

**AMENDMENT NUMBER 1 TO
PROFESSIONAL SERVICES AGREEMENT BETWEEN
NTH Consultants, Ltd
AND THE CITY OF ANN ARBOR**

This Amendment Number 1 ("Amendment") is to the agreement between the City of Ann Arbor, ("City") and NTH Consultants, Ltd., ("Contractor") for Professional Engineering Services, which is dated January 26, 2022 ("Agreement"). City and Contractor agree to amend the Agreement as follows:

- 1) Article III, SERVICES, is amended to read as follows:
 - A. The Contractor agrees to provide Professional Engineering Services ("Services") in connection with the Project as described in Exhibit A, and as amended for additional tasks by Amendment Number 1 (Exhibit A-1). The City retains the right to make changes to the quantities of service within the general scope of the Agreement at any time by a written order. If the changes add to or deduct from the extent of the services, the compensation shall be adjusted accordingly. All such changes shall be executed under the conditions of the original Agreement.
 - B. Quality of Services under this Agreement shall be of the level of quality performed by persons regularly rendering this type of service. Determination of acceptable quality shall be made solely by the Contract Administrator.
 - C. The Contractor shall perform its Services for the Project in compliance with all statutory, regulatory, and contractual requirements now or hereafter in effect as may be applicable to the rights and obligations set forth in the Agreement. The Contractor shall also comply with and be subject to the City of Ann Arbor policies applicable to independent contractors.
 - D. The Contractor may rely upon the accuracy of reports and surveys provided to it by the City (if any) except when defects should have been apparent to a reasonably competent professional or when it has actual notice of any defects in the reports and surveys.

- 2) Article V, COMPENSATION, is amended to read as follows:
 - A. The Contractor shall be paid in the manner set forth in Exhibit B, and as amended by Amendment Number 1 (Exhibit B-1). The total fee to be paid the Contractor for the Services shall not exceed \$803,507.77. The original contract amount was \$589,405.30. The Amendment No. 1 amount is \$214,102.47 Payment shall be made monthly, unless another payment term is specified in Exhibit B or Exhibit B-1, following receipt of invoices submitted by the Contractor, and approved by the Contract Administrator.

 - B. The Contractor will be compensated for Services performed in addition to the

Services described in Article III, only when the scope of and compensation for those additional Services have received prior written approval of the Contract Administrator.

- C. The Contractor shall keep complete records of work performed (e.g. tasks performed, hours allocated, etc.) so that the City may verify invoices submitted by the Contractor. Such records shall be made available to the City upon request and submitted in summary form with each invoice.

All terms, conditions, and provisions of the Agreement, unless specifically amended above, shall apply to this Amendment and are made a part of this Amendment as though expressly rewritten, incorporated, and included herein.

City and Contractor agree that for this Amendment and any documents related to the Agreement: 1) signatures may be delivered electronically in lieu of an original signature; 2) to treat electronic signatures as original signatures that bind them; and 3) signatures may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

This Amendment to the Agreement shall be binding on the Parties' heirs, successors, and assigns.

[SIGNATURE PAGE FOLLOWS]

For _____
Contractor Name

By _____

Name: _____

Title: _____

Date: _____

For City of Ann Arbor

By _____
Christopher Taylor, Mayor

By _____
Jacqueline Beaudry, City Clerk

Date: _____

Approved as to substance

Milton Dohoney Jr., City Administrator

Brian Steglitz, Interim Public Services Area
Administrator

Approved as to form and content

Atleen Kaur, City Attorney

EXHIBIT A-1
SCOPE OF SERVICES

SCOPE OF SERVICES CHANGES

The additional Professional Engineering Services included in this Amendment No. 1 is provided below.

