MICHIGAN

DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

FOR

**DEWATERING SYSTEM FOR CONTAMINATED GROUNDWATER**

MAR:CJH 1 of 3 APPR:ALS:DMG:03-10-22

**a. Description.** This work consists of lowering the groundwater table to facilitate construction in the area of the excavation for the proposed trench. This work may require the use of pumps for trench dewatering or well points, deep wells, or other measures that are utilized to control groundwater to facilitate installation of underground utilities.

If the groundwater removed during the dewatering process is contaminated, it cannot be discharged directly to the ground surface or a surface water body. Ensure it is disposed of in one of three ways:

1. To a sanitary sewer system if permission is granted by the system owner.

2. To a surface water body under a NPDES permit.

3. Collected and hauled to an acceptable treatment facility.

This work also includes the operation, monitoring, sampling, and analysis of any treatment system used for discharge to a sanitary sewer or surface water body or hauling to a treatment facility as needed.

Areas of groundwater contamination have been identified on the plans. Groundwater may be contaminated by chlorinated hydrocarbons and/or aromatic hydrocarbons, which may require different treatment technologies.

Handle the contaminated water in accordance with the *MIOSHA* Standard for Hazardous Waste Operations and Emergency Response (HAZWOPER). Ensure applicable workers work under the direction of an on-site supervisor and a site-specific safety and health plan (HASP) and are properly trained. Ensure all workers are protected pursuant to the HAZWOPER Standard.

Furnish to the Department, at the preconstruction meeting, sufficient documentation verifying the qualifications of Contractor personnel who are performing the sampling and handling work. In addition, the Contractor must provide a HASP, for review, as required by the *MIOSHA* standard.

Furnish sufficient training for such sampling and handling for up to two MDOT designated employees as described in the *MIOSHA* standard. These employees, as selected by the Engineer, must receive the 40 hour HAZWOPER training.

Furnish sufficient personal protective equipment as required by *MIOSHA* for two MDOT designated employees except for air purifying respirators. MDOT employees will furnish their own fit tested air purifying respirators, if necessary.

Dewatering and disposal of groundwater that is not contaminated will be covered under other items of work.

**b. Well Points and Deep Wells.** Should groundwater control be performed by deep well and/or well point pumping systems, ensure it is done without damage to property or structures, and without interference with the rights of the public, owners of private property, pedestrians, vehicular traffic, or the work of other contractors. Any pumping methods used for dewatering and control of groundwater and seepage must have properly designed filters. This is to ensure that adjacent soil will not be pumped with the water creating voids underground and around the face of the excavation or under existing structures. Ensure the filter design is reviewed and approved by the Engineer prior to placement.

Perform the dewatering operations in an approved and predetermined sequence with the excavation operation such that the perimeter and face of the excavation is stable. Dewatering well diameter, pumping rate and well spacing must provide adequate drawdown of the water level. Set wells to intercept groundwater that, otherwise, would enter the excavation and interfere with the work. Install observation wells at key locations for monitoring of groundwater levels during the excavation. The observation wells are anticipated to be, but not limited to, one for each 200 foot of the pay item Dewatering System for Contaminated Groundwater, Trench. Submit a plan for locations and monitoring frequency of the observation wells to the Engineer a minimum of 7 days in advance of placement of the dewatering system.

Deep wells and/or well points in the area of contamination must discharge into header or collection pipes prior to entering the treatment system.

**c. Treatment System.** Filters and/or settling devices may be required before treatment to ensure that either the treatment and sanitary sewer systems or surface waters are not adversely affected by construction debris or increased sediment load.

Before discharging to a sanitary sewer system or to the surface water, contaminated water must be treated to reduce contaminants to levels acceptable to the sanitary sewer system owner or NPDES permit. Select the treatment system based on the contaminant to be treated and sized based upon concentrations of contaminants found in the groundwater. The flow required must adequately dewater the trench, as specified above, and yield an effluent concentration that meets the requirements of the sanitary sewer system owner or the NPDES permit. Ensure the system is approved by the Engineer prior to starting the work.

**d. Sanitary Sewer or Surface Water Discharge.** Monitor the volume of treated water discharged to the sanitary sewer system or as surface water discharge by using a totalizing turbine type flow meter. Place the flow meter inline on the treatment system effluent line, be designed for high flow applications and must have a flow totalizing register that is adequately sealed to eliminate fogging and condensation. Ensure the type of meter used is reviewed and approved by the Engineer prior to placement.

Written permission from the wastewater treatment plant authority is required prior to discharge to the sanitary sewer system. Furnish a copy of the written authorization to the Engineer prior to discharging any water to the system.

Secure a NPDES permit by the Contractor from the EGLE prior to any discharge to a surface water body.

Monitor the volume of flow being discharged to the sanitary sewer system or the surface water and documented daily by reading the register on the flow meter. Furnish this information to the Engineer daily or as otherwise approved.

**e. Hazardous/Nonhazardous Material Handling.** Load all hazardous and nonhazardous waste and transport using properly trained personnel, onto placarded vehicles and under an approved hazardous or liquid industrial waste manifest, as required. All manifests are to be signed by the Engineer or their representative. The terms hazardous and nonhazardous, as used in this document, are defined in 1994 PA 451, Parts 111 and 121 of the NREPA.

**f. Construction.** The methods and materials required to accomplish this work must be determined by the Contractor, subject to approval by the Engineer, before initiation or installation of the dewatering system.

Ensure the dewatering system for contaminated groundwater is independent of other dewatering operations by a separate installation. Utilize the system for the entirety of the project as determined necessary by the Engineer. Take all appropriate precautions to prevent exacerbation of contamination.

The Engineer may order corrective actions to the dewatering or treatment system at any time to improve the efficiency of the system at no additional cost to the contract.

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

**Pay Item Pay Unit**

Dewatering System for Contaminated Groundwater, Site Each

Dewatering System for Contaminated Groundwater, Trench Foot

HAZWOPER 40 hour Training, MDOT personnel Each

**Dewatering System for Contaminated Groundwater, Site** and **Dewatering System for Contaminated Groundwater, Trench** includes all wells, piping, supplies, power, and fuel necessary for the installation, operation and maintenance, removal and disposal of all surplus materials as described herein. These pay items includes the cost of treatment and disposal of all water pumped from below ground to facilitate subsurface construction.

All costs associated with obtaining an NPDES permit are included in these pay items.

The installation, maintenance and removal of observation wells are included in these pay items.

The cost for treatment of the water at the wastewater treatment plant is included with these pay items. There will be no compensation for idled personnel or equipment due to any system corrections ordered by the Engineer to remedy any deficiencies.

Test pits are included in the pay item for proposed underground pipe.

Disposal of contaminated soil or sediment, excavated or displaced during the installation of this system, will be included in the pay item of **Non-hazardous Contaminated Material Handling and Disposal (LM)**.