



May 2, 2025

Tracy Anderson
Project Manager
City of Ann Arbor
301 E. Huron Street
Ann Arbor, MI 48104

Sent via electronic mail

Re: Chapin Infrastructure Assistance

Dear Ms. Anderson:

Tetra Tech is pleased to submit this proposal to conduct environmental assistance for the City of Ann Arbor Chapin infrastructure project as requested by the City of Ann Arbor. Tetra Tech's understanding is that replacement water supply and stormwater mains will be installed by the City of Ann Arbor along Chapin Street, Third Street and Parkview Place in the City of Ann Arbor. Tetra Tech will complete the tasks as described below based on our conversations and coordination with City of Ann Arbor personnel on sampling requirements.

SCOPE OF WORK

Task 1: Environmental Investigation – Soil Borings, Well Installation, Sampling

Prior to mobilization for the environmental investigation, Tetra Tech will obtain non-potable well permits and a drain use permit from Washtenaw County; and right-of-way (ROW) permits from the City of Ann Arbor. Fees are included for the five required non-potable well permits and \$500 is estimated for the drain use permit fee. The ROW permits are expected to be paid through the City of Ann Arbor.

MISS DIG will be contacted by the drilling subcontractor to locate utilities in the street ROW as is required under state law. Ground Penetrating Radar (GPR) will be completed by the drilling subcontractor to clear each of the soil boring locations of any potential utilities or obstructions. This will be completed the first day of drilling and prior to soil boring advancement. An area around the proposed soil boring location will be cleared in the event of refusal at the location. Exact placement of soil borings will be adjusted in the field based on location of utilities, site features, results of GPR and potential refusal in a soil boring. These will be communicated with City of Ann Arbor personnel prior to drilling. The proposed boring locations are based on the map provided by the City of Ann Arbor, included as **Figure 1**. The Parkview Place locations are not included on **Figure 1** and will be identified in coordination with City of Ann Arbor personnel.

Seventeen soil borings are anticipated:

- Eleven soil borings are on Chapin Street
 - Eight will be advanced to 10-feet below grade surface (bgs)
 - Three will be advanced to 20-feet bgs

TETRA TECH

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- Three soil borings are on Third Street
 - Two will be advanced to 10-feet bgs
 - One will be advanced to 20-feet bgs.
- Three soil borings on Parkview Place
 - Each will be advanced to 10-feet bgs.

Continuous soil samples will be collected at each of the boring locations using GeoProbe direct push methods. It is anticipated that the soil borings will be completed up to a depth of 10-feet or 20-feet bgs as requested by the City of Ann Arbor as described above. If refusal is met, the soil boring will be attempted adjacent or may need to be completed shallower if refusal continues. A lithological description of the materials observed at each sample location along with other pertinent observations and photoionization detector readings (PID) will be summarized on a soil boring log. Photographs will be taken of each soil core, including the pavement portion and the thickness recorded, when completing each soil boring.

Soil sampling is not proposed along Chapin Street or Parkview Place; however, soil samples are proposed for Third Street based on contaminants previously detected in the area for other projects. One soil sample will be collected from each of the Third Street borings based on highest photoionization detector readings, changes in lithology, and olfactory or visual observations. The soil samples will be submitted for analysis of volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PNAs), MI 10 metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc), and 1,4-dioxane.

Assuming water is encountered at all locations during the drilling investigation, temporary monitoring wells will be installed in twelve of the soil boring locations and permanent monitoring wells will be installed in the three deeper (20-foot) well locations along Chapin Street. A temporary monitoring well will only be installed at one of the Parkview Place locations, if groundwater is encountered. At the temporary monitoring well locations, 1-inch temporary wells will be installed to the final boring depth with a 5-foot screen. At the permanent monitoring well locations, 2-inch wells will be installed to the final boring depth with a 5-foot screen and the wells will be finished with a flush mount cover. Groundwater samples will be collected at each location using low-flow techniques and a peristaltic pump, after field parameters are stabilized. The groundwater samples collected from Third Street locations will be submitted for laboratory analysis of VOCs, PNAs, MI 10 metals and 1,4-dioxane.

The groundwater samples collected from Chapin Street and Parkview Place locations will all be analyzed for MI 10 metals and 1,4-dioxane. Four of the Chapin Street locations will also be analyzed for VOCs and PNAs. These four sample locations will be evenly distributed locations along the street. One trip blank will be submitted for VOC analysis.

