MICHIGAN

DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

FOR

**DRAINAGE STRUCTURE CHEMICAL GROUTING**

BAY:BWS 1 of 2 APPR:NJM:DMG:06-17-21

**a. Description.** This work consists of sealing drainage structure joints or other areas of distress with chemical grout, using the direct injection method, at locations where infiltration is present, as shown on the plans or as directed by the Engineer. Drainage structure cleaning, debris removal and disposal, and flow control is included in this item of work.

**b. Materials.** Use chemical grout materials in accordance with *ASTM F2414*.

Use acrylamide base gel sealing material. Ensure the chemical sealing material is manufactured specifically for grouting drainage structure joints and other areas of distress utilizing the direct injection method. Furnish acrylamide base gel that can be injected and will cure in the presence of leaking groundwater.

Furnish Acrylamide based gels from AV-100 by Avanti, PR10 ACLM by Prime Resins, or an approved equal.

Ensure any additives incorporated into the chemical sealing material to increase mix velocity, density, or gel strength are approved by the Engineer prior to use.

Use Type H-1 mortar to grout drainage structure joints, voids, or other areas of distress in accordance with section 1005 of the Standard Specifications for Construction or an approved equal.

**c. Construction.** Ensure all work is in accordance with *NASSCO Manhole Rehabilitation Performance Specification Guideline 2013 Edition*, *ASTM F2414*, the standard specifications, all federal, state, and local requirements, and this special provision unless otherwise approved by the Engineer.

Prior to starting the work, provide evidence to the satisfaction of the Engineer that the Contractor has a minimum of 5 years of experience and at least five projects of similar size and complexity doing this type of specialty work. Provide names of past clients as requested by the Engineer.

Notify the Engineer a minimum of 7 work days prior to performing this work. Clean the drainage structure in its entirety where the grouting will be performed and properly dispose of all debris.

Prior to chemical grouting, provide the Engineer with the gel set times that are anticipated during the grouting operation.

Handle and mix sealing materials in accordance with the manufacturer’s recommendations. Maintain copies of the Material Safety Data Sheets at the work site and follow the guidelines accordingly. Allowing sealing materials to enter the waters of the state is prohibited. Remove and dispose of excess sealing material as recommended by the manufacturer or as approved by the Engineer.

Grout all joints or other areas of distress in their entirety as approved by the Engineer. Seal joints by forcing acrylamide base gel chemical sealing material into or through joints or other areas of distress with a system of pumps, hoses, sealing packers, and injection ports. Inject the grout beyond the joint or area of distress interface into the soil surrounding the drainage structure.

Once the chemical grouting is accepted, fill joints and voids on the interior of the drainage structure with Type H-1 mortar. Clean all surfaces to receive mortar with a high-pressure washer using potable water and permit them to dry. Remove any remaining debris prior to the application of the mortar. Pack all joints and voids completely full with mortar. Strike all excess mortar flush with the interior wall of the drainage structure. The mortar must not protrude beyond the interior wall of the drainage structure as verified to the Engineer. Dispose of all debris and excess mortar in an appropriate manner.

Testing and Acceptance. Engineer will perform visual inspection at each location where chemical grouting was performed. Repair all visible leaks at no additional cost to the contract.

**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, Chemical Grouting Each

**Dr Structure, Chemical Grouting** will be measured as each grouted joint or other area requiring grouting as one unit. This work includes cleaning drainage structures, disposal of debris and excess mortar, surface preparation, and mortar placement.