MICHIGAN

DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

FOR

**ALTERATIONS TO THE MUNICIPAL COMBINED SEWER SYSTEM**

BCY:DJM 1 of 3 APPR:RPB:DMG:05-07-24

**a. Description.** This work consists of excavating, furnishing, and placing combined sewer manholes in accordance with section 403 of the Standard Specifications for Construction, Standard Plan R-1 series, and special details as shown on the plans except as modified herein.

**b. Materials.** Furnish all combined sewer manholes. Ensure all material is in accordance with the standard specifications and the city of Saginaw specifications.

1. Combined Sewer Manholes.

A. Ensure all reinforced, precast concrete sections are in accordance with *ASTM C478/C478M*. Ensure all mainline manholes are precast with an antimicrobial additive such as ConmicShield®, ConBlock MIC, MasterLife AMA, or approved equal.

(1) Ensure antimicrobial additive is an Environmental Protection Agency (EPA) registered material and the registration number is submitted for approval by the Engineer prior to use on the project.

(2) Ensure the amount of additive to be used is as recommended by the manufacturer of the antimicrobial additive. Include this amount in the total water content of the concrete mix design.

(3) Add the additive into the concrete mix water to ensure even distribution of the additive throughout the concrete mixture.

(4) Ensure the antimicrobial additive is incorporated by a factory certified precast concrete plant.

(5) Furnish a letter of certification from the precast manufacturer to the Engineer stating that the correct amount of additive was incorporated, and correct mixing procedures were followed for all antimicrobial concrete.

(6) Apply a color identifier-indicator to the interior of each manhole section and plainly stencil the name of the antimicrobial additive on the interior and exterior of each section.

B. Connect mainline and branches to manholes utilizing one of the following flexible neoprene gaskets with stainless steel bands.

(1) Kor-N-Seal®

(2) Model PS10, by Press-Seal Corporation

(3) A-LOK, by A-LOK Products, Inc.

(4) Or approved equal

C. Construct all combined sewer manhole sections such that the top of the precast cone section has a 3 inch high minimum vertical sealing surface that is smooth and free of any form offsets or excessive honeycomb.

D. Install external chimney seals on all combined sewer manholes. Ensure external seals are a heat-shrinkable sleeve system, or a rubber seal system, such as WrapidSeal, Canusa, Infi-Shield, Cretex X-85, or approved equal.

E. Ensure mortar is in accordance with section 1005 of the Standard Specifications for Construction. Ensure mortar for mainline manholes uses antimicrobial additive as specified below:

(1) Ensure antimicrobial additive is an EPA registered material and the registration number is submitted for approval by the Engineer prior to use on the project.

(2) Ensure the amount of additive to be used is as recommended by the manufacturer of the antimicrobial additive. Include this amount in the total water content of the mortar mix design.

(3) Add the additive into the mortar mix water to ensure even distribution of the additive throughout the concrete mixture.

(4) Ensure the antimicrobial additive is incorporated by a factory certified precast concrete plant.

(5) Furnish a letter of certification from the precast manufacturer to the Engineer stating that the correct amount of additive was incorporated, and correct mixing procedures were followed for all antimicrobial mortar.

(6) Apply a color identifier-indicator to the interior of each manhole section and plainly stencil the name of the antimicrobial additive on the interior and exterior of each section.

F. Construct Bentonite Waterstops in continuous 1 inch by 3/4 inch strips containing 75 percent bentonite by weight. Ensure Bentonite Waterstops are sourced by CETCO, Volclay, Greenstreak, Henry Company or an approved equal.

**c. Construction**. Install all pipe, drainage structures, and appurtenances in accordance with sections 402 and 403 of the Standard Specifications for Construction as shown on the plans, the Standard Plans and as specified herein. Install combined sewer manholes as described herein.

1. Trim bottom of excavation clean and smooth to correct elevation.

2. Form and place cast in place concrete footing to correct elevation.

3. Install barrel sections, cone section, and frame and cover to required grade.

4. Seal all joints. Ensure all new and existing pipe penetrations are sealed with bentonite waterstop and utilize flexible neoprene gaskets with stainless steel bands.

5. Adjustment ring maximum height from top of cone to bottom of casting is 12 inches.

6. Bolt castings. Cover casting with mortar or non-shrink grout with antimicrobial additive from cone to within 1.5 inches of top of casting.

7. Flow channels through manholes will use the bottom of the remaining existing pipe as shown on the plans.

**d. Measurement and Payment.** The completed work, as described, will be measured, and paid for at the contract unit price using the following pay item:

**Pay Item Pay Unit**

Dr Structure, \_\_ inch dia, Modified Each

**Dr Structure, \_\_ inch dia, Modified** includes all labor, material, rubber seals, excavation, backfill, boots, additional depth of structure, grade rings, and equipment needed to accomplish the work specified herein.

Dewatering operations with alterations to the municipal combined sewer system will not be paid for separately but will be included in the contract unit prices bid for other related contract items.

Temporary pumping of sanitary flow associated with alterations to the municipal combined sewer system will not be paid for separately but will be included in the contract unit prices bid for other related contract items. This includes providing all pumping equipment, pipes, shoring, warning signs, traffic control, and any other related items of work and materials to accomplish this work.

In addition to the items above, **Dr Structure, \_\_ inch dia, Modified** includes the following: all labor, material, rubber seals, excavation, shoring, footings, reinforcement steel, concrete collar over existing concrete combined sewer, connection to existing concrete combined sewer, removal of existing concrete combined sewer as required, connection of all existing and proposed sewer taps, internal drop connections, backfill, boots, additional depth of structure, grade rings, and equipment needed to accomplish this work.