

January 27, 2026

Mrs. Theresa Perron-Janowski
Town Administrator – Glover, VT
51 Bean Hill Road
Glover, Vermont 05839
Email: theresa@townofglover.com

**Re: Request for Budget Amendment
Shadow Lake Dam – Additional Hydraulic Modeling
Glover, Vermont**

Dear Mrs. Perron-Janowski

Weston & Sampson Engineers, Inc. (Weston & Sampson) is submitting this request for a budget amendment intended to cover costs to complete additional HEC-RAS hydraulic modeling that has been requested by the Vermont Department of Environmental Conservation Dam Safety Program (VTDEC DSP). These requested models were not included in our November 8, 2024 Proposal for the project.

Weston & Sampson has completed initial modeling on several dam hydraulic improvement alternatives that considered various spillway reconfiguration and Shadow Lake normal pool elevations (Weston & Sampson Alternatives 1 through 5 provided in a September 12, 2025 email to the town). The objective is to select and implement an alternative that will meet regulatory requirements. These alternatives have been reviewed and discussed with town and VTDEC staff. Based on these discussions, the town's preferred hydraulic improvement alternative includes permanently lowering the normal pool elevation of Shadow Lake by 12-inches and providing overtopping protection along the downstream side of the dam (Alternative 2A). Overtopping protection is required since this alternative will not meet the VTDEC DSP's freeboard requirement of 1.5 feet during the design storm event.

The VTDEC is requesting additional hydraulic modeling to help them evaluate if the town's preferred hydraulic improvement alternative will be permissible through their program given that the freeboard requirement would not be met. Our proposed scope of services for the requested modeling is presented in the following sections.

ADDITIONAL HYDRAULIC MODELING SERVICES

Task 1 – Evaluate the Existing HEC-RAS Model

Weston & Sampson will conduct a test run of the existing HEC-RAS 2D model of the dam provided to us by the VTDEC DSP to evaluate if the model runs appropriately and contains necessary information for running the conceptual alternatives discussed in Task 2, below.

Task 2 – Additional HEC-RAS Modeling

The VTDEC DSP has requested HEC-RAS modeling for the following conditions:

1. Existing dam configuration conditions and the historic normal pool elevation of Shadow Lake (no drawdown).
2. Hydraulic improvement alternative 2A – Lower the existing spillway invert by 12-inches (also permanently lowers Shadow Lake by 12-inches).
3. Hydraulic improvement alternative 3 – Lower the existing spillway invert by 24-inches and replace the spillway

- discharge structure with a 4-foot wide by 5-foot tall box culvert.
4. Hydraulic improvement alternative 3B – Replace the spillway discharge structure with a 45-foot wide by 5-foot tall box culvert while maintaining Shadow Lake at its historic normal pool elevation.

HEC-RAS models will be run for each alternative above considering the 100-year, 500-year, and 1,000-year events. A total of 12 model simulations will be completed. Hydrographs for each of the 12 scenarios will be extracted from the existing HEC-HMS model.

Task 2A – HEC-RAS Model Updates

Before the alternatives can be run through the model, some model updates need to be made to provide appropriate representation of hydraulics in the downstream channel and along Barton River. The current HEC-RAS model completed by Dubois & King (D&K) is missing eight crossings from the geometry. The following list summarizes these eight crossings, with appropriate reference to D&K's numbered crossings from Appendix B of their January 2023 Hydrologic and Hydraulic Assessment of Shadow Lake Dam report.

- Glover Road (Culvert 8)
- Glover Road (Culvert 11)
- Private Driveway at 1532 Glover Road (Culvert 13)
- Ingersol Lane covered bridge (Culvert 14)
- Roaring Brook Road (Culvert 16)
- Elm Street (Culvert 17)
- Farm Bridge (between Elm Street and Barton Orleans Road)
- Barton Orleans Road (Culvert 18)

Weston & Sampson will provide the completed HEC-RAS model files to the town and VTDEC DSP.

Model Assumptions:

- *Existing lateral inflow values in the HEC-RAS model will be used*
- *Weston & Sampson will incorporate the numbered crossing into the model using D&K's field observations*
- *The town will provide measurements and photos of the Farm Bridge between Elm Street and Barton Orleans Road*

Task 3 – Risk Assessment

Weston & Sampson will evaluate the potential loss of life at each crossing and building within the study area using the HEC-RAS model outputs. Specifically, outputs of flood depth and velocities will be considered, which is consistent with the US Bureau of Reclamation (USBR) ACER Technical Memorandum No. 11 "Downstream Hazard Classification Guidelines." By evaluating risk for each of 12 alternative-design storm combinations, this analysis will determine whether any of the alternatives increase or decrease downstream risk under a range of flood conditions.

Weston & Sampson will prepare a Draft Risk Assessment memo for review by the Town.

Risk Assessment Assumption:

- Building flood depths will be based on LiDAR elevations adjacent to each structure, not surveyed foundation or first floor sill elevations. If survey elevations are required, a separate survey task and fee will be required by amendment.

Task 4 - Meetings

Weston & Sampson will meet with the town via Teams and discuss risk assessment results included in the Draft Risk Assessment memo.

Following the above meeting, Weston & Sampson will arrange a Teams meeting with Weston & Sampson, town, and VTDEC DSP staff to discuss HEC-RAS model results and the contents of the Draft Risk Assessment memo. The goal of this meeting is to reach agreement on hydraulic improvement alternatives that will be permittable through the VTDEC DSP program.

Task 5 – Final Risk Assessment Memo

Weston & Sampson will finalize the Risk Assessment memo based on discussions from the meetings in Task 4, above.


BUDGET AMENDMENT REQUEST AND REVISED CONTRACT AMOUNT

Weston & Sampson is requesting an amendment adjustment of **\$21,500** to complete the tasks described above. We will invoice the additional tasks on a lump sum basis, which is consistent with our current contract. The current contract value and budget is \$69,500. This amendment request will bring the total contract value to \$91,000.

We appreciate the opportunity to work with the Town of Glover on this project. If you have any questions or need additional information, please contact us at 603-263-9499. If our request is acceptable, please indicate your authorization by signing and returning to us a signed copy of this letter. The Agreement for Engineering Services of our existing contract executed on November 30, 2024 remains applied to this project.

Very truly yours,

WESTON & SAMPSON ENGINEERS, INC.


Thomas J. Strike, PE
Geotechnical Team Leader


John A. Figurelli, P.G., LEP
Vice President

ACCEPTED FOR THE TOWN OF GLOVER

By:  _____

Date: 2/12/26 _____