

**Supplemental Task Order – 2018 Services
Scope and Authorization to Proceed
Former Town of Newton Gravel Pit
AECOM Project No. 60135471 (82518)**

A. Purpose of Task Order

AECOM Technical Services, Inc. (AECOM) is to provide consulting and subcontractor services for the 2018 calendar year for the Former Town of Newton Gravel Pit project. AECOM proposes to perform these services as a supplemental task order under the terms of our Consulting Agreement authorized by the City of Manitowoc Common Council November 23, 2009. These costs will be tracked and invoiced under AECOM's current Project No. 60135471.

B. Scope of Services

The proposed scope of services is summarized in the list immediately below followed by more detailed descriptions of individual tasks:

- Project Management
- Expanded Downgradient Potable Well Monitoring Work Plan
- Semi-annual Potable Well Sampling – Existing 5-Year Plan
- Replacement Potable Well Sampling
- Potable Well Plume Delineation
- Specs, Plan Set, Bidding – Engineered Treatment System
- Construction Site Work – Engineered Treatment System
- Operation & Maintenance – Engineered and Groundwater Treatment Systems
- Annual Site-wide Groundwater Sampling

Project Management

The Newton Pit project team (City personnel, WDNR personnel, and the AECOM project manager) typically meet on a monthly or bi-monthly basis. Most meetings are convened at City Hall, but some meetings are conference calls. Occasionally, the City Team (City personnel and AECOM project manager) have a preparation meeting prior to these regularly scheduled meetings.

Included in this task is time to provide technical support to the City and Mr. Ned Witte, Godfrey & Kahn S.C., for Cost Recovery. It is anticipated that the level of this support will be nominal in 2018 unless the City requires litigation support. In the event that litigation support is needed, additional funding will be requested.

Project management activities encompass WDNR liaison to establish Site Investigation (SI) completeness and a path forward for expanded investigation, including in-house meetings with AECOM, City personnel, and WDNR staff, as well as a site visit with Mr. Tauren Beggs.

Considerable project management time is dedicated to troubleshooting replacement potable well water quality including coordination with Luisier Plumbing and Water Right for the water treatment system equipment and operation, research on a possible link between well depth and lithology and TDS/iron/hardness, meetings with City personnel, and meetings with homeowners.

Also included in this task is research on Compound Specific Isotope Analysis (CSIA) in support of “fingerprinting” potential chlorinated volatile organic compounds (CVOCs) to determine possible alternative sources for the apparent bifurcated downgradient plume.

Potable Wells

Expanded Downgradient Potable Well Monitoring – Work Plan

AECOM will prepare an Expanded Potable Well Monitoring Work Plan for submittal to the WDNR. The anticipated scope will be to conduct sampling of select potable wells in response to regulatory exceedances at the currently established limits of the downgradient plume for 2018. Initially this task includes sampling 20 potable wells for which well logs are available. This task includes well record searches, and Geographic Information Systems (GIS) database updates. Potential additional sampling will be determined based on the results of this initial sampling and WDNR approval.

Semi-Annual Potable Well Sampling – Existing 5-Year Plan

As part of semi-annual potable well sampling activities for 2018, AECOM will sample an estimated total of 12 potable wells in May and 29 potable wells in October. The specific wells to be sampled will be determined by the Existing 5-Year Potable Well Monitoring Work Plan. The scope of services for the sampling event is expected to include:

- Notification to the potable well owners to schedule the sampling (to be conducted by the City) and coordination between AECOM, the City, and owners to determine specific sampling times for an AECOM field technician to sample the private wells.
- Collection of potable well water samples and quality control samples. The quality control samples will include field duplicate and matrix spike/matrix spike duplicate samples. The quality control samples will be determined by AECOM field personnel.
- Submit an estimated 50 samples in 2018 including quality control samples to a Wisconsin Administrative Code (WAC) Chapter NR 149 certified laboratory for analyses of VOCs (EPA Method SW 8260B).
- AECOM will assist the City with reporting the individual sampling results to both the WDNR and potable well owners. A potable well sampling letter report will be submitted to the WDNR by AECOM. The letter report will include a written summary of the sampling event, summarized laboratory results in tabular form, a figure showing the results, and copies of laboratory reports. Well owner notification of analytical results will be performed by the City and is expected to include a cover letter explaining the results with an attached copy of the well-specific laboratory report. The WDNR will be copied on the well owner reporting.
- The proposed scope of services does not include confirmation potable well water sampling if a new/replacement potable well is installed at a residence with an impacted well. These services will be provided under a separate cover if potable well replacement activities take place.
- If sampling results indicate that updates should be made to the number of Target Zone or Sentinel Zone wells (as provided for in the Expanded Downgradient Potable Well Monitoring Work Plan), those changes will be reflected in the number of potable wells sampled during subsequent sampling events.
- Laboratory subcontractor costs and AECOM expenses are estimates. Final costs will be based on invoicing.

