

SECTION 01620**SIGNS****PART 1 GENERAL****1.01 SUMMARY**

- A. This Section includes furnishing, installing, and maintaining in clean condition project identification signs, informational signs, and portable changeable and variable message signs; and removing installed signs at completion of work on site.
- B. Do not install or display signs of any kind other than those specified and indicated.

1.02 RELATED SECTIONS

- A. Section 01300 – Submittals

1.03 CODES AND STANDARDS

- A. American National Standards Institute (ANSI):
 - 1. ANSI Z535.1 – American National Standard for Safety Colors
- B. American Plywood Association (APA):
 - 1. Product Standard PS-1 for Structural Plywood
- C. American Wood Protection Association (AWPA):
 - 1. AWPA U1 – User Specification for Treated Wood
- D. American Society for Testing and Materials International (ASTM):
 - 1. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - 2. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength
 - 3. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel
 - 4. ASTM B766 - Standard Specification for Electrodeposited Coatings of Cadmium
 - 5. ASTM D4956 - Standard Specification for Retroreflective Sheeting for Traffic Control

E. Federal Highway Administration (FHWA):

1. Manual on Uniform Traffic Control Devices (MUTCD)

1.04 SUBMITTALS

A. Submit the following in accordance with Section 01300 – Submittals:

1. Product data for sign materials.
2. Shop drawings showing:
 - a. Dimensions and construction of signs.
 - b. Information to be displayed on project identification signs, informational signs, and portable variable message signs.
 - c. Locations where signs are to be installed.

1.05 QUALITY ASSURANCE

- A. Finishes, painting and printing shall resist weathering and fading until completion of Work on site.

1.06 QUALIFICATIONS (NOT USED)

1.07 DELIVERY, STORAGE, AND HANDLING (NOT USED)

1.08 PROJECT/SITE CONDITIONS (NOT USED)

1.09 DEFINITIONS (NOT USED)

1.10 TOLERANCE (NOT USED)

1.11 SYSTEM DESCRIPTION

A. Project Identification Signs

1. At start of work on the first day of mobilization, furnish, install, and maintain on site where directed by the Authority, two (2) project identification signs:
 - a. Signs shall be 3 feet by 5 feet on two (2) support posts.
 - b. Include the following sign information:
 - i. Name of Project, Contract Number and DWSRF Project Number (if applicable): Metropolitan Water Tunnel Program – Needham Dewatering

Drainage Line, Contract No. 8086.

- ii. Name of Owner: Massachusetts Water Resources Authority and emblem. (Authority will provide MWRA emblem.)
 - iii. Name of Design Consultant: WSP, Black & Veatch
 - iv. Name of Contractor: [Insert Name]
 - v. Contact telephone number:
 - 1) Carmine DeMaria, MWRA Public Affairs, (617) 963-9876.
 - vi. Layout of Project Signs is indicated on the Contract Drawings.
2. Furnish, install and maintain an additional two (2) portable project identification signs two (2) feet by three (3) feet in size, each sign bearing the following information:
- a. Name of Project and Contract Number: Metropolitan Water Tunnel Program – Needham Dewatering Drainage Line, Contract No. 8086.
 - b. Name of Owner: Massachusetts Water Resources Authority, and MWRA emblem. (Authority will provide emblem)
 - c. Name of Contractor.
 - d. Contract telephone number:
 - i. **Carmine DeMaria** , MWRA Public Affairs, **(617) 963-9876**.
 - e. Place signs on site at locations as approved by the Authority.

B. Informational Signs

1. Furnish, install and maintain informational signs consisting of printed signs with printed lettering, or standard products:
- a. Size of signs, colors and lettering shall be as required by ANSI Z535.
 - b. Provide job instruction signs, including but not limited to "DANGER" and "KEEP OFF".
 - c. Provide "CAUTION STEEL PLATES AHEAD" signs in advance of steel plated areas.
 - i. Signs shall be 18 inch x 36 inch, retroreflective fluorescent orange (ASTM D-4956 Type IV) material.

- ii. Signs shall be securely bracketed to pole 6 feet from bottom of sign to ground.
 - iii. Post signs 200 feet to 300 feet in advance of plated areas.
 - iv. If plates span across the centerline of the roadway, place signs in both directions.
- C. Portable Variable Message Signs:
- 1. At start of work, furnish, install, and maintain in the locations indicated on the Construction Zone Safety Plans.

1.12 MAINTENANCE

- A. Maintain signs and supports in neat, clean and legible condition. Promptly repair damage to structures, framing or signs at no additional cost to the Authority.
- B. Promptly remove graffiti from signs and display cases.
- C. Maintain power to portable variable message signs.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Project Identification and Informational Sign Materials
 - 1. Structure and Framing: Pressure Treated Structural Lumber, pressure treated with waterborne preservative in accordance with AWPA U1.
 - 2. Sign Surfaces: Overlaid plywood, using standard large sizes to minimize joints:
 - a. Overlaid Plywood: APA PS1, waterproof, resin-bonded, exterior type, medium density cellulose fiber overlay; APA species Group 4 or better, Grade E Ext-MDO-BB; minimum thickness 3/4 inch to span framing members, to provide even, smooth surface without waves or buckles.
 - 3. Wrought Hardware: Galvanized steel.
 - 4. Bolts and Nuts: ASTM A307, Thread Type UNS: galvanized ASTM A153, cadmium plated ASTM B766, or zinc plated ASTM B633 Service SC-4.
 - 5. Wood Screws: 18-8 stainless steel or brass.
 - 6. Nails: Galvanized steel or aluminum coated steel.

B. Portable Variable Message Signs

1. Provide temporary traffic control devices programmable to display messages meeting the requirements of the MUTCD, Section 6F-52. When in operating mode, minimum mounting height shall be seven (7) feet above the roadway to the bottom of the panel.
2. Provide two (2) portable variable message signs to be used for traffic control as directed by the Authority, in addition to those indicated on the Construction Zone Safety Plans.

PART 3 EXECUTION**3.01 PREPARATION****A. Project Identification Signs and Informational Signs**

1. Paint exposed surface of supports, framing and surface material: one (1) coat of primer and one (1) coat of exterior white paint.
2. Print graphics in styles, sizes and colors selected.

3.02 GENERAL**A. Project Identification Signs, Informational Signs and Portable Variable Message Signs:**

1. Maintain signs in good condition and remove upon completion of Work on site. Replace damaged signs as necessary.

B. MassDEP Signs

1. Install signs in accordance with the requirements of Appendix F – Town of Needham Order of Conditions. In addition to the signage required by the Order of Conditions, install one (1) sign at the outfall, oriented toward the Charles River and clearly visible from the river.

**** END OF SECTION ****