TRANSMITTAL MEMO

TO: MISSISQUOI BASIN WATER QUALITY COUNCIL (BWQC)
FR: MISSISQUOI BASIN CLEAN WATER SERVICE PROVIDER (CWSP) STAFF
RE: MATERIALS FOR MEETING ON 1/5/25
DA: JANUARY 29, 2025

==========

Greetings. The next meeting of the Basin Council will take place on Wednesday, February 5, starting at 11 AM, via Zoom platform. A few words about each of the agenda topics are offered below. The marquee agenda item will include the review of five funding applications. (Application materials are why the meeting packet is so large.) Please let me know if you have any questions regarding the agenda or the meeting.

Introductions/Meeting protocols/Conflict of interest disclosures, if any

There will be at least one new face at the meeting, so we have brief introductions. Also, as a reminder, the Conflict of Interest agenda item provides BWQC members and others opportunity to note possible conflicts of interest that could arise later in the meeting. A series of applications will be reviewed during this meeting; thus, there will be disclosures.

Approval of Minutes

Minutes are in the packet. If you can, please let us know before the meeting if any part of the minutes needs to be corrected.

Budget Adjustments

No budget requests have been received since the last meeting.

Seating of New BWQC Representative

Heidi Britch-Valenta will be recognized and seated as a new representative of the Regional Planning Commissions. Heidi currently serves as a grant writer/project manager for the village of Swanton. She previously served as Town Administrator for the town of Highgate and Planning Coordinator for the town of Georgia.

Application Review

the CWSP for the Missisquoi Basin received a record-setting number of applications in response to its most recent call for applications. Four of the applications seek funding for Preliminary design or Implementation. The remaining project seeks funding for Project Development activities. The sponsor of all of the applications is the Franklin County Natural Resources Conservation District. The five applications received seek a total of $786,936. The estimated annual phosphorus reduction associated with the projects is roughly 77 kilograms. Individual reductions range from slightly more than 1 kilogram to 47 kilograms. Staff have reviewed the applications and prepared a recommendation for the BWQC's consideration.

Training time

If time allows, NRPC's ECO AmeriCorps Service member Nora Brown will lead a training session relating to Operations and Maintenance (O&M) at the meeting on February 5. Her presentation will address DEC requirements and NRPC's system for monitoring signed agreements over the design life of a project.

Project Sharing

Again if time allows, there will be an opportunity for members of the BWQC to share information about projects they have completed, or are underway, or on the horizon.

Updates/Announcements

NRPC staff will provide brief updates to BWQC members. If you have an announcement of your own to share, this will be the time.

Future meeting topics and conclusion

As part of this agenda item, members will have an opportunity to suggest future meeting topics, etc.

Thanks to all who participate.

AGENDA

Missisquoi Basin Water Quality Council (BWQC)
***Wednesday*, February 5, 2025**
11:00 AM -1:00 PM

Remote /Zoom meeting
(Zoom details below)

1. Welcome and introductions
2. Meeting protocols
3. Conflict of interest declarations, if any
4. Review/adjust and approve agenda
5. Approval of minutes
6. Public comment not related to items on agenda
7. Report on budget adjustments, if any
8. Seating of new RPC Representative (Heidi Britch-Valenta)
9. Review of Applications submitted in response to Round 7 Call for Applications
    - Riparian buffer planting and riparian restoration along Giddings Brook
    - Reduce erosion at Black Woods Association southern common lot
    - Trout Brook Reservoir Dam Removal - Implementation
    - Riparian buffer planting and riparian restoration along Mid Missisquoi River tributary
    - Flood resilience projects in the Town of Montgomery (Project Development)
10. Training Time
11. Round Table/ Project Sharing
12. Updates/Announcements
13. Conclusion

Please Note: The schedule for the upcoming application round in MISSISQUI Basin is as follows:

Round #	Open	Deadline
8	April 16, 2025	May 21, 2025
9	August 13, 2025	September 17, 2025

Join Zoom Meeting
https://us02web.zoom.us/j/81332571725?pwd=UktCekQ5R2ZSbVNtMXlUclpYNVI3UT09
Meeting ID: 813 3257 1725
Passcode: 103651
One tap mobile
+13052241968,,81332571725# US
+13092053325,,81332571725# US

Dial by your location
+1 309 205 3325 US
+1 646 558 8656 US (New York)

Staffing provided by Northwest Regional Planning Commission (NRPC), the Basin 6 Clean Water Service Provider. NRPC's physical / mailing address is 75 Fairfield Street, St. Albans, Vermont 05482.

In accordance with provisions of the Americans with Disabilities Act (ADA) of 1990, and Vermont's Open Meeting Law, the NRPC will ensure public meeting sites are accessible to all people or provide an opportunity to request accommodations. Requests for free interpretive or translation services, assistive devices, designation of a physical meeting location, electronic access to a meeting, or other requested accommodations, should be made to Amy Adams, NRPC Title VI Coordinator, at 802- 524-5958 or aadams@nrpcvt.com, no later than 2 business days prior to the meeting for which services are requested.

- Welcome and introductions
- Meeting protocols
- Conflict of interest declarations, if any

- Review/adjust and approve agenda

AGENDA

Missisquoi Basin Water Quality Council (BWQC)
***Wednesday*, February 5, 2025**
11:00 AM -1:00 PM

Remote /Zoom meeting
(Zoom details below)

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- Approval of minutes

Missisquoi Basin Water Quality Council (BWQC)
***Wednesday*, December 4, 2024**
11:00 AM -1:00 PM

Remote /Zoom meeting

Meeting video posted at https://youtu.be/vZS23r5ZLaU

A VIDEO RECORDING OF THE MEETING IS AVAILABLE THROUGH THE NRPC YOUTUBE CHANNEL (Link above).

THE WRITTEN MINUTES ARE A SYNOPSIS OF THE DISCUSSION AT THE MEETING. MOTIONS ARE AS STATED. MINUTES WILL BE SUBJECT TO CORRECTION BY THE COUNCIL. CHANGES, IF ANY, WILL BE RECORDED IN THE MINUTES OF THE NEXT MEETING OF THE COUNCIL

Council Members: Lauren Weston (Q), Ted Sedell (Q), Lindsey Wight (Q), Beth Torpey (Q), Kent Henderson (Q), Allaire Diamond (Q), Dan Seeley (Q), Sarah Downes (Q), Bridget Butler

Q= towards quorum

Staff: Dean Pierce, Cliff Jenkins, Nora Brown

Others present: Jim's AI Notetaker, Josh Serpe, Jim Pease, Karen Bates, Chris Rottler, Chris Smith

1. **Welcome and introductions**

Lindsey Wight opened the meeting at 11:03 as Chair. A round of introductions was made.

2. **Meeting protocols**

Lindsey Wight reviewed the norms for meeting on Zoom.