Additional Scope Related to Field Exploration and Seepage and Stability Analyses

- Revise the drilling program plan (DPP) submitted to FERC to include additional borings and to address FERC's requests for additional information and changes that were not required for the DPP submitted at the time of the 2017 piezometer installation program.
- Develop and revise conceptual sizing, cost estimates, advantages/disadvantages, and concept sketches for cutoff wall alternatives, with alternatives matrix, recommendations memo, and derivation of cost estimate differential between cutoff wall and stabilization berm alternatives.
- Drill three additional test borings at locations near the added analysis cross section and the cross section where additional analysis is being required. Two test borings will be drilled from the crest of the dam into the downstream slope of the right embankment to a depth of approximately 90 feet. The third boring will be drilled to a depth of approximately 40 feet at a location south of the collector ditch near the added cross section. The borings will be backfilled with grout in the same manner as the originally planned borings.
- If necessary due to railroad permit considerations, drill the initially planned test boring situated on the south side of the railroad bridge on a second mobilization of the drilling rig. Based on the lack of response from Amtrak during attempts to inquire about the permit status for the last six months, the design team cannot determine whether a second mobilization will be necessary at this time.
- Drill the six originally planned hand auger borings (HABs) using a temporary casing, to comply with FERC comments on the DPP. The casing is generally planned to be installed using the drilling rig that will drill the test borings, and the drilling rig will be stationed near the HABs during drilling to facilitate grouting of the boreholes if upward groundwater flow through the casings is observed.
- If requested by the City due to the increased volume of drilled spoils from the added borings or other reasons, place the drilling spoils into steel drums, sample the collected spoil materials and subject the sample to analytical laboratory testing for waste characterization, and dispose the filled drums at an off-site disposal facility. This proposal is based on disposition of not more than 20 drums and waste characterization analysis of one composite sample.
- Perform geotechnical laboratory testing on soil samples collected in the three additional test borings to assess the engineering properties of the subsoils at the explored locations.
- Perform video inspection of multiple toe drains in addition to the originally planned video inspection of Toe Drain 23, and review findings.
- Perform additional seepage and stability analyses at the cross section through the small pond as requested by FERC to provide an analysis section of record for a cross section near the spillway. The original intent of analyses at the small pond was to demonstrate that neither stability of the downstream slope nor the piezometric surface would be adversely affected, so a less-extensive analysis program was originally contemplated than is currently proposed to meet FERC's request.

- Perform seepage and stability analyses of an additional cross section located approximately where the planned downstream slope stabilization berm will have the greatest height, i.e., the greatest elevation difference between the top of the berm at the existing slope and the existing ground surface at the collector ditch in the same cross section perpendicular to the centerline of the embankment. This cross section is expected to be close to TD-23.
- Perform a sensitivity analysis of soil parameters at the analyzed cross sections through the planned stabilization berm. The sensitivity analysis is expected to consist of re-analyzing the seepage and stability with incremental changes to the hydraulic conductivity and strength parameters of selected layers to assess the effects of potential variations in subsurface soil conditions. Parameter adjustments will be made to soil layers individually, and multivariate analyses are not included in the proposed scope. Only those layers considered to be of particular significance will be included in the analyses, and not all layers will be analyzed with adjusted parameters; selection of which layers will be included will be guided by the extent of each layer within the analyzed cross section as well as the location of the layer in the section.
- Prepare a brief soil parameter selection memorandum for submittal to FERC separately from the Basis of Design Report. The purpose of the memorandum is to justify the soil parameter selection used in the seepage and stability analyses. Supporting documents and calculations will be attached to the memorandum.
- Perform limited seepage analyses at the cross sections through the planned stabilization berm to explore the effects of including a longitudinal collector pipe within the berm. These analyses will only be performed for steady-state normal and IDF pool conditions for the downstream slope. The analyses will be performed considering the pipe to be positioned at a horizontal distance from the crest of the embankment approximately matching that of the existing open collector ditch but at a higher invert elevation than the ditch to accommodate the required filter around the pipe. It should be noted that these analyses are being performed to satisfy the request made by FERC; NTH does not recommend the use of a longitudinal collector pipe due to the expected long-term inspection and maintenance of such a pipe, the difficulty with performing any needed repairs, the lack of redundancy associated with the use of a single pipe, and concerns that use of such a pipe will not adequately address the potential for internal erosion of the embankment to occur due to high piezometric gradients within the embankment.

Additional Scope Related to Response to EGLE SQT Usage Requirement

NTH has requested that DLZ lead the evaluation of the collector ditch for the potential need to use the SQT. Accordingly, services to be provided by DLZ consist of the following items.

- DLZ will review SQT materials and prepare a preliminary assessment using the SQT Stream Restoration Potential Form and the Catchment Assessment Worksheet as a first step in the SQT process.
- DLZ will meet with NTH and EGLE after preliminary findings have been made. Up to two meetings with EGLE and NTH to discuss the assessment are anticipated, including one potential on-site visit.
 - If EGLE agrees with DLZ's assessment, then DLZ anticipates no further action will be needed regarding the SQT.