Additional sampling requirements are based on the final discharge destination of the groundwater during dewatering. If the water is intended to go to the Ann Arbor Wastewater Treatment Plant through sanitary discharge, per- and polyfluoroalkyl substances (PFAS) may be required as well as 1,4-dioxane method 8260. If dewatering is intended to discharge through the storm system, PFAS will not be required and 1,4-dioxane method 522 will be utilized. Costs have been included for PFAS sampling and the cheaper of the two methods of 1,4-dioxane analysis.

The sampling analyses for soil, groundwater from both temporary and permanent wells during the initial environmental investigation sampling event is summarized below based on discharge type.

Table 1: Initial Environmental Investigation Sampling Plan (1 Sampling Event)

Proposed Sampling	Third Street (3 borings)	Chapin Street (11 borings)	Parkview Place (3 borings)
Soil Parameters	VOCs, PNAs, MI 10 metals, 1,4-dioxane method 8260 (3 locations)	None	None
Groundwater Parameters if groundwater is discharged to stormwater	VOCs, PNAs, MI 10 metals and 1,4-dioxane method 522, TSS (3 locations)	MI 10 metals, 1,4-dioxane method 522, TSS (7 locations) MI 10 metals, 1,4-dioxane method 522, VOCs, PNAs, TSS (4 locations)	MI 10 metals and 1,4-dioxane method 522, TSS (1 location)
Groundwater Parameters if groundwater is discharged to sanitary	VOCs, PNAs, MI 10 metals and 1,4-dioxane method 8260, PFAS (3 locations)	MI 10 metals and 1,4-dioxane method 8260, PFAS (7 locations) MI 10 metals, 1,4-dioxane method 8260, VOCs, PNAs, PFAS (4 locations)	MI 10 metals and 1,4-dioxane method 8260, PFAS (1 location)

VOCs – volatile organic compounds

PNAs – polynuclear aromatic hydrocarbons

MI 10 Metals - arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc

PFAS – per- and polyfluoroalkyl substances

TSS- total suspended solids

Upon completion of sampling, each temporary monitoring well will be removed, the soil cuttings will be placed back into the borehole and hydrated bentonite chips will be added as necessary. Restoration will be completed in-kind with topsoil, gravel or asphalt, depending on the initial site condition; unless otherwise requested. Soil cuttings from the permanent monitoring wells will be placed in drums for characterization and potential disposal. If the soil is not impacted, it may be used elsewhere in the city. The permanent monitoring wells will be finished with a flush mount cover and will remain in place until project completion. Proper abandonment will be required at that time and is not included in this proposal. The purge water will be added into either the sanitary or the storm drain, whichever path the City chooses. All equipment will be decontaminated between locations using a mild detergent and distilled water.

This proposal includes costs to sample the three permanent monitoring wells along Chapin Street up to four additional times following the initial sampling during the environmental investigation mobilization. It is recommended that these monitoring wells are sampled again closer to the installation of the infrastructure to ensure there are no changes in potential groundwater contaminants detected. For costing purposes, it is assumed the permanent monitoring wells will be sampled for MI 10 metals, 1,4-dioxane method 8260, VOCs, PNAs and PFAS during the four additional events. This can be altered based on the detections identified in the initial sampling, for instance if VOCs are not present in the initial sampling across Chapin Street, that parameter can be removed. The sampling analysis for the sampling of the permanent wells is summarized below based on discharge type chosen.

Table 2: Permanent Wells Sampling Plan (4 Additional Sampling Events)

Proposed Sampling	Chapin Street (3 permanent monitoring wells)
Groundwater Parameters - Stormwater discharge	MI 10 metals, 1,4-dioxane method 522, VOCs, PNAs, TSS (3 locations)
Groundwater Parameters - Sanitary discharge	MI 10 metals, 1,4-dioxane method 8260, VOCs, PNAs, PFAS (3 locations)

VOCs – volatile organic compounds

PNAs – polynuclear aromatic hydrocarbons

MI 10 Metals - arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc

PFAS – per- and polyfluoroalkyl substances

TSS- total suspended solids

Soil results will be compared to Michigan’s Department of Environment, Great Lakes and Energy’s (EGLE) *Table 2 Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels*, dated October 12, 2023 (Part 201 Criteria) of the Natural Resources Environmental Protection Act (NREPA) 1994 Public Act 451, as amended. Groundwater results will be compared to EGLE *Table 1 Groundwater: Residential and Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels*, dated October 12, 2023 (Part 201 Criteria) of NREPA 1994 PA 451, as amended.