3. **Conflict of interest declarations, if any**

No conflict of interest declarations were made.

4. **Review/adjust and approve agenda**

Dean Pierce clarified that there will not be a formal seating of a new representative to replace Barry Lampke. This agenda item will be pushed to the next meeting.

Sarah Downes motioned to approve the agenda. Lauren Weston seconded. Motion carried.

5. **Approval of minutes**

Lauren Weston motioned to approve the minutes. Sarah Downes seconded. Motion carried.

6. **Public comment not related to items on agenda**

No public comments were made.

7. **Report on budget adjustments, if any**

No budget adjustments were reported.

8. **Seating of new Representative to replace Barry Lampke**

As previously mentioned, the seating of a new representative will take place at the council's next meeting.

9. **Training Session: Requesting a Watershed Project ID**

Cliff Jenkins provided BWQC members with a training on requesting Watershed Project IDs using DEC's online portal. He reviewed the application form used to request new project IDs as well as use of the Watershed Projects Database to find and monitor approved projects. He also provided an overview of the Clean Water Project Explorer tool, which provides users with a map view of water projects throughout the state, and a tool to use to search for projects by basin.

Lauren Weston asked Karen Bates to clarify best practices in terms of project naming and writing descriptions.

Karen Bates answered that guidance can be found on the N Form, but that in general specifics are helpful. Not a grant application, so don't need to explain why it's needed. A naming convention is useful and can be found on the N Form itself and includes a descriptor (Location and Action), Phase, and Town or Region.

Dean Pierce added that the list of project types on the N Form is the same list found in Appendix B, which outlines project types and their respective eligible funding programs.

Bridget Butler said she would appreciate training on Appendix B.

Allaire Diamond asked about filling out the project's priority and prioritization source, namely how important these fields are when they are not clear for many projects.

Karen Bates answered that prioritization source mainly refers to river corridor and stormwater plans, so selecting 'other' for projects not identified in this way is fine. Additionally, it is acceptable to leave the priority level blank. She also shared the guide for phosphorus accounting, a document she believed supersedes Appendix B.

Lauren Weston expressed frustration with navigating DEC's website to find documents like Appendix B. Chris Rottler responded that DEC's ECO AmeriCorps member is currently working on a website guide to help address this issue.

Bridget Butler asked whether videos of trainings on topics like this exist. She noted that trainings are especially helpful when experiencing turnover in staff, and that in-person trainings are preferable, as they offer the chance to ask questions and provide feedback.

Chris Rottler answered that DEC has heard feedback on the need for training and recognizes it as a top need.

10. Presentation by Chris Smith: Habitat Restoration in Vermont

Chris Smith of US Fish and Wildlife (USFWS) gave a presentation to council members about his work with the Partners for Fish and Wildlife Program. The program provides financial and technical assistance for habitat restoration on private land to benefit Federal Trust species. Projects typically fall into three main categories: aquatic connectivity for aquatic organism passage, wetland restoration, and riparian restoration. The program partners with a variety of USDA farm bill programs, Vermont Agency of Agriculture Food & Markets, watershed organizations/NGOs, conservation districts, and landowners. He shared that the Partners for Fish and Wildlife program has funding available, which it can use to plug gaps in other funding to ensure projects can be completed at no cost to the landowner.

Lauren Weston asked whether USFWS ever envisions coming to CWSP for funds.

Chris Smith answered no, collaboration with the CWSP would be from a technical and financial support angle.

Dean Pierce clarified that USFWS cannot ask for CWSP funds, but since they would not claim phosphorus credits from funded projects, there is essentially no downside to receiving their funding from the CWSP's perspective.

Kent Henderson asked about USFWS's experience interacting with the Army Corps of Engineers on berm removal projects, particularly those involving regrading.

Chris Smith shared that the Army Corps' main concern is where is fill goes following removal, so identifying an upland site and ensuring no invasives are moved as well has generally helped get their approval. Implementers may also want to consider removing sections rather than the entire berm if it is vegetated for floodplain access.

Allaire Diamond asked whether USFWS has experience working with private road culverts.

Chris Smith shared that USFWS has struggled with private road crossings, particularly driveways. Farm or forest road crossings can be much cheaper fixes, so USFWS has only done private road culvert work on case-by-case basis. He shared that working with NRCS on these projects in the past has worked to streamline their process by sharing technical expertise.

Members should reach out to Chris to discuss partnering with USFWS on projects.

11. Round Table: Status of projects

Bridget Butler provided an update on FNLC's Shipyard Road rain garden and potential seawall removal project, which they found to be non-viable and are currently wrapping up. She explained how, following the final design phase, a dispute over site ownership between the town of Highgate and a neighboring landowner prevented implementation, since the party responsible for operations & maintenance couldn't be identified. She stressed the importance of developing a relationship with the landowner early on to prevent this kind of issue.

Another issue encountered in this project was that DEC doesn't allow seawall removal be used to calculate phosphorus reduction. This meant that the amount reduced (0.12kg) was too low to be viable in the CWSP's

eyes. Additionally, a requirement for archaeological assessment came into effect after project design had been completed, for which FNLC couldn't secure funding, given the low amount of phosphorus reduction.

Allaire Diamond shared that she has encountered similar road blocks in her work with rules changing. She expressed concern with the amount of money and resources being wasted here, as this shouldn't be what it costs to learn something.

Jim Pease shared that, based on his prior experience at DEC, he didn't believe that a landownership dispute should stop a project if both the town and landowner were in support, as the state is mostly looking to identify a party responsible for maintenance going forward.

Dean Pierce pointed out that the issue of O&M documentation, which must be used for CWSP-funded projects, as they require a landowner's signature.

Lauren Weston shared updates from multiple projects that received CWSP funds. Updates are as follows:

- Lake Carmi Riparian Buffer Project Development
    - Completed
    - Identified 5 sub-projects:
        - One shoreline bioengineering project has completed 30% design and is meeting with landowners for its final design.
        - One buffer planting planned for spring 2025, using PUR grant because doesn't meet DEC standards.
        - One buffer planting implemented.
        - Floodplain restoration project completed preliminary design
        - Final sub-project likely won't be moving forward.
- Marsh Brook Floodplain Restoration
    - Engineering and cultural resources review contractors hired
- Sandy Bay Floodplain Restoration/Process-Based Design
    - Contract with CWSP executed
- Tree Planting Scoping in Missisquoi Basin
    - Experiencing setbacks because FFI tool didn't work as expected, but have identified priority sites and checked with partners for duplication
    - Able to get a couple of low hanging projects done and planted in 2024
- Trout Brook Reservoir Dam Removal Final Design
    - 60% design complete, final design in progress
    - Historic preservation review & archaeological assessment completed
    - Working on funds for implementation and monitoring/research and permitting
- Branch Floodplain Restoration
    - Engineers and cultural resources consultant hired

Dean Pierce asked for clarification on how the FFI tool didn't work as expected for FCNRCD, which Lauren Weston explained was because the FFI tool isn't suited to finding new potential projects.

