

# Special Specification 5112

## Bollards




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### 1. DESCRIPTION

Furnish and install bollards as shown on the plans.

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### 2. MATERIALS

Assure that bollards meet retroreflectivity requirements as shown on the plans and specified by the Texas MUTCD and the ATSSA (American Traffic Safety Services Association) Brochure on Retroreflectivity.

2.1. **Fixed bollards.** Provide fixed bollards as shown on the plans. Provide steel such as pipe, plates, and other required parts in accordance with Item 442, "Metal for Structures." Paint or galvanize pipe, plates, and other required steel parts in accordance with the plans and meeting the requirements of Item 441, "Steel Structures" and Item 445, "Galvanizing." Provide foundation concrete meeting the requirements of Item 421, "Hydraulic Cement Concrete." Perform welding in accordance with Item 448, "Structural Field Welding."

2.2. **Removable Bollards.** Provide removable bollards as shown on the plans. Provide steel such as pipe, plates, and other required parts in accordance with Item 442, "Metal for Structures." Paint or galvanize pipe, plates, and other required steel parts in accordance with the plans and meeting the requirements of Item 441, "Steel Structures," and Item 445, "Galvanizing." Provide foundation concrete meeting the requirements of Item 421, "Hydraulic Cement Concrete." Perform welding in accordance with Item 448, "Structural Field Welding."

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### 3. CONSTRUCTION

Install bollards to the depth as shown on the plans or as directed. Clean bollard holes free of loose dirt and debris, and thoroughly compact bottom of hole to the correct elevation for placement of the bollards. Place bollards to the correct alignment, elevation, and plumb. Backfill with concrete as shown on the plans.

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### 4. MEASUREMENT

This Item will be measured by each bollard installed as shown on the plans.

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### 5. PAYMENT

The work performed and materials furnished, in accordance with this Item and measured as provided under "Measurement," will be paid for at the unit price bid for the various types of "Bollards" specified as follows:

"Fixed Bollard," and "Removable Bollard," of the type shown on the plans. This price is full compensation for furnishing, preparing, hauling, and installing materials for excavation and backfill, and for labor, tools, equipment, and incidentals.