Replacement Potable Well Sampling

The replacement potable well sampling activities for 2018 are projected to include the following locations and schedule of events:

- 3008 South 26th Street, 3 sampling events
 - Lab work - 3 samples VOCs, hardness, iron, and total dissolved solids (TDS)
- 2201 Elm Road, 3 sampling events
 - Lab work - 3 samples VOCs, hardness, iron, and TDS

- Two unknown locations, assume 3 sampling events each location
 - Lab work - 3 samples VOCs, hardness, iron, TDS - per location

The work is anticipated to include:

- Notification to the potable well owners to schedule the sampling (to be conducted by the City) and coordination between AECOM, the City, and owners to determine specific sampling times for an AECOM field technician to sample the private wells.
- Collection of potable well water samples and quality control samples. The quality control samples will include field duplicate and matrix spike/matrix spike duplicate samples. The quality control samples will be determined by AECOM field personnel.
- Send samples to a WAC Chapter NR 149 certified laboratory for analyses of 13 VOC samples (EPA Method SW 8260B) and five each for wet chemistry parameters of total iron (EPA Test Method 200.7), hardness (EPA Test Method 200.7), and total dissolved solids (EPA Test Method 160.1).
- AECOM will assist the City with reporting the individual sampling results to both the WDNR and potable well owners. The results will be incorporated in to the subsequent potable well sampling letter report to be submitted to the WDNR by AECOM.
- Laboratory subcontractor costs and AECOM ODCs are estimates. Final costs will be based on invoicing.

North of Viebahn Street Plume Delineation

WDNR requires further investigation of the down-gradient groundwater contaminant plume north of Viebahn Street. Two sets of nested groundwater monitoring wells will be installed north of Viebahn Street. It is anticipated a total of eight wells will be installed. Each well nest will include four wells consisting of one water table well and three piezometers.

- Prepare a Well Installation and Monitoring Work Plan for submittal to the WDNR.
- Negotiate right-of-entry with each property owner. AECOM will assist the City with these negotiations. AECOM planned for one on-site meeting for these negotiations.
- Seven days of field work for the installation of the wells.
- Each well nest will be comprised of four wells including a water table well and three piezometers at approximate depths of 60, 100, and 120 feet below ground surface. The deepest piezometer will be completed approximately 20 feet below the top of bedrock.
- Each of the newly installed wells will be developed and sampled prior to incorporating into the annual site-wide monitoring event. As in the past, AECOM assumes that the City will assist with the disposal of development and sampling purge water.
- Laboratory analysis of nine groundwater samples by a WAC Chapter NR 149 certified laboratory for analyses of VOCs.
- The location of each newly-installed well will be surveyed (X and Y coordinates), as well as top of casing elevation.
- AECOM will complete boring logs and well construction and development documentation for each well (WDNR Forms 4400-122 and 4400-113A and 113B).
- AECOM will assist the City with reporting preliminary sampling results to the WDNR. If the delineation results are supportive of a separate delineation report, AECOM will prepare such a report. Otherwise, the formal reporting of the well installation and sampling activities will occur in the 2018 annual groundwater and surface water sampling report.
- Laboratory and drilling subcontractor costs are estimates. Final subcontractor costs will be determined through formal bids and invoiced accordingly.
- Investigation derived waste, i.e. soil cuttings from the borings, are assumed to be uncontaminated and will be disposed of at the gravel pit site as required by the WDNR.

