EXHIBIT A-1
CITY OF ANN ARBOR
RFP #21-17
WWTP ACCESS BRIDGE REPLACEMENT PROJECT
SCOPE OF SERVICES
NTH CONSULTANTS, LTD.

1. **PROJECT IDENTIFICATION**:
   RFP #21-17 Replacement of existing Access Road Bridge over the Huron River for the City of Ann Arbor's WWTP in Ann Arbor Township, Washtenaw County, Michigan

2. **PROJECT DESCRIPTION**:
   The goal of this request by the City of Ann Arbor is to be able to safely access the City's Wastewater Treatment Plant (WWTP) from Access Road. The current crossing of the Huron River for the Access Road is a two-span bridge that was constructed in 1934. This bridge is too narrow for more than one-vehicle to pass at a time. The request by the City is for investigation into options (maximum of three (3) TS&L Options for consideration) for accomplishing this goal. Options should include incorporating the existing bridge into one of the three options to be developed. All design considerations will adhere to the established parameters and limitations outlined in the RFP.

3. **PROJECT PARAMETERS**:
   The WWTP Access Road Bridge Project RFP identifies the following specific parameters for the project at a minimum:

   - Bridge configuration shall be for two (2) travel lanes, one (1) in each direction on the bridge(s)
   - Bridge Cross-section to have adequate shoulder width in addition to the two (2) travel lanes
   - Bridge superstructure to be low-maintenance construction materials
   - Bridge deck to be cast-in-place concrete
   - Bridge Loading shall be for HL-93 and WB-50 type design vehicles
   - Bridge construction to utilize conventional construction methods
   - Construction activities must not negatively impact operation of the Access Road or the Access Road's existing bridge at any time. Vehicular access to and from the plant must be available 24 hours a day, seven (7) days a week during the entire time of construction activities.
   - Design and Construction activities shall be performed to avoid to the greatest extent the known existing artesian aquifer which is underlying the project area and its depth is variable.
   - If realignment of the existing Access Road to the south of its current location is required, acquisition of an easement from the current property owner will be needed. Consultant to assist the City of Ann Arbor with preparation of exhibits and easement description for City's use in negotiating the easement.

- The parcel to be impacted by potential realignment, known as St. Joe's Nature Area, is potentially a designated wetland that is also within the Huron River's 100-year Floodplain. Consultant (working with City Staff) to coordinate with US Fish & Wildlife, Washtenaw County, MI-EGLE and US Army Corps of Engineers to obtain needed permitting for this project.
- Maintaining operation of the existing utilities on the existing bridge is required. TS&L designs will reflect this requirement for all design considerations.

4. **CONSULTANT TEAM:** NTH Consultant Team.
   - **NTH Consultants, Ltd.-**Project Management, Bridge Design, Roadway Design, Geotechnical Investigations & Design, SUE Investigations, Utilities, Environmental Services
   - **Cogent Civil Engineering, LLC**-Bridge Design
   - **Rosenbrock Land Surveying, Inc**.-Professional Surveying, Easements & Deeds
   - **ASTI, Inc.-**Environmental Services (Threatened & Endangered Species Investigation)
   - **DLZ American Drilling, Inc.-**Geotechnical Drilling Services

5. **PROJECT SCHEDULE:** (Assumes Notice to Proceed in October 2021)
   - Task 1- Start October 9, 2021-Finish May 20, 2022
   - Task 2- Start June 22, 2022-Finish August 26, 2022
   - Task 3- Start October 9, 2022-Finish November 26, 2022

6. **CONTRACT SCOPE OF SERVICES WORK PLAN**:
   TASK 1
   Task 1 will include obtaining available base data to be used in developing 3 TS&L Options for the Access Road's Bridge and Roadway locations. Specifically, such items will include:

   1. Topographic & Boundary survey of the project site, including right-of-way limits (easements), utility easements, railroad right-of-way limits, property lines for impacted properties, river channel sections and topographic elements (contour elevations, utilities, existing structures, manholes, fences, trees over 6-inch caliper) and other items within the project limits. The existing structure will be surveyed and inspected for consideration as an option for one of the TS&L configurations. Likewise, the existing Access Road centerline will be located to ensure design of the new/modified alignment provides adequate construction clearances.