- Conversely, if EGLE still determines the SQT must be used for mitigation determination, then DLZ will require additional scope and fee in order to complete the entire SQT process.
- Upon completion of the review with EGLE, DLZ will provide the SQT Stream Restoration Potential Form, the Catchment Assessment Worksheet, a letter of preliminary recommendation based on the watercourse assessment, and summaries of all meetings held with EGLE staff.

Additional Scope Related to EGLE Floodplain Hydraulic Analysis Requirement

NTH has requested that DLZ lead the hydraulic analysis needed for compliance with EGLE floodplain requirements associated with widening of the underpass walkway. DLZ understands that if the total cross-sectional area of the proposed changes blocks less than 1% of the floodway boundary, EGLE would waive the need for a hydraulic model of the project; however, the project could still potentially cause increases in the water surface elevation between the dam and the railroad bridge. DLZ also understands the EGLE WRD Floodplain Engineer, Mr. Minh-Huy Radics, desires to have a summary prepared that examines the effects of the dam, the area between the dam and the walkway, and the proposed encroachment of the walkway into the floodway to determine whether EGLE's requirements for a hydraulic model can be waived. As such, the extent of analysis and the nature of actions necessary following the analysis are not definitively established, at this writing. Accordingly, services to be provided by DLZ consist of the following items.

- DLZ will contact the EGLE WRD floodplain staff to obtain additional information on the requirements for hydraulic analysis, specifically to understand the extents and level of sophistication of the analysis that will be necessary. (Complete)
- DLZ will perform preliminary calculations as Phase 1 to develop a simple hydraulic model and conduct analysis using existing topographic/bathymetric information. The purpose of the Phase 1 calculations will be to evaluate the change in the floodway associated with the proposed walkway widening and to evaluate the approximate order of magnitude of change in the water level. These will be relatively simple calculations to guide the discussion of required analyses, the results of which will be presented to EGLE for evaluation. If EGLE accepts the results, the hydraulic modeling and analysis services associated with the walkway expansion will be complete.
- If EGLE does not accept the results of the Phase 1 analysis, DLZ will perform detailed modeling and analysis as Phase 2. Phase 2 will require a field survey to obtain six cross sections from just below the dam to just below the railroad bridge; the approximate positions of these cross sections are shown below.

To obtain these cross sections, DLZ will need the City to limit the flows coming from the dam to the extent feasible for a duration of a few hours for purposes of profiling the channel. Data collected from the survey will supplement the available data and will be used to enhance the hydraulic model. The results of the additional modeling will be presented to EGLE for approval to allow walkway widening concept to proceed forward.

EXHIBIT B-1
FEE SCHEDULE

Contractor shall be paid for those Services performed pursuant to this Agreement inclusive of all reimbursable expenses (if applicable), in accordance with the terms and conditions as set in the original Contract.

The original Contract, the Amendment No. 1 amount and the not-to-exceed amount for Amendment No. 1 is \$214,102.47 and is broken down in the table below:

Task Identification	Original Fee	Requested Increase	Proposed Fee
A. Analysis and Preliminary Design	\$ 172,227.80	\$ 180,669.97	\$ 352,897.77
B. Basis of Design Report	\$ 66,030.00	\$ 9,565.00	\$ 75,595.00
C. Detailed Design	\$ 133,945.00	\$ 2,990.00	\$ 136,935.00
D. Survey	\$ 30,532.50	\$ 8,797.50	\$ 39,330.00
E. Public Engagement	\$ 55,070.00	\$ 12,080.00	\$ 67,150.00
F. Permitting (Excluding Fees)	\$ 30,480.00	\$ —	\$ 30,480.00
G. Preliminary Development Strategy for Wetlands Mitigation	\$ 6,120.00	\$ —	\$ 6,120.00
H. Bid Assistance	\$ 11,530.00	\$ —	\$ 11,530.00
I. Allowance for Permit Fees	\$ 20,000.00	\$ —	\$ 20,000.00
J. Supplemental Mitigation / Risk Reduction Services	\$ 63,470.00	\$ —	\$ 63,470.00
Total Project	\$ 589,405.30	\$ 214,102.47	\$ 803,507.77