



**SPECIAL PROVISIONS
FOR
SANITARY MANHOLE BENCH RECONSTRUCTION**

**Linn County
TAP-U-1187(799)--8I-57**

**Effective Date
September 21, 2021**

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

157174.01 DESCRIPTION.

This specification covers the furnishing of all labor, materials, tools, equipment and performance of all work and services necessary or incidental for the reconstruction of sanitary manhole bench as indicated on the drawings or as specified herein.

157174.02 SUBMITTALS.

Submit to Engineer certification letter from manufacturer indicating compliance with ASTM specifications and contract documents.

157174.03 MATERIALS.

Material used for bench reconstruction shall be quick setting, fiber reinforced, calcium aluminate, corrosion resistant, cementitious material, mixed and applied according to manufacturer's recommendations and having the following minimum requirements:

Compressive Strength ASTM C109	1400 psi, 6 hours
Bond ASTM C321	145 psi, 28 days
Cement	Calcium Aluminate
Applied Density	105 lb/ft ³
Shrinkage ASTM C596	0% at 90% relative humidity

157174.04 CONSTRUCTION.

A. Removal of Existing Bench.

1. Remove existing concrete fillet or bench.

2. Do not damage wall or base of existing manhole.

B. Cleaning and Preparation.

1. The floor and interior walls of the manhole shall be thoroughly cleaned and made free of all foreign materials including dirt, grit, roots, grease, sludge and all debris or material that may be attached to the wall or bottom of the manhole.
2. When grease and oil are present within the manhole, and conditions allow, an approved detergent or muriatic acid may be used integrally with high pressure cleaning water.
3. All materials resulting from the cleaning of the manhole shall be removed prior to applying specified coatings.
4. All loose or defective brick, grout, ledges, steps and protruding ledges shall be removed to provide an even surface prior to application of specified cementitious coating.

C. Bench Reconstruction.

1. Temporarily restrict flow using inflatable or mechanical plugs prior to reconstructing bench.
2. Construct invert channels to provide a smooth flow transition waterway with no disruption of flow at pip-manhole connections. Conform to following criteria:
 - a. Slope of invert bench: 1 inch per foot minimum; 1 1/2 inches per foot maximum.
 - b. Depth of bench to invert:
 - 1) Pipes smaller than 15 inches: one half of largest pipe diameter.
 - 2) Pipes 15 to 24 inches: three-fourths of largest pipe diameter.
 - 3) Pipes larger than 24 inches: equal to largest pipe diameter.
 - c. Invert slope through manhole: 0.10 foot drop across manhole with smooth transition of invert through manhole, unless otherwise indicated on drawings.
3. Form invert channels with concrete if not integral with manhole base section.
4. For direction changes of mains, construct channels tangent to mains with maximum possible radius of curvature. Provide curves for side inlets and smooth invert fillets for flow transition between pipe inverts.
5. Hand mix and use a rapid setting, high early strength, non-shrink patching material to fill all large voids prior to reconstructing the bench.
6. The area to reconstruct must be cleaned and free of all debris per the guidelines set forth in Article 157174.04, A above.
7. Mix water shall be clean potable water and require no additives or admixtures for use with cementitious materials.
8. Cementitious material shall be mixed in a mortar tub or 5 gallon pail with water per manufacturer's specifications. Material shall be mixed in small quantities to avoid setting prior to placement.
9. Once mixed to proper consistency, the materials shall be applied by hand or trowel. Once applied, materials shall be smoothed either by hand or trowel in order to facilitate flow.

10. Flows in inverts can be re-established within 60 minutes of material placement.

157174.05 METHOD OF MEASUREMENT.

Each sanitary manhole bench reconstruction that is satisfactorily completed shall be counted.

157174.06 BASIS OF PAYMENT.

Payment will be at the unit price per sanitary manhole bench reconstructed. Payment includes all material, equipment, and labor to reconstruct the sanitary manhole bench, including but not limited to removal of the existing bench, cleaning and preparation of the manhole for the new bench, and installation and reconstruction of the new bench.