   2. All public and private utilities located in the area will be reviewed to determine their age and condition as well as status for rehabilitation /replacement. In each case, the respective utility owners will be contacted about future actions and associated plans. We have included SUE services in this Scope of Services (SOS) and Fee Schedule in compliance with the RFP.

3. Perform Geotechnical investigations to determine the optimal type of foundation for new roadway embankment and the bridge foundations. Special attention during the investigation will be to identify the depth and location of the artesian sand aquifer to avoid design options impacting this layer of ground water under pressure. NTH will perform two (2) borings (one on each side of the river in the location of the proposed bridge substructure units) to purposely extend into the aquifer to accurately locate the top of the aquifer and the thickness of the confining clay layer above this aquifer. Pressure grouting of these two (2) borings and necessary technical supervision of this grouting is included in our Fee Schedule. We will then revise as needed our additional boring program to avoid the artesian aquifer while gathering the necessary design data for the project. However, should an unexpected incursion into the artesian aquifer occur, our drilling contractor will be prepared to seal any borings which may encounter artesian conditions in these unanticipated locations.

4. Identify select areas for environmental/ecological investigations as part of the coordination and permitting with MI EGLE and US FWS with the desired goal to avoid such areas as much as is feasibly possible and to assist the City in locating Wetland Credits as the preferred option if mitigation of wetland impacts is necessary.

5. After reviewing all accumulated data (geotechnical, utility locations, easement limits for the existing roadway, environmentally sensitive areas, site topography and river channel sections) we will begin the conceptual design of the Huron River crossing bridge for the project. Development of possible options (span configurations, bridge superstructure cross-sections, substructure, and superstructure types) will be investigated in this Conceptual Phase. One of these configurations will include re-use of the existing bridge structure as a one-way traffic vehicular bridge and the design of the new bridge as another one-way structure. This is based upon the agreed upon premise that we can re-use the existing foundations as-is (timber piling should be acceptable when they have been kept "wet" for their existing life cycle). Our analysis will be based on visual inspection of the existing superstructure and substructure units (pier and abutments) for repairs and modifications for reasonable re-use. The new structure configuration will be based on current design standards and will not be structurally connected to the existing bridge but separated by a longitudinal joint or a deliberately designed and protected open gap so the two bridges can act independently of each other structurally. Any open joint between the new and existing bridge will be designed with a barrier or drainage system to prevent snow & salt from filling this joint and causing corrosion and damage to the fascia of the deck and superstructure stringers below. Analysis will include designing for the target loading vehicle, bridge hydraulics based on span configurations and substructure types, roadway geometrics and embankment design, retaining walls, stormwater design, avoidance of the artesian aquifer for the new foundations, and need for additional right-of-way/ easements for the new alignment and bridge.

6. After initial Conceptual Design is mostly complete, we will meet with the City of Ann Arbor's Project Manager and others chosen by the City to present the Bridge Concepts, cost estimates and narratives of each concept to receive input prior to finalizing the options to a final of 3 TS&L Sets of Plans with Cost Estimates as the final step of the Concept Phase of this Project.

7. After the finalization of the 3 Conceptual TS&Ls for submission to the City of Ann Arbor, we will also include the identification of the necessary permits and impacts these 3 designs have upon the existing wetlands and floodplain and other agencies coordination that will be required for proceeding to developing construction documents for the selected new bridge configuration and alignment.

TASK 2

Task 2 will include preparation of Construction Documents (to 70% complete) in traditional MDOT Format modified as directed for City of Ann Arbor preferences. In addition, this submittal will include a written response to the TS&L Approval and Comments received, a revised Engineers Opinion of Probable Construction Costs, appropriate Forms & Permits for the involved agencies (i.e., soil erosion control, cultural and environmental/ecological impacts, floodplain impacts) and identification of any Design Exceptions the project may require. Specifically, Task 2 will include:

1. Written response to all comments received from the City of Ann Arbor's review of the 3 Conceptual TS&L submittals, confirmation of the TS&L Design selected to proceed to Construction Documents and incorporation of the review comments into this design.

