SPECIAL PROVISIONS FOR DEWATERING

Pottawattamie County
IM-NHS-080-1(447)5--03-78

Effective Date
July 19, 2022

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.

150881.01 SCOPE OF WORK.

A. The scope of work of these Special Provisions include site dewatering necessary to lower and control groundwater levels and hydrostatic pressure to permit excavation and construction to be performed properly under dry conditions.

1. The groundwater shall be lowered and maintained to an absolute minimum of 3 feet below the lowest excavation made for the trench as required to place pipe bedding and manhole bedding.

2. The groundwater shall be lowered and maintained to an absolute minimum of 3 feet below the lowest excavation made for the structure as required to install the foundation.

3. The groundwater shall be lowered, as necessary, to facilitate excavation at the borrow site.

B. Dewatering operations shall be adequate to assure the integrity of the finished project. The responsibility for conducting the dewatering operation in a manner which will protect adjacent structures and facilities rests solely with the Contractor. The cost of repairing any damage to adjacent structures and restoration of facilities shall be the responsibility of the Contractor.

C. The Contractor bears the sole responsibility for the design, installation, operation, monitoring, and removal of the dewatering system to comply with the requirements of this section and any applicable regulatory agencies. Install additional dewatering equipment as may be required throughout the duration of the project to maintain groundwater level as described in Article 150881.01, A.

D. Submit the applications and obtain the required permits for the well construction including obtaining approval from the Council Bluffs Department of Public Health and the Pottawattamie County Office of Planning and Development. Copies of these guidelines are available from the respective agencies. File a Field Office Notification (FON) with the Iowa DNR and develop a Well Water Pollution Prevention Plan for the discharge of wastewater from well construction activities per the Iowa DNR

National Pollutant Discharge Elimination System (NPDES) General Permit #6. Copies of these guidelines and blank forms are available from the Iowa DNR.

E. The Contracting Authority will notify the Contractor of any demands brought upon the project by the Iowa DNR. Cooperate with the Contracting Authority in its efforts to comply with the site-specific guidelines provided by the Iowa DNR, including the possibility of adjusting the dewatering system if the discharge exceeds limits imposed by the Iowa DNR. Costs of sampling and laboratory analysis required by the Iowa DNR shall be the responsibility of the Contractor. The required sampling and testing parameters, frequencies, and locations are provided the Appendix A.

150881.02 SCHEDULE AND PLAN.

A. Prior to commencement of construction, submit a detailed dewatering plan. Allow 9 weeks for review. Submittal shall include:

1. Plan location of dewatering wells and piezometers.

2. Well and piezometer construction details including the diameter, depth, screen size, screen location, filter pack location, list of equipment and estimated pumping rates.

3. Discharge pipe location, size, and details. If the discharge pipe will cross over a flood control levee, a ramp shall be detailed to allow vehicle access to be maintained along the top of the levee. Pipe discharge will not be allowed on the bank of a flood control channel or through a culvert that penetrates a flood control levee. Include a plan view location of the ramp and discharge pipe along with a cross section for any levee crossing.

4. Abandonment plan for both the dewatering wells and piezometers.

B. Geotechnical information collected for the project is provided in the contract documents. Fluctuations of the groundwater level can occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were completed. The geotechnical information was prepared for design purposes only and may not be adequate for a Contractor to evaluate construction conditions or design the dewatering system. The Contractor should independently interpret the soil/groundwater conditions taking into consideration their intended means and methods of construction, and the Contractor may perform additional exploration at their own expense as necessary for design of the dewatering system.

C. Due to possible variations of soil conditions and groundwater levels between soil bore locations, change or modification of the dewatering system may be required to accommodate such variations.

150881.03 CONTROL AND OBSERVATION.

A. Maintain adequate control to ensure that the stability of excavated slopes are not adversely affected by water, that erosion is controlled and that flooding of excavation or damage to structures does not occur. The Contractor is solely responsible for site excavation safety and compliance with OSHA regulations, in particular Standard 29 CFR, part number 1926. The Engineer assumes no responsibility for site safety; the above information is provided for consideration by the Contractor only.

