



**SPECIAL PROVISIONS
FOR
RECTANGULAR STORM SEWER INTAKE**

**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.

157192.01 DESCRIPTION.

Construct rectangular storm sewer intakes for collection of surface water and conveyance to the storm sewer system. See Plans and details.

157192.02 MATERIALS.

Apply Articles 4149.04 and 4149.05 of the Standard Specifications.

157192.03 CONSTRUCTION.

A. General.

1. Excavation

Excavate according to Section 2552 of the Standard Specifications.

2. Subgrade Preparation.

- a. Cut Sections (Undisturbed Soil):** Prepare subgrade to accurate elevation required to place structure base or subbase.
- b. Fill Sections:** Compact to 95% of maximum Standard Proctor Density and hand grade to accurate elevation required to place structure base or subbase, or install stabilization material as directed by the Engineer.
- c. Unstable Soil:** Install stabilization material as directed by the Engineer.

3. Subbase.

- a. Cast-in-place Structures:** See Plan Details.
- b. Precast Structures:** If precast structure is provided, install pad of bedding material a minimum of 12 inches outside the footprint of the structure as shown on the plans. Use material meeting the requirements of Section 4118 of the Standard Specifications.

4. Installation of Rectangular Storm Sewer Intake Structure.

Match the dimensions and elevations shown on the plan sheets and details. Form walls and construction joints for cast-in-place intakes or install precast intake boxes to ensure intake lids are set to match the grade of the adjacent finish surface unless otherwise specified in the contract documents.

- a. **Cast-in-place:** Apply Article 2435.03, B of the Standard Specifications.
- b. **Precast:** Apply Article 2435.03, C of the Standard Specifications.

5. Pipes.

Install and bed pipes and connect to manhole or intake. Install pipe flush with inside wall of structure. Place bedding and pipe embedment material according to Section 2552 of the Standard Specifications.

a. Cast-in-place Rectangular Storm Sewer Intake

Form structure walls around pipe.

b. Precast Rectangular Storm Sewer Intakes

If annular space between pipe and structure is less than 2 inches, fill with non-shrink grout. If annular space is 2 inches or greater, construct a concrete collar around pipe according to Article 2435.03, E, 2 of the Standard Specifications.

6. Joint Sealant.

- a. Apply bituminous jointing material or install rubber rope gasket.
- b. If indicated in the contract documents, apply engineering fabric wrap to joints.

7. Fillet.

- a. Construct fillet up to one half of pipe diameter to produce a smooth half pipe shape between pipe inverts.
- b. Slope fillet top toward pipe 1/2 inch per foot perpendicular to flow line.
- c. For precast fillets, remove projections and repair voids to provide a hydraulically smooth channel between ends of pipes.

8. Top Sections.

Install rectangular storm intake top.

9. Adjustment Rings.

Adjustment rings shall be expanded polypropylene. Bed each expanded polypropylene ring with the manufacturer's approved product and according to manufacturer's recommended installation procedure. Do not install more than a total ring stack height of 12 inches.

10. Casting.

- a. Install the type of casting specified in the contract documents and adjust to proper grade.
- b. Where a manhole or intake is to be in a paved area, adjust the casting to match the slope of the finished surface.

11. Backfill and Compaction.

- a. Place suitable backfill material according to Article 2552.02 of the Standard Specifications after concrete in structure has reached at least 3000 psi compressive strength or 550 psi flexural strength. If concrete strength is not determined, place backfill material at least 14 calendar days after initial concrete placement.
- b. Place backfill material simultaneously on all sides of walls and structures so the fill is kept at approximately the same elevation at all times.
- c. Compact the 3 feet closest to all walls using pneumatic or hand tampers only. Ensure proper and uniform compaction of backfill material around structure.
- d. **Cast-in-place Rectangular Storm Sewer Intake.**
Form structure walls around pipe.

B. Additional Requirements for Cast-In-Place Rectangular Storm Sewer Intake.

- 1. Forms.**
 - a. Apply Article 2403.03, B, 5 of the Standard Specifications.
 - b. Form cast-in-place rectangular storm sewer intakes on both the inside and the outside face above the base. Do not form against excavated earthen surface.
- 2. Reinforcing Steel.**
 - a. Apply Section 2404 of the Standard Specifications.
 - b. Lap bars a minimum of 36 diameters, unless specified otherwise in the contract documents.
 - c. Provide a minimum of 3 inches of clearance for structure bases and 2 inches of clearance for walls and tops.
- 3. Concrete Mixing.**
 - a. Apply Article 2403.02, D of the Standard Specifications.
 - b. When using ready-mixed concrete, comply with ASTM C 94.
- 4. Concrete Placing.**
 - a. Apply Article 2403.03, C of the Standard Specifications.
 - b. Do not place concrete when the air temperature is less than 40°F without the approval of the Engineer. When placement below 40°F is allowed, apply Article 2403.03, F of the Standard Specifications.
 - c. Place concrete continuously in each section until complete. Do not allow more than 30 minutes to elapse between depositing adjacent layers of concrete within each section.
 - d. Apply Article 2403.03, D of the Standard Specifications for concrete vibration.
 - e. Form 1 1/2 by 3 inch keyed construction joints at locations shown in the contract documents.
 - f. Provide a broom finish on portions of structure that are to become part of exposed pavement.
- 5. Stripping and Cleaning.**
 - a. Remove forms for rectangular storm sewer intake walls and tops according to Article 2403.03, M of the Standard Specifications. References to culverts include storm structures. When allowed by the Engineer, compressive strengths at six times the stated flexural strengths may be used in determining concrete strength of structure tops.
 - b. Finish surfaces according to Article 2403.03, P of the Standard Specifications. Give exposed surfaces a Class 2 finish.
- 6. Curing.**
 - a. Apply Article 2403.03, E of the Standard Specifications.
 - b. For surfaces visible to the public, use only curing compounds complying with ASTM C 309, Type 1-D or Type 2.
- 7. Exterior Loading.**
 - a. Restrict exterior loads on concrete according to Article 2403.03, N of the Standard Specifications.
 - b. When allowed by the Engineer, compressive strengths at six times the stated flexural strengths may be used.
- 8. Repairs.**

After visual inspection of the completed manhole or intake, repair honeycomb areas, visible leaks, tie holes, or other damage areas. Remove concrete webs or protrusions.

C. Additional Requirements for Precast Rectangular Storm Sewer Intake.

- 1. Substitutions.**

Precast structures may be substituted for designated cast-in-place structures so long as structure is constructed as specified in the contract documents and according to Article

2435.03, B of the Standard Specifications.

2. Cast-in-Place Base.

- a. Apply Article 2435.03, B of the Standard Specifications for placement of concrete.
- b. Ensure proper vertical and horizontal alignment of base riser section.

3. Precast Base or Base with Integral Riser Section.

Place base or base with integral riser section and ensure proper vertical and horizontal alignment.

4. Additional Riser Sections.

Install additional riser sections as required.

5. Lift Holes.

Install rubber plug in lift holes. Cover plugs and hole with non-shrink grout.

157192.04 METHOD OF MEASUREMENT.

Each Rectangular Storm Sewer Intake shall be counted.

157192.05 BASIS OF PAYMENT.

- A. Payment will be at the contract unit price for each rectangular storm sewer intake installed.
- B. Payment is full compensation for excavation, furnishing (if required) and placing bedding and backfill material, compaction, base, structural concrete, reinforcing steel, precast units (if used), fillets, pipe connections, castings, and adjustment rings.