2. Preliminary Construction Documents will include Bridge and Retaining Wall drawings developed to the 70% completion phase with all necessary details for evaluation of the proposed design.

3. Preliminary Construction Documents will include Roadway, Drainage, Erosion Control and Grading drawings developed to the 70% completion phase with all necessary details for evaluation of the proposed design.

4. Preliminary Construction Documents will also include proposed Maintenance of Traffic Plans, guardrail and barrier details and signing & striping of pavement markings drawings developed to the 70% completion phase with all necessary details for evaluation of the proposed design.

5. Preliminary Construction Documents will include existing right-of-way and proposed easements (permanent and temporary) on the Roadway Drawings for use in determining the needed right-of-way easement(s) from the property owner. These will be at the 70% completion phase with all necessary details for negotiations with the property owner.

6. Documentation for the submission to receive the needed permitting for the project will also be part of the Task 2 work. This will include:

- Defining the Wetland Limits within the Project's footprint.
- Determining if any Threatened and/or Endangered Species (t/e species) are present within the Project's Footprint (USFWS and MI EGLE list several t/e species as existing in Washtenaw County).
- Preparing a report with documentation and recommendations for review and discussion by the City of Ann Arbor.
- Preparing and submitting standard forms and exhibits for receiving the necessary MI EGLE Permits to construct the new bridge and roadway in the desired location.

7. Preliminary Construction Documents will be accompanied by an updated Engineers Opinion of Probable Construction Costs reflecting the 70% complete Construction Drawings.

TASK 3

Task 3 will include preparation of Final Construction Documents (100% Complete) based on incorporating the review comments received from the City of Ann Arbor's approval of the 70% submittal of Construction Documents. Specifically, Task 3 will include:

1. Written response to all comments received from the City of Ann Arbor's review of the 70% Construction Drawing Submittal including confirmation of the proposed final right-of-way/easement configuration and determination of mitigation efforts for permitting the roadway and bridge construction. Final Construction Documents will incorporate all review comments received from the City.

2. Final Construction Documents will include Bridge and Retaining Wall Drawings developed to the 100% completion phase with all necessary details for bidding the proposed design. Bridge Drawings for the final structure(s) will contain all details presented as typically required for a river crossing bridge and retaining wall drawings will be complete for type of wall approved and its impact to any right-of-way needs.

3. Final Construction Documents will include Roadway Drawings developed to the 100% completion phase with all necessary details for bidding the proposed design. Roadway Plans will detail horizontal and vertical alignment of the final roadway configuration, typical sections for roadway (travel lanes, shoulders, and barrier/guardrail), pavement design, storm drainage structures and system, roadway tie-in to existing alignments, cross-sections of the roadway, overall site grading, erosion control measures, guardrail layout where needed for the roadway, and utilities.

4. Final Construction Documents will include Traffic Control and Maintenance of Traffic Drawings for the existing roadway users, for watercraft users of the Huron River, and all final signing & pavement markings for the project.
5. Final Construction Documents will include Miscellaneous Drawings for utilities, bridge approach slabs, demolition of obsolete and non-functioning structures adjacent

to the existing bridge, rehabilitation details to the existing bridge (if it is not part of the Final Design of the Project), Summary of Quantities for the project.

6. Final Construction Documents will be accompanied by an updated Engineers Opinion of Probable Construction Costs reflecting the 100% complete Final Construction Drawings.

CLARIFICATIONS & EXCLUSIONS TO NTH SCOPE OF SERVICES

NTH has prepared this Scope of Services (SOS) and our Fee Schedule (Exhibit B-1) to meet the requirements of the City of Ann Arbor's RFP #21-17 and our Technical Scope of Services herein. Below we present the additional clarifications and exclusion utilized in preparing our Scope of Services and Fee Schedule:

- **Permitting Fees** will be submitted for direct reimbursement as a pass-through expense to the City of Ann Arbor with no administrative mark-up by NTH's Team.