12. Updates/Announcements

Dean Pierce notified council members that DEC is working on a document called the Action Plan to address some issues with the BWQC model, which he would share when it is completed. He also reminded members of their upcoming quarterly reporting and invoicing responsibilities.

13. **Future meeting topics**

The next meeting will take place on February 5, 2025. This meeting will include a review of applications submitted for the current funding round, which closes on December 18. It will also include an update on NRPC's new Public Participation Policy and trainings from Nora Brown and Maddie Yandow.

14. **Conclusion**

Allaire Diamond motioned to adjourn. Kent Henderson seconded. Motion carried. Meeting adjourned at 12:50pm.

- Public comment not related to items on agenda

- Report on budget adjustments, if any

- Seating of new RPC Representative (Heidi Britch-Valenta)

MEMO

TO: MISSISQUOI BASIN WATER QUALITY COUNCIL (BWQC)
FR: MISSISQUOI BASIN CLEAN WATER SERVICE PROVIDER (CWSP) STAFF
RE: **Seating of new RPC representative**
DA: January 29, 2025

The agenda item regarding the seating of a new representative stems from Barry Lampke's recent retirement (his last day at NRPC was November 8) and corresponding resignation from the BWQC.

As a reminder, under Act 76, each BWQC is to include two representatives of Regional Planning Commissions serving in the area covered by the BWQC. Beth Torpey of NVDA continues to serve as a Regional Planning Commission representative.

Heidi Britch-Valenta has been appointed to serve as the second Regional Planning Commission representative to the Basin Council and will take her seat on February 5. Heidi currently serves as a grant writer for the village of Swanton. She previously served as Town Administrator for the town of Highgate and Planning Coordinator for the town of Georgia. She also previously served as Coordinator for the Franklin Watershed Committee.

She will be stepping down from her current positions on NRPC's Municipal Plan Review Committee to fill the vacancy. Please join us in welcoming Heidi to our council!

- Review of Applications submitted in response to Round 7 Call for Applications
    - Riparian buffer planting and riparian restoration along Giddings Brook
    - Reduce erosion at Black Woods Association southern common lot
    - Trout Brook Reservoir Dam Removal - Implementation
    - Riparian buffer planting and riparian restoration along Mid Missisquoi River tributary
    - Flood resilience projects in the Town of Montgomery (Project Development)

MEMO

TO: MISSISQUOI BASIN WATER QUALITY COUNCIL (BWQC)
FR: MISSISQUOI BASIN CLEAN WATER SERVICE PROVIDER (CWSP) STAFF
RE: **Application Review/Prioritization**

DA: 1/27/25
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The CWSP for the Missisquoi Basin announced a seventh call for project applications on December 18. The filing deadline was January 22, and a record-setting number of applications was received. Four of the applications seek funding for Preliminary design or Implementation. The remaining project seeks funding for Project Development activities. The sponsor of all of the applications is the Franklin County Conservation District. Details regarding the projects, including all project application materials and a staff memo with recommendations, are attached.

Applicant Organization	**Project ID from WPD**	**Description of Project**	**Project Phase**
Franklin County Natural Resources Conservation District	12365	Riparian buffer planting and riparian restoration along a Mid Missisquoi River tributary near the intersections of Hayes Farm Road, David Road, and Stonehouse Road in Enosburg, VT. The length of the buffer to be planted is 1154 feet, and the average width is 80 feet. Restoration will include bare root plantings and live stakes.	Implementation
Franklin County Natural Resources Conservation District	12364	Riparian buffer planting and riparian restoration along Giddings Brook in Enosburg, VT. The length of the buffer to be planted is 2873 feet, and the average width across both sides of the brook is 244 feet, or a 122-foot average buffer width from top of bank on each side. Restoration will include bare root plantings and live stakes.	Implementation
Franklin County Natural Resources Conservation District	12278	Trout Brook Reservoir Dam Removal - Implementation	Implementation
Franklin County Natural Resources Conservation District	12355	This project proposes to further develop flood resilience projects in the Town of Montgomery through landowner outreach, feasibility determinations, and communication with regulators and other stakeholders. Projects were identified via the Franklin County NRCD and SLR's Montgomery Flood Resilience Study through flood modeling and participatory outreach with Montgomery residents.	Assessment ID or Development
Franklin County Natural Resources Conservation District	12343	This project proposes to reduce erosion from ice push at the Black Woods Association southern common lot on Lake Carmi through bioengineering methods including but not limited to a stone toe, encapsulated soil lifts, regrading, and planting.	Final Design

MEMO

TO: MISSISQUOI BASIN WATER QUALITY COUNCIL (BWQC)
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RE: **Application Review/Prioritization**

DA: 1/27/25

==========

As noted elsewhere, the CWSP for the Missisquoi Basin received a record-setting number of applications in response to its most recent call for applications. Four of the applications seek funding for Preliminary design or Implementation. The remaining project seeks funding for Project Development activities. The sponsor of all of the applications is the Franklin County Conservation District. The five applications received seek a total of $786,936. The estimated annual phosphorus reduction associated with the projects is roughly 77 kilograms. Individual reductions range from slightly more than 1 kilogram to 47 kilograms.

Staff have reviewed the applications and recommend funding the projects at the amounts requested. Tables relating to the recommendation are attached to this memorandum. They will be reviewed at the meeting on February 5th. The first table provides an overall view of the project costs and benefits through the lens of phosphorus reduction. The second table shows the ranking of the projects after considering both phosphorus reduction and co-benefits. Please note the rankings reflect the project values in total 'reportable' costs. They do not account for pro-rating of phosphorus reduction, if any. Note: Project Development category projects are evaluated using a different system that does not include phosphorus reduction estimates. Information relating to the single Project Development is also included.

We do wish to make a comment here about one of the applications, more specifically the project which seeks funds for final engineering design at Lake Carmi. The amount of funding requested is $16,125, and the future implementation costs of the project are estimated at between $40,000 and $80,000. The estimated annual phosphorus reduction of the project is 1.05 KG per year. Although the size of the funding request is relatively modest amount, the cost-effectiveness of the project through implementation is not attractive. CWSP staff strongly advise the project sponsor to anticipate the need for significant funding from "non reporting" entities at implementation.