B. Install piezometers to determine if the groundwater is at the acceptable absolute minimum level or lower as defined in Article 150881.01, A.

1. When observation of the groundwater level is complete, properly abandon the piezometers .

2. Install piezometers with the following minimum frequency:

- Near the beginning and ending of trenched pipe runs longer than 50 feet.
- Near every 150 linear feet of trenched pipe runs along the length of the pipe run.

C. The Contracting Authority reserves the right to install additional piezometers, at its own expense, to observe the groundwater levels and monitor the performance of the system.

150881.04 INSPECTION.

A. During or after any excavation, if sufficient soil instability is observed that may prevent proper installation of pipe bedding, pipelines, structures, backfill and compaction, then call for inspection of conditions by the Engineer. The Engineer will inspect the conditions and determine if they are unacceptable for pipe installation.

B. If after dewatering has lowered the groundwater level as specified and unacceptable trench conditions are found by the Engineer, then the Contractor may be directed to increase dewatering pumping rates or install additional wells to lower the groundwater to an acceptable level lower than that defined in Article 150881.01, A. If more extensive dewatering is required the Contractor must achieve the revised acceptable groundwater level before construction may continue.

150881.05 CONSTRUCTION.

A. Furnish, install, and operate pumps, pipes, appliances, and equipment of sufficient capability to maintain the absolute minimum or lower groundwater elevation described in Article 1506810.01, A within the excavation limits until the excavation is backfilled, unless otherwise authorized by the Engineer.

B. Provide any temporary ground surface piping necessary to convey dewatering well water discharge to an acceptable storm sewer intake or waterway with the capacity to convey said discharge. Provide any rerouting of temporary ground surface piping, necessary to complete the project. Do not discharge directly onto the ground surface unless approved by the Engineer. Supply a clean tapping device at each well location to allow easy discharge water sampling by the Engineer.

C. Design, install, and maintain an adequate system to lower and control the groundwater elevations as described in Article 150881.01, A to permit excavation, construction of structures, and placement of fill materials to be performed under dry conditions.

D. Place the system into operation prior to beginning excavating below the natural groundwater level, to lower the groundwater to the elevation as described in Article 150881.01, A and operate continuously 24 hours a day, 7 days a week until piping or structures have been constructed and backfill materials have been placed to the top of the excavation.

If the dewatering system shuts down or if pumping is suspended, lower the groundwater levels to the required level, as described in Article 150881.01, A, and get verification by the Engineer before continuing any construction, including excavation or backfilling. The Engineer will also require any compaction, moisture and/or other soils testing, as determined necessary, of any backfill that is prematurely subjected to groundwater to verify said soils stability prior to placement of additional backfill. If said soils are determined to be unacceptable, remove and replace damaged soils at their own expense.

E. Conduct dewatering in such a manner as to preserve the undisturbed bearing capacity of subgrade soils at the bottom of the proposed excavation.

F. Install piezometers to monitor the groundwater elevation.

G. Utilize diversion ditches and dikes, where necessary, to prevent surface water from entering

the excavation.

150881.06 METHOD OF MEASUREMENT AND BASIS OF PAYMENT.

The measurement and payment for all work covered under this section will be made at the contract lump sum price for Dewatering or Dewatering for Sanitary Sewer which will constitute full compensation for obtaining any necessary permits and furnishing all equipment, labor, and materials to install, operate, maintain, monitor, and remove the dewatering system in accordance with all applicable regulations.

A. No payment will be made until copies of the permits are supplied to the Contracting Authority.

B. The cost of piezometers sufficient to meet the requirements stated in Article 150881.03, C will be considered incidental to Dewatering. If any additional piezometers are requested by the Engineer, as stated in Article 150881.03, C, said piezometers will be paid for according to Article 1109.03, B of the Standard Specifications. If the additional piezometers are needed as a direct result of the Contractor's actions or negligence they will be done at the sole expense of the Contractor.