- **Existing Bridge Inclusion with New Bridge Studies for 1 of the 3 TS&L Options** - Our Conceptual TS&L options (maximum 3) will evaluate the incorporation of the existing bridge as one of the options for meeting the goals of the RFP for a river crossing structure configuration to accommodate two (2)full travel lanes for the design vehicle trucks to use the structure in both incoming and outgoing traffic flow with adequate shoulder width. Our SOS and Fee Schedule includes the necessary services to accomplish this possible option (perform a field survey of the existing bridge & its inspection, and evaluation services to incorporate the existing bridge as a vehicular bridge for 1-lane of traffic and designed to work in tandem with the proposed new bridge which will provide the other 1-lane of travel in the opposite direction). Our evaluation will focus on the superstructure, concrete deck and abutments and pier above the pile caps. It is agreed by both the City of Ann Arbor and NTH's Team the existing foundations and their piling are acceptable for reuse with no modifications required. Our Team will visually inspect the existing bridge noting needed improvements/repairs for its use as part of the "twin" bridge concept with the new bridge. The proposed bridge will not be "structurally connected" to the existing bridge to prevent differential settlement issues between proposed foundation types and bridge configurations. Also, the proposed bridge will be designed as a single lane of travel bridge with adequate shoulders and barriers. If the "twin bridge" concept using the existing bridge is not selected to proceed to the final design, we will use the information collected to propose rehabilitation details for the existing bridge as a pedestrian/utilities support structure as discussed at our interview.

- **Geotechnical Services & Fees** have been prepared based upon our detailed knowledge of the geologic strata at this site from previous projects. Based on the strength of the soil strata above the artesian aquifer sand layer, we anticipate being able to design solid and stable foundations that do not involve penetrating this aquifer. As part of our boring program, we do intend to take one (1) boring on each side of the river at the potential location of the proposed piers into the artesian aquifer. After locating the aquifer as to depth and other qualities, we will adjust the remaining boring program to attempt to avoid the aquifer at other needed locations. Our drilling contractor is well qualified to

properly seal artesian borings and will be prepared for the possibility of needing to do so while on site if the aquifer is encountered in an unanticipated location or depth. In this riverine site, even with our proposed boring program to first locate the artesian aquifer using the two borings on either side of the river and data previously gathered on other projects at the WWTP, it is possible unexpected incursions into the aquifer could occur. If this does happen, we will notify the City immediately and determine the appropriate method for going forward as the SOS and Fee Schedule is based upon grout sealing only 2 intentional borings into the aquifer.

- **Public Involvement** as defined for NEPA Documentation is not included in this SOS and Fee Schedule. Public Meetings as outlined in the RFP stated the need for five (5) meetings with designated City Stakeholders and bi-monthly progress meetings assumed to be held every other month for the duration of the project (14) are included in the SOS and Fee Schedule. These Meetings are detailed in our Fee Schedule in our Exhibit B-1.

- **Street lighting design or electrical engineering** is not identified in the scope of services and is not anticipated or included in this SOS or Fee Schedule.

- **Relocation of utilities design** for public utilities in the roadway easement (tie-in locations) or on the bridge (design of a new bridge's superstructure to accommodate the future loadings and potential configurations for eventual placement of utilities on the bridge) have been included in this SOS. Relocation design services, whether temporary or permanent for the electrical power distribution along the north side of Access Road is not included in our SOS or Fee Schedule. As detailed in the subsequent conversations, the existing utilities on the existing bridge will remain in service and will not be relocated as part of this Contract.

- **Right-of-Way Descriptions / Easements**: The RFP requests assistance by the Consultant in preparing easement descriptions and exhibits for use by the City of Ann Arbor in securing these easements from the adjacent property owner. Easement Negotiations, legal filing, recording fees, or legal review of any easements is not included in this SOS or Fee Schedule.

- **Traffic Studies, Traffic Impact Reports Traffic Signals, and other Traffic Items** are not part of this SOS. Maintenance of Traffic Plans and final Traffic Control Plans (signing and striping) are included in the SOS and Fee Schedule.

