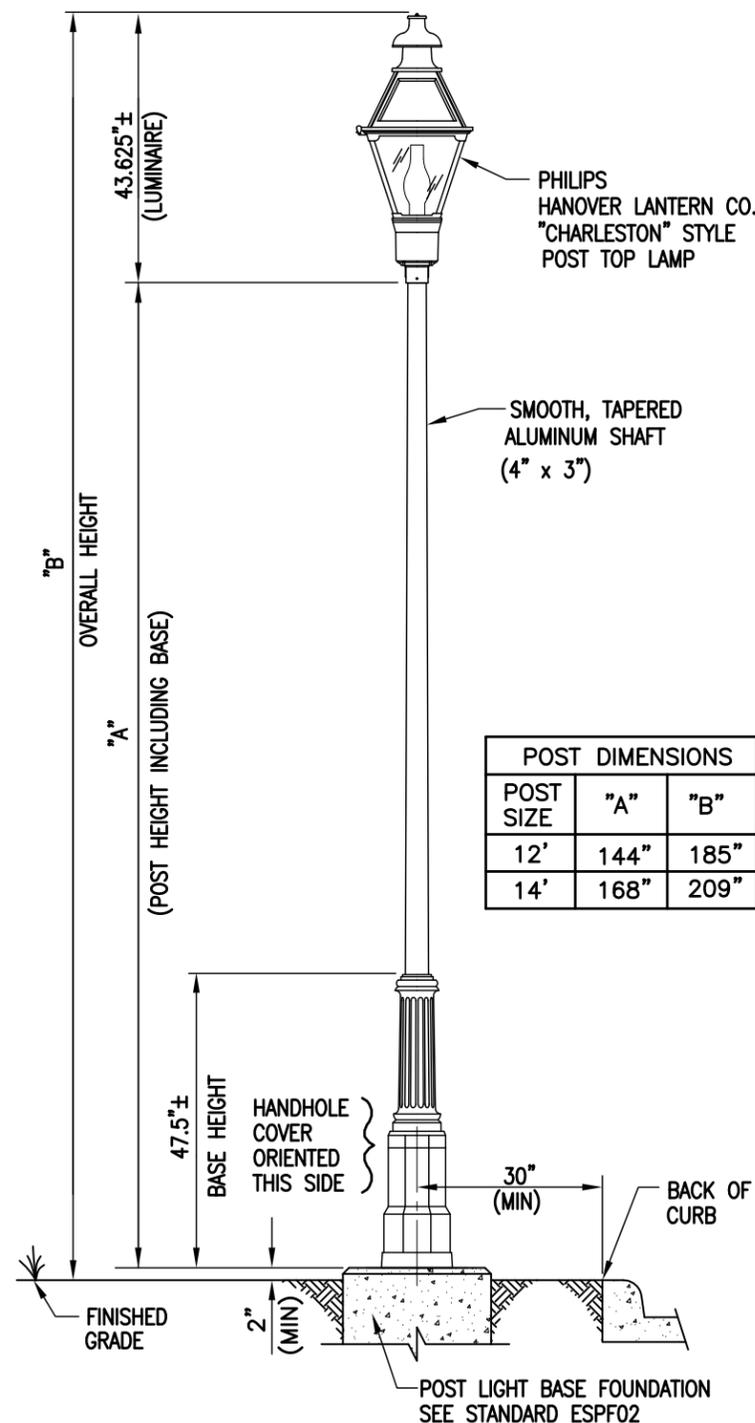
(PHILIPS HANOVER LANTERN "CHARLESTON" LAMP)



POST LIGHT BASE MOUNTING DETAIL



BASE BOLTING DETAILS



POST LIGHT ASSEMBLY DETAILS

SPECIFICATIONS:

- LUMINAIRE:** SEALED OPTICAL ASSEMBLY, GLASS OPTICS, TOOL-LESS MAINTENANCE, SWING OPEN HINGED UTILITY POD ROOF WITH MOISTURE PROOF BALLAST COMPARTMENT AND SLIDE-OUT BALLAST TRAY. CLEAR ACRYLIC PANELS AND GLOBE, PHILIPS HANOVER LANTERN "CHARLESTON" SERIES (1237) OR EQUAL.
- OPTICS:** GLASS REFRACTOR, 6" TYPE III (ASYMETRIC) LIGHT DISTRIBUTION.
- LAMP HOLDERS:**
HPS: MEDIUM BASE PORCELAIN.
LED: POLARIZED PLUG/RECEPTACLE COMBINATION.
- LAMPS:**
HPS: 100W OR 150W
LED: 3000-4000 CCT
- BALLAST/DRIVER:**
HPS: ELECTRONIC BALLAST, PEAK LEAD, AUTOTRANSFORMER TYPE, MULTI-TAP VOLTAGE WIRED FOR 240V.
LED: STD 0-10V DIMMING CAPABILITY, HIGH POWER FACTOR OF 95%. ELECTRONIC DRIVER OPERATING RANGE 50/60 Hz. AUTO-ADJUSTING VOLTAGE INPUT 120-277 VAC.
- SHAFT:** SMOOTH, TAPERED 4"-3" DIA., .125 WALL (MIN) ALLOY ALUMINUM. SHAFT HEAT TREATED TO PRODUCE A T6 TEMPER. SHAFT IS CIRCUMFERENTIALLY WELDED TO BASE. WIRE CLAMPS PROVIDED INSIDE PRE-WIRED POLE ASSEMBLY.
- BASE:** ONE PIECE CORROSION RESISTANT, DURABLE CAST ALUMINUM CONSTRUCTION. MINIMUM .125 WALL THICKNESS. BASE CONSISTS OF SMOOTH, STEPPED BOTTOM SECTION WITH FLUSH HAND HOLE, AND A DECORATIVE TAPERED FLUTED SECTION CONSISTING OF EVENLY SPACED, HIGHLY DETAILED RAISED VERTICAL FLUTES. GROUNDING LUG TO BE PROVIDED INSIDE BASE OPPOSITE THE HAND-HOLE. CAST ALUMINUM ACCESS DOOR PROVIDED WITH AN 18" PLASTIC SHEATHED KEEPER CHAIN AND TAMPER RESISTANT HARDWARE. (PHILIPS HANOVER LANTERN POST STYLE 316, OR EQUAL).
- WIRING:** 2'-0" (24") MIN. BEYOND BASE, 14/2, WITH GROUND, (TYPE UF-B) WIRE LEADS TO BE PROVIDED, POLE AND LUMINAIRE TO BE PRE-WIRED.
- ANCHORING:** FOUR (4) 1/2"(NOM) X 18" LG X 3" "L" TYPE (MIN) HOT-DIPPED, FULLY GALVANIZED, ANCHOR BOLTS, EACH SUPPLIED WITH (1) NUT AND (1) WASHER.
- FINISH:** RESILIENT TGIC THERMOSET POLYESTER POWDERCOAT, ELECTROSTATICALLY APPLIED. PHILIPS BLACK (BLK), OR EQUAL.

MATERIAL LIST	
QTY	DESCRIPTION
1	LUMINAIRE, CHARLESTON STYLE, HPS, PHILIPS
1	LUMINAIRE, CHARLESTON STYLE, LED, PHILIPS
1	POLE, TAPERED, 12 FT, ALUM., STYLE 316, PAINTED
1	POLE, TAPERED, 14 FT, ALUM., STYLE 316, PAINTED
1	BASE, 11.5" SQ. PED, OCT. BASE, STYLE 316
4	NUT, 1/2" NOM., HEX, HEAVY, HRS, GALV.
4	FLATWASHER, 1/2" NOM, SS
A/N	WIRE, 14/2 TYPE UF-B, COPPER, WITH NEUTRAL

REVIEWED & APPROVED
ENGINEERING: _____ SIGNED COPY ON FILE

REFERENCES:
ESMA01; ESMA04; ESPF02



STANDARD FIXTURE ASSEMBLY DETAILS
THE HANOVER STYLE LIGHTING FIXTURE
HIGH PRESSURE SODIUM & LED TYPE LUMINAIRES



CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

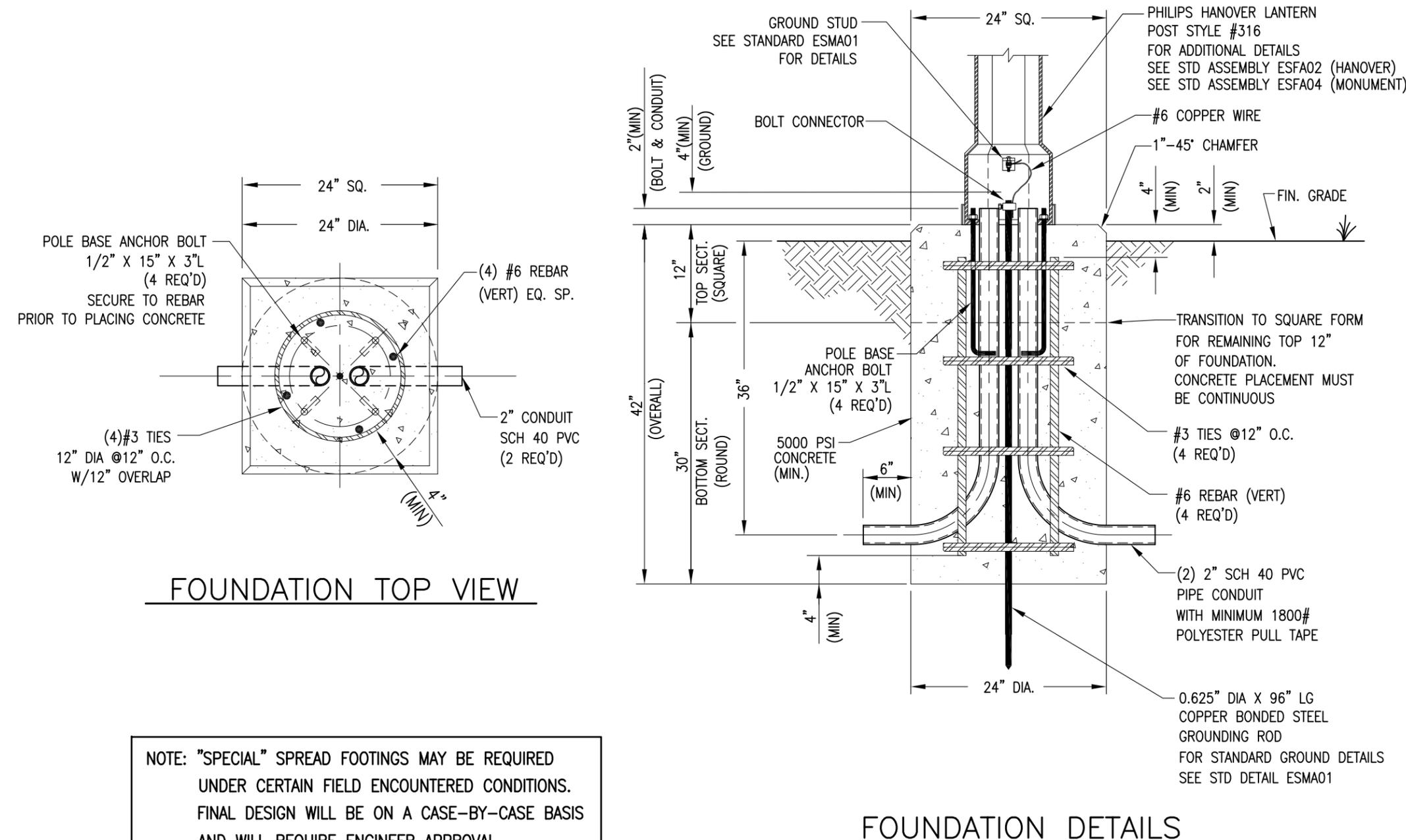
REVISION DATE
12/2017

SHEET 1 OF 1
ESFA02

GENERAL NOTES:

1. CONDUIT ELBOWS SHALL HAVE FACTORY 90° BENDS. THE BEND RADIUS SHALL BE IN ACCORDANCE WITH THE NEC SPECIFICATIONS FOR RIGID CONDUITS.
(1" = 5.7" MIN RAD; 2" = 9.5" MIN RAD)
2. THE ACTUAL BOLT CIRCLE SHALL BE VERIFIED BY THE CONTRACTOR. A BOLT CIRCLE TEMPLATE SHALL BE FURNISHED BY THE LIGHTING POLE OR THE POLE BASE MANUFACTURER.
3. THE NUMBER, ORIENTATION AND SIZE OF CONDUITS, ENTERING AND EXITING THE FOUNDATION SHALL BE AS SHOWN ON PLAN.
4. CONCRETE PLACEMENT SHALL BE A CONTINUOUS POUR WITH 5000 PSI (MIN) CONCRETE. NO COLD JOINTS WILL BE ALLOWED. INTERNAL CONCRETE VIBRATION REQUIRED DURING PLACEMENT.
5. NO MORTAR, GROUT, OR CEMENT SHALL BE PLACED, FOR LEVELING, BETWEEN THE BOTTOM OF THE POLE BASEPLATE, AND THE TOP OF THE FINISHED FOUNDATION PEDESTAL.
6. ALL ANCHOR BOLTS SHALL BE 1/2" X 15" X 3" "L" TYPE, HOT DIPPED GALVANIZED, AND SHALL BE INSTALLED WITH THEIR "L" ORIENTED TOWARDS THE CENTER OF THE FOUNDATION.
7. THE ANCHOR BOLTS WILL PROJECT A MINIMUM OF 2", AS SHOWN AND NOT TO EXCEED 3".
8. THE HORIZONTAL REBARS SHALL BE INSTALLED 4" ABOVE THE BOTTOM OF THE CONCRETE AND 4" BELOW TOP OF FINISHED CONCRETE.
9. THE VERTICAL REINFORCING BARS SHALL HAVE A MINIMUM OF 4" OF CONCRETE COVER.
10. THE CENTERLINE OF THE POLE FOUNDATION SHALL BE A MINIMUM OF 30" FROM THE BACK OF CURB. WHEN NO CURB IS PRESENT, PLACEMENT WILL BE A MINIMUM OF 36" FROM THE EDGE OF PAVEMENT.
11. AN ALTERNATE GROUND INSTALLATION METHOD MAY BE USED ONLY WITH APPROVAL OF THE DEPARTMENT OF PUBLIC UTILITY'S ENGINEER, AND ONLY IF THE GROUND ROD CAN-
-NOT BE INSTALLED WITHIN THE FOUNDATION AS SHOWN.