Target Zone Plume Delineation

A preliminary three-phase work plan has been proposed to further delineate the down-gradient groundwater contaminant plume east of Hecker Road and along County Highway (CTH) CR. The need for this delineation work is related to the groundwater impacts observed on the vicinity of CTH CR, just south of the intersection with Viebahn Street, and east along Viebahn Street from the intersection with CTH CR. The goal of the delineation is to fill data gaps in the groundwater monitoring network. The delineation work is planned in three phases with the understanding that the City can choose to not proceed with subsequent phases of work at any time. The phases are:

Phase 1 – Historical Well Records Search and Evaluation

Previously completed.

Phase 2 – Existing Potable Wells

If the review of Well Construction Records (WCRs) does not identify and provide potable well depths within the area of interest, AECOM proposes to conduct field measurements of the existing potable wells of interest. The anticipated scope is as follows:

- Negotiate right-of-entry with each homeowner. AECOM will assist the City with these negotiations. AECOM planned for one on-site meeting for these negotiations.
- AECOM will work with the City to hire a licensed well driller to remove well water pumps from the potable wells and measure the total depth of the wells. AECOM has budgeted for the field measurement of 13 potable wells. Please note; it is possible that damage to the well pumps, their wiring, or the piping associated with the pumps may occur during the measurement process through no negligence of AECOM or the City-retained subcontract well driller. Any cost associated with repairing damage is not included in AECOM's proposed budget and may be an extra expense to the City.

Phase 3 – Install New Groundwater Monitoring Wells

If further investigation of the down-gradient groundwater contaminant plume is necessary, two sets of nested groundwater monitoring wells will be installed within the area of interest. It is anticipated a total of eight wells will be installed. Each well nest will include four wells consisting of one water table well and three piezometers consistent with the well nests proposed for north of Viebahn Street.

- Negotiate right-of-entry with each property owner. AECOM will assist the City with these negotiations. AECOM planned for one on-site meeting for these negotiations.
- Four days of field work for the installation of the wells.
- Each of the newly installed wells will be developed and sampled prior to incorporating into the annual site-wide monitoring event. As in the past, AECOM assumes that the City will assist with the disposal of development and sampling purge water.
- Laboratory analysis of nine groundwater samples by a WAC Chapter NR 149 certified laboratory for analyses of VOCs.
- The location of each newly-installed well will be surveyed (X and Y coordinates), as well as top of casing elevation.
- AECOM will complete boring logs and well construction and development documentation for each well (WDNR Forms 4400-122 and 4400-113A and 113B).
- AECOM will assist the City with reporting preliminary sampling results to the WDNR. If the delineation results are supportive of a separate delineation report, AECOM will prepare such a report. Otherwise, the formal reporting of the well installation and sampling activities will occur in the next annual groundwater and surface water sampling report.
- Laboratory and drilling subcontractor costs are estimates. Final subcontractor costs will be determined through formal bids and invoiced accordingly.
- Investigation derived waste, i.e. soil cuttings from the borings, are assumed to be uncontaminated and will be disposed of at the gravel pit site.

Specs, Plan Sets, Bidding – Engineered Treatment System

AECOM will assist the City with preparing plans and technical specifications along with bidding activities in support for the 2018 construction for the engineered treatment system (i.e. SVE and LNAPL recovery systems). It is anticipated that these activities will include:

- Preparing a plan set with sheets for site layout design, process & instrumentation diagram, building layout, and cross-sections/details.
- A technical specification document providing details for the engineered treatment system construction. AECOM understands that the City will provide the “front end” documents for the public bid documents.
- Bidding; AECOM will assist the City with the bidding process by providing technical support during the pre-bid meeting, answering technical questions and providing support for addendums during the bidding period, and supporting the final bid review.