- **Floodplain and Hydraulic Analysis** for the determination of scour at the bridge and the preparation of bridge hydraulics for design in sizing the proposed structure are included in the SOS and Fee Schedule. Coordination to receive the standard permit to install a net of 300 cubic yards or less of fill material within the Huron River Floodway (our site is in Zone AE or the 1% base flood area) is included within the SOS and Fee Schedule. Extensive modeling of the Huron River System for more in-depth Floodplain investigations is not included in our SOS or Fee Schedule.

Proposed Environmental Services with this SOS and Fee Schedule
This project involves a stream crossing and potential relocation of the roadway alignment into a designated floodplain (Zone AE on the FEMA FIRM) and potential wetlands area. The potential wetlands area is likely under MI-EGLE jurisdiction.

The project will require the following services focused on the environmental challenges at the project's site:

- Define the Wetland Limits within the Project's footprint.
- Determine if any Threatened and/or Endangered Species (t/e species) are present within the Project's Footprint (USFWS and MI EGLE do list several t/e species as existing in Washtenaw County).
- Prepare a report with documentation and recommendations for review and discussion by the City of Ann Arbor.
- Prepare and submit standard forms and exhibits for receiving the necessary MI EGLE Permits to construct the bridge and roadway in the desired location.

Process to accomplish these services:

- **Wetland boundary delineation and plan set for permit:**
  a. Our Team will evaluate the bridge site (including the western roadway approach that may require shifting of the alignment to the south of the existing roadway's current location) and determine the existence of wetland areas (our Team is MDOT Pre-qualified to perform Wetland Assessment) that would fall under the jurisdiction of MI-EGLE.
  b. Observed wetland areas will have their boundaries delineated with bright pink flagging with the wording "wetland delineation" on the flagging. Each flag is identified alphanumerically: A-1, A-2, etc. Our Project Surveyor will map the flag locations and provide coordinates from this field work. Our methodology to conduct a wetland boundary delineation follows the guidelines of the 1987 Army Corps of Engineers Wetland Delineation Manual - Midwest Regional Supplement, and statutory criteria of the Michigan Natural Resources and Environmental Protection Act (PA 451, of 1994, Part 303 -Wetlands).

- **Threatened and/or Endangered Species (t/e) Evaluation:**
  a. Our Team will investigate the bridge site (including the western roadway approach that may require shifting of the alignment to the south of the existing roadway's current location) to determine the presence of any t/e known to inhabit Washtenaw County according to the jurisdiction of MI-EGLE.
  b. T/E Species can inhabit areas below the ordinary highwater mark as well as above (aquatic vs. terrestrial). Our Team will perform a t/e Screen at the site for the presence of aquatic t/e which could include protected freshwater mussels such as the Northern Riffleshell Mussel or the Snuffbox Mussel. In addition to screening the river, we will also screen for other t/e species living above the ordinary highwater mark of the river (and similar habitat) which may also be encountered such as the Indiana Bat (known to exist in Washtenaw County in similar habitats);

the Eastern Mississauga Rattle Snake (known to exist in Wayne County in similar habitats); and the Eastern Prairie Fringed Orchid.

c. If t/e are identified within the footprint of the proposed site, we will document these species for further discussion and potential action.
d. If any t/e Species are encountered within the Project's Site, several options are available go keep the project moving ahead. These include limiting certain construction activities during prime nesting/mating season (for example no tree clearing until after April of the year in the case of the Indiana Bat) to the more detailed involvement of relocating a t/e species to a suitable location as determined by MI-EGLE /MDNR/US FWS. Relocation costs are not included in this SOS or Fee Schedule.

