May 8, 2026

Ms. Niki Ensor
City of Kingsport
415 Broad Street
Kingsport, Tennessee 37660

RE: South Fork Holston River Assessment - Year 2

Dear Ms. Ensor:

On behalf of Barge Design Solutions, Inc. (Barge), I am pleased to submit the scope and fee proposal (Attachment A) for the project named above.

This proposal was prepared based on my understanding of the project description. If we have not fully addressed your project requirements, or if you have other questions regarding the proposal, please advise us immediately by calling (423) 723-8450.

Sincerely,

Barge Design Solutions, Inc.

Nelson Elam, CSL
Vice President

c: Mr. Nick Carmean, Barge Design Solutions
Mr. Chris Provost, Barge Design Solutions

Enclosures

FOUR SHERIDAN SQUARE // SUITE 100 // KINGSPORT // TENNESSEE // 37660 // 423-247-5525 // BARGEDESIGN.COM

The scope of work is presented in the following elements:

I. Project Description
II. Scope of Services
III. Assumptions and Exclusions
IV. Deliverables
V. Compensation

I. Project Description

Barge Design Solutions, Inc. (Barge) proposes to continue to provide the City of Kingsport with an assessment of the South Fork Holston River from the Fort Patrick Henry Dam downstream to approximately 0.75 river miles below the confluence of the South Fork Holston River and Reedy Creek. The assessment will continue to occur at 14 sampling locations along the South Fork Holston River and various tributaries. The approximate sampling locations are provided in Attachment C. This proposal provides an estimated fee for the services described below.

II. Scope of Services

A. Macroinvertebrate Sampling

Barge will continue to conduct the macroinvertebrate survey in accordance with the Environmental Protection Agency (EPA) Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish, Second Edition (RBP; Barbour et al., 1999), and the Tennessee Department of Environment and Conservation (TDEC) Quality System Standard Operating Procedures (QSSOP) for Macroinvertebrate Stream Surveys, Revised December 28, 2021. Qualified biologists will conduct the biological stream sampling, utilizing the SQSH Method described in Protocol G of the QSSOP. The samples will be collected using the Semi-quantitative Riffle Kick (SQKICK) or modified method. During sample collection, Barge will also measure water temperature, dissolved oxygen, pH, and conductivity. A Stream Survey Field Sheet will be completed for each sampling occasion at each sampling location.

The preserved composite samples will be sent to the Aquatic Resource Center (ARC) located in Nashville, Tennessee for sorting and identification. The lab will reduce the samples to a 200 +/- 20 percent organisms subsample by using a gridded pick subsampler and collecting the organisms from Macroinvertebrate Samples in EPA's RBP. ARC will identify all organisms to the lowest practicable level and provide numeric value organism biometrics and a Tennessee Macroinvertebrate (TMI) score.

A habitat assessment will be performed at each of the biological sampling stations following Protocol D-1 of the TDEC QSSOP for Macroinvertebrate Stream Surveys. The

High Gradient Habitat Assessment Field Sheet found in Appendix B of the TDEC QSSOP will be used in conjunction with the riffle kick collections.

Barge assumes macroinvertebrates will be collected at nine sampling locations, twice per year for three years. It is possible macroinvertebrate sampling may be suspended at some or all locations following consistent TMI scores over multiple sampling occasions, but this determination must be made in consultation with TDEC prior to cessation of macroinvertebrate sampling. All data will be compiled and submitted to the Client prior to submitting to TDEC.

B. Water Quality Sampling

Surface water quality samples will be collected at each of the 14 proposed sampling locations to facilitate total maximum daily load (TMDL) modeling. Barge will conduct water quality sampling in accordance with the TDEC QSSOP for Chemical and Bacteriological Sampling of Surface Water. Qualified biologists will conduct the water quality sampling. Constituents to be tested include the following: total nitrogen, NH_3, NO_3, total phosphorus, PO_4, selenium, per- and polyfluoroalkyl substances (PFAS), total suspended solids, chlorophyll *a*, and *Escherichia coli*. During sample collection, Barge will also measure water temperature, dissolved oxygen, pH, and specific conductivity.

For *E. coli*, a Water Parameter Report will be completed for each sampling occasion at each sampling location. Additionally, *E.coli* sampling will be conducted as a stand-alone event given the short hold time of six hours for samples collected.