FOR ALTERNATE GROUNDING METHODS CONTACT DPU ENGINEER.



NOTE: "SPECIAL" SPREAD FOOTINGS MAY BE REQUIRED UNDER CERTAIN FIELD ENCOUNTERED CONDITIONS. FINAL DESIGN WILL BE ON A CASE-BY-CASE BASIS AND WILL REQUIRE ENGINEER APPROVAL.

ANY ALTERNATE MATERIALS OR CONFIGURATIONS ARE SUBJECT TO THE APPROVAL OF THE ENGINEER OR THE INSPECTOR.

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ENGINEERING: _____ SIGNED COPY ON FILE

REFERENCES:
ESMA01, ESFA04
VDOT 2016 ROAD AND BRIDGE STANDARDS



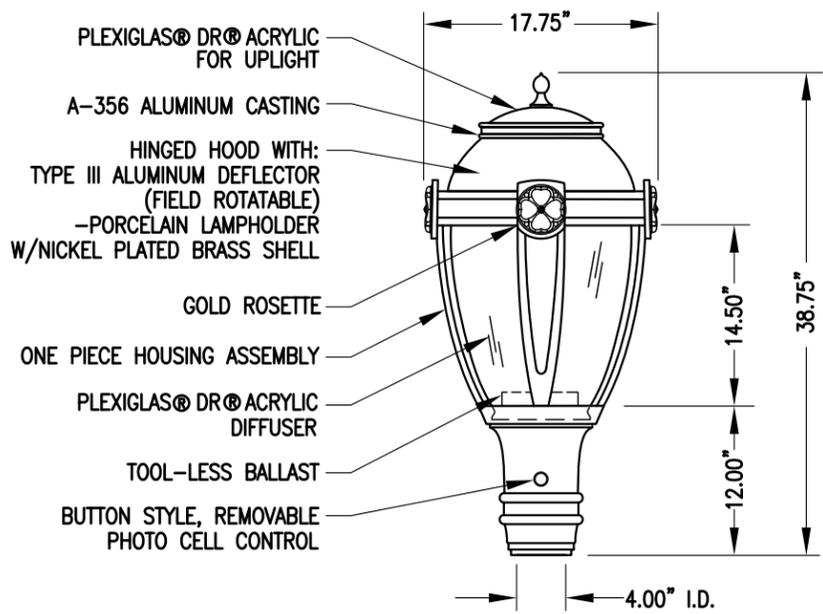
STANDARD POLE FOUNDATION & BASE DETAIL
"HANOVER" AND "MONUMENT AVE" LIGHTING FIXTURE STYLES
FOR PHILIPS HANOVER LANTERN POST BASE STYLE #316



CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

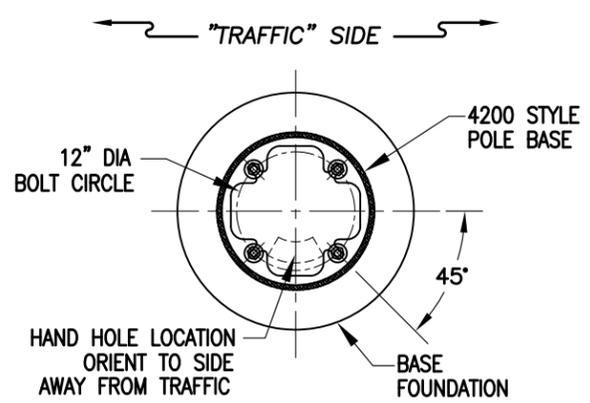
REVISION DATE
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ESPF02

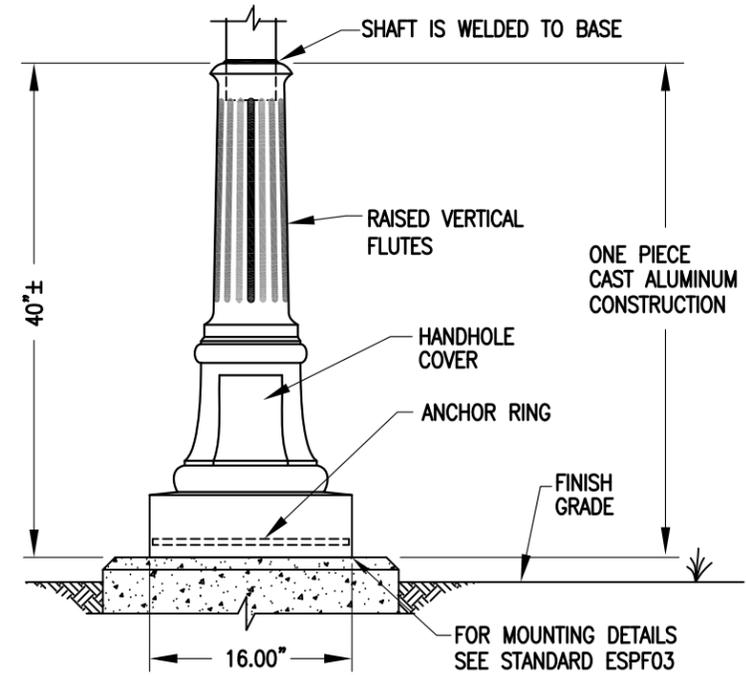


LUMINAIRE DETAILS

(SUN VALLEY LIGHTING LUMINAIRE STYLE "LCGS")

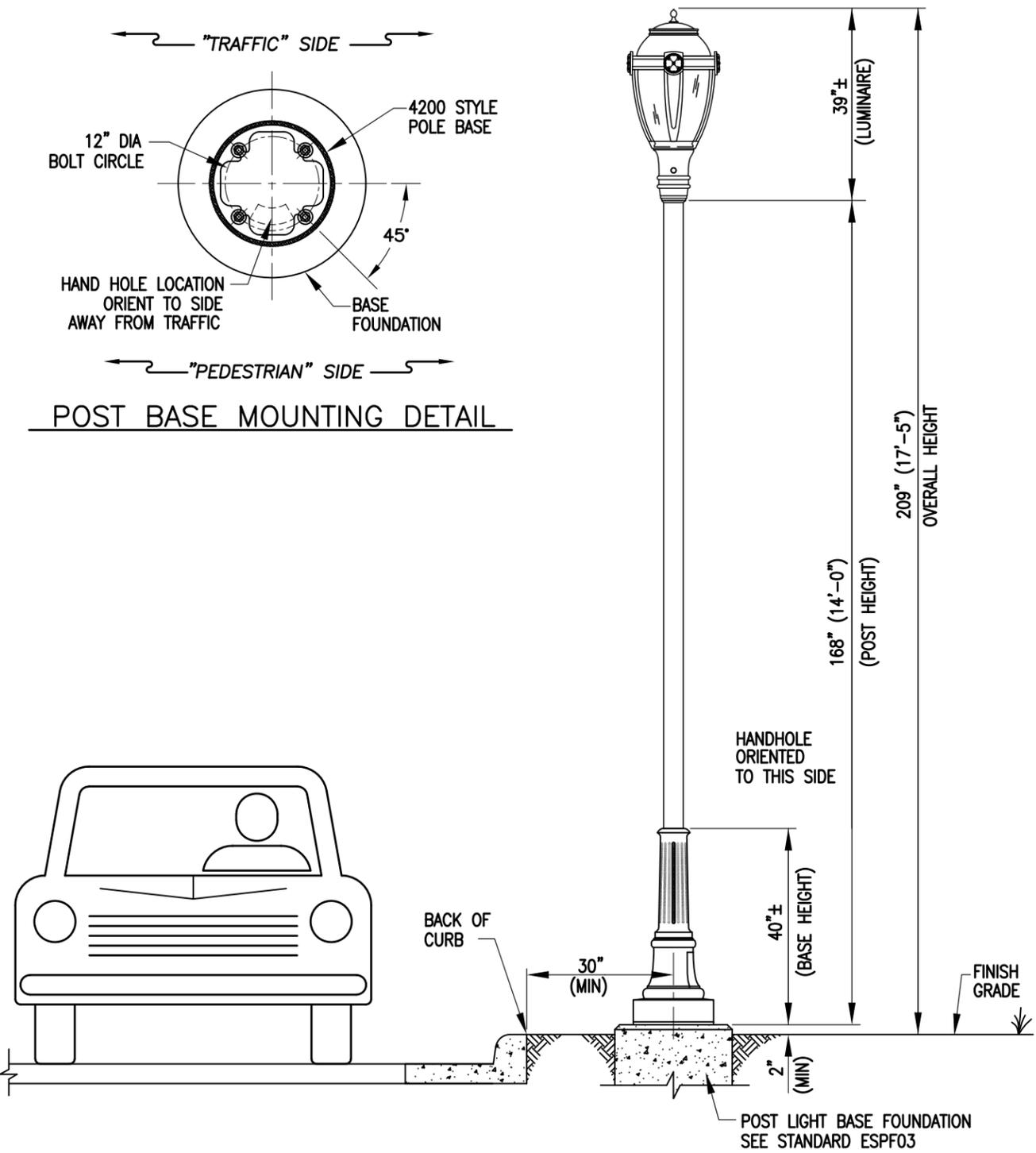


POST BASE MOUNTING DETAIL



POST LIGHT BASE DETAILS

(SUN VALLEY LIGHTING BASE STYLE "4200")



SPECIFICATIONS:

- LUMINAIRE:** ONE PIECE UNITIZED DURABLE CORROSION RESISTANT A-356 CAST ALUMINUM ALLOY. SUPPLIED WITH HIGH IMPACT CLEAR PATTERNED DR ACRYLIC DIFFUSER. TOP HINGED FOR EASY RELAMPING. TOOL-LESS LATCH PAINTED TO MATCH LUMINAIRE. (SUN VALLEY LIGHTING MODEL #LCGS, OR EQUAL)
- OPTICS:** LUMINAIRE HOOD HOUSES SEGMENTED ALUMINUM REFLECTOR, TYPE III (ASYMMETRIC) LIGHT DISTRIBUTION. REFLECTOR IS FIELD ROTATABLE IN 90° INCREMENTS.
- LAMP HOLDERS:** METAL HALIDE: MEDIUM BASE PORCELAIN.
- LAMPS:** HPS: 150W
- BALLAST/DRIVER:** HPS: ELECTRONIC BALLAST, PEAK LEAD, AUTOTRANSFORMER TYPE, MULTI-TAP VOLTAGE WIRED FOR 240V.
- SHAFT:** 4" DIA. (.250 WALL THICKNESS) EXTRUDED FROM 6061-T6 ALLOY ALUMINUM. SHAFT HEAT TREATED TO PRODUCE A T6 TEMPER. SHAFT IS CIRCUMFERENTIALLY WELDED TO BASE. WIRE CLAMPS PROVIDED INSIDE PRE-WIRED POLE.
- WIRING:** 16'-0", 14/2 WITH GROUND (TYPE UF-B) WIRE LEADS TO BE PROVIDED, POLE AND LUMINAIRE TO BE PRE-WIRED.
- BASE:** ONE PIECE CORROSION RESISTANT, DURABLE CAST ALUMINUM CONSTRUCTION. MINIMUM .250 WALL THICKNESS. BASE CONSISTS OF SMOOTH, STEPPED BOTTOM SECTION WITH FLUSH HAND HOLE, AND A DECORATIVE TAPERED FLUTED SECTION CONSISTING OF EVENLY SPACED, HIGHLY DETAILED RAISED VERTICAL FLUTES. GROUNDING LUG TO BE PROVIDED INSIDE BASE OPPOSITE THE HAND-HOLE. CAST ALUMINUM ACCESS DOOR PROVIDED WITH AN 18" PLASTIC SHEATHED KEEPER CHAIN AND TAMPER RESISTANT HARDWARE. (SUN VALLEY LIGHTING 4200 BASE OR EQUAL)
- ANCHORING:** FOUR (4) 3/4"(NOM) X 18" LG (MIN), HOT-DIPPED, FULLY GALVANIZED, ANCHOR BOLTS, EACH SUPPLIED WITH NUTS AND WASHERS.
- FINISH:** FIVE STAGE FINISH, ELECTROSTATICALLY APPLIED, BAKED ON ACRYLIC ENAMEL. (DUPONT "HUNTER GREEN", #PFG-509-58 OR EQUAL).

