



17-0715

June 19, 2017

IN REPLY REFER TO: S-2017-0416

DEBORAH NEUSER, CITY CLERK  
CITY OF MANITOWOC  
900 QUAY ST  
MANITOWOC WI 54220

Subject: Approval of plans and specifications for a groundwater treatment system to serve the former Town of Newton Gravel Pit - Manitowoc, WI.

Dear Ms. Neuser:

The Department of Natural Resources (hereafter Department) is conditionally approving plans and specifications for a groundwater treatment system to serve the former Town of Newton Gravel Pit site located in Manitowoc, Wisconsin. The plans and specifications were submitted under the seal of David Henderson, Professional Engineer, AECOM Technical Services, Inc., 1555 N. Rivercenter Dr., Milwaukee, Wisconsin, and received for approval on June 12, 2017.

#### Design Information

#### **Project Description**

City of the Manitowoc (hereafter City) is proposing to treat contaminated groundwater with a engineered groundwater treatment pond and phytoremediation as an in-situ groundwater remedial alternative at the Former Newton Gravel Pit site, Manitowoc Wisconsin. The Former Newton Pit property is approximately 58 acres in size, and is located at 3130 Hecker Road in the Town of Newton, Manitowoc County Wisconsin. The property's legal description is the southwest  $\frac{1}{4}$  of the northwest  $\frac{1}{4}$  of Section 2, Township 18 north, Range 23 east. Within the 58 acres, approximately one acre along the western property boundary was the location of a disposal pit that received industrial wastes (the Western Source Area) during the 1960's and early 1970's. The Western Source Area is located on an elevated area of the property. Site investigation activities have delineated soil impacts in the Western Source Area, defined as a light non-aqueous phased liquid (LNAPL) free product within the source area, and identified both a shallow groundwater contaminant plume that extends east-southeast to Silver Creek (Groundwater Treatment Area) and deeper (bedrock) groundwater impacts continuing to the southeast (Potable Well Target Zone). The selected remedial alternative for the Western Source Area is the engineered groundwater treatment pond and phytoremediation in the Groundwater Treatment Area. This combination addresses the remediation goals while providing protection to human health and the environment.

#### **Wastewater Sources**

- Contaminated groundwater captured by the groundwater treatment pond.
- Uncontaminated groundwater captured by the groundwater treatment pond.
- Stormwater runoff captured by the groundwater treatment pond.

#### **Treatment Process**

The engineered groundwater treatment pond is approximately 500-ft long, 160-ft wide, and 20-ft deep designed to intercept and treat the groundwater contaminant plume in the mined area immediately down gradient of the Western Source Area. The treatment process anticipated to occur within the pond includes volatilization,

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phytoremediation, aerobic bioremediation, and solar oxidation. The pond will be equipped with a floating solar powered mixer designed to improve evaporation and stripping of VOCs, as well as to keep the pond operational during the winter months. Volatilization will be the primary remedial process in the pond. Therefore, generation of sludge will be minimal. In addition, the pond is not designed as a storm water pond so accumulation of sediment from the drainage area inflow will not occur.

The City in partnership with the United States Forest Service (hereafter USFS) will design and manage the phytoremediation system in the Groundwater Treatment Area that will leave a legacy of approximately 2.4 acres of hybrid poplar and willow tree varieties that will continue to remediate the site. VOCs will be processed by the trees as evapotranspiration and will not bio-accumulate in the biomass of the trees.

### **Outfall**

The final effluent will gravity flow from the groundwater treatment through 280 L.F. of 18-inch pipe and discharge to the Silver Creek. The outfall will discharge at an elevation above the ordinary high water mark. The outfall structure system includes a fish screen, stainless steel slide gate, and flap gate. The fish screen will be located at the inlet and consist of 8-ft wide by 10-ft long stainless steel wire wedge screen with ½-inch opens between wires. The fish screen will remove any debris from the pond. The slide gate at the inlet will be opened or closed to regulate residence time of the groundwater in the pond. The flap gate will prevent backflow conditions from entering the pond.

### **Design Capacities**

The groundwater treatment pond was designed for a 100-year, 24-hour rainfall event. The pond will have a volume of approximately 6.7 million gallons. The anticipated discharge flow rates will range from 0.153 MGD to 2.6 MGD with an average flow rate of 0.255 MGD. The retention times of the pond will range from 2.6 days to 44 days with an average retention time of 26 days.

### **Operation**

The groundwater treatment pond and phytoremediation system is expected to be mobilized during July 2017. USFS will be responsible for monitoring and care of the trees and phytoremediation system. The City will oversee the operation and maintenance of the site including the pond, solar powered mixer and the outfall structure system. AECOM personnel will be responsible for collecting all effluent samples for analysis and compliance with the specified Wisconsin Pollutant Discharge Elimination System (WPDES) permit.

### **Permit**

Permit coverage will be evaluated under the *Contaminated Groundwater from Remedial Action Operations* WPDES General Permit (No. WI-0046566-5) for the discharge of treated groundwater to the Silver Creek. The Department will then issue a letter of determination on whether the discharge is covered under the identified WPDES permit.

The plans and specifications are hereby approved in accordance with s. 281.41, Wis. Stats., Approval Number S-2017-0416, subject to the following conditions:

1. That the Department be notified when the proposed system is placed in operation and when the proposed system is demobilized. Please notify David Haas, (920) 662-5401, Wastewater Specialist in the Department's Green Bay Service Center.
2. That the proposed treatment system is operated effectively and efficiently when the system is placed in operation.
3. That an operation and maintenance manual for operation of the treatment system be prepared and submitted to the Department before placing the system into operation.
4. That a competent resident inspector be provided during the course of construction.

5. That all solids and sludges resulting from the treatment of these wastewaters be disposed of in accordance with ch. NR 214, Wis. Adm. Code and the WPDES permit for the facility or any applicable Solid and Hazardous Waste Regulations (in chs. NR 500 to 590 and 600 to 690, Wis. Adm. Code).
6. That erosion control methods be used to prevent siltation to lands and waterways adjoining the construction area. These methods shall include but not limited to the following:
  - a. Siltation fences,
  - b. Trench stabilization, and
  - c. Immediate mulching and seeding.
7. That the improvement(s) be installed in accordance with the plans and specifications and above conditions, or subsequent essential and approved modifications.

These plans and specifications have been reviewed in accordance with s. 281.41, Wis. Stats and ch. NR 108, Wis. Adm. Code. Where necessary, plans and specifications should be submitted to the Department of Safety and Professional Services (Safety and Building Division) or other state or local agencies to insure conformance with applicable codes or regulations of such agencies.

The Department reserves the right to order changes or additions should conditions arise making this necessary.

This approval is not to be construed as a Department determination on the issuance of a WPDES permit or an opinion as to the ability of the proposed system to comply with effluent limitations in such permit, or an approval for any activities requiring a permit under ch. 30 or 31, Wis. Stats.

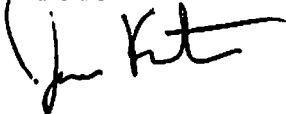
In case installation of these improvements has not been commenced within two years from this date, this approval shall become void. After two years, therefore, new application must be made for approval of these or other plans and specifications before any construction is undertaken.

If you believe you have a right to challenge this decision made by the Department, you should know that Wisconsin statutes, administrative codes and case law establish time periods and requirements for reviewing Department decisions.

To seek judicial review of the Department's decision, sections 227.52 and 227.53, Wis. Stats., establish criteria for filing a petition for judicial review. Such a petition shall be filed with the appropriate circuit court and shall be served on the Department. The petition shall name the Department of Natural Resources as the respondent.

To request a contested case hearing pursuant to section 227.42, Wis. Stats., and ch. NR 2, Wis. Adm. Code, you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. The filing of a request for a contested case hearing is not a prerequisite for judicial review.

STATE OF WISCONSIN  
 DEPARTMENT OF NATURAL RESOURCES  
 FOR THE SECRETARY



Jason Knutson  
 Wastewater Section Chief  
 Bureau of Water Quality



Trevor J. Moen, E.I.T.  
 Wastewater Engineer  
 Bureau of Water Quality

cc: David Henderson, P.E. – AECOM Technical Services, Inc.  
 David Haas – DNR Green Bay Service Center (via email)  
 Permit File (WPDES Permit No. WI-0046566-5)  
 Plan File

6-23-17  
Dan K.  
Mike J.  
KMM