Construction Site Work – Engineered Treatment System

AECOM will assist the City with pre-construction, construction, and post-construction activities. It is anticipated that these activities will include:

- Pre-construction:
 - Pre-construction Meeting: AECOM will assist the City with a project kick-off pre-construction meeting with the construction contractor and subcontractors.
 - Pre-construction Layout Survey: AECOM surveyors will conduct one trip to the site for the proposed extraction well and remediation building layout.
 - AECOM expenses are estimates. Final costs will be based on invoicing.
- Construction:
 - Construction Observation: For budgeting purposes AECOM has assumed construction will take a period of two months (8 weeks).
 - AECOM proposes a weekly construction meeting with the contractor, City personnel, and the AECOM project manager. Weekly meetings are budgeted at 1-day a week over the 8 week construction period.
 - AECOM will assist the City with construction observation activities and proposes providing construction observation personnel for an average of 1-day a week over the 8 week construction period. This time will also be used to complete WDNR-requested PCB soil sampling within the Western Source Area during the extraction well installation activities.
 - AECOM expenses are estimates. Final costs will be based on invoicing.
 - Punch List & Substantial Completion:
 - Punch list observation is anticipated to take a period of one day.
 - As-built Survey: AECOM surveyors will conduct one trip to the site for an as-built survey.
 - AECOM expenses are estimates. Final costs will be based on invoicing.

Operation & Maintenance – Engineered and Groundwater Treatment Systems**Groundwater Treatment System**

Operation & Maintenance (O&M) activities for the pond include training of City staff, discharge operations, discharge permit sampling, and operational/groundwater monitoring. For budgeting

purposes, O&M activities began in March (pre-ice out) and will be performed for the remainder of 2018.

- Start-up Operations: AECOM will conduct start-up activities. These are anticipated to include training of City staff in the operation of the pond discharge weir structure and the pre-discharge Wisconsin Pollutant Discharge Elimination System (WPDES) sampling event.
- WPDES Discharge Sampling: In accordance with WPDES discharge permit requirements, AECOM will conduct pre-discharge monitoring of the pond surface water. Once the pre-discharge results indicate compliance with the permit discharge limits (assume July 2018) AECOM will begin discharging water from the pond to Silver Creek and simultaneously begin discharge permit monitoring. The work is anticipated to include:
 - Pre-discharge surface water sampling, budgeted for four sampling events.
 - Discharge monitoring includes six weekly and four monthly sampling events. Budgeting includes AECOM assistance to City staff for the first three weekly sampling events. It is assumed that the remaining sampling events will be completed by City staff. Sampling events to include staff gauge monitoring, discharge flow monitoring, and sampling discharged surface water.
 - Collect quality control samples, when applicable. The quality control samples will include field duplicate and laboratory-prepared matrix spike/matrix spike duplicate samples.
 - Analyze an estimated 20 water samples (includes quality control samples) by a WAC Chapter NR 149 certified laboratory for analyses of VOCs (EPA Method SW 8260B), PAHs (EPA Method 8270), Total Recoverable Lead (EPA Method 6010), Oil, Fats, and Grease (EPA Method 1664), and Total Suspended Solids (EPA Method 160.2).
 - Compile and report the data to the WDNR on a monthly basis using the WDNR's Discharge Monitoring Report (DMR) forms. Incorporate the data into an annual groundwater monitoring report.
 - Laboratory subcontractor costs and AECOM expenses are estimates. Final costs will be based on invoicing.
- NR 724 O&M and Groundwater Monitoring Plan: AECOM will finalize a combined NR 724 O&M Plan for the operation of the groundwater treatment pond, an as-built submittal, and a monitoring well sampling schedule.
- Cap Maintenance Plan and Deed Restriction: AECOM will finalize the previously submitted Cap Maintenance Plan for the Western Source Area cap deed restriction notice based on WDNR review.
- USFS Phytoremediation Management: Assist the City in managing the USFS work for phytoremediation activities.
- Annual Treatment System O&M Report: AECOM anticipates incorporating the NR 700 required remedial system operation annual report into the annual groundwater monitoring report. An initial discussion with the WDNR indicates combining the reports in this manner will be acceptable.

Engineered Treatment System

Operation & Maintenance (O&M) activities for the engineered treatment system (i.e. soil vapor extraction (SVE) and (Light non-aqueous phase liquid (LNAPL) recovery systems) include start-up testing and system balancing, operation monitoring, air emission sampling, and LNAPL waste disposal. For budgeting purposes, O&M activities assume construction activities are completed by the end of September allowing for an October system start-up.