MATERIAL LIST

QTY	DESCRIPTION
1	LUMINAIRE, STYLE: LCGS, HPS, SUN VALLEY LIGHTING
1	POLE, 4" DIA, 14 FT, #42-1040, SUN VALLEY LIGHT.
1	BASE, 16", STYLE 4200, SUN VALLEY LIGHTING
8	NUT, 3/4" NOM., HEX, HEAVY, HRS, GALV.
8	FLATWASHER, 3/4" NOM, SS
A/N	WIRE, 14/2 TYPE UF-B, COPPER, WITH NEUTRAL

REVIEWED & APPROVED
 ENGINEERING: _____ SIGNED COPY ON FILE

REFERENCES:
 ESMA01, ESPF03, ESMA04



STANDARD FIXTURE ASSEMBLY DETAILS
 THE "CDA" AREA STYLE LIGHTING FIXTURE
 METAL HALIDE TYPE LUMINAIRE



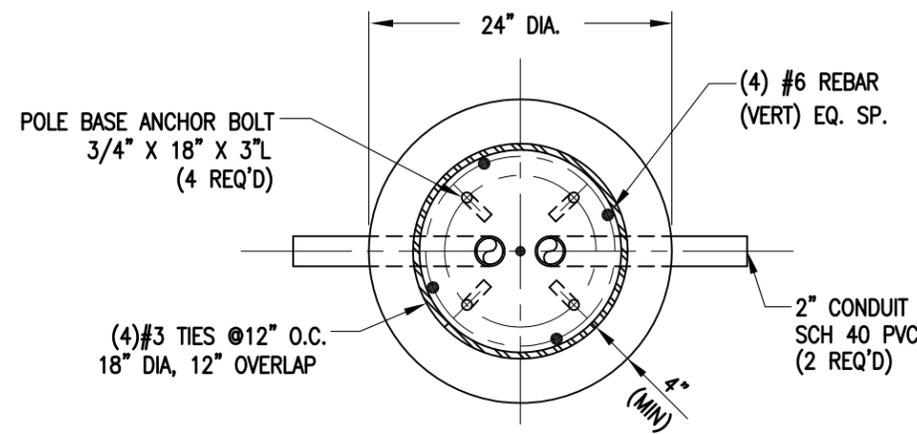
CITY OF RICHMOND PUBLIC UTILITIES
 STREET LIGHT STANDARDS

REVISION DATE
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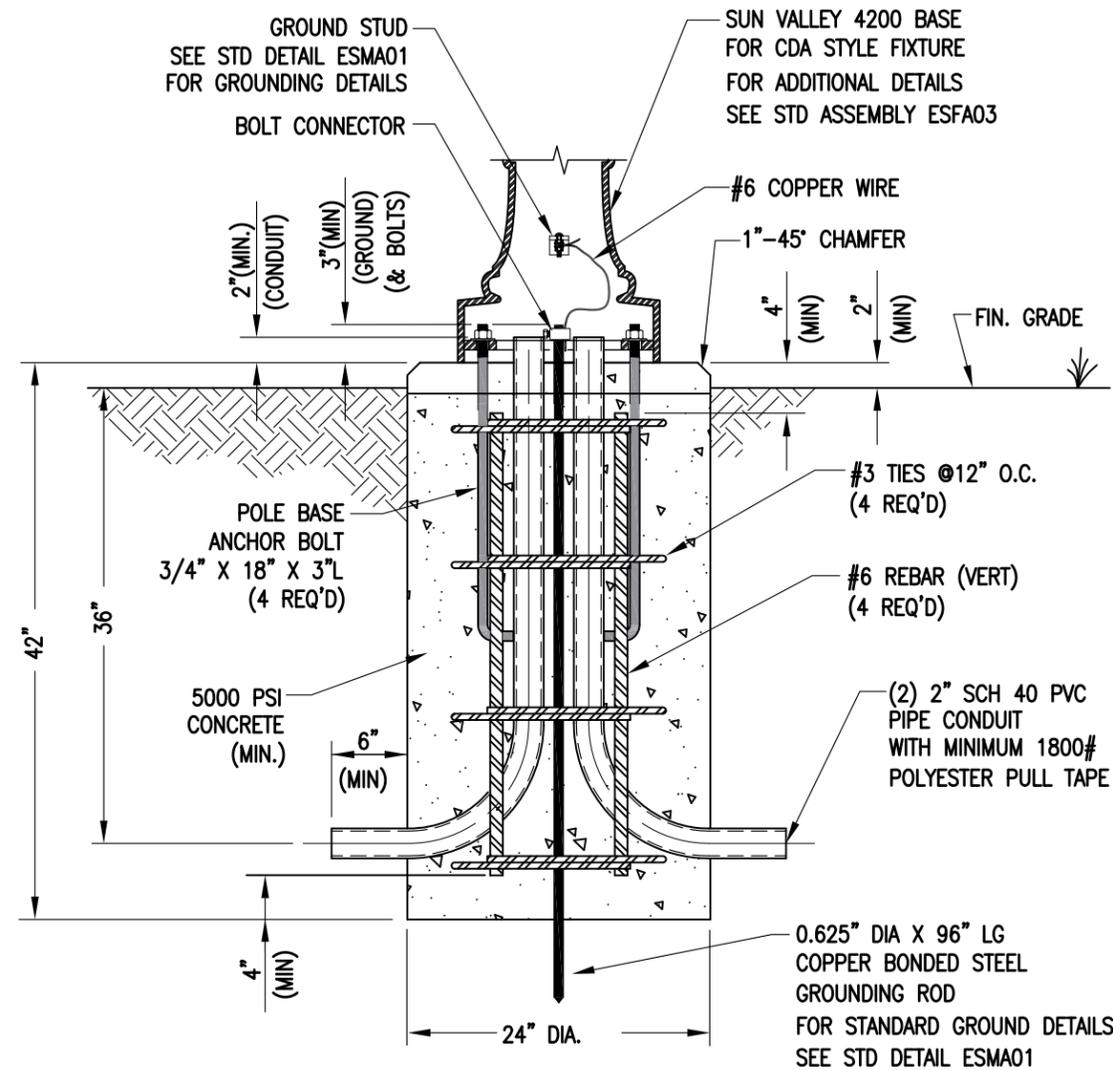
GENERAL NOTES:

1. CONDUIT ELBOWS SHALL HAVE FACTORY 90° BENDS. THE BEND RADIUS SHALL BE IN ACCORDANCE WITH THE NEC SPECIFICATIONS FOR RIGID CONDUITS.
(1" = 5.7" MIN RAD; 2" = 9.5" MIN RAD)
2. THE ACTUAL BOLT CIRCLE SHALL BE VERIFIED BY THE CONTRACTOR. A BOLT CIRCLE TEMPLATE SHALL BE FURNISHED BY THE LIGHTING POLE OR THE POLE BASE MANUFACTURER.
3. THE NUMBER, ORIENTATION AND SIZE OF CONDUITS, ENTERING AND EXITING THE FOUNDATION SHALL BE AS SHOWN ON PLAN.
4. CONCRETE PLACEMENT SHALL BE A CONTINUOUS POUR WITH 5000 PSI (MIN) CONCRETE. NO COLD JOINTS WILL BE ALLOWED. INTERNAL CONCRETE VIBRATION REQUIRED DURING PLACEMENT.
5. NO MORTAR, GROUT, OR CEMENT SHALL BE PLACED, FOR LEVELING, BETWEEN THE BOTTOM OF THE POLE BASEPLATE, AND THE TOP OF THE FINISHED FOUNDATION PEDESTAL.
6. ALL ANCHOR BOLTS SHALL BE 3/4" X 18" X 3" "L" TYPE, HOT DIPPED GALVANIZED, AND SHALL BE INSTALLED WITH THEIR "L" ORIENTED TOWARDS THE CENTER OF THE FOUNDATION.
7. THE ANCHOR BOLTS WILL PROJECT A MINIMUM OF 2", AS SHOWN AND NOT TO EXCEED 3".
8. THE HORIZONTAL REBARS SHALL BE INSTALLED 4" ABOVE THE BOTTOM OF THE CONCRETE AND 4" BELOW TOP OF FINISHED CONCRETE.
9. THE VERTICAL REINFORCING BARS SHALL HAVE A MINIMUM OF 4" OF CONCRETE COVER.
10. THE CENTERLINE OF THE POLE FOUNDATION SHALL BE A MINIMUM OF 30" FROM THE BACK OF CURB. WHEN NO CURB IS PRESENT, PLACEMENT WILL BE A MINIMUM OF 36" FROM THE EDGE OF PAVEMENT.
11. AN ALTERNATE GROUND INSTALLATION METHOD MAY BE USED ONLY WITH APPROVAL OF THE DEPARTMENT OF PUBLIC UTILITY'S ENGINEER, AND ONLY IF THE GROUND ROD CAN-
-NOT BE INSTALLED WITHIN THE FOUNDATION AS SHOWN.
FOR ALTERNATE GROUNDING METHODS CONTACT DPU ENGINEER.



FOUNDATION TOP VIEW

NOTE: "SPECIAL" SPREAD FOOTINGS MAY BE REQUIRED UNDER CERTAIN FIELD ENCOUNTERED CONDITIONS. FINAL DESIGN WILL BE ON A CASE-BY-CASE BASIS AND WILL REQUIRE ENGINEER APPROVAL.



FOUNDATION DETAILS

ANY ALTERNATE MATERIALS OR CONFIGURATIONS ARE SUBJECT TO THE APPROVAL OF THE ENGINEER OR THE INSPECTOR.

REVIEWED & APPROVED

ENGINEERING: SIGNED COPY ON FILE

REFERENCES:
ESMA01, ESFA03
VDOT 2016 ROAD AND BRIDGE STANDARDS



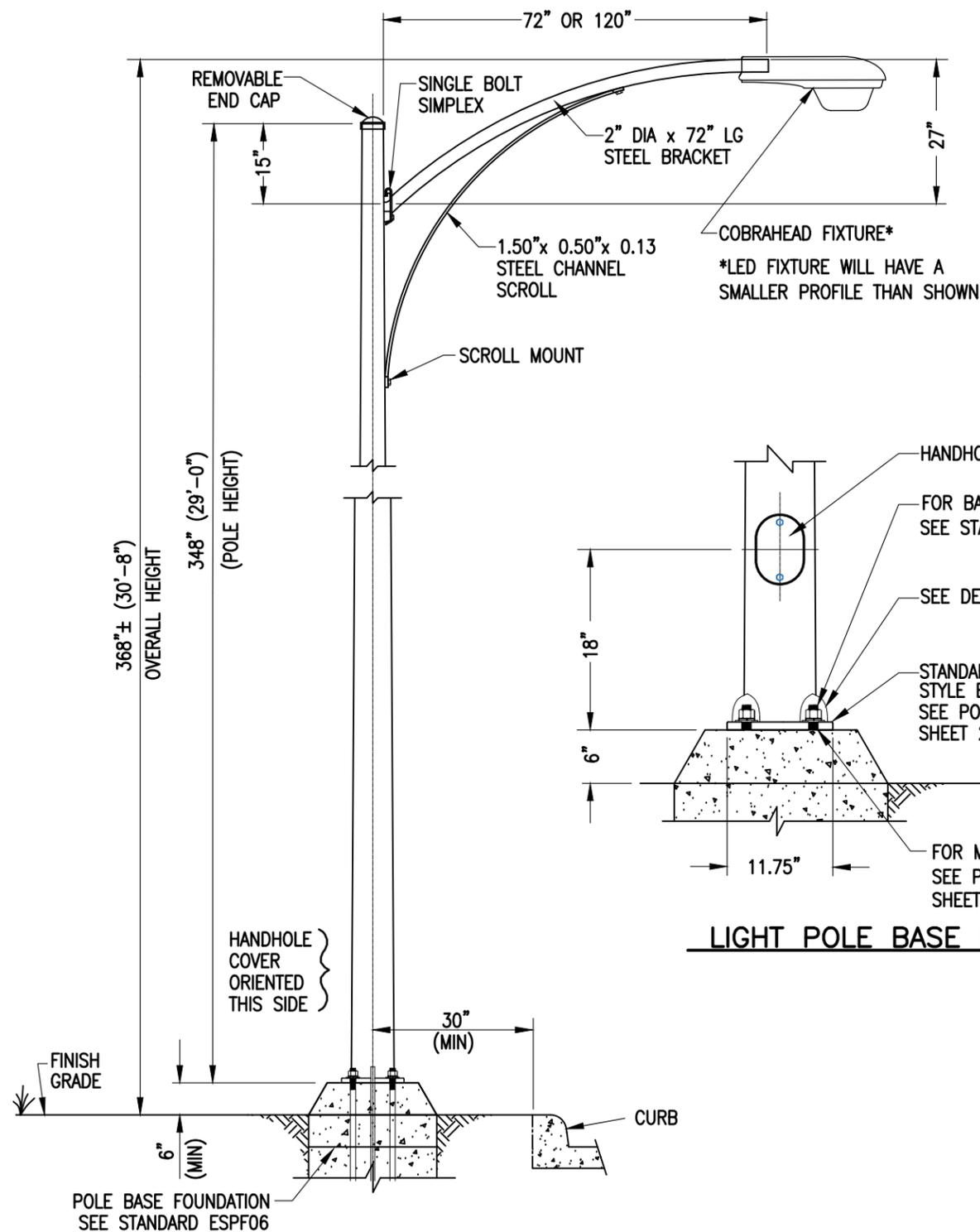
STANDARD POLE FOUNDATION & BASE DETAIL
"CDA AREA" STYLE LIGHTING FIXTURE
W/ SUN VALLEY STYLE 4200 BASE