All water quality constituents will be sampled monthly at 14 sampling locations for three years. Water quality samples will be delivered to Waypoint Analytical in Johnson City, TN, within the recommended holding times per sample. All data will be compiled and submitted to the Client prior to submitting to TDEC.

C. Water Quality Modeling

Barge continues to engage Dynamic Solutions to model the water quality and sediment data to develop a water quality model for the South Fork Holston River over the course of the three-year study. This task includes watershed development and calibration based on available DEM data and HUC12 subbasins in the watershed. From this a hydrological and water quality model will be developed and tested. Once developed, the model will be calibrated using data provided by Barge. Additionally, up to four scenarios for nutrient and *E. coli* reduction will be analyzed with the model. A TMDL report will be developed based on the models and will document load allocation for each TMDL. Dynamic Solutions will also provide flow and stage gage installation services. Flow data is needed for the model.

D. Meetings, Communication, Reporting, and Project Management

Barge will facilitate communication with TDEC and other regulatory agencies. This task also includes monthly update reports for the City. Barge will provide annual sampling reports to the Client as well. Annual reports will summarize all data collected during the previous year and will include all raw data received from subconsultants.

III. Assumptions and Exclusions

A. Barge will provide the above-noted services based upon a given set of assumptions. These assumptions are as follows:

1. The above approach will generally be accepted by regulating authorities without significant changes requested. Significant changes may result in modification of the scope and associated fee.
2. Water quality modeling will be performed by Dynamic Solutions.
3. Barge will have access to the sampling locations, as required.
4. Sampling events will not be disrupted by conditions outside of Barge's control, such as unexpected/excessive dam releases, dangerous weather conditions, etc.

B. The following excluded services can be provided as an additional service with the fee and detailed scope to be negotiated at the time of request:

1. Jurisdictional water(s) verification by agency(ies).
2. 404 and 401 permitting applications.
3. Mitigation plan for permittee responsible mitigation.
4. Listed protected species presence/absence surveys.
5. Desktop and/or Phase 1 Cultural Resource Survey.
6. NEPA studies and/or NEPA documents.
7. Floodway modeling/studies.
8. Environmental sampling/testing other than that described within this Scope of Work.

IV. Deliverables

A. All macroinvertebrate and water quality data – Excel, PDF
B. Annual sampling reports – PDF
C. TMDL Report – PDF

V. Compensation

The estimated maximum fees for the Scope of Work described above are included in the table below.

Year 2 Fee Summary Table

Items	Fee Type	Estimated Fee Amount
Macroinvertebrate Survey Laboratory Costs	Direct	$19,750
Water Quality Sampling	T&M	$133,063
Water Quality Sampling Direct Expenses	Direct	$23,550
Water Quality Sampling Laboratory Costs	Direct	$59,202
E. coli Sampling	T&M	$101,900
E. coli Sampling Direct Expenses	Direct	$31,400
E. coli Sampling Laboratory Costs	Direct	$20,600
Water Quality Modeling Subconsultant	Direct	$204,450
Annual Reports	T&M	$9,050
TOTAL	Est. Max. Fee	$602,965

ATTACHMENT B

Schedule of
Standard Charges

HOURLY-RATE BASIS

Hourly Rates for Environmental:

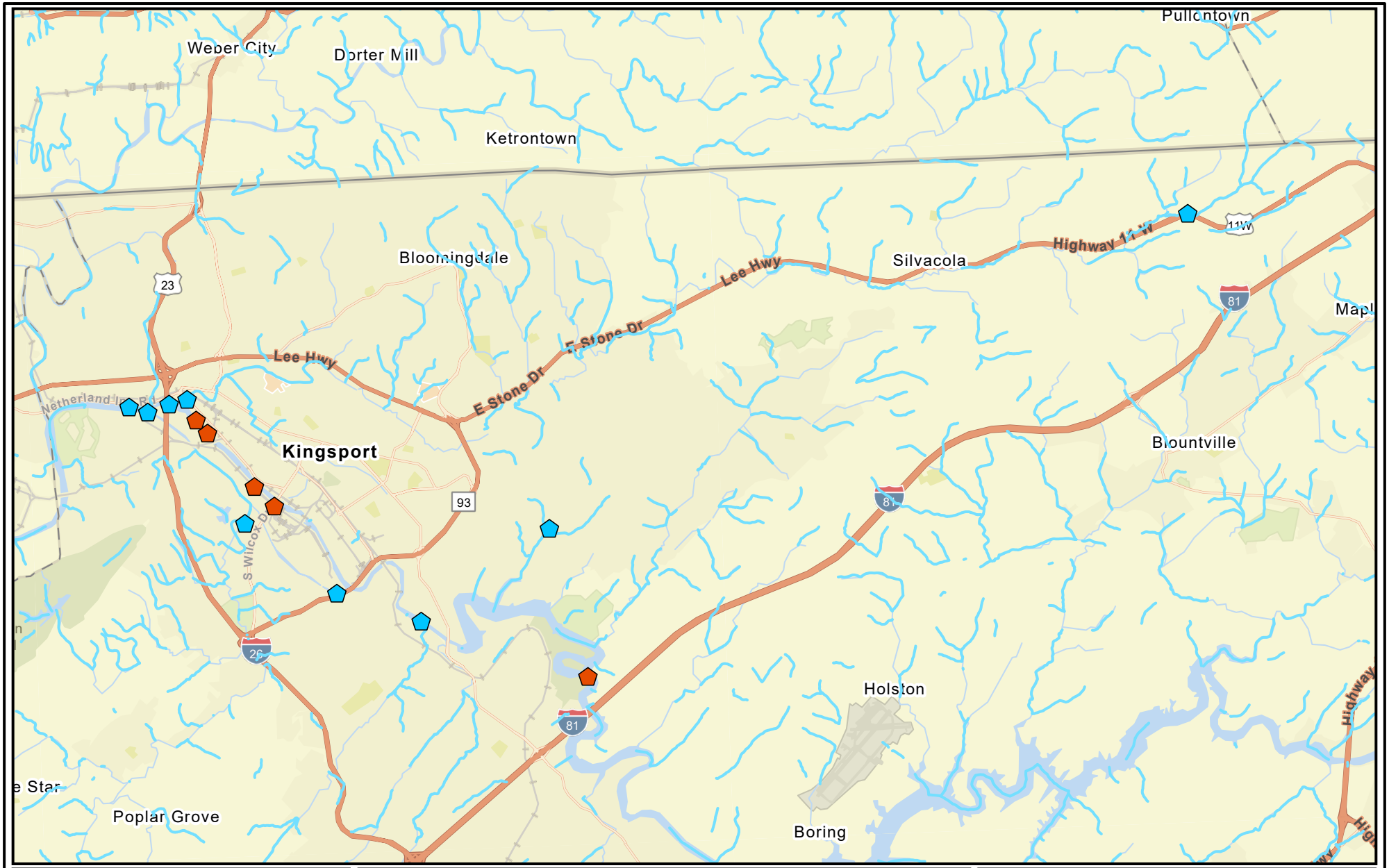
Client Service Leader/Principal	$280-$310
Project Manager	$220-$255
Resource Manager	$170-$185
Scientist III	$135-$150
Scientist II	$110-$135
Scientist I	$95-$109
Administration	$120-$130

Onsite services are billed portal to portal.

Expenses which are properly chargeable to the work will be invoiced as follows:

a. Travel by company or private vehicle at the IRS approved standard mileage rate.
b. In-house printing, reproduction, and photography charges at commercial rates.
c. Travel and living expenses for all personnel when required to be away from headquarters in connection with the work at cost.
d. Sub contactor effort will be directly billed to the client.

Invoices will be issued on a monthly basis.



Monitoring Stations
- WQ and TMI
- WQ Only
- Streams/Rivers

1 inch = 10,000 feet
0 2,800 5,600 11,200 16,800 Feet

Basemap: ESRI NAIP Imagery
Source Data: TDEC DWR

PROJECT:
City of Kingsport
South Fork Holston River Assessment
Kingsport, Sullivan/Hawkins County, Tennessee

TITLE:
PROPOSED SAMPLING DESIGN

PROJ NO: 3791901

DATE: May 2026

FIGURE 1

BARGE DESIGN SOLUTIONS
615 3rd Avenue South, Suite 700
Nashville, TN 37210

KINGSPORT TENNESSEE

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