Complete sets of application materials follow the tables. The application materials are presented in the following order:

12355- FLOOD RESILIENCE MONTGOMERY
12365 RIPARIAN BUFFER / MID MISSISQUOI
12364 RIPARIAN BUFFER / GIDDINGS
12278 TROUT BROOK RESERVOIR DAM REMOVAL
12343 BLACK WOODS ASSOCIATION SHORE

DESIGN/IMPLEMENTATION PROJECTS

Prelim calculations

WPD ID	Project type	Annual p reduction kg TOTAL	Estimated CWSP Annual p reduction kg TOTAL	Funding request (this project stage)	Proposed cost this stage	Estimated Total cost (all project stages) using midpoint of ranges	gross cost per kg annual P reduction
12365	Riparian Buffer Planting	**4.74**	**4.7**	$14,381	$14,381	$20,901	$4,413
12364	Riparian Buffer Planting	**24.12**	**24.1**	$67,484	$67,484	$76,524	$3,173
12278	Dam Removal – Implementation	**47.1**	**36.1**	$688,946	$800,000	$900,000	$16,645
12343	Lake Shoreland – Final Engineering Design	**1.05**	**-0.5-1.05?**	$16,125	$16,125	$60,000	$72,500
Total/Average		**77.01**		**$ 786,936**			

Prelim ranking

Rank	ID	Description	Points
1	12278	Dam Removal – Implementation	92.3
2	12364	Riparian Buffer Planting	48.2
3	12365	Riparian Buffer Planting	36.8
4	11395	Lake Shoreland – Final Engineering Design	30.8

Criteria area identified in Rule:	**Criterion for evaluation of early stage apps (except where clarified below, the first number is points if yes, second if no)**
Pollution reduction	Does the application help advance a previously studied project that lacks adequate resource assessment--thus clearing a path for future P reduction? (6 or 2)
Cost effectiveness of reduction	Does the application propose to assess cost effectiveness of the potential project(s) resulting from the investigation? (3 or 1) Is the work proposed cost effective--e.g, what is average cost per project? (was: how many projects might result per $10,000 spent?) (7 or 4 or 1 depending on number)
Design life	Does the application propose to assess the design life of the potential project(s) resulting from the investigation? (2 or 1)
Cost of operation and maintenance of the project	Does the application propose to assess possible O&M costs of the potential project(s) resulting from the investigation? (2 or 1)
Conformance with the basin plan	Does the application implement an element of the basin plan? (6 or 2)
Cobenefits	Does the application specifically address a cobenefit area--is addressing the cobenefit an explicit objective? (6, 5, 4, 3, 2, 1, or 0 depending on areas addressed)

Project type	Pollution reduction	Cost effectiveness of reduction 1	Cost effectiveness of reduction 2	Design life	Cost of operation and maintenance of the project	Conformance with the basin plan	Cobenefits 1	Cobenefits 2		Total
Assessment ID or Development	6	3	7	2	2	6		3		29
										Max of 32

12355- FLOOD RESILIENCE MONTGOMERY

Basic Eligibility	Yes
Applicant Name	Lauren Weston
Applicant Organization	Franklin County Natural Resources Conservation District
Applicant Email	lauren@franklincountynrcd.org
Applicant telephone	+1 (802) 582-3133
Project ID from WPD	12355
Description of Project	This project proposes to further develop flood resilience projects in the Town of Montgomery through landowner outreach, feasibility determinations, and communication with regulators and other stakeholders. Projects were identified via the Franklin County NRCD and SLR's Montgomery Flood Resilience Study through flood modeling and participatory outreach with Montgomery residents.
Project Latitude	44.87773
Project Longitude	-72.60890
Project Phase	Assessment ID or Development
Annual P Reduction KG	
Any one time P reduction KG	
Total Cost of Proposed Phase	14471.6
Amount of Funding Requested (Proposed Phase)	$14,471.60
Non DEC Funding as part of Total Project Costs (a	$0.00
Total Project Costs (All Phases)	N/A
Number of Co-benefit Areas	
DEC Screening Form Uploaded	Yes
Map of Project Area Uploaded	Yes
Project Budget Uploaded	Yes
Project Schedule Uploaded	Yes
Landowner Support uploaded	No (project is for ID/Development, so not required)
Phosphorus Calculator Tool uploaded	No (Project is for ID/Assessment or Development)
Created	01/20/25 9:58 AM
ID/Development app pollution criterion	Yes
ID/Development app cost effectiveness 1	Yes
ID/Development app cost effectiveness 2	4824
ID/Development app design life criterion	Yes
ID/Development app O&M criterion	Yes
ID/Development app TBP criterion	Yes
ID/Development app cobenefits criterion	Environmental Justice, Clean Water and Sanitation, Ecosystem Services and Climate Resiliency
ID/Development app cobenefits number	3
Using_As_Match	No
Cultural Resource Review	No

APPENDIX A. CLEAN WATER INITIATIVE PROGRAM - PROJECT ELIGIBILITY SCREENING FORM

This fillable PDF form is designed to assist with project review by systematically walking through all eligibility criteria. It should be completed for all projects seeking funding for 30% + design or implementation work. It may be applied to projects seeking funding for assessment or development if helpful for determining their alignment with eligibility criteria 2, 3, 6, and 8.

Step 1: Conduct Eligibility Criteria #1 Screening: Project Purpose

Table 1A: Project Purpose	
From the drop-down list to the right, please select which of the four objectives of Vermont's Surface Water Management Strategy this project addresses. If multiple, please list below:	Minimize flood and fluvial erosion hazards

Step 2: Conduct Eligibility Criteria #2 Screening: Project Types and Standards

Table 2A: Project Types and Standards	
Please select the most representative project type from the drop-down list to the right.[1,2] If multiple BMPs are included in the project, please list below: This is an assessment/identification project.	None (not eligible for CWIP funding)
Is the project type an eligible project type for the funding program you are applying to as listed in column B of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Does the project meet the project type definitions and minimum standards as provided in column C of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Will the project result in the standard performance measures, milestones, and deliverables as defined by project type in columns D-F of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Is the project listed as an ineligible project or activity in the CWIP Funding Policy? If Yes, please explain below how project meets the allowable exceptions within the CWIP Funding Policy. (Answer must be NO to proceed, unless reasonable justification is provided above)	Yes ◯ No ◯

Step 3: Conduct Eligibility Criteria #3 Screening: Watershed Projects Database

Verify project has been recorded in the Watershed Project Database (WPD). Each project must have a Watershed Project Database number specific to the proposed project phase (for example,

[1] Note that Road/Stormwater Gully project-types must not otherwise be considered intermittent or perennial streams by the DEC Rivers Program and therefore project proponent must show documentation of this determination in order to select this project type.

[2] One project may include multiple best management practices (BMPs) that cross "project types." For example, a single project may include both stormwater and lake shoreland BMPs. Proponents should use their best judgement in selecting the most representative project type for the purposes of eligibility screening and reporting.

a final design will have a different WPD-ID from a preliminary design even if for the same project). If the project, or the specific phase, is not yet in the Watershed Project Database, follow directions provided in the CWIP Funding Policy to secure a WPD-ID. Please see CWIP Funding Policy for more information on the WPD-ID.