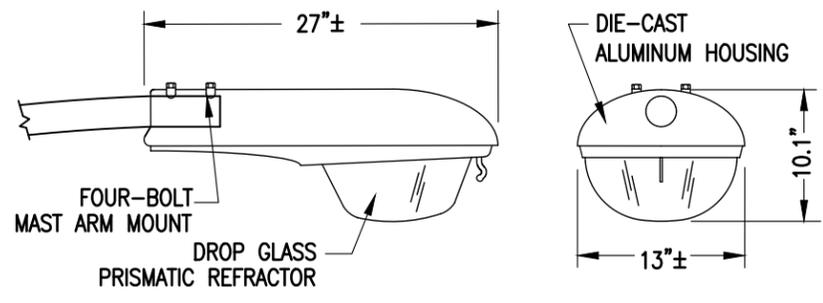
CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION DATE
12/2017

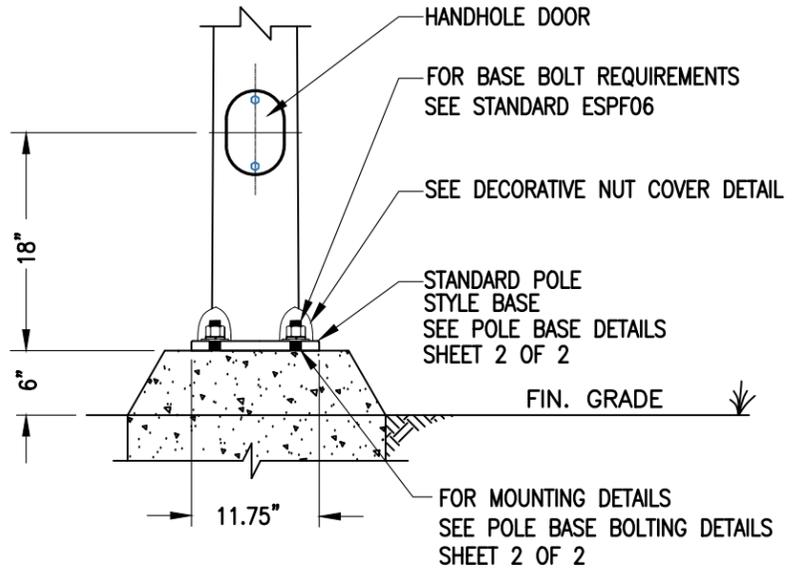
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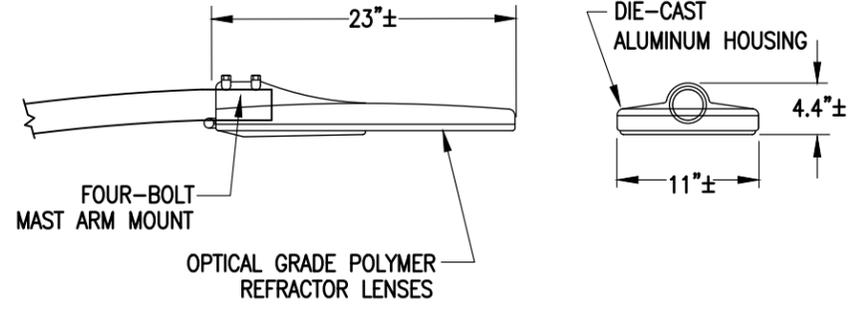
LIGHT POLE ASSEMBLY DETAILS



HPS COBRA HEAD LUMINAIRE



LIGHT POLE BASE DETAILS



LED COBRA HEAD LUMINAIRE

SPECIFICATIONS:

1. **LUMINAIRE:** SINGLE DOOR COBRAHEAD, POWDER COATED, DIE-CAST ALUMINUM, FOUR-BOLT INTERNAL MAST ARM MOUNT NO PHOTO-CONTROL RECEPTACLE. (ACUITY BRANDS LIGHTING INC., ROADWAY SERIES 115, #115 15S CA MT2 R3 DG 4B NR, OR EQUAL.)
2. **OPTICS:** HPS LUMINAIRE HOOD HOUSES DROP GLASS PRISMATIC REFRACTOR, TYPE III (ASYMMETRIC) LIGHT DISTRIBUTION. LED LUMINAIRE HOOD HOUSES OPTICAL GRADE POLYMER REFRACTOR LENS, TYPE II (ASYMMETRIC) LIGHT DISTRIBUTION.
3. **LAMP HOLDERS:**
HPS: MEDIUM BASE PORCELAIN.
LED: POLARIZED PLUG/RECEPTACLE COMBINATION.
4. **LAMPS:**
HPS: 150W, 250W, OR 400W
LED: 3000-4000 CCT
5. **BALLAST/DRIVER:**
HPS: ELECTRONIC BALLAST, PEAK LEAD, AUTOTRANSFORMER TYPE, MULTI-TAP VOLTAGE WIRED FOR 240V.
LED: STD 0-10V DIMMING CAPABILITY, HIGH POWER FACTOR OF 95%. ELECTRONIC DRIVER OPERATING RANGE 50/60 Hz. AUTO-ADJUSTING VOLTAGE INPUT 120-277 VAC.
6. **SHAFT:**
STEEL: TAPERED, 8.00" DIA BASE, 3.94" DIA TOP, 29.00' LENGTH, A595 GR.A, 11 GA STEEL, MIN. YIELD 55 KSI, CIRCUMFERENTIALLY WELDED TO BASE.
SHAFT TO HAVE WIRE CLAMPS PROVIDED INSIDE PRE-WIRED POLE. GROUNDING LUG TO BE PROVIDED INSIDE FLUSH HAND-HOLE. ACCESS DOOR PROVIDED WITH AN 18" PLASTIC SHEATHED KEEPER CHAIN AND TAMPER RESISTANT HARDWARE.
7. **WIRING:** 35'-0", 14/2 WITH GROUND (TYPE UF-B) WIRE LEADS TO BE PROVIDED, POLE AND LUMINAIRE TO BE PRE-WIRED.
8. **POLE BASE:**
ONE PIECE 11.75" SQ, 0.88" THK, ASTM A36 GR STEEL, MINIMUM YIELD 36 KSI, 10.50" BOLT CIRCLE.

-CONTINUED ON SHEET 2 OF 2-

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REFERENCES:
ESMA01, ESMA04, ESPF06

STANDARD FIXTURE ASSEMBLY DETAIL
**29ft STEEL POLE W/O TRANSFORMER BASE
FOR 6ft & 10ft BRACKET ARM
WITH COBRAHEAD FIXTURE**

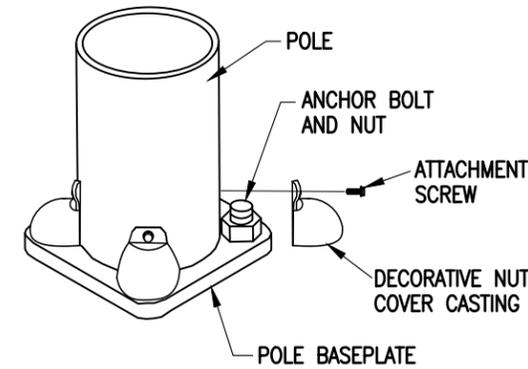


CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

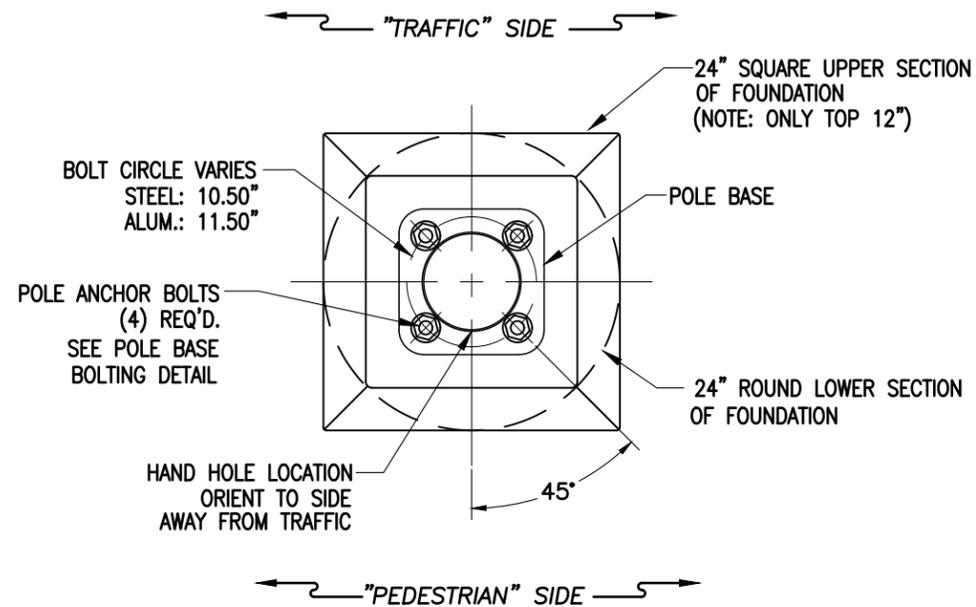
REVISION DATE 07/2018	SHEET 1 OF 2 ESFA07
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SPECIFICATIONS:

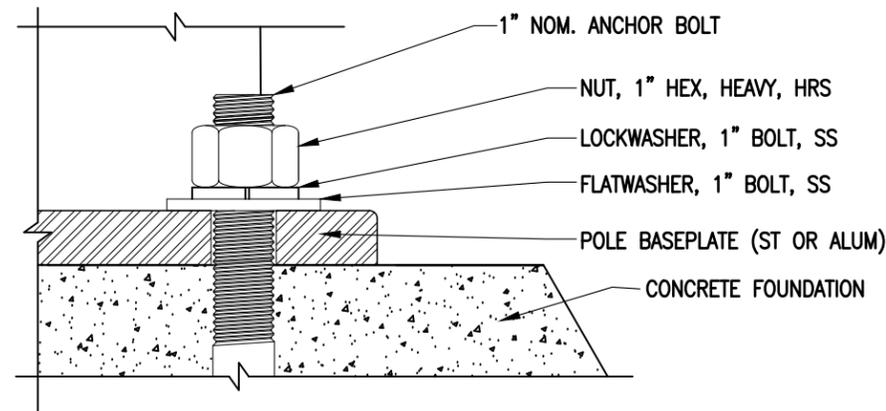
9. **ANCHORING:**
 (4) 1" DIA ANCHOR BOLTS, x 36" LG X 4" HOOK LENGTH MIN., THREADED END GALVANIZED A MINIMUM OF 12".
 FOR EACH 1" ANCHOR BOLT: (2) HEAVY HEX NUTS, SS, (2) FLAT WASHERS, SS, AND (1) LOCKWASHER, SS.
10. **FINISH:**
STEEL POLES: FIVE STAGE FINISH, ELECTROSTATICALLY APPLIED, BAKED ON URETHANE POLYESTER POWDER. (DUPONT "FEDERAL GREEN" OR EQUAL).



DECORATIVE NUT COVER DETAIL



POLE BASE DETAILS



POLE BASE BOLTING DETAILS

MATERIAL LIST	
QTY	DESCRIPTION
1	LUMINAIRE, COBRAHEAD, HPS OR LED, WATTAGE AS REQUIRED
1	POLE, 29 FT, TAPERED STEEL, PAINTED
1	BRACKET, 2.00" X 72" OR 120", FOR STEEL POLES
4	NUT, 1" NOM, HEX, HEAVY, HRS
4	LOCKWASHER, 1" NOM., SS
4	FLATWASHER, 1" NOM., SS
A/N	WIRE, 14/2 TYPE UF-B, COPPER, WITH NEUTRAL

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REFERENCES:
 ESMA01, ESMA04, ESPF06

STANDARD FIXTURE ASSEMBLY DETAIL
**29ft STEEL POLE W/O TRANSFORMER BASE
 FOR 6ft & 10ft BRACKET ARM
 WITH COBRAHEAD FIXTURE**



CITY OF RICHMOND PUBLIC UTILITIES
 STREET LIGHT STANDARDS

REVISION DATE: 07/2018
 SHEET 2 OF 2
ESFA07

SPECIFICATIONS:

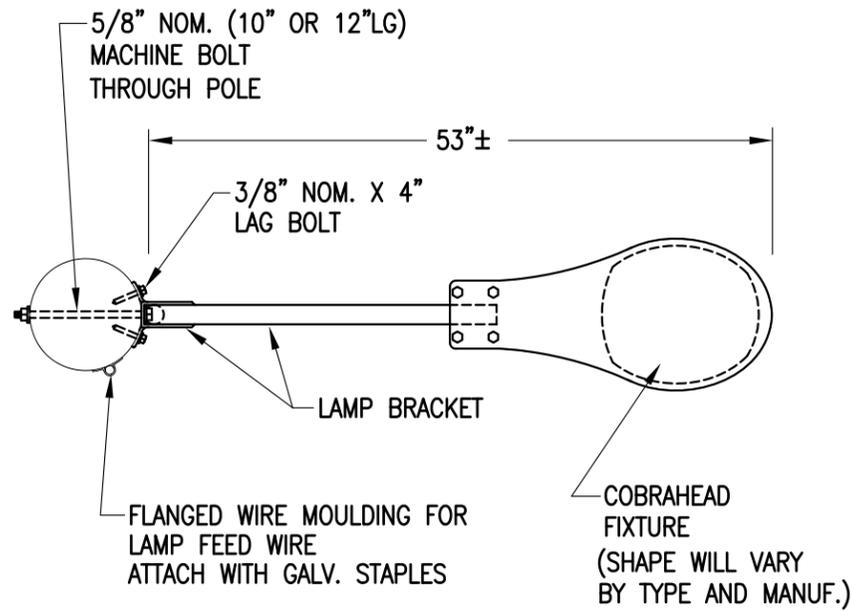
- LUMINAIRE:** SINGLE DOOR COBRAHEAD, POWDER COATED, DIE-CAST ALUMINUM, FOUR-BOLT INTERNAL MAST ARM MOUNT NO PHOTO-CONTROL RECEPTACLE. (ACUITY BRANDS LIGHTING INC., ROADWAY SERIES 115, #115 15S CA MT2 R3 DG 4B NR, OR EQUAL.)
- OPTICS:** HPS LUMINAIRE HOOD HOUSES DROP GLASS PRISMATIC REFRACTOR, TYPE III (ASYMMETRIC) LIGHT DIST. LED LUMINAIRE HOOD HOUSES OPTICAL GRADE POLYMER REFRACTOR LENS, TYPE II (ASYMMETRIC) LIGHT DISTRIBUTION.
- LAMP HOLDERS:**
HPS: MEDIUM BASE PORCELAIN.
LED: POLARIZED PLUG/RECEPTACLE COMBINATION.
- LAMPS:**
HPS: 150W, 250W, OR 400W
LED: 3000-4000 CCT
- BALLAST/DRIVER:**
HPS: ELECTRONIC BALLAST, PEAK LEAD, AUTOTRANSFORMER TYPE, MULTI-TAP VOLTAGE WIRED FOR 240V.
LED: STD 0-10V DIMMING CAPABILITY, HIGH POWER FACTOR OF 95%. ELECTRONIC DRIVER OPERATING RANGE 50/60 Hz. AUTO-ADJUSTING VOLTAGE INPUT 120-277 VAC.
- WIRING:** 14/2 WITH GROUND (TYPE UF-B) WIRE. LUMINAIRE TO BE PRE-WIRED.

GENERAL NOTES:

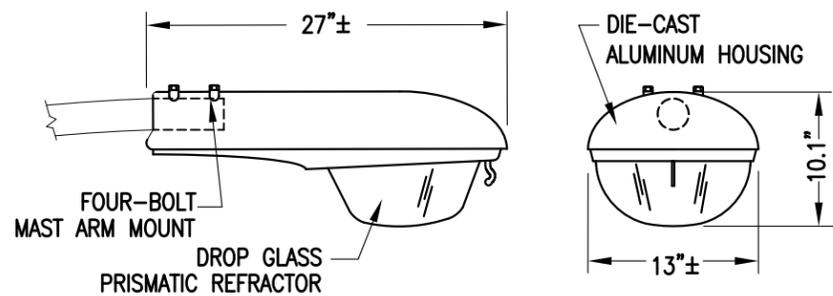
- CONNECT FOR 240V OPERATION.
- MARK THE INSTALLATION DATE ON THE LAMP AND INSIDE THE DOOR OF THE FIXTURE WITH PERMANENT INK MARKING PEN.
- MOUNT THE FIXTURE PARALLEL TO THE ALLEY SURFACE.
- ROUTE THE WIRE THROUGH THE NON-METALLIC WIRE MOULD AND SECURE WITH GALVANIZED STAPLES.

MATERIAL LIST

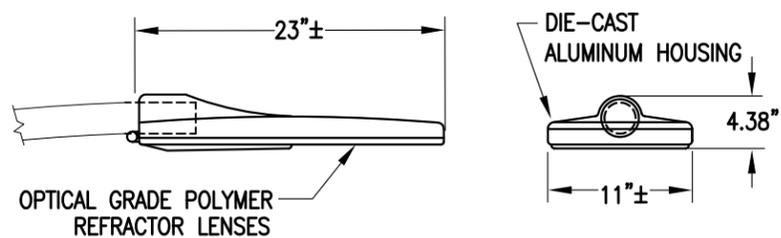
QTY	DESCRIPTION
1	LUMINAIRE, COBRAHEAD, HPS
1	LUMINAIRE, COBRAHEAD, LED
1	BRACKET, 1-1/4" X 2.5FT (30"), UPSWEEP
A/N	FLANGED NON-METALLIC WIRE MOULDING
1	BOLT, 5/8" X 12" OR 10"LG, MACHINE, GALVANIZED
2	LAG BOLT, 3/8" X 4", GALVANIZED
A/N	WIRE, 14/2 TYPE UF-B, COPPER, WITH NEUTRAL
1	POLE, TREATED WOOD, CLASS 4, 35FT OR 40FT



VIEW "A-A"

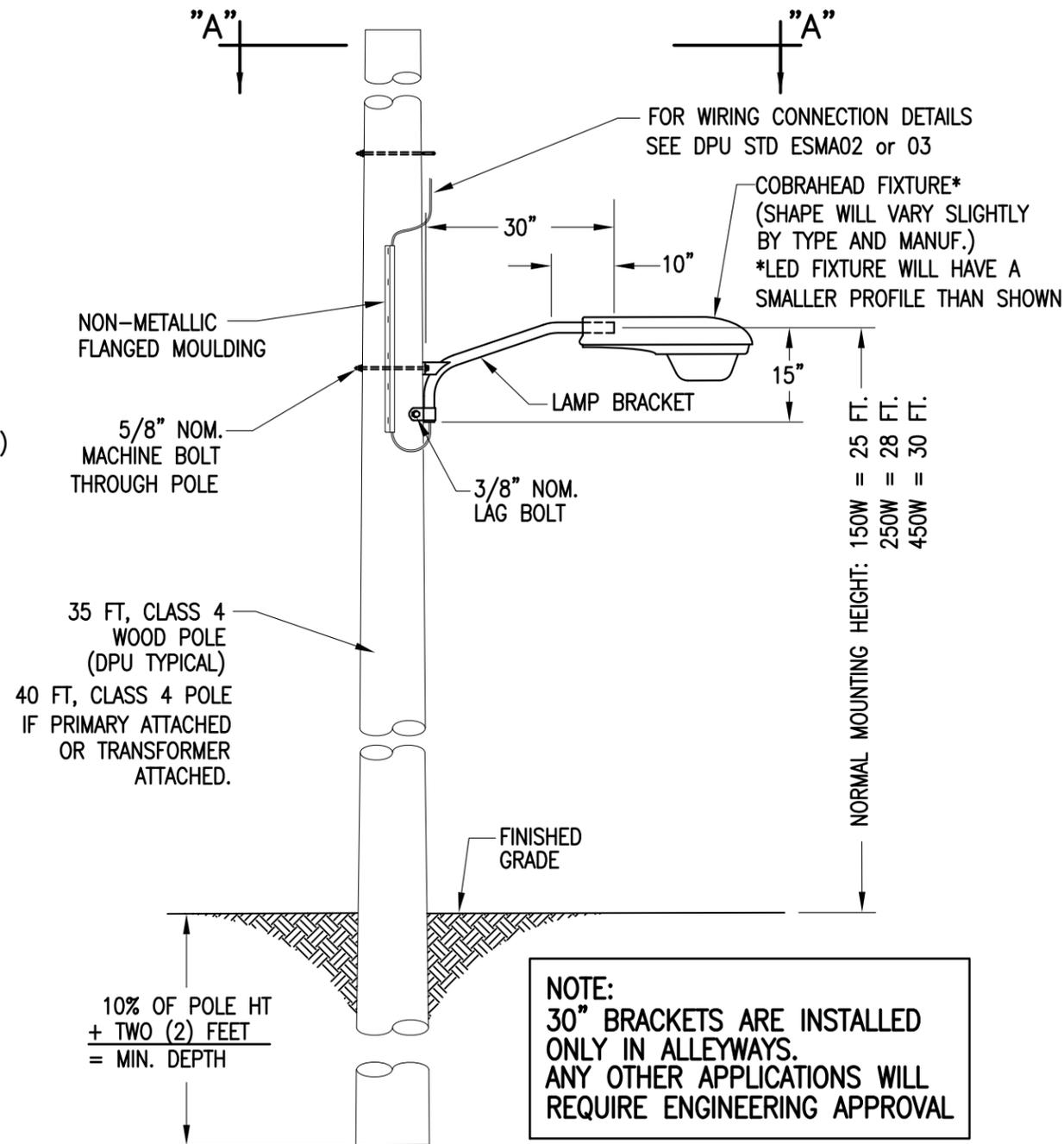


-HPS FIXTURE-



-LED FIXTURE-

COBRAHEAD STYLE LUMINAIRE DETAILS



BRACKET ASSEMBLY DETAILS

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ENGINEERING: _____ SIGNED COPY ON FILE

REFERENCES:
ESMA02,-03



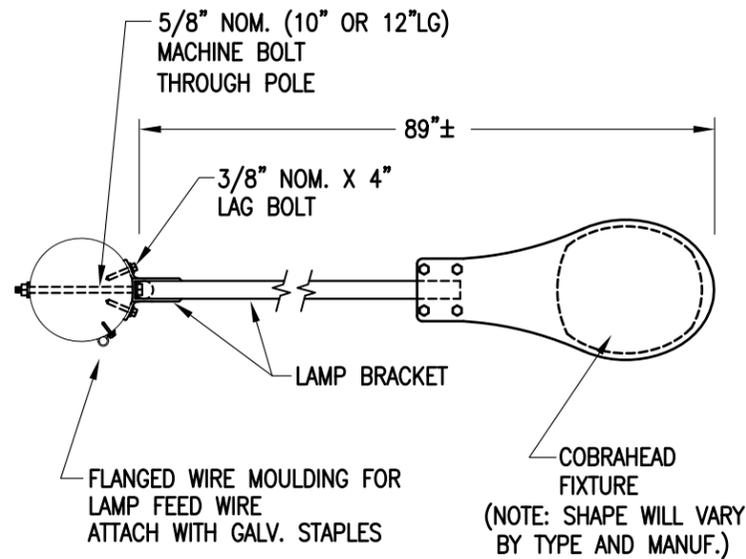
STANDARD FIXTURE ASSEMBLY DETAIL
STANDARD 35/40ft WOOD POLE W/ 2.5ft BRACKET ARM
HIGH PRESSURE SODIUM OR LED TYPE COBRA HEAD STYLE LUMINAIRE



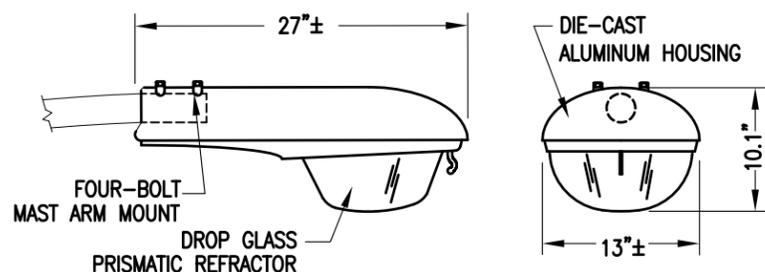
CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION DATE
12/2017

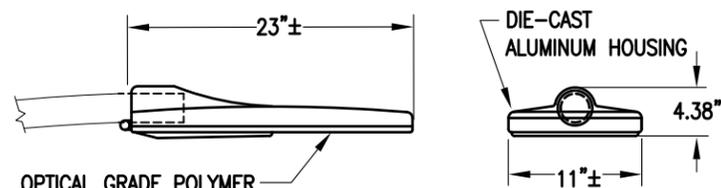
SHEET 1 OF 1
ESFA08



VIEW "A-A"

