

**Item No. 505**  
**Concrete Encasement and Encasement Pipe**

**505.1 Description**

This item shall govern the furnishing of materials and the methods of constructing a Portland cement concrete encasement or encasement pipe.

**505.2 Submittals**

The submittal requirements of this specification item must include:

- A. Type, of pipe, construction methods and sequence,
- B. Aggregate types, gradations and physical characteristics for the Portland cement concrete mix,
- C. Proposed proportioning of materials for the mortar mix.

**505.3 Materials**

## A. Portland Cement Concrete

The Portland cement concrete shall conform to Class B Concrete per the requirements of TXDOT Standard Specification Item No. 421, "Hydraulic Cement Concrete

## B. Steel Encasement Pipe

1. Steel Pipe shall conform to ASTM A53, Schedule 40. Extra Heavy Weight shall meet the requirements of ASTM A53, Schedule 80. Casing pipes shall have a minimum thickness as indicated below or as otherwise required by the authority having jurisdiction, and shall be considered the minimum thickness acceptable.
2. Pipe used as casing of a separate carrier pipe shall be new, smooth bore, steel pipe, with a coal-tar protective coating in accordance with the requirements of C203 both inside and outside. Joints shall be welded to form a true alignment of each pipe length.

Nominal Diameter of Steel Casing Pipe (Inches)	Minimum Wall Thickness of Steel Casing Pipe (Inches)	
	Roadway/Highway Crossing	Railway Crossing
16	0.250	0.282
18	0.250	0.313
24	0.375	0.375
30	0.4375	0.469
36	0.500	0.532
42	0.500	0.625
48	0.500	0.688

## C. End Seals

1. End seals shall be designed to seal the annular space between the casing pipe and the carrier pipe at the ends of the casing pipe.

2. Approved Manufacturers:
  - a. Advance Products & Systems, LLC
  - b. Cascade Waterworks Manufacturing Company
  - c. CCI Piping Systems
  - d. Approved equal.

D. Grout

Grout shall consist of not less than 6 sacks Portland cement per cubic yard and clean washed sand mixed with water. The grout shall have a consistency such that the grout will flow into and completely fill all voids. If allowed by the Engineer or designated representative, an air entraining admixture may be added to facilitate placement.

#### 505.4 Construction Methods

- A. When indicated on the Drawings or acceptable to Engineer or designated representative, concrete encasement shall be placed to protect the pipe. Pipe or bedding shall not be placed where:
  1. the top of the pipe would have less than 48 inches of cover,
  2. the ground water invades the trench, or
  3. the trench bottom is of unstable material.
- B. If either of these conditions is encountered, the Engineer or designated representative shall be notified and may direct the Contractor to:
  1. encase the pipe with concrete,
  2. change pipe material, or
  3. use a higher strength class of pipe.
- C. Concrete encasement shall extend from 6 inches below to 6 inches above the outer projections of the pipe over the entire width of the trench in accordance with Standard Detail 310, "Concrete Encasement".

#### 505.5 Measurement and Payment

- A. Concrete encasement will be measured by the lineal foot, for size of pipe being encased, complete in place. The measurement will be made between ends of the encasement, along the central axis as installed.
- B. Encasement pipe will be measured by size of encasement installed, complete in place. The measurement will be made between the ends of the pipe, along the central axis as installed.

#### 505.6 Payment

- A. Work performed and materials furnished as prescribed by this item will be subsidiary to Item No. 510, "Pipe" unless included as a separate pay item in the contract. When included for payment, it shall be measured as provided under "Measurement" and will be paid at the unit

bid price per lineal foot for "Concrete Encasement" of the size indicated on the Drawings. The unit bid price shall include full compensation for furnishing all materials, pipe for all preparation, hauling, installation and for all labor, tools, equipment and incidentals necessary to complete the work, including bench excavation and disposal of surplus material.

Payment, when included as a contract Pay Item, will be made under one of the following:

<b>Pay Item:</b> Concrete Encasement for ___ Dia. Pipe	Per Linear Foot.
<b>Pay Item:</b> ___ Dia. Steel Encasement Pipe	Per Linear Foot

**End**