C. The cost of sampling and testing the discharge water according to Article 150881.01, E will be considered incidental to Dewatering.

D. Submit a schedule of values to the Engineer to explain the breakdown of the lump sum price. This schedule of values will only be used to determine the appropriate amount of the lump sum to be attributed to each progress payment. The following list contains items that should be used, at a minimum, for the schedule of values:

- Obtaining permits and complying with permit requirements.
- Drilling the wells and piezometers.
- Installing the pumps.
- Installing power supply.
- Discharge and/or manifold piping.
- Sampling and testing the discharge water.
- Removal.

APPENDIX A

City of Council Bluffs Dewatering Discharge Sampling and Testing Requirements

Thiele Geotech Inc

13478 Chandler Road
Omaha, Nebraska 68138-3716
402.556.2171 Fax 402.556.7831
www.thielegeotech.com

May 17, 2010

Mr. Jeff Krist
Public Works Department
City of Council Bluffs
209 Pearl Street
Council Bluffs, IA 51503

RE: PROPOSED ENVIRONMENTAL SCREENING POLICY FOR MONITORING THE DISCHARGE OF GROUND WATER FROM DEWATERING ACTIVITIES
TG# 08017.06

Dear Mr. Krist:

This letter outlines a proposed environmental screening policy related to dewatering projects conducted by the City of Council Bluffs. This screening policy has resulted from the recent request from Kirk Mathis of IDNR for the City of Council Bluffs to oversee dewatering activities that occur in the City of Council Bluffs via the City's storm water discharge permit (NPDES General Permit MS4).

Previously the IDNR field office has provided guidance for a schedule of sampling activities to monitor the quality of the discharge waters entering the City's storm sewer during dewatering activities. These monitoring events have taken place on a daily to weekly basis and tested pH, iron content, total dissolved solids, and total suspended solids. If there was potential for a LUST site to be influenced, then select constituents of petroleum hydrocarbons would also be included in the testing regime.

Below is a proposed monitoring plan for a dewatering site. If there is an active LUST site within 1,000 feet of the dewatering well, then the relevant additional parameters should also be included in the sampling events.

PARAMETER	LIMIT	SAMPLING FREQUENCY	LOCATION
Volume of water discharged	NA	Record daily	Prior to discharge to storm sewer
pH	6.0-9.0 SU (Standard Units)	Day 1, 4, & 7 the first week then weekly thereafter	Prior to discharge to storm sewer/outfall
Total suspended solids	45 mg/L	Day 1, 4, & 7 the first week then weekly thereafter	Prior to discharge to storm sewer/outfall
Total iron	August through April: 15 mg/L May through July: 25 mg/L	Day 1, 4, & 7 the first week then weekly thereafter	Prior to discharge to storm sewer/outfall

LUST with gasoline release			
BTEX (OA-1)	Benzene: 5.0 ug/L Toluene: 1, 000 ug/L Ethylbenzene: 700 ug/L Xylenes: 10,000 ug/L	Day 1, 4, & 7 the first week then weekly thereafter	Prior to discharge to storm sewer/outfall
LUST with diesel/waste oil release			
Total Extractable Hydrocarbons (OA-2)	Diesel: 1,200 ug/L Waste Oil: 400 ug/L	Day 1, 4, & 7 the first week then weekly thereafter	Prior to discharge to storm sewer

The intent of this environmental screening policy is to broaden the knowledge of the potential impact upon the storm sewer fallout locations from ground water releases to the City's storm sewer system from dewatering events.

We look forward to receiving your advice on this matter. If you have any questions, or if there is any additional information that we can provide, please feel free to contact us.

Respectfully submitted,
Thiele Geotech, Inc.

Prepared by,

Donna S. Matlock, C.P.G., CHMM
Senior Geologist