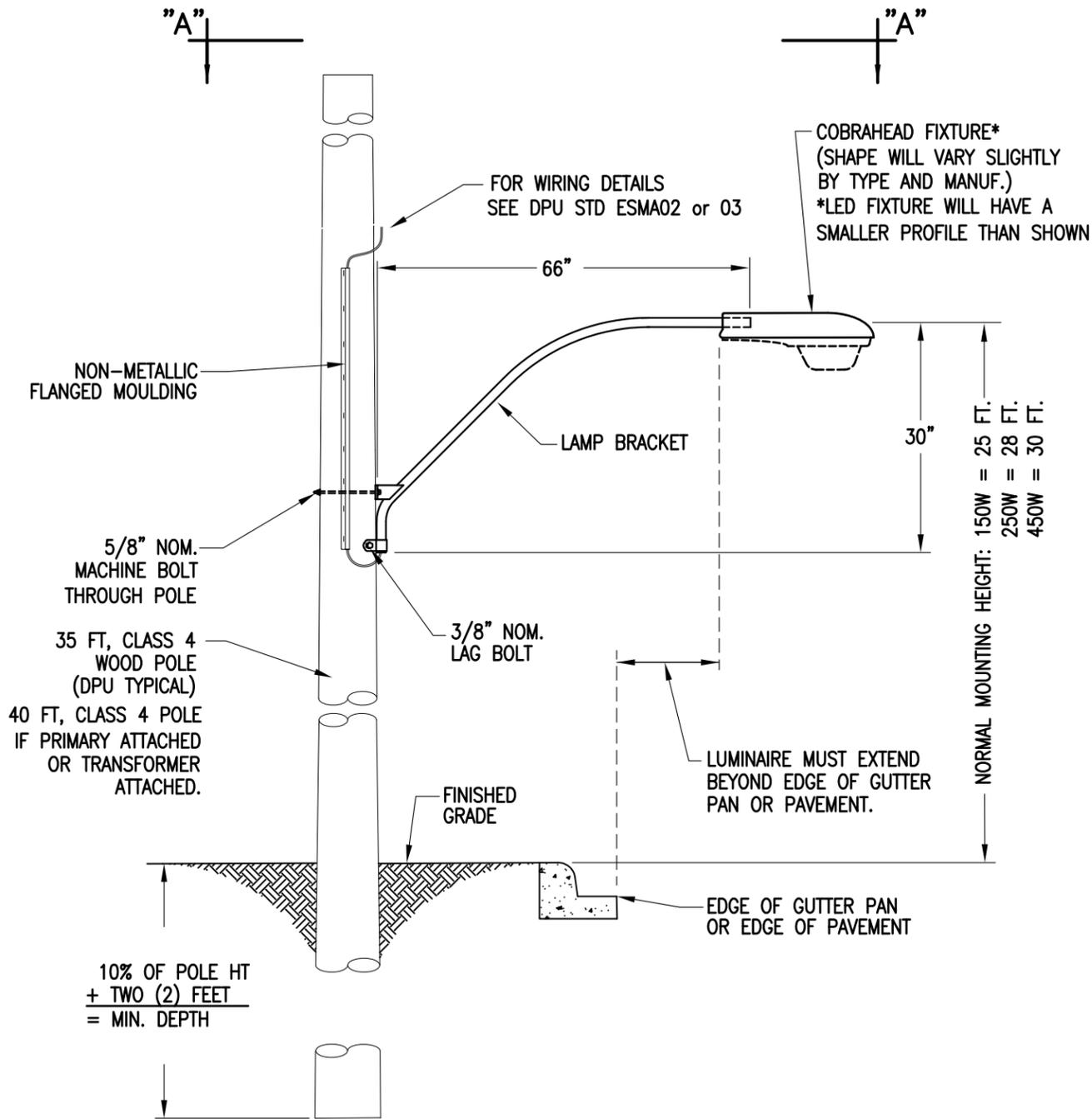


-HPS FIXTURE-



-LED FIXTURE-

COBRAHEAD STYLE LUMINAIRE DETAILS



BRACKET ASSEMBLY DETAILS

SPECIFICATIONS:

- LUMINAIRE:** SINGLE DOOR COBRAHEAD, POWDER COATED, DIE-CAST ALUMINUM, FOUR-BOLT INTERNAL MAST ARM MOUNT NO PHOTO-CONTROL RECEPTACLE. (ACUITY BRANDS LIGHTING INC., ROADWAY SERIES 115, #115 15S CA MT2 R3 DG 4B NR, OR EQUAL.)
- OPTICS:** HPS LUMINAIRE HOOD HOUSES DROP GLASS PRISMATIC REFRACTOR, TYPE III (ASYMMETRIC) LIGHT DIST. LED LUMINAIRE HOOD HOUSES OPTICAL GRADE POLYMER REFRACTOR LENS, TYPE II (ASYMMETRIC) LIGHT DISTRIBUTION.
- LAMP HOLDERS:**
HPS: MEDIUM BASE PORCELAIN.
LED: POLARIZED PLUG/RECEPTACLE COMBINATION.
- LAMPS:**
HPS: 150W, 250W, OR 400W
LED: 3000-4000 CCT
- BALLAST/DRIVER:**
HPS: ELECTRONIC BALLAST, PEAK LEAD, AUTOTRANSFORMER TYPE, MULTI-TAP VOLTAGE WIRED FOR 240V.
LED: STD 0-10V DIMMING CAPABILITY, HIGH POWER FACTOR OF 95%. ELECTRONIC DRIVER OPERATING RANGE 50/60 Hz. AUTO-ADJUSTING VOLTAGE INPUT 120-277 VAC.
- WIRING:** 14/2 WITH GROUND (TYPE UF-B) WIRE. LUMINAIRE TO BE PRE-WIRED.

GENERAL NOTES:

- CONNECT FOR 240V OPERATION.
- MARK THE INSTALLATION DATE ON THE LAMP AND INSIDE THE DOOR OF THE FIXTURE WITH PERMANENT INK MARKING PEN.
- MOUNT THE FIXTURE PARALLEL TO THE ROADWAY SURFACE.
- ROUTE THE WIRE THROUGH THE NON-METALLIC WIRE MOULD AND SECURE WITH GALVANIZED STAPLES.

MATERIAL LIST

QTY	DESCRIPTION
1	LUMINAIRE, COBRAHEAD, HPS
1	LUMINAIRE, COBRAHEAD, LED
1	BRACKET, 1-1/4" X 6FT (72"), UPSWEEP
A/N	FLANGED NON-METALLIC WIRE MOULDING
1	BOLT, 5/8" X 12" OR 10"LG, MACHINE, GALVANIZED
2	LAG BOLT, 3/8" X 4", GALVANIZED
A/N	WIRE, 14/2 TYPE UF-B, COPPER, WITH NEUTRAL
1	POLE, TREATED WOOD, CLASS 4, 35FT OR 40FT

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REFERENCES:
ESMA02,-03



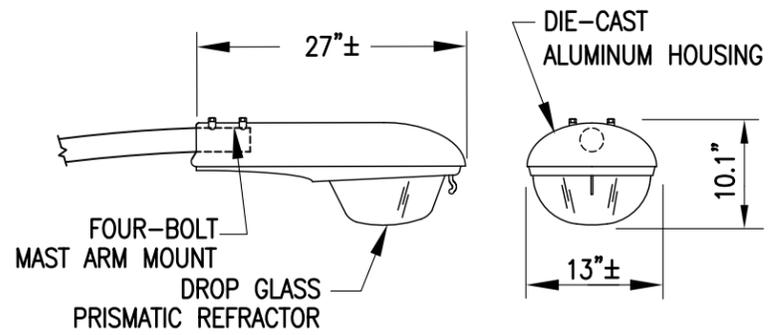
STANDARD FIXTURE ASSEMBLY DETAIL
STANDARD 35/40ft WOOD POLE W/6ft BRACKET ARM
HIGH PRESSURE SODIUM OR LED TYPE COBRA HEAD STYLE LUMINAIRE



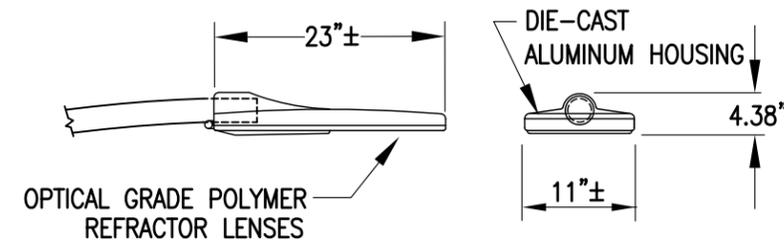
CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION DATE
12/2017

SHEET 1 OF 1
ESFA09

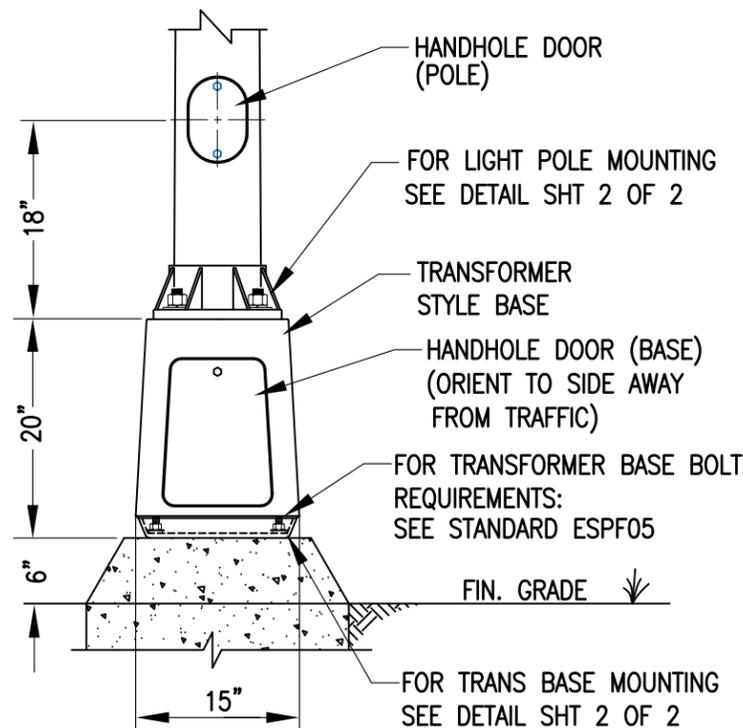


-HPS FIXTURE-

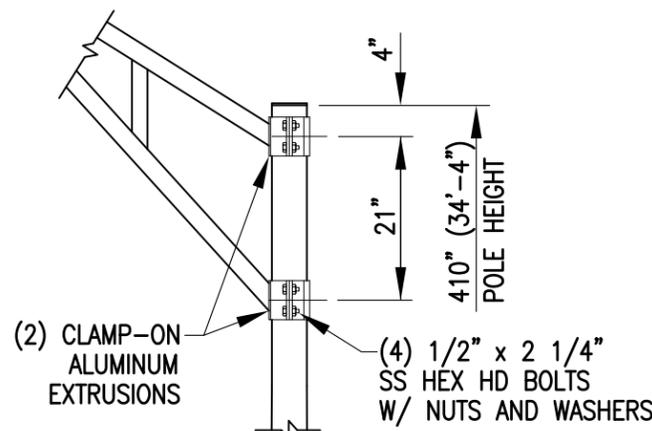


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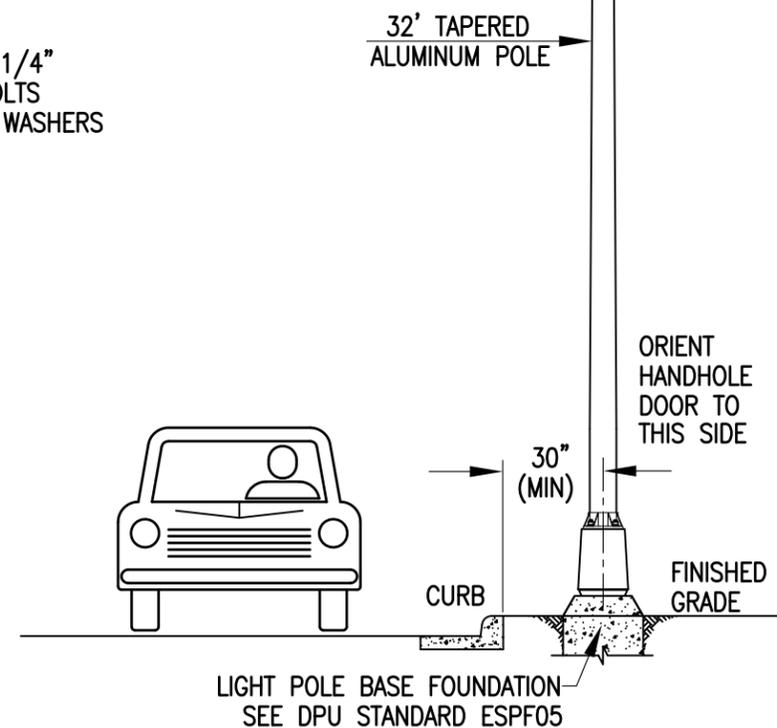
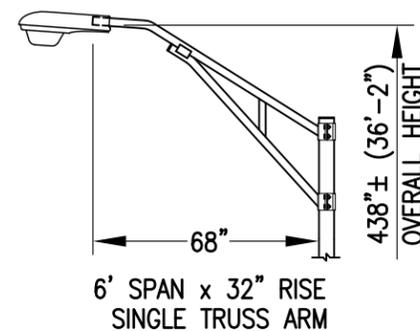
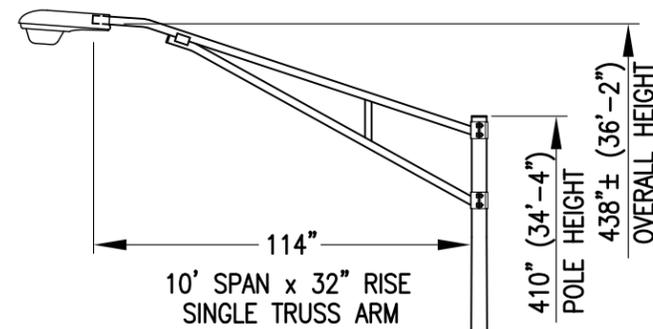
COBRAHEAD LUMINAIRE DETAILS



LIGHT POLE BASE DETAILS



BRACKET MOUNTING DETAILS



SPECIFICATIONS:

1. **LUMINAIRE**
 HPS: SINGLE DOOR COBRAHEAD, POWDER COATED, DIE-CAST ALUMINUM, FOUR-BOLT INTERNAL MAST ARM MOUNT NO PHOTO-CONTROL RECEPTACLE. (ACUITY BRANDS LIGHTING INC., ROADWAY SERIES 115, OR EQUAL.)
 LED: SINGLE ACCESS DOOR COBRAHEAD, POWDER COATED, DIE-CAST ALUMINUM, FOUR-BOLT INTERNAL MAST ARM MOUNT, NO PHOTO-CONTROL RECEPTACLE. (ACUITY BRANDS LIGHTING INC., AUTOBAHN SERIES ATBM, #ATBM-F-MVOLT-R3-4B-NL-NR-AO, OR EQUAL.)
2. **OPTICS**
 HPS: LUMINAIRE HOOD HOUSES DROP GLASS PRISMATIC REFRACTOR, TYPE III (ASYMMETRIC) LIGHT DISTRIBUTION.
 LED: LUMINAIRE HOOD HOUSES OPTICAL GRADE POLYMER REFRACTOR LENS, TYPE II (ASYMMETRIC) LIGHT DISTRIBUTION.
3. **LAMP HOLDERS:**
 HPS: MEDIUM BASE PORCELAIN.
 LED: POLARIZED PLUG/RECEPTACLE COMBINATION.
4. **LAMPS:**
 HPS: 150W, 250W, OR 400W
 LED: 2700-3000 CCT (RESIDENTIAL)
 LED: 4000 CCT (NON-RESIDENTIAL)
5. **BALLAST/DRIVER:**
 HPS: ELECTRONIC BALLAST, PEAK LEAD, AUTOTRANSFORMER TYPE, MULTI-TAP VOLTAGE WIRED FOR 240V.
 LED: STD 0-10V DIMMING CAPABILITY, HIGH POWER FACTOR OF 95%. ELECTRONIC DRIVER OPERATING RANGE 50/60 Hz. AUTO-ADJUSTING VOLTAGE INPUT 120-277 VAC.
6. **SHAFT:**
 TAPERED, 8.00" DIA BASE, 4.50" DIA TOP, 32'-0" LENGTH, 6063 T4 ALLOY ALUMINUM TUBING, HEAT TREATED TO T6, CIRCUMFERENTIALLY WELDED TO BASE, FACTORY INSTALLED VIBRATION DAMPENER. SHAFT TO HAVE WIRE CLAMPS PROVIDED INSIDE PRE-WIRED POLE. GROUNDING LUG TO BE PROVIDED INSIDE FLUSH HANDHOLE. ACCESS DOOR WITH AN 18" PLASTIC SHEATHED KEEPER CHAIN AND TAMPER RESISTANT HARDWARE. HOLOPHANE NO. 320045805T4A-SB, OR EQUAL.
7. **WIRING:** 35'-0", 14/2 WITH GROUND (TYPE UF-B) WIRE LEADS TO BE PROVIDED, POLE AND LUMINAIRE TO BE PRE-WIRED.
8. **POLE BASE:**
 ONE PIECE 12.0" SQ, ASTM A356 ALUMINUM ALLOY, HEAT TREATED TO A T6 CONDITION, WITH AN 11"-12" BOLT CIRCLE.

-CONTINUED ON SHEET 2 OF 2-

REVIEWED & APPROVED

ENGINEERING: _____ SIGNED COPY ON FILE



REFERENCES:
 ESMA01, ESMA04, ESPF05

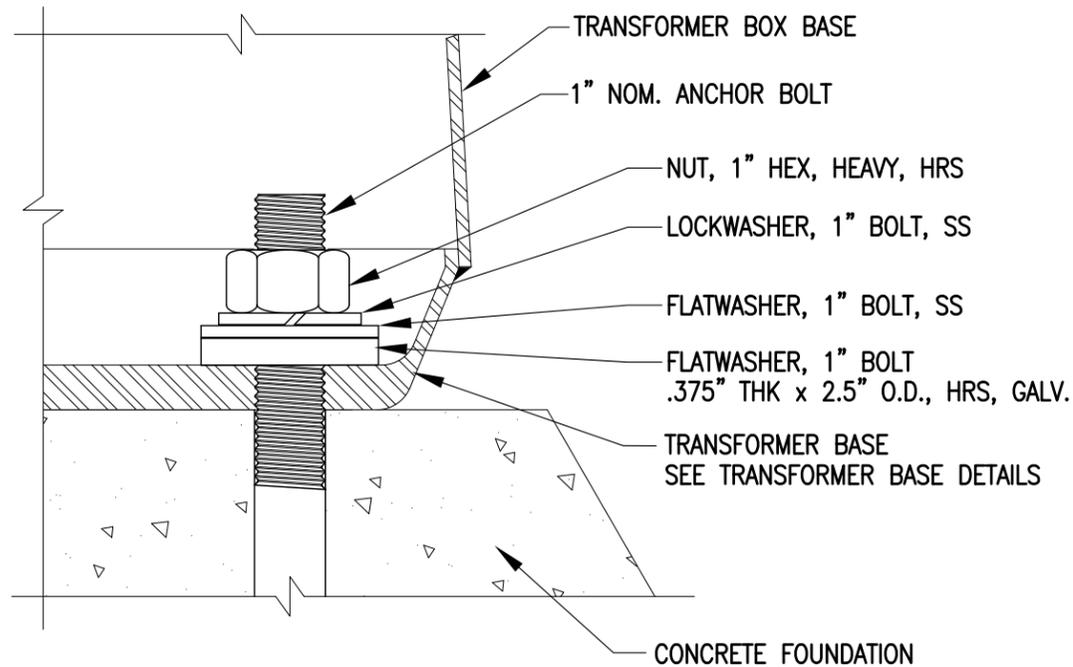
STANDARD FIXTURE ASSEMBLY DETAIL
**32ft ALUMINUM POLE WITH TRANSFORMER PEDESTAL BASE
 FOR 6ft & 10ft BRACKET ARM
 WITH COBRAHEAD FIXTURE**



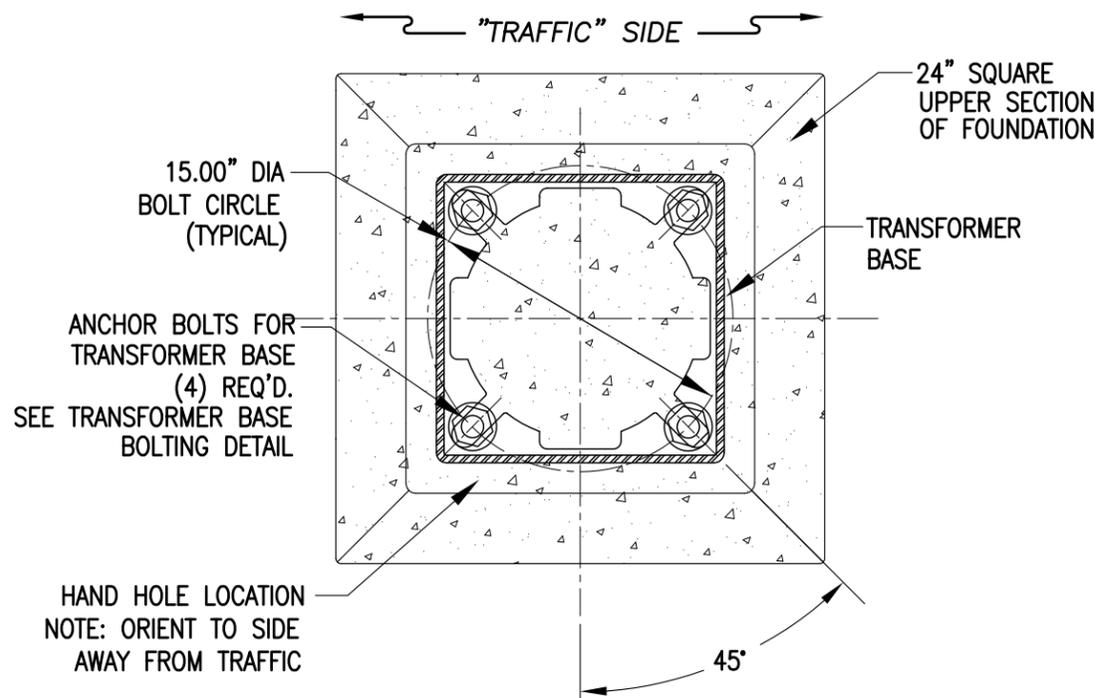
CITY OF RICHMOND PUBLIC UTILITIES
 STREET LIGHT STANDARDS

REVISION DATE
 08/2018

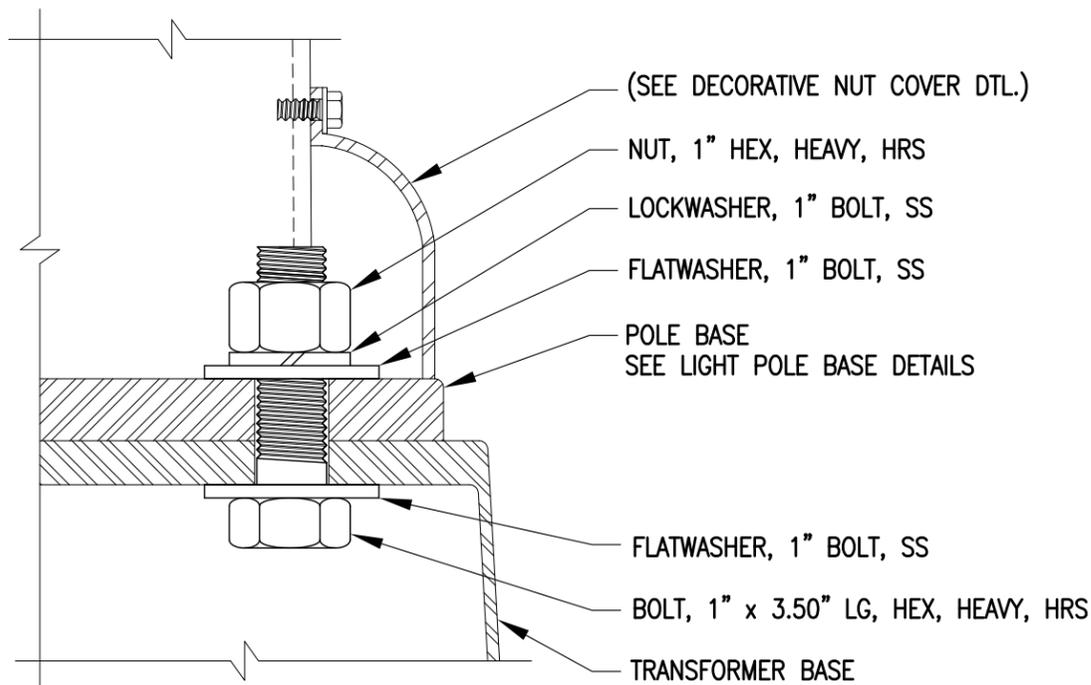
SHEET 1 OF 2
ESFA21



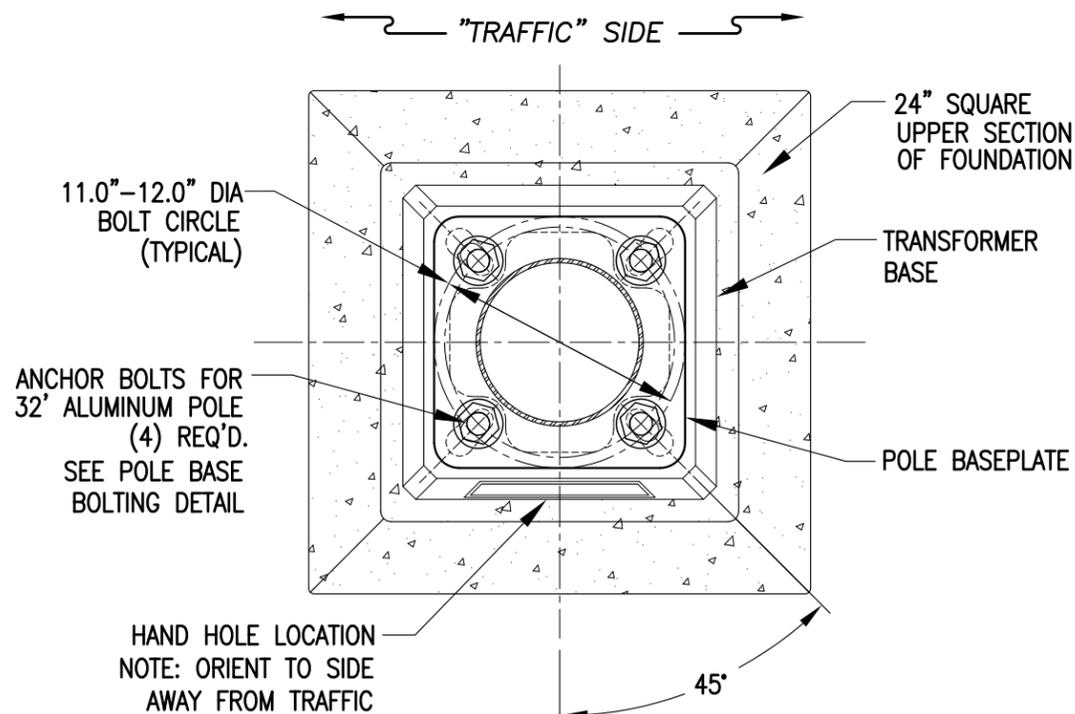
TRANSFORMER BASE BOLT DETAIL



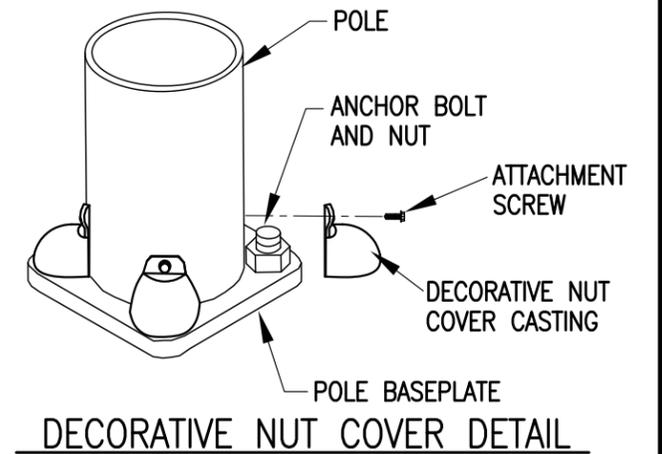
TRANSFORMER BASE DETAIL



LIGHT POLE BASE BOLT DETAIL



POLE BASE DETAIL



DECORATIVE NUT COVER DETAIL

SPECIFICATIONS:

- 9. **POLE ANCHORING:**
 (4) 1" DIA ANCHOR BOLTS, x 36" LG X 4" HOOK LENGTH MIN., THREADED END GALVANIZED A MINIMUM OF 12".
 FOR EACH 1" ANCHOR BOLT: (2) HEAVY HEX NUTS, SS, (2) FLAT WASHERS, SS, AND (1) LOCKWASHER, SS.
- 10. **POLE FINISH:**
 NATURAL ALUMINUM WITH 100 GRIT SATIN POLISH FINISH.
- 11. **TRUSS ARMS:**
 MAIN TRUSS: 3.5" O.D. X 0.125" WALL 6063-T6 ALUMINUM ALLOY. TAPERED TO 2.375" O.D. AND FLATTENED TO 4.34"x 2.375" ELLIPTICAL.
 SUPPORT TRUSS: 2.375" O.D. x 0.154" WALL (2" SCH 40) 6063-T6 ALUMINUM ALLOY TUBE.
 HOLOPHANE NO. 1TA0632C45 (6FT) OR 1TA1032C45 (10FT) OR EQUAL.

MATERIAL LIST

QTY	DESCRIPTION
1	LUMINAIRE, COBRAHEAD, HPS OR LED
1	POLE, 32 FT, ALUMINUM
1	TRANSFORMER POLE BASE
1	TRUSS, ALUMINUM, 6FT OR 10FT
4	BOLT, 1" NOM. x 3.50" LG, HEX, HEAVY, HRS
8	NUT, 1" NOM, HEX, HEAVY, HRS
8	LOCKWASHER, 1" NOM., SS
12	FLATWASHER, 1" NOM., SS
4	FLATWASHER, 1" NOM., 0.375" THK x 2.5"O.D., HRS
A/N	WIRE, 14/2 TYPE UF-B, COPPER, WITH GROUND

REVIEWED & APPROVED

ENGINEERING: SIGNED COPY ON FILE

REFERENCES:
 ESMA01, ESMA04, ESPF05



STANDARD FIXTURE ASSEMBLY DETAIL
**32ft ALUMINUM POLE WITH TRANSFORMER PEDESTAL BASE
 FOR 6ft & 10ft BRACKET ARMS
 WITH COBRAHEAD FIXTURE**

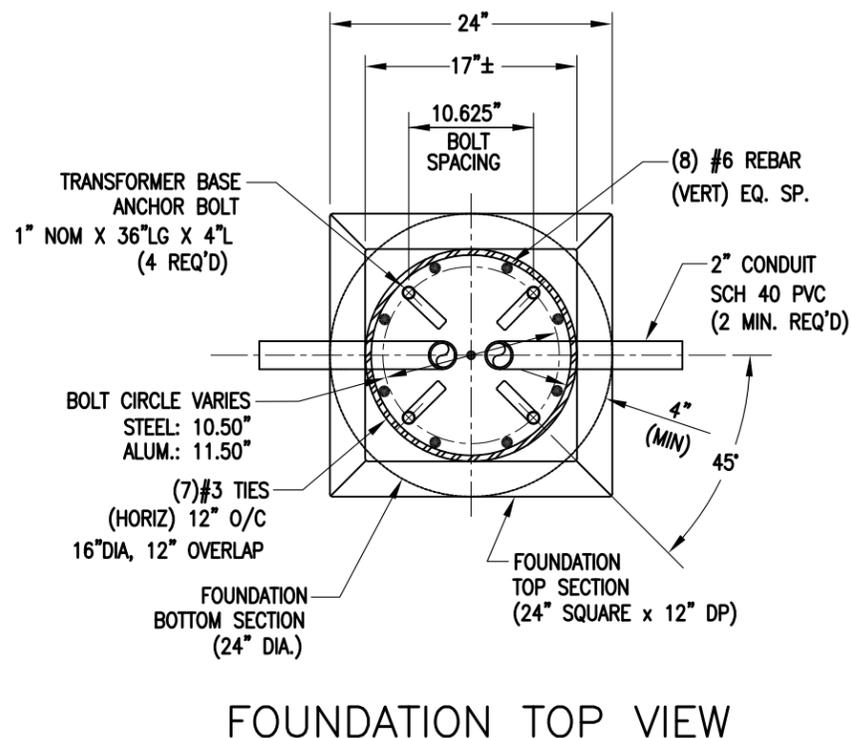


CITY OF RICHMOND PUBLIC UTILITIES
 STREET LIGHT STANDARDS

REVISION DATE
 08/2018

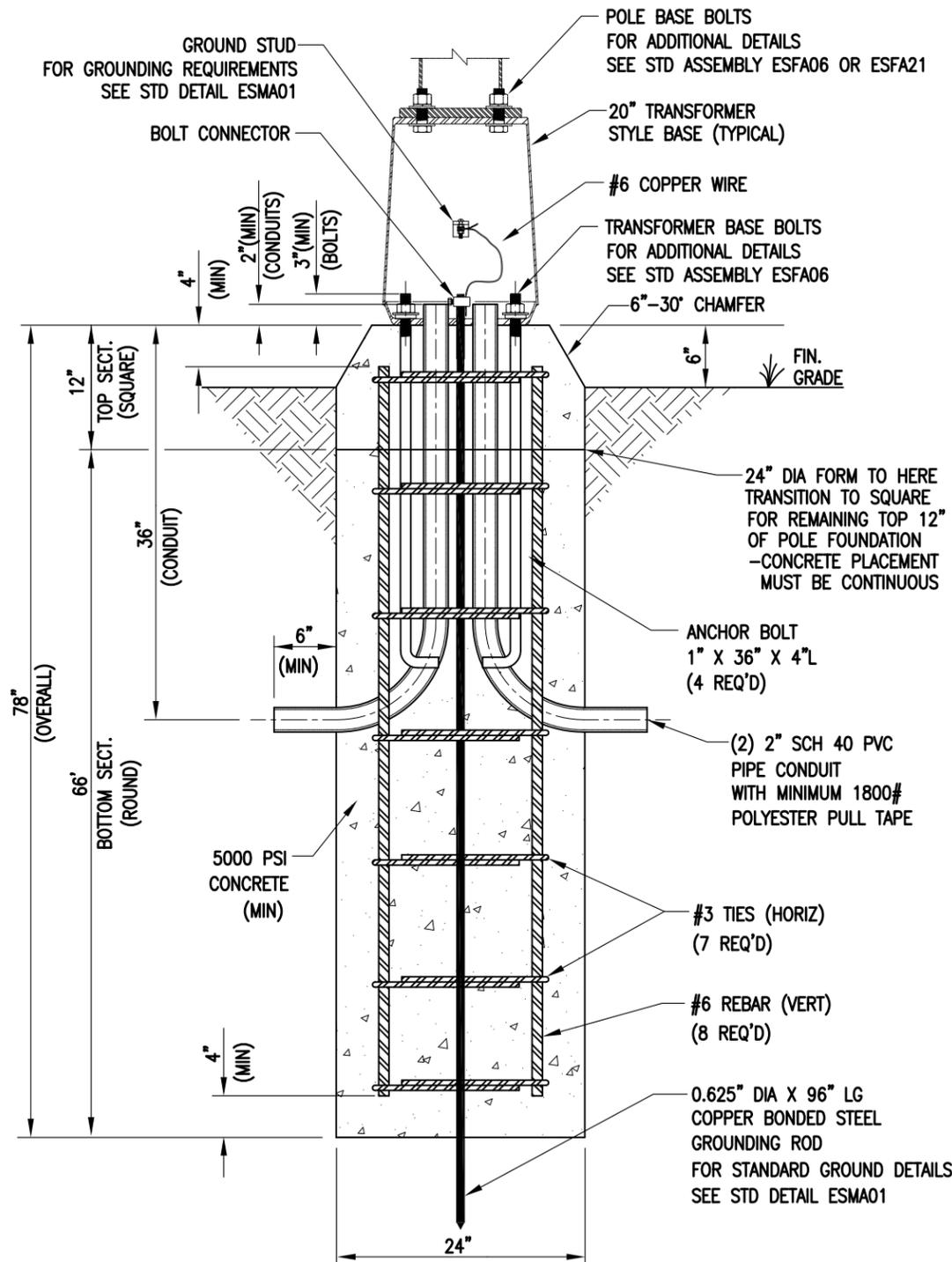
SHEET 2 OF 2

ESFA21



FOUNDATION TOP VIEW

NOTE: "SPECIAL" SPREAD FOOTINGS MAY BE REQUIRED UNDER CERTAIN FIELD ENCOUNTERED CONDITIONS. FINAL DESIGN WILL BE ON A CASE-BY-CASE BASIS AND WILL REQUIRE ENGINEER APPROVAL.



FOUNDATION DETAILS

GENERAL NOTES:

1. CONDUIT ELBOWS SHALL HAVE FACTORY 90° BENDS. THE BEND RADIUS SHALL BE IN ACCORDANCE WITH THE NEC SPECIFICATIONS FOR RIGID CONDUITS. (1" = 5.7" MIN RAD; 2" = 9.5" MIN RAD)
2. THE ACTUAL BOLT CIRCLE SHALL BE VERIFIED BY THE CONTRACTOR. A BOLT CIRCLE TEMPLATE SHALL BE FURNISHED BY THE LIGHTING POLE OR THE POLE BASE MANUFACTURER.
3. THE NUMBER, ORIENTATION AND SIZE OF CONDUITS, ENTERING AND EXITING THE FOUNDATION SHALL BE AS SHOWN ON PLAN.
4. CONCRETE PLACEMENT SHALL BE A CONTINUOUS POUR WITH 5000 PSI (MIN) CONCRETE. NO COLD JOINTS WILL BE ALLOWED. INTERNAL CONCRETE VIBRATION REQUIRED DURING PLACEMENT.
5. NO MORTAR, GROUT, OR CEMENT SHALL BE PLACED, FOR LEVELING, BETWEEN THE BOTTOM OF THE POLE BASEPLATE, AND THE TOP OF THE FINISHED FOUNDATION PEDESTAL.
6. ALL ANCHOR BOLTS SHALL BE 1" X 36" X 4", "L" TYPE, HOT DIPPED GALVANIZED, AND SHALL BE INSTALLED WITH THEIR "L" ORIENTED TOWARDS THE CENTER OF THE FOUNDATION.
7. THE ANCHOR BOLTS WILL PROJECT A MINIMUM OF 3", AS SHOWN AND NOT TO EXCEED 4".
8. THE HORIZONTAL REBARS SHALL BE INSTALLED 4" ABOVE THE BOTTOM OF THE CONCRETE AND 4" BELOW TOP OF FINISHED CONCRETE.
9. THE VERTICAL REINFORCING BARS SHALL HAVE A MINIMUM OF 4" OF CONCRETE COVER.
10. THE CENTERLINE OF THE POLE FOUNDATION SHALL BE A MINIMUM OF 30" FROM THE BACK OF CURB. WHEN NO CURB IS PRESENT, PLACEMENT WILL BE A MINIMUM OF 36" FROM THE EDGE OF PAVEMENT.
11. AN ALTERNATE GROUND INSTALLATION METHOD MAY BE USED ONLY WITH APPROVAL OF THE DEPARTMENT OF PUBLIC UTILITY'S ENGINEER, AND ONLY IF THE GROUND ROD CAN—NOT BE INSTALLED WITHIN THE FOUNDATION AS SHOWN. FOR ALTERNATE GROUNDING METHODS CONTACT DPU ENGINEER.

ANY ALTERNATE MATERIALS OR CONFIGURATIONS ARE SUBJECT TO THE APPROVAL OF THE ENGINEER OR THE INSPECTOR.

REVIEWED & APPROVED
ENGINEERING: _____ SIGNED COPY ON FILE

REFERENCES:
ESMA01, ESFA06, ESFA21
VDOT 2016 ROAD AND BRIDGE STANDARDS



STANDARD POLE FOUNDATION & BASE DETAIL
29ft STEEL OR 32ft ALUMINUM POLE
WITH STANDARD TRANSFORMER STYLE BASE



CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION DATE
08/2018

SHEET 1 OF 1
ESPF05