HEADWATERS ENGINEERING

SCOPE OF WORK

Flat Creek Stabilization, Black Mountain, NC

October 19, 2026

Background

The Town received StRAP grant funding in 2024 to stabilize Flat Creek between the Flat Creek Road / Montreat Road intersection and Charlotte Street. Conditions changed after Tropical Storm Helene and the work reaches have been defined to focus on the least stable areas where landowners are willing to participate. The project is now defined by two reaches as follows:

Reach 1: A roughly 330-LF reach that includes 311 Flat Creek Road, 20 Cool River Drive and 1114 Montreat Road; and

Reach 2: A roughly 2,000-LF reach extending from the upstream Stepp-Nichols property line on Davis Drive to Charlotte Street where the Town maintains a greenway easement.

Flat Creek and its floodplain are in a FEMA special flood hazard area (SFHA) and proposed stream stabilization work the SFHA will require floodplain permitting via a "no-rise" study. The creek carries a Class C classification from the state.

Scope of Work

Task 1: Survey and Site Assessment

Headwaters will coordinate with our subcontract surveyor to complete a survey of reach 2, including the following:

- Locating existing sanitary sewer infrastructure, mature trees, power poles, a pedestrian bridge, and remains of a greenway; and
- Completing a topographic survey of the stream and floodplain.

The survey will be tied to NC State Plane Coordinates (NAD83) and elevations will be established relative to the NAVD88 Datum. Headwaters will supplement the survey with available aerial imagery and LiDAR topographic data and create base maps of both reaches.

Reach 1 is being surveyed as part of another project and we will use data from this survey to support Task 2. Headwaters will also perform laser level transects in both reaches to capture channel dimensions, and we will create a photographic log of existing conditions.

Task 2. Design

Data and results from Task 1 will inform the design process. The design goal is to develop a stream stabilization plan that supports long-term stability and function. Headwaters will present the preliminary design on a half size plan set that will include:

- Plan sheets showing:
  - Existing topography and other site features relevant to design and construction;
  - Proposed channel and floodplain grading limits, in-stream structures, and bioengineering measures; and
  - Profile adjustments as appropriate to support project goals.
- Details for:
  - In-stream structures;
  - Bioengineering practices;
  - Erosion control measures and practices;
  - Planting, live staking and seeding details and species lists; and
  - Typical stream cross sections.
- Construction quantities, a bid item list and an engineer's estimate of construction cost.

We will share the preliminary plans with the Town and landowners to solicit feedback. This will include one neighborhood meeting hosted by the Town for participating landowners. Headwaters will prepare a brief PowerPoint presentation with project highlights and will be available to answer questions at the meeting.

We will address Town and landowner comments and incorporate feedback into the final design as appropriate. The final design will be presented in a sealed plan set and bid item list as described above. Design and plan preparation will be performed by a North Carolina Professional Engineer. Plans will be delivered in digital (pdf) format.

Task 3. Permitting

404/401:

We are assuming that coverage will be available under Nationwide Permit (NWP) 13 from the US Army Corps of Engineers and Water Quality Certification (WQC) 8568 from the NC Division of Water Resources. The length of the proposed work requires submitting a Pre-Construction Notification (PCN). Headwaters will prepare the PCN, which will include a summary of the proposed work, supporting data and calculations, and preliminary plans. Signed agent authorization forms will be required from participating landowners.

Floodplain:

The floodplain permitting task will include the following steps:

- Obtain the effective computer model and flood mapping for the study reach of Flat Creek and update the effective model as needed;

- Model the proposed bank stabilization work and evaluate its effects on flooding relative to the effective model; and
- If modeling indicates no adverse flooding impacts, complete a no-rise certification, summarize findings in an engineering report, and assist with preparation of a floodplain development permit application to the Town.

Effort required to develop and submit a Conditional Letter of Map Revision application (in the event that a no-rise result is not achievable) is not included in this scope of work, but the design will seek to achieve a no-rise result.

Task 4: Construction Support Services

Headwaters will provide the following construction support services:

- Prepare a bid package including sealed plans, a bid item list and specifications and help the Town solicit bids from experienced stream restoration contractors;
- Prepare written responses to bidder questions, review the bids and recommend a contract award to the Town;
- Hold a pre-construction meeting with the Town and the selected contractor to review the plans and design intent;
- Make six site visits during construction to check that the work conforms with the design and provide brief written reports with photos for each site visit to the Town;
- Make one site visit after construction is complete to document as-built conditions, and deliver as-built redline plans within 30 days of the final site visit.

The estimated fee for Task 4 is $10,000, based on the services described above and a construction period of up to 12 weeks. Additional site visits, meetings, or time beyond the services listed will be done only with written approval from the Town.

Fee and Schedule

Based on the scope of work described herein, the estimated fee and delivery schedule (weeks from notice to proceed) for our services will be as indicated in the following table. The fee estimate for Task 3 includes the $810 permit fee that DWR charges for review of the PCN.

Task	Estimated Fee	Target Completion Date (Weeks from NTP)
1. Site Assessment & Surveying	$15,000	6
2. Design	$22,000	12
3. Permitting	$10,000	24
4. Construction Support	$10,000	TBD
Total	$57,000	

The contract is time-and-materials with a not-to-exceed amount for each task. Headwaters will bill hourly at the 2026 on-call agreement rates, plus reimbursable expenses, and invoice monthly by task showing hours and expenses. The task amounts in the table above are estimated caps, not guaranteed fees, and the Town will pay only for the actual labor and expenses.

Authorization

We will perform the work under the terms and conditions of our existing on-call agreement. Work may be authorized by signing in the space provided below.

Work Authorized By: Date:

_____ _____

_____
Title