Tetra Tech will prepare a letter report documenting the environmental investigation. The letter report will include a summary and interpretation of the findings, figure(s) with the sample locations, soil boring logs, tables, photographs of soil cores, pavement thickness and laboratory reports. Costs have been included to prepare for and attend one virtual meeting to discuss the sampling investigation results with City of Ann Arbor personnel.

Task 2: Dewatering Assistance

It is Tetra Tech’s understanding that the dewatering amount is unknown for this project currently. Time has been included for Tetra Tech to work with City of Ann Arbor personnel on a plan for dewatering and sampling, should it be needed. Tetra Tech will design and implement a slug test for each of the three monitoring wells to determine the hydraulic conductivity of the aquifers identified. This is a separate mobilization than the environmental investigation and sampling activities. Included in this task is

completing slug tests on the three permanent wells to determine aquifer properties, including hydraulic conductivity to help determine how much water will move through that unit of soil. This requires displacing the water in the well and documenting recovery in pre-determined intervals by measuring the water levels until approximately 95% recovery has been completed. This information will then be entered into an aquifer analysis software program to determine aquifer properties. The slug tests will be completed on the permanent monitoring wells located on Chapin Street. Two days are assumed for this field work.

Task 3: Pavement Recommendations

Tetra Tech will provide pavement recommendations for the project area based on design requirements and will be in communication with City of Ann Arbor personnel when this task is required.

Task 4: Joint Permit Application (JPA)

The Allen Creek Drain crosses Chapin Street between Miller Avenue and W. Huron Street and again at Third Street between W. Huron Street and W. Washington Street in the project area. Tetra Tech will attend a virtual pre-application meeting to determine if a joint permit application (JPA) is required for the two Allen Creek Drain crossings. Recent discussions with EGLE have indicated that a permit was not required for an adjacent project.

If a JPA is required, a separate line item is included for completion of the application. Tetra Tech's understanding is that the infrastructure will be installed below the Allen Creek Drain but not at a depth that would provide an exemption. Tetra Tech has included time to work with the design engineer on the required components that will need to be included in the JPA. Additional time is included to coordinate with EGLE personnel to ensure permit issuance.

All county drains are considered regulated streams and under the Michigan Natural Resources and Environmental Protection Act (NREPA), 1994 Public Act 451 as amended; streams are regulated by Part 301, Inland Lakes and Streams of NREPA; and 100-year floodplains are regulated by Part 31, Water Resources Protection of NREPA. In the State of Michigan, surface waters are regulated under a joint program between the United States Army Corps of Engineers (USACE) and EGLE. The USACE maintains regulatory authority over coastal areas and certain other waters in Michigan, including the Great Lakes, connecting channels, other waters connected to the Great Lakes where navigable conditions are maintained, and wetlands directly adjacent to these waters under Section 404 of the Clean Water Act (CWA). EGLE has been authorized to administer Section 404 of the CWA in most areas of the state under an agreement with the United States Environmental Protection Agency. Jurisdiction on the project site is solely with EGLE.

Tetra Tech will complete the required sections of the JPA and submit the application to the EGLE regulator through the online MiEnviro program. The sections of the JPA that will be required depend on the type of water resource feature(s) being impacted and the type of impact. Tetra Tech will also provide the wetland/stream impact site plan and cross-sectional drawings that are required to accompany the JPA submittal, meeting EGLE's requirements:

- Scale, Compass North, and Property Lines.
- Fill and Excavation areas with associated amounts in cubic yards.
- Any rivers, lakes, or ponds and associated Ordinary High-Water Mark (OHWM).
- Exterior dimensions of Structures, Fill and Excavation areas associated with the proposed project.

- Dimensions to other Structures and Lot Lines associated with the project.
- Topographic Contour Lines from licensed surveyor or engineer, when applicable.

Tetra Tech has included time to assist the City of Ann Arbor and the design team with optimizing the layout, as needed, to avoid and minimize impacts. Time is also included to coordinate with EGLE personnel during the permitting process. This cost estimate assumes an individual permit is required with a fee of \$500, plus a 2% processing fee from EGLE. These fees are included in the proposal and will ensure the project can be completed and approved as quickly as possible.

Task 5: Documentation of Due Care Compliance/Health and Safety Plan/Guidance for Potential Soil and Groundwater Contamination

Owners and operators of contaminated properties are required to take actions to ensure the property is used safely and users are protected from contamination exposure.

A Documentation of Due Care Compliance (DDCC) report may be required for the project site because the work will be occurring within the 1,4-dioxane Gelman Prohibition Zone. The DDCC will document any characterization and mitigation activities as well as due care requirements for people interacting with the soil and groundwater onsite. The environmental investigation report included in this proposal will be appended to the DDCC and can be submitted to EGLE if City of Ann Arbor personnel choose. If any analytical results exceed Part 201 Criteria during the environmental investigation, these results will be documented in the DDCC.

Alternatively, if a DDCC is not required, Tetra Tech can prepare a health and safety plan (HASP) based on the environmental investigation that will meet the city's due care obligations to site workers. It will document any potential contaminants and outline health and safety guidance for people interacting with the soil and groundwater onsite during the installation of new infrastructure.

Task 6: Meetings and Communication with Washtenaw County and EGLE

Time is included to prepare and attend six virtual meetings with City of Ann Arbor, EGLE or Washtenaw County personnel as needed to discuss findings of the environmental investigation or potential concerns regarding the project and its location within the Gelman Prohibition Zone or other environmental concerns.

PROJECT SCHEDULE

Tetra Tech is prepared to begin work immediately and will complete the scope of work to meet your project deadline.

COMPENSATION

Our cost to perform the scope of work as described is a time and materials cost of **\$109,114** not to exceed without written authorization and in accordance with our current contract terms and conditions.

Task Item	Cost Estimate
Task 1: Environmental Investigation – Soil Borings, Well Installation, Sampling	\$75,075
Task 2: Dewatering Assistance	\$18,726

Task 3: Pavement Recommendations	\$ 1,280
Task 4: JPA pre-application Joint Permit Application (if needed)	\$ 1,291 \$ 5,117
Task 5: Documentation of Due Care Compliance/Health and Safety Plan	\$ 5,118
Task 6: Meetings and Communication with Washtenaw County and EGLE	\$ 2,508
Total	\$109,114

Compensation is based on the following assumptions:

- One electronic summary report will be produced to summarize the environmental investigation.
- Tetra Tech has included an estimated permit fee of \$500 for the Washtenaw County Drain Use Permits. A bond may be required that is not included.
- Costs are included for preparing City of Ann Arbor ROW permits. It is anticipated the City of Ann Arbor will pay these fees internally.
- Costs are included for six Washtenaw County well permit applications (one for each permanent monitoring well, one for temporary wells along Chapin Street, one for temporary wells along Third Street and one for the temporary well along Parkview Place). The fee per well permit applications is \$82 each.
- The drilling is expected to be completed in one mobilization.
- If disposal is needed for soil cuttings or purge water, waste characterization and disposal is not included in this proposal but can be estimated if required.
- Costs are included for JPA permit application. The anticipated JPA fee with a 2% processing fee is \$510.
- It is anticipated the environmental investigation field work will take up to 1 week.
- Analytical costs include 15 groundwater samples, 3 soil samples and one trip blank for the initial environmental investigation sampling
- Analytical costs include four additional sampling events for the permanent monitoring wells. This includes a total of 12 groundwater samples and 4 trip blanks.
- Analytical costs provided in the proposal assume a standard turnaround time (TAT) of 10 business days.
- Costs are included to sample the three permanent monitoring wells five times. The permanent monitoring wells will be sampled during the initial environmental investigation and during four additional sampling events closer to the installation of the infrastructure.
- The permanent monitoring wells should be abandoned when the project scope is complete to remove potential conduits to the groundwater. Costs for abandonment can be provided upon City of Ann Arbor request.
- Up to eight hours are included for the civil road engineer to review the pavement thickness and design drawings for a recommendation.
- Time is included in Task 1 to prepare for and attend one Meeting with City of Ann Arbor personnel to discuss the environmental investigation sampling results with City of Ann Arbor personnel.
- Time is included to prepare for and attend up to six virtual meetings in Task 6 to discuss the sampling results with City of Ann Arbor personnel EGLE or Washtenaw County personnel as needed.

Ms. Tracy Anderson
May 2, 2025
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We appreciate the opportunity to provide this proposal. Please let me know if you have any questions.

Sincerely,

A handwritten signature in black ink, reading "Patti J. McCall". The signature is fluid and cursive, with the first name "Patti" and last name "McCall" clearly distinguishable.

Patti J. McCall, CPG, PWS
Principal Hydrogeologist

Attachments
Figure 1



Legend

Proposed Soil Bores
BoreDepth_ft
★ 10 (10)
★ 20 (4)

