SECTION 02 21 13.13
MARKERS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This section specifies providing markers.

B. Related Work Specified Elsewhere:
   1. Concrete reinforcement: Section 03 20 00.
   2. Cast-in-place concrete: Section 03 30 00.

1.02 SUBMITTALS:

A. Submit the following for approval in accordance with the General Requirements and with the additional requirements as specified for each:

B. Product Data:
   1. Manufacturer's construction details showing materials, dimensions and profiles for each individual component.

C. Shop Drawings:
   1. Plans, elevations and sections detailing fabrication and erection. Show anchors, reinforcements, accessories, layout, installation details, colors and finish treatments.
   2. Message list including wording and lettering layout. Include full-size details of special graphics.
   3. Setting drawings, templates and directions for installation of anchors to be installed as work in other sections.

1.03 QUALITY ASSURANCE:

A. Codes, Regulations, Reference Standards and Specifications.
   1. Comply with codes and regulations of the jurisdictional authorities.
   2. FS: QQ-B-654, WW-T-791.
   3. ASTM: B36, B135

B. Survey Certification:
   1. All Right-Of-Way markers shall be set by a surveyor licensed in the area where the work is to be performed.
   2. The following certification statement or a similar statement is required and shall be placed on all approved Mylar sepia as-built Right-of-Way drawings:

"I hereby certify to the best of my knowledge that the Right-Of-Way markers shown on this as-built drawing have been set in accordance with the coordinate information provided by WMATA as shown on the Contract Documents."

_____ (seal)
Licensed Surveyor in the District of Columbia

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Precast Concrete: Section 03 41 00.

B. Concrete: Section 03 30 00, Class 3500, air-entrained.

C. Concrete Reinforcement: Section 03 20 00.

D. Bronze Discs:
   1. 3 ½ inch diameter domed survey marker forged from sold unleaded bronze in accordance with ASTM B98-98 with a classic 3 inch long and 5/8 inch diameter split-style tapered stem designed for use in concrete or rock (the Corp of Engineers Type 1 disc). Like or equivalent to the Berstsen C-1 Bronze 3 ½ inch domed marker #C35DB.
   2. Refer to Standard Drawings ST-C-3 and ST-C-19 for additional details on bronze discs and installation.

E. Epoxy Hilti

2.02 FABRICATION AND MANUFACTURE:

A. Markers and Monuments:
   1. Legend:
      a. Apply legend shown for various markers and monuments using characters of size and type shown. Clearly indicate use.
   2. Bronze disc markers:
      a. Bronze discs as specified with imprinted or stamped legend.
   3. Precast-concrete markers and monuments:
      a. Four inches square by length shown, with 1/2-inch chamfered edges.
      b. Precast concrete.
      c. One 29-inch long, No. 4 steel-reinforcing bar centered in casting.
      d. With lettering, when shown, incised v-shaped, 1/4-inch wide and 3/16-inch in depth.

PART 3 - EXECUTION

3.01 BRONZE DISCS FOR MARKERS AND MONUMENTS:

A. Except as shown, form discs into convex shape 3/16 inch in depth with edges free from burrs and blemishes.

B. Press legend into the upper surface of disc so that surface is not raised. Ensure that legend conforms to that shown for markers and monuments.

C. Do not place letters closer than 1/8 inch to outer rim of marker. Letters in outer ring of legend, 1/2-inch high; medium-sized letters, 7/32-inch high. Place letters along radius of disc. Imprint legend symmetrically about center of disc.

D. When bronze-disc markers are set in concrete pavements and roadways, set stem in drilled hole and secure with approved epoxy cement, like or equivalent to Hilti HIT Hy 150.

E. At other locations, set bronze-disc markers into tops of markers and monuments as specified; set markers and monuments in ground at locations shown.

3.02 PRECAST-CONCRETE MARKERS AND MONUMENTS:

A. Install precast-concrete markers and monuments at locations and to elevations shown or as directed.

B. Set markers and monuments as shown. Compact bottom of excavation to prevent settlement.

END OF SECTION