- **Report of Findings of Environmental Services**
  - Our team will prepare a report of findings regarding the wetlands and a separate report for the findings of the t/e species investigation. Our wetlands report will provide information which details conditions of the wetlands at the Project Site including location of wetland found, approximate size of wetland, type of wetland (e.g., forested wetland, marshes, swamps, etc.), a discussion of wetland qualifiers (hydric soils, apparent wetland hydrology, wetland plants) and a jurisdictional opinion of how Part 303 does or does not apply to the wetland areas observed. Similarly, our t/e species report will discuss if any t/e species are discovered within the footprint of our project and if found, how many were observed. Our report will provide a description of where these species were found, the quantity found and provide recommendations as how best to proceed in mitigating impacts to the t/e species. Our report will detail the locations and other pertinent information for these t/e and recommendations will then be submitted to the City for review of all items mentioned and a meeting to discuss options.

  - **Prepare and submit Exhibits to receive permits under Parts 31, 301 and 303 of PA 451**
    - Once we have coordinated our findings with the City of Ann Arbor concerning our report results and recommendations, with their approval we would proceed with preparing the needed documents for securing the MI EGLE Permit (assuming no t/e species are discovered which could require relocation). Our team would develop a plan set for permit to MI-EGLE. Information in the plan set for permit shall describe the setting of the project, topography, man-made as well as natural features (wetlands, stream banks, floodplain, et al). The plan set for permit is not intended to be construction document level of detail but will have sufficient detail to describe the location of the wetland boundaries, how much wetland area is impacted (if any) by the project, the centerline of the river, riverbanks, and associated floodplain (with elevations). The plan set for permit will quantify the approximate amount of cut and fill below the ordinary highwater mark of the stream (Part 301); approximate amount of cut and fill in the wetland, if any (Part 303); and approximate amount of cut and fill within the 100-year floodplain (Part 31). The plan set for permit will describe any compensating cut or fill required for construction of the new bridge and roadway. The wetland data forms, the

report and the plan set will be submitted with an MI-EGLE permit application through MI Waters for approval. Cost of Permit (which covers Parts 31, 301 and 303) will be a direct pass through with no mark-up to the City for payment.

- If our Team does identify the presence of a t/e species within the project site or immediately nearby, different options are possible to keep the project on-track. Accommodations for those species will likely be required by MDNR possibly including relocation of the t/e species. MDNR requires additional permitting for t/e species relocation and may also involve the US Fish and Wildlife Service (USFWS) to relocate t/e species outside the influence of the project site. The relocation services for mussels, snakes or other t/e species adds cost and can cause delays to the project. The length of delay is dependent upon state and federal agencies approving relocation plans and associated documentation. These services are not included in our SOS for this RFP and are not included in our Fee Schedule.

In Summary, Environmental Documentation is anticipated to use MDOT Standard Forms for a typical stream crossing suitable for submittal to MI-EGLE for their concurrence. Our SOS and Fee Schedule does not anticipate in-depth environmental investigations for hazardous materials, historic structures, or cultural/archaeological surveys. NEPA documents such as Categorical Exclusions (CE's), Environmental Assessments (EA) and Environmental Impact Statements (EIS) are beyond the Scope of the RFP and not included in this SOS and Fee Schedule. Coordination efforts for assisting the City with wetland mitigation in the form of purchasing "wetland credits" are included in our SOS and Fee Schedule. Wetland design, construction observation and monitoring of a constructed wetland are not included in our SOS or our Fee Schedule.

A listing of the anticipated plan sheets is given below:

ROADWAY	Sheets
Title Sheet	1
Typical Sections	1
General Notes	1
General Summary	1
Plan & Profiles Sheets	3
Cross Section Sheets	8
Maintenance of Traffic Sheets	2
Miscellaneous Details & Utilities	3-6
SUBTOTAL ROADWAY	20
RIGHT-OF-WAY	Sheets
Property Map	1
Centerline Survey Plat	1
Right-of-Way Summary	1
Detail Plan Sheets	1
SUBTOTAL RIGHT-OF-WAY	4
BRIDGE PLANS	Sheets
General Plan of Site	1
General Plan of Structure	1
General Notes	1
Detail Plan Sheets	
Abutment Details	6
Pier Details	2
Superstructure and Beam Details	4
Retaining Walls	2
Steel Reinforcement	1
MDOT Special Details	20
SUBTOTAL BRIDGE	38
TOTAL SHEET COUNT, ALL ITEMS	**62-65**