- **Start-up Operations:** AECOM will conduct start-up activities anticipated to include one day for start-up testing and system balancing. An air discharge sample will be obtained to verify that air emissions are below permit requirement levels. The system will be left off after the one day start-up testing until air sample analytical results are received. Only after air emission rates are confirmed will operation of the system begin.
- **O&M Monitoring:** AECOM will conduct system O&M monitoring for both the SVE and LNAPL systems. The work is anticipated to include:
 - Air emissions monitoring includes six weekly and four monthly sampling events. AECOM assumes that during this monitoring period, City staff will be trained to assist in the operation of the system.
 - Collect quality control samples, when applicable. The quality control samples will include field duplicate and laboratory-prepared matrix spike/matrix spike duplicate samples.
 - Analyze an estimated 20 air samples (includes quality control samples) to a WAC Chapter NR 149 certified laboratory for analyses of VOCs (EPA Method SW 8260B), and Gasoline Range Organics (GRO) (Wisconsin Method).
 - Disposal of one drum of recovered LNAPL product.
 - Laboratory subcontractor costs, LNAPL disposal, and AECOM expenses are estimates. Final costs will be based on invoicing.
- **NR 724 O&M Monitoring Plan:** AECOM will prepare a NR 724 O&M Plan for the operation of the engineered treatment system along with an as-built submittal.
- **Annual Treatment System O&M Report:** AECOM will prepare an NR 700 required remedial system operation annual report.

Annual Groundwater and Surface Water Sampling

The annual site groundwater/surface water monitoring is planned to occur during October 2018. The scope of services includes sampling an estimated 62 groundwater monitoring wells and 3 staff gauges in Silver Creek. The work is anticipated to include:

- Obtaining groundwater elevation measurements for use in interpreting the groundwater flow direction.
- Repair stick-up, surface seal and protective casing on PZ-1.
- Purge and sample groundwater for field parameter analysis (pH, dissolved oxygen, conductivity, and redox potential) along with sampling for laboratory analysis of VOCs. AECOM assumes that the City will assist with the disposal of sampling purge water.
- Conduct water sampling from Silver Creek for field parameters and VOCs consistent with groundwater sampling.
- Collect quality control samples. The quality control samples will include field duplicate and laboratory-prepared matrix spike/matrix spike duplicate samples.
- Analyze an estimated 70 water samples (includes quality control samples) to a WAC Chapter NR 149 certified laboratory for analyses of VOCs (EPA Method SW 8260B).
- Compile the data into a letter report for submittal to the City and the WDNR. The letter report will include a written summary of the sampling event, summarized laboratory results in tabular form, figures showing the results, and copies of laboratory reports.
- Laboratory subcontractor costs and AECOM expenses are estimates. Final costs will be based on invoicing.

Town Hall Meeting

AECOM anticipates that there will be no Town Hall meeting in 2018.

C. Compensation

The total cost to complete the described activities is estimated to be **\$ 462,800.00**. The sub-totals for each task are as follows:

<u>Task</u>	<u>Sub-Total</u>
Project Management	\$ 78,550
Expanded Potable Well Monitoring	\$ 18,000
Semi-annual Potable Well Sampling - May	\$ 10,000
Semi-annual Potable Well Sampling - October	\$ 12,280
Replacement Potable Well Sampling	\$ 20,160
North of Viebahn Street Plume Delineation	\$ 74,870
Target Zone Plume Delineation	\$ 96,640
Specs, Plan Set, Bidding – Engineered Treatment System	\$ 20,990
Construction Site Work – Engineered Treatment System	\$ 36,040
Operation & Maintenance – GW Treatment System	\$ 16,930
Operation & Maintenance – Engineered Treatment System	\$ 32,500
Annual Groundwater & Surface Water Sampling - October	\$ 45,840
Town Hall Meeting (no meeting proposed)	\$ 0

Activities outside the scope of services described in this proposal will only be completed with prior written approval.

E. Schedule

AECOM will commence the additional activities upon written authorization to proceed. By signing below and/or an email authorization and returning it to David Henderson at AECOM's Milwaukee, Wisconsin office, will serve as written authorization to proceed.

The above is understood and authorization to proceed is given as noted by the undersigned:

Approved by:
City of Manitowoc

Signature

Title

Date

Accepted by:
AECOM Technical Services, Inc.



Kevin Brehm, P.E.

Associate Vice President
Title

May 17, 2018
Date