Table 3A. WPD-ID	
Watershed Project Database ID number assigned	12355
Watershed Project Database Project Name	Montgomery Flood Resilience Project Development

Step 4: Conduct Eligibility Criteria #4 Screening: Natural Resource Impacts[3]

Agency of Natural Resources (ANR) permit screening for natural resource impacts includes 1) an initial desktop review to identify which ANR permitting programs should be contacted, 2) a review by the relevant ANR permitting staff, and 3) a response summary from the project proponent addressing any permitting staff concerns. [4]

1) **Table 4. Natural Resource Impacts** facilitates a high-level desktop review of the most likely ANR permits to apply to clean water projects. Project proponents should answer all the questions to identify likely permit needs. [5] Please note that "project site" may include both the active restoration location as well as any additional impact footprint related to staging, site access, or storage of waste or disposed materials.
2) If responses to the **Table 4. Natural Resource Impacts** desktop review trigger a permitting staff consultation, **Table 4** provides appropriate contact information.
    a. Proponents should send the identified permitting staff the following:
        i. The watersheds project database identification number (WPD-ID) (if available),
        ii. Project location (GPS coordinates)
        iii. Summary of proposed scope of work, and
        iv. Any other relevant information they request that will be utilized in their review.
    b. **Proponents should clarify they are seeking permitting staff input on potential permitting needs, permit-ability of proposed scope of work, and other design considerations but they are NOT seeking a formal permit determination.**
    c. Project proponents must attempt to communicate with the permitting staff and provide them with at least thirty days to review the project and provide a

[3] Easements and Riparian Buffer Plantings are excluded from this eligibility requirement/step.

[4] In cases where this screening may have already occurred in a prior project phase, project proponents may supply attachments or links to relevant permit needs assessment documents in place of completing Table 4.

[5] Entities selected for funding are expected to perform due diligence to ensure all applicable permits (including non-ANR state, local, and federal permits) are discovered and secured prior to implementation. The ANR Permit Navigator and an Environmental Compliance Division Community Assistance Specialist can help confirm ANR permitting needs for any projects once selected for funding.

response. Project proponents are encouraged to perform this screening during a project development phase as opposed to during a project solicitation round to allow for more time for feedback. Permitting feedback may be up to one year old.

3) Proponents should summarize permitting staff feedback and how the proposed scope of work will address this at the bottom of **Table 4**. Specifically, please include:
   a. Which permits or permit amendment are needed or might be needed? [6]
   b. What type might be needed? (e.g., a general or individual permit[7])?
   c. What concerns were voiced by permitting staff?
   d. How will the proposed scope of work address these concerns?[8]

Table 4A: Natural Resource Impacts		
I. Act 250 Permits		
1. Have any Act 250 (Vermont's Land Use and Development Control Law) Permits been issued in the project site's parcel location?[9]	**Yes** ◯	**No** ◯
If ***yes***, please provide the permit number and list any water resource issues or natural resource issues found[10]: **PermitNumber:** **ResourceIssues:** _____ If ***yes***, use the Water Quality Project Screening Tool to identify the appropriate regulatory contact for an Act 250 consultation. **Regulatory Point of Contact Name/Position:**		
II. Lake and Shoreland		
1. Is the project site located within 250 feet of the mean water	**Yes** ◯	**No** ◯

[6] Occasionally permit staff may indicate they need a field visit or to see more completed designs prior to making a permit need determination.

[7] Design phase projects that require an individual wetlands permit must have the permit in hand at the close of the final design phase. Implementation phase projects must have the individual permit in hand to be eligible for funding.

[8] Examples could include planned design changes or inviting permitting staff to stakeholder meetings.

[9] An Act 250 Permit is required for certain categories of development, such as subdivisions of 10 lots or more, commercial projects on more than one acre or ten acres (depending on whether the town has permanent zoning and subdivision regulations), and any development above the elevation of 2,500 feet. The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located on an Act 250 parcel. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

[10] Note that Act 250 permit amendments may require more extensive review of project impacts to natural resources including wildlife habitat, significant natural communities, and riparian zones. Please consult with the Act 250 District Coordinator regarding the nature and scope of that review and what bearing it may have on your project design.

level (shoreline) of a lake or pond? [11]	
If ***yes***, you might need either a Shoreland Protection Act Permit or a Lake Encroachment Permit. Use the Water Quality Project Screening Tool to find the Lakes and Ponds Program contact for your project's region. **Regulatory Point of Contact Name/Position:**	
III. Rivers, River Corridors, and Flood Hazard Areas	
1. Is there any portion of the project site located within 100' of a river corridor and/or mapped Federal Emergency Management Agency (FEMA) flood hazard area[12]**?** (e.g. a stormwater pond's pipe draining into a river corridor area)? Any permanent excavation/filling or construction within a flood hazard area or river corridor may trigger regulatory requirements through municipal bylaws or through state authorities.	Yes ◯ No ◯
If ***yes***, you will need to speak with a Floodplain Manager. Use the Water Quality Project Screening Tool to find the Floodplain Manager for your project's region. **Regulatory Point of Contact Name/Position:**	
2. Is any portion of the project site within a perennial river or stream channel? [13]	Yes ◯ No ◯
If ***yes***, you will need to speak with a Stream Alteration Engineer. Use the Water Quality Project Screening Tool to find the Stream Alteration Engineer for your project's region. **Regulatory Point of Contact Name/Position:**	
IV. Wetland	

[11] The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located in the jurisdictional zone to trigger a Lakeshore permit. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

[12] FEMA mapped Flood Hazard Areas are not available statewide on the ANR Natural Resources Atlas. For projects located in Grand Isle, Franklin, Lamoille, Addison, Essex, Orleans, Caledonia, and Orange Counties, maps are available via the FEMA Flood Map Service Center: https://msc.fema.gov/portal/home. ANR Floodplain Managers are available to provide technical assistance if needed.

[13] Stream Alteration Permits regulate all activities that take place within perennial river and stream channels. Examples of regulated activities include streambank stabilization, dam removal, road improvements that encroach on streams, and bridge/culvert construction or repair. The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located in the jurisdictional zone to trigger a Stream Alteration permit. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

1. Does the Wetland Screening Tool[14] provide a result of wetlands likely, very likely, or present at the project site?	Yes ◯ No ◯
2. Does your project site involve land that is in or near an area that has any of the following characteristics: o Water is present – ponds, streams, springs, seeps, water filled depressions, soggy ground under foot, trees with shallow roots or water marks? o Wetland plants, such as cattails, ferns, sphagnum moss, willows, red maple, trees with roots growing along the ground surface, swollen trunk bases, or flat root bases when tipped over? o Wetland Soils – soil is dark over gray, gray/blue/green? Is there presence of rusty/red/dark streaks? Soil smells like rotten eggs, feels greasy, mushy or wet? Water fills holes within a few minutes of digging? (See Landowners Guide to Wetlands for additional information on identifying wetlands onsite.)	Yes ◯ No ◯ Not Sure ◯
If you answered ***yes*** or ***not sure*** to either of the above questions, you will need to contact your District Wetlands Ecologist using the Wetland Inquiry Form. The District Wetlands Ecologist can help determine the approximate locations of wetlands and whether you need to hire a Wetland Consultant to conduct a wetland delineation. Alternatively, if you answered ***yes*** or ***not sure*** to either of the above questions, you can simply budget for a Wetland Consultant in the proposed scope of work. Any activity within a Class I or II wetland or wetland buffer zone (minimum of 100 feet and 50 feet respectively) which is not exempt or considered an "allowed use" under the Vermont Wetland Rules requires a permit. All permits must go through review and public notice process, which takes at minimum 6 weeks for a General Permit and 5 months for an Individual Permit. **Regulatory Point of Contact Name/Position:**	
1. Is your project a Wetland Restoration project type?	Yes ◯ No ◯
If you answered yes, under the Vermont Wetland Rules you will need an "allowed use" determination from the DEC Wetlands Program. Contact your District Wetlands Ecologist using the Wetland Inquiry Form. **Regulatory Point of Contact Name/Position:**	
V. Fish and Wildlife	
State law protects endangered and threatened species. No person may take or possess such species without a Threatened & Endangered Species Takings permit. 1. **Does your project involve cutting down trees larger than 5 inches in diameter in any of the following towns?** Addison, Arlington, Benson, Brandon, Bridport, Bristol, Charlotte, Cornwall, Danby, Dorset, Fair Haven, Ferrisburgh, Hinesburg, Manchester, Middlebury, Monkton, New Haven, Orwell, Panton, Pawlet, Pittsford, Rupert, Salisbury, Sandgate, Shoreham, Starksboro, St. George, Sudbury, Sunderland, Vergennes, Waltham, West Haven, Weybridge, Whiting	Yes ◯ No ◯

[14] To view the Wetland Screening Tool introduction video, see https://youtu.be/6lv5en0AB1o

2. Is the project site within 1 mile of a mapped[15] Significant Natural Community or Rare, Threatened, or Endangered Species?	Yes ◯ No ◯
If *yes* to either of the above questions, connect with the VT Fish and Wildlife department (everett.marshall@vermont.gov 802-371-7333) to discuss your project and any necessary permitting. **Regulatory Point of Contact Name/Position:**	
VI. Stormwater	
1. Will the project disturb more than an acre of land during construction, add or redevelop impervious surface, create new development or otherwise require a Stormwater permit?	Yes ◯ No ◯
If *yes*, forward to the appropriate Stormwater specialist to ensure necessary permitting. Use the Water Quality Project Screening Tool to find the Stormwater specialist for your project's region. **Regulatory Point of Contact Name/Position:**	
VII. Solid Waste	
2. Will you be creating any debris (including construction and demolition waste, stumps, brush, untreated wood, concrete, masonry, and mortar) with your project that you intend to bury on site? [16]	Yes ◯ No ◯
If yes, connect with the Waste Management & Prevention Division (dennis.fekert@vermont.gov 802-522-0195) to discuss your project and any necessary permitting. **Regulatory Point of Contact Name/Position:**	
Provide below or attach a narrative summary of Table 4 findings. Please include: a. Which permits or permit amendment are needed or might be needed? b. What type might be needed? (e.g. a general or individual permit)? c. What concerns were voiced by permitting staff? d. How will the proposed scope of work address these concerns?	
Is the project, as proposed, reasonably considered permit-able by all applicable	Yes ◯ No ◯

[15] Find both of these layers on the ANR Atlas under Atlas Layers/Fish and Wildlife. Use the Measurement tool to 1) Plot Coordinates for your project 2) select the coordinates from the left panel 3) select the Radius Tool 4) click on your project location 5) Indicate 1 mile distance 6) look for overlap with either of these mapped layers.

[16] If your project will result in the transfer and disposal of debris (including construction and demolition waste, stumps, brush, untreated wood, concrete, masonry and mortar), you do not need a permit from this office as long as you hire a licensed solid waste hauler and bring the material to a certified facility.

ANR permitting programs? (Answer must be Yes to continue)	

Step 5: Conduct Eligibility Criteria #5-8 Screenings

Table 5A. Eligibility Criteria 5-8	
Landowner and Operation and Maintenance Responsible Party Support. Project identifies and demonstrates commitment from a qualified and willing operation and maintenance responsible party. Project demonstrates landowner support for the proposed project phase. (Answer must be YES to proceed)	Yes ◯ No ◯
Budget. Project budget includes ineligible expenses. (Answer must be NO to proceed)	Yes ◯ No ◯
Leveraging. Proposed leveraging meets required leveraging levels (if applicable), meets the definition of leveraging, and comes from eligible sources (Answer must be YES or N/A to proceed)	Yes ◯ No ◯ N/A ◯
Funding Program Specific Eligibility. Project meets additional funding program eligibility requirements*. Please list applicable funding program below: (Answer must be YES to proceed) *If Water Quality Restoration Formula Grant, complete Step 6 below	Yes ◯ No ◯

Step 6: Screening Projects on Agricultural Lands (Water Quality Restoration Formula Grants Only)

For Water Quality Restoration Formula Grant projects, please complete the following information as part of your Funding Program Specific Eligibility Screening (Criteria 8). Please note this must be completed for all projects located on agricultural lands regardless of project type. See CWIP Project Types Table for eligible project types.

Table 6A. Screening Projects on Agricultural Lands	
1. Is the proposed project located on a jurisdictional farm operation[17]? Complete a preliminary review to	◯ **Yes** - Proceed to next question below.

[17] Jurisdictional farm operations are required to meet Vermont's Required Agricultural Practices (RAPs).

determine if it is a jurisdictional farm operation, and any case that requires consultation with AAFM will occur via the farm determination process. Please note this form must be submitted by the farm operation/landowner seeking the determination.	◯ **No**[18] - There is no additional requirements related to agricultural review for these projects.
2. Is the proposed project an agricultural project? Examples of agricultural projects include but are not limited to Production Area Practices – (e.g. Waste Storage Facilities, Heavy Use Area, Diversion) Fence, Livestock Exclusion, Filter Strip, Cover Crop, Reduced Tillage, Manure Injection, Rotational Grazing. Please note this is not an exhaustive list of all agricultural practices.	◯ **Yes** - Agricultural Projects on jurisdictional farms are not an eligible project type. You can provide a referral to an applicable state or federal agricultural assistance program, or a local organization. ◯ **No** - The natural resource, innovative, or other project type will require an agricultural project review and approval from the Vermont Agency of Agriculture, Food and Markets (VAAFM) to ensure a consistent approach on farms statewide that follows rules, regulations, and laws in place. Please follow Steps 1 & 2 below. **Step 1** - Please submit a detailed description of the project, project site, project details, landowner, farm operation, and any other relevant information to VAAFM at AGR.WaterQuality@Vermont.gov . **Step 2** - Once you complete this Agricultural Project Review, please allow 30 days for a response. Once that response has been received, please include a summary of the response in the next section.

Agricultural Project Review Status & Summary:	
Check as Applicable	**Status**
☐	Submitted/ Pending
☐	Approved
☐	Denied

[18] Note CWIP's Agricultural Pollution Prevention project type eligibility is limited to land where owner or operator is not a jurisdictional farm (i.e., not required to meet the Required Agricultural Practices (RAPs)). As such, projects that meet the definition of the Agricultural Pollution Prevention project type in the Appendix B. Project Types Table are not subject to review by VAAFM.

Please include a summary of the response here:

Please note that it is expected that all projects with the status "submitted/pending" will be "approved" prior to a project approval for funding.

CWSP Project Budget

Montgomery Flood Resilience Project Development

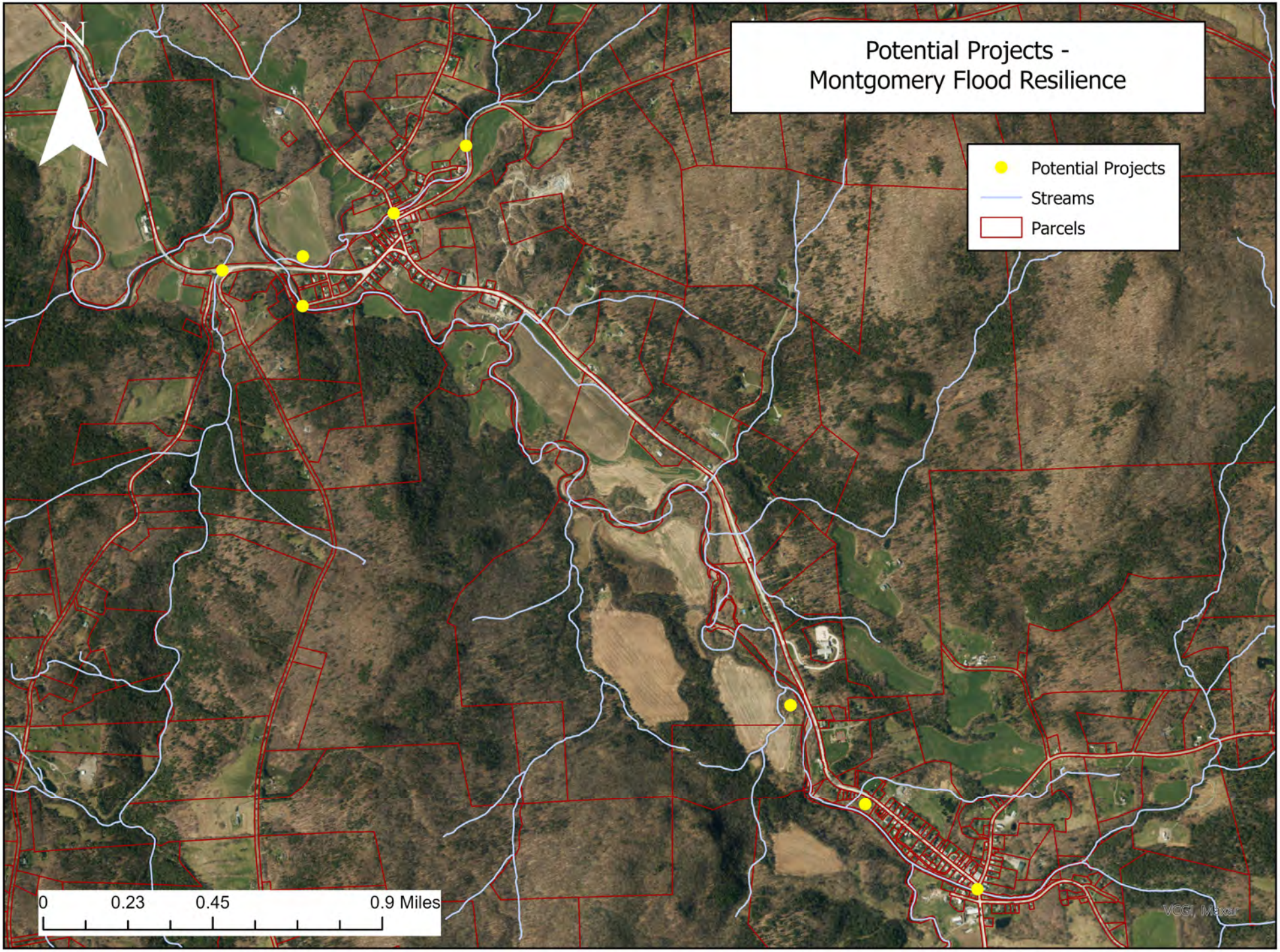
Personnel (Name, Title)	Tasks/Responsibilities	Hours	Hourly Rate	Salary Expense
Lauren Weston, District Manager	Grant management, staff oversight, field visits, design review and oversight	30.00	$75.00	$2,250.00
Mel Auffredou, Natural Resources Planner	Procurement process, coordination with contractor and landowners, field visits, review contractor's produced materials	170.00	$70.00	$11,900.00
Personnel Subtotal				**$14,150.00**

Anticipated Travel	Purpose	Miles	Mileage Rate	Travel Expense
Travel to Montgomery, VT	8 visits with Montgomery landowners	480.00	$0.67	$321.60
Travel Subtotal				**$321.60**

Total Project Cost: **$14,471.60**

Montgomery Flood Resilience Project Development Schedule

Task #	Title	Description	Schedule
1	Landowner Outreach	FCNRCD will conduct outreach to 8 Montgomery landowners who were previously identified and prioritized via FCNRCD 2024 Montgomery Flood Resilience Study with SLR.	*February – June 2025*
2	Site Visits	FCNRCD will conduct site visits with interested Montgomery landowners to discuss potential projects, landowner priorities, and determine landowner support.	*March – September 2025*
3	Consult Basin Planner and DEC Staff	FCNRCD will consult with the Basin 6 Watershed Planner and other relevant DEC staff to determine permitting needs.	*June – October 2025*
4	Document landowner support and next steps	For projects with landowner support, FCNRCD will obtain documentation of landowner support and determine project scope, permitting needs, and next steps.	*October – December 2025*
5	Reporting	FCNRCD will complete reporting for CWSP funding requirements. Deliverables will include submitting ANR Online Clean Water Project - New Project Form (once available) for any projects absent from the Watershed Projects Database, and Project Development Findings Report.	*December 2025 – January 2026*


Potential Projects -
Montgomery Flood Resilience
Potential Projects
Streams
Parcels
N
0
0.23
0.45
0.9 Miles
VCGI, Maxar

12365 RIPARIAN BUFFER / MID MISSISQUOI

Basic Eligibility	Yes
Applicant Name	Lauren Weston
Applicant Organization	Franklin County Natural Resources Conservation District
Applicant Email	lauren@franklincountynrcd.org
Applicant telephone	+1 (802) 582-3133
Project ID from WPD	12365
Description of Project	Riparian buffer planting and riparian restoration along a Mid Missisquoi River tributary near the intersections of Hayes Farm Road, David Road, and Stonehouse Road in Enosburg, VT. The length of the buffer to be planted is 1154 feet, and the average width is 80 feet. Restoration will include bare root plantings and live stakes.
Project Latitude	44.90222
Project Longitude	-72.79532
Project Phase	Implementation
Annual P Reduction KG	4.736
Any one time P reduction KG	
Total Cost of Proposed Phase	14381
Amount of Funding Requested (Proposed Phase)	$14,381.00
Non DEC Funding as part of Total Project Costs (a	$0.00
Total Project Costs (All Phases)	$20,901.00
KG/$ Current Phase	
KG/$ Overall	
Design Life	20
Adjusted Design Life	
Estimated Annual O&M cost total	$2,520.00
Estimated Annual O&M Cost per KG	
Conformance with Tactical Basin Plan TBP	5
Number of Co-benefit Areas	2
DEC Screening Form Uploaded	Yes
Map of Project Area Uploaded	Yes
Project Budget Uploaded	Yes
Project Schedule Uploaded	Yes
Landowner Support uploaded	Yes
Phosphorus Calculator Tool uploaded	Yes
Created	01/22/25 11:57 AM
Using_As_Match	No
Cultural Resource Review	No

APPENDIX A. CLEAN WATER INITIATIVE PROGRAM - PROJECT ELIGIBILITY SCREENING FORM

This fillable PDF form is designed to assist with project review by systematically walking through all eligibility criteria. It should be completed for all projects seeking funding for 30% + design or implementation work. It may be applied to projects seeking funding for assessment or development if helpful for determining their alignment with eligibility criteria 2, 3, 6, and 8.

Step 1: Conduct Eligibility Criteria #1 Screening: Project Purpose

Table 1A: Project Purpose	
From the drop-down list to the right, please select which of the four objectives of Vermont's Surface Water Management Strategy this project addresses. If multiple, please list below:	Minimize flood and fluvial erosion hazards

Step 2: Conduct Eligibility Criteria #2 Screening: Project Types and Standards

Table 2A: Project Types and Standards	
Please select the most representative project type from the drop-down list to the right.[1,2] If multiple BMPs are included in the project, please list below: This is an assessment/identification project.	None (not eligible for CWIP funding)
Is the project type an eligible project type for the funding program you are applying to as listed in column B of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Does the project meet the project type definitions and minimum standards as provided in column C of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Will the project result in the standard performance measures, milestones, and deliverables as defined by project type in columns D-F of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Is the project listed as an ineligible project or activity in the CWIP Funding Policy? If Yes, please explain below how project meets the allowable exceptions within the CWIP Funding Policy. (Answer must be NO to proceed, unless reasonable justification is provided above)	Yes ◯ No ◯

Step 3: Conduct Eligibility Criteria #3 Screening: Watershed Projects Database

Verify project has been recorded in the Watershed Project Database (WPD). Each project must have a Watershed Project Database number specific to the proposed project phase (for example,

[1] Note that Road/Stormwater Gully project-types must not otherwise be considered intermittent or perennial streams by the DEC Rivers Program and therefore project proponent must show documentation of this determination in order to select this project type.

[2] One project may include multiple best management practices (BMPs) that cross "project types." For example, a single project may include both stormwater and lake shoreland BMPs. Proponents should use their best judgement in selecting the most representative project type for the purposes of eligibility screening and reporting.

a final design will have a different WPD-ID from a preliminary design even if for the same project). If the project, or the specific phase, is not yet in the Watershed Project Database, follow directions provided in the CWIP Funding Policy to secure a WPD-ID. Please see CWIP Funding Policy for more information on the WPD-ID.

Table 3A. WPD-ID	
Watershed Project Database ID number assigned	12355
Watershed Project Database Project Name	Montgomery Flood Resilience Project Development

Step 4: Conduct Eligibility Criteria #4 Screening: Natural Resource Impacts[3]

Agency of Natural Resources (ANR) permit screening for natural resource impacts includes 1) an initial desktop review to identify which ANR permitting programs should be contacted, 2) a review by the relevant ANR permitting staff, and 3) a response summary from the project proponent addressing any permitting staff concerns. [4]

1) **Table 4. Natural Resource Impacts** facilitates a high-level desktop review of the most likely ANR permits to apply to clean water projects. Project proponents should answer all the questions to identify likely permit needs. [5] Please note that "project site" may include both the active restoration location as well as any additional impact footprint related to staging, site access, or storage of waste or disposed materials.
2) If responses to the **Table 4. Natural Resource Impacts** desktop review trigger a permitting staff consultation, **Table 4** provides appropriate contact information.
    a. Proponents should send the identified permitting staff the following:
        i. The watersheds project database identification number (WPD-ID) (if available),
        ii. Project location (GPS coordinates)
        iii. Summary of proposed scope of work, and
        iv. Any other relevant information they request that will be utilized in their review.
    b. **Proponents should clarify they are seeking permitting staff input on potential permitting needs, permit-ability of proposed scope of work, and other design considerations but they are NOT seeking a formal permit determination.**
    c. Project proponents must attempt to communicate with the permitting staff and provide them with at least thirty days to review the project and provide a

[3] Easements and Riparian Buffer Plantings are excluded from this eligibility requirement/step.

[4] In cases where this screening may have already occurred in a prior project phase, project proponents may supply attachments or links to relevant permit needs assessment documents in place of completing Table 4.

[5] Entities selected for funding are expected to perform due diligence to ensure all applicable permits (including non-ANR state, local, and federal permits) are discovered and secured prior to implementation. The ANR Permit Navigator and an Environmental Compliance Division Community Assistance Specialist can help confirm ANR permitting needs for any projects once selected for funding.

response. Project proponents are encouraged to perform this screening during a project development phase as opposed to during a project solicitation round to allow for more time for feedback. Permitting feedback may be up to one year old.

3) Proponents should summarize permitting staff feedback and how the proposed scope of work will address this at the bottom of **Table 4**. Specifically, please include:
   a. Which permits or permit amendment are needed or might be needed? [6]
   b. What type might be needed? (e.g., a general or individual permit[7])?
   c. What concerns were voiced by permitting staff?
   d. How will the proposed scope of work address these concerns?[8]

Table 4A: Natural Resource Impacts		
I. Act 250 Permits		
1. Have any Act 250 (Vermont's Land Use and Development Control Law) Permits been issued in the project site's parcel location?[9]	**Yes** