

MONTGOMERY COUNTY, MARYLAND  
DEPARTMENT OF TRANSPORTATION  
TRAFFIC ENGINEERING AND OPERATIONS

MAY 2010

BRONZE-COLORED, DECORATIVE, ROUND  
TAPERED, STEEL, TALL-POST STREETLIGHT POLES

1) PURPOSE

The purpose of these specifications is to prescribe the minimum requirements for the design, manufacture, fabrication, finishing and delivery of decorative bronze-colored, tapered, round, steel

tall-post type streetlight poles for mounting one or more streetlight luminaires. These tall-posts are intended for use along Montgomery County roadways. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications and the attached drawings.

Each pole shall be complete with the following:

- a) Base plate covers with attaching hardware;
- b) Pole top cover with attaching hardware;
- c) J-hook inside of top of pole;
- d) Anchor bolts (as specified);
- e) Handhole and cover plate (as specified);
- f) Typical footing design specifications including, but not limited to, base template, anchor bolt dimensions, reinforcing and footing details;
- g) "National Park Service Brown" finishing as per these specifications and attachment entitles "Finishing Galvanized Steel and Aluminum Metals."

2) DESIGN CRITERIA

2.1 - AASHTO Standards

The streetlight pole shall meet the requirements of the American Association of State Highway and Transportation Official (AASHTO), "Standard Specifications for Structural Supports for Highway Signs, Luminaire, and Traffic Signals," latest edition.

## 2.2 - Wind Load

All components of the tall-post shall be designed to resist (at yield strength of the materials without permanent deflection or destruction) test loads equivalent to the calculated loads developed by the velocity pressure of at least 80 MPH wind. A minimum safety factor of 1.82 on the yield strength shall be maintained.

For design purposes, the following assumptions shall be made:

1. Streetlight luminaires shall be assumed to be rectilinear in shape, minimum length plus width of 36" with a side-mounted bracket arm 8 to 12 inches in length.
2. One or two streetlight luminaires may be mounted on each tall-post streetlight pole. Two configurations of dual luminaire mounting shall be considered: opposite arrangement (180°) and at a right angle (90°).
3. The streetlight luminaires shall be mounted at a height of 25 feet above the base.
4. One 24" x 36" sign may be mounted with the sign's bottom edge 7 feet above the base.

## 2.3 - Finish

Prior to finishing, all materials except the unthreaded ends of the anchor bolts shall be hot-dipped galvanized as per ASTM A-123. All visible components shall then be finished to produce the appearance of a decorative "National Park Service Brown" color as described on the attachment entitled "Finishing Galvanized Steel and Aluminum Metals."

One (1) fourteen (14) ounce spray can to match the color of the tall-post streetlight shall be provided with each tall-post streetlight pole supplied.

Other finishing techniques may be considered by Montgomery County. Complete documentation and specifications for any alternate finish must be submitted with together with the results of an accelerated life-testing by an independent laboratory which certifies an expected life of the alternate finish of at least twenty (20) years.

3) MATERIALS

3.1) Design Uniformity

These specifications are intended to produce a uniform system of hardware, that will minimize the number of stock items that the County or its contractor(s) must maintain. The tall-post streetlight pole shall be capable of being mounted on the foundation of a decorative cast lamp post (i.e., four 0.75 inch diameter anchor bolts on a 12.5 inch diameter bolt circle).

3.2) Castings

All castings used to complete the tall-post streetlight shall be clean and smooth with details well defined and true to pattern. Steel castings shall conform to ASTM A27, Grade 65-35. Gray iron castings shall conform to ASTM A126, Class A.

4) POST

4.1) Shaft

The tapered post-shaft shall be made of a single length of sheet of NOT LESS THAN No. 11 Manufacturers Standard Gauge, and shall conform to the requirements of ASTM-A-595, Grade A. After being formed and welded, the post shaft shall then be cold rolled to increase the physical strength to a guaranteed minimum of 55,000 PSI.

4.2) Cross-Section

Each post-shaft shall have a round, circular cross-section with an outside base diameter of seven (7) inches, and with a uniform taper decreasing from the base at a rate of 0.14 inches per foot of height.

4.3) Length

The post-shaft shall have a length sufficiently long to provide a mounting height of 25 +/- feet from the base of the luminaire (nominal length of 26 feet).

#### 4.4) Fabrication

No transverse joints or welds are permitted. The one (1) longitudinal weld shall be fusion-welded and ground or cold-rolled smooth. The curvature (for straightness) shall not exceed one-half (½) inch in any ten (10) foot portion of the total length.

#### 5) BASE PLATE

A one (1) inch thick (minimum) steel base plate sufficient to fully develop the ultimate strength of the tall-post shall be secured to the base of the pole-shaft with two (2) self-closing transverse welds - one weld on the inside of the base at the bottom of the pole-shaft, and the other weld at the top of the baseplate.

The base shall telescope into the pole-shaft. The baseplate may be circular in shape with rounded corners and a nominal dimension of fifteen (15) inches or square in shape with rounded corners and a nominal dimension of fifteen (15) inches per side. The base plate shall have an opening sufficient to accommodate two (2), four (4) inch, ID PVC conduits. Four radial slotted bolt holds shall have a width of 1.25 inches for one inch diameter anchor bolts on a nominal 12 ½ inch bolt circle. The bolt holes shall be slots that can accommodate bolt circles from 12 inches to 13 inches.

#### 6) HANDHOLES

The tall-post streetlight pole shall be supplied with a four (4) inch wide by eight (8) inch high semiflush reinforced handhole opening located a minimum of eight (8) inches above the baseplate. Each pole shall be equipped with a cover plate for the handhole constructed of a minimum 11 gauge steel, to be attached to the streetlight pole with two (2) tamper-proof screws and retained to the streetlight pole by an eighteen (18) inch long stainless steel chain affixed to both the cover plate and the tall-post streetlight pole.

#### 7) LUMINAIRE MOUNTING HOLES

Each tall-post streetlight pole shall be factory drilled for one set of holes necessary to mount the luminaire so that the bottom of the luminaire is twenty-five (25) feet above the base. The set of factory drilled mounting holes shall be 90° to the left of the plane of the hand hole when the pole is viewed from above.

#### 8) J-HOOK

A J-hook shall be welded to the inside of the streetlight pole opposite to and above the mounting holes for the luminaire.

9) ANCHOR BOLTS

Each pole shall be supplied with four (4) steel anchor bolts with a minimum yield strength of 55,000 PSI. There shall be at least a difference of 15,000 PSI between yield strength and tensile strength.

9.1) Size

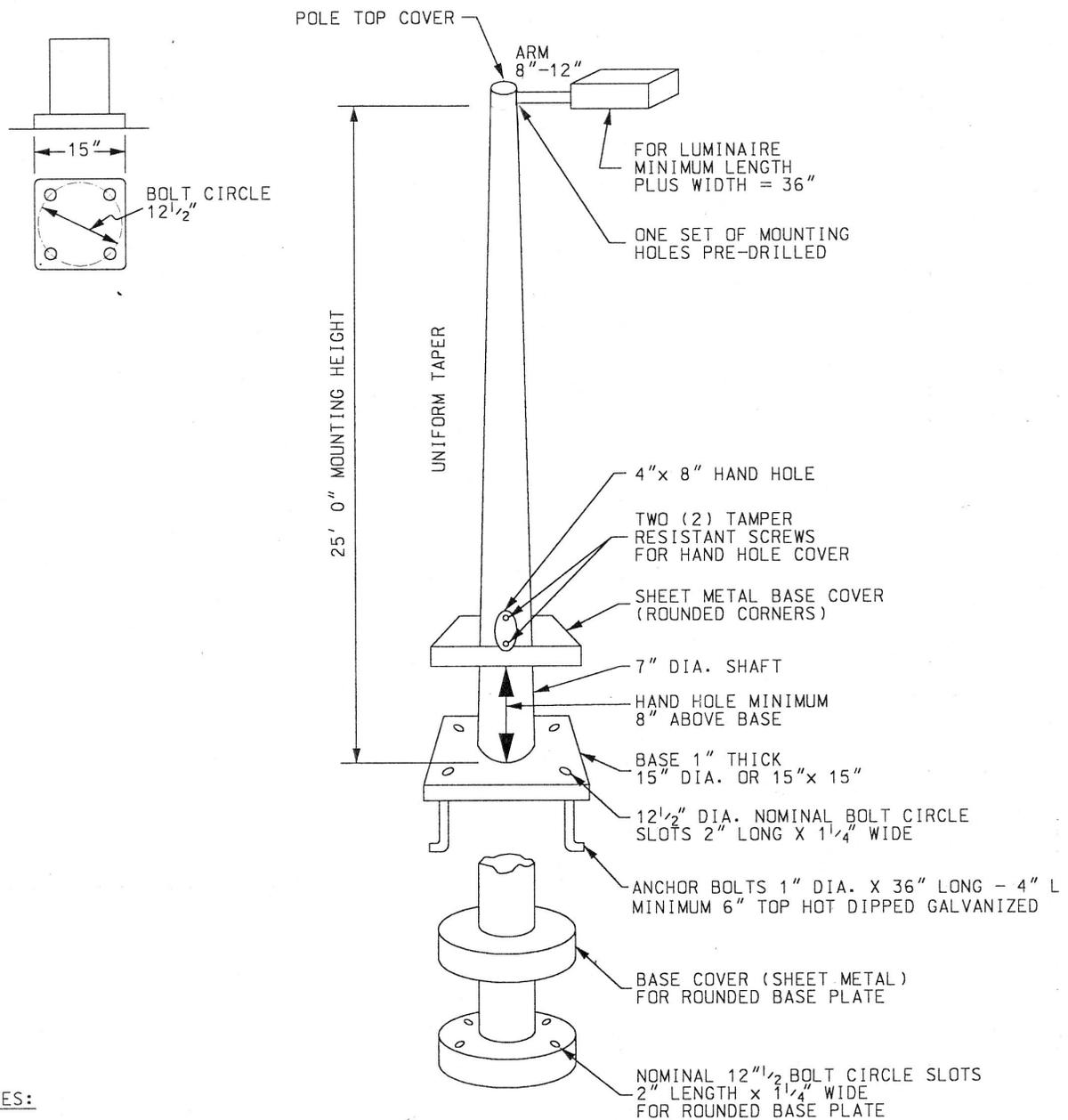
The anchor bolts shall have a diameter of one (1) inch, a minimum length of thirty-six (36) inches plus a four (4) inch "L" bend at the bottom and a minimum of six (6) inches of thread at the top. The top eight (8) inches of all anchor bolts are to be hot-dipped galvanized.

9.2) Nuts

Each anchor bolt shall be furnished with two (2) hexagonal nuts for plumbing and securing the pole as necessary. Nuts shall be ASTM A194, Grade 2 or 2H. A flat washer shall be provided for each bolt. All nuts are to be hot-dipped galvanized.

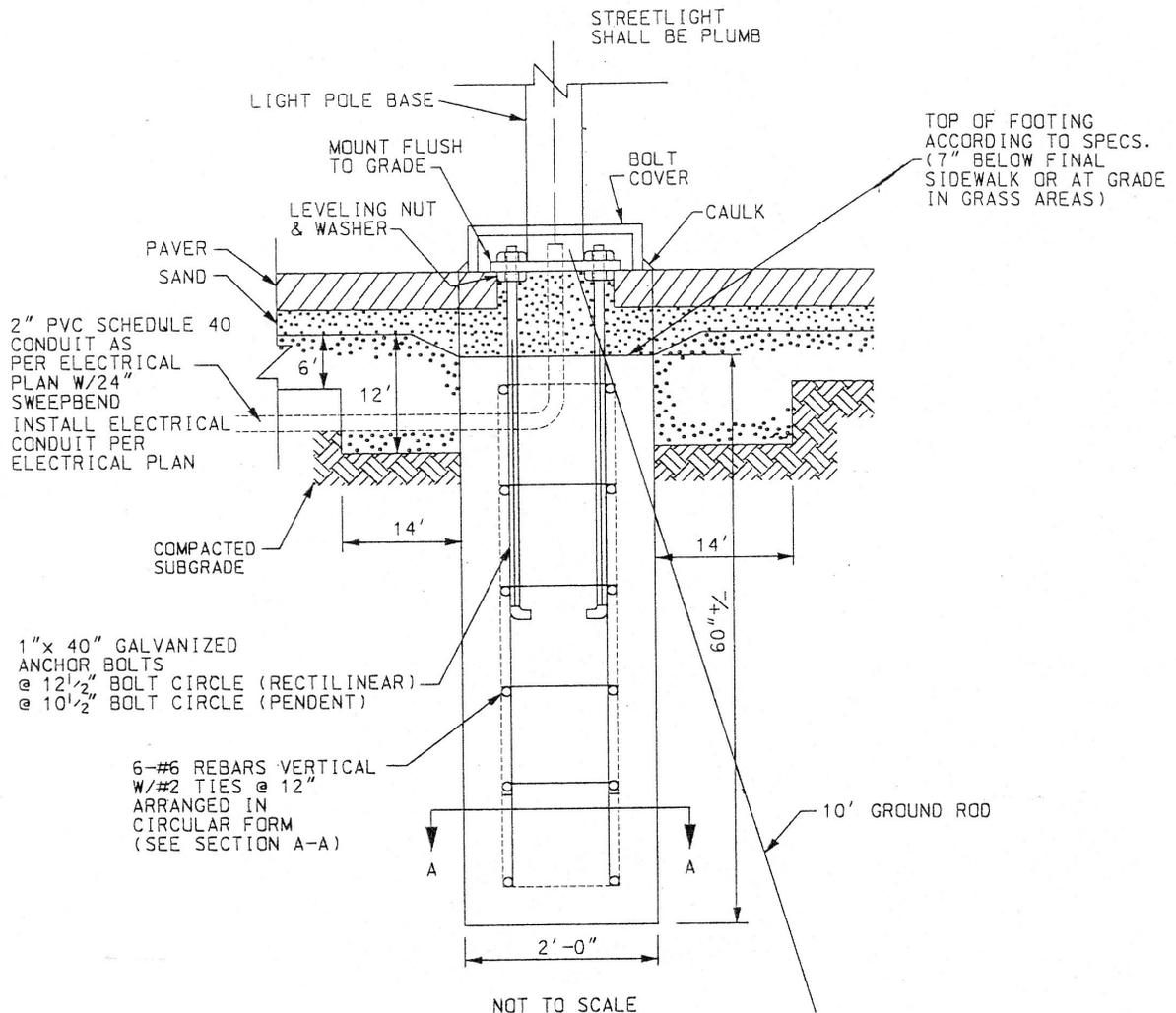
9.3) Shims

Each pole shall be furnished with four (4) metal shims, about one-eighth (1/8) inch thick. These shims are required in addition to the anchor bolt nuts and are to provide the County with an additional method to attach and plumb the pole to the anchor bolts. All shims are to be hot-dipped galvanized.



NOTES:

FINISH TO BE "NATIONAL PARK SERVICE BROWN"  
AS PER FINISHING SPECIFICATIONS.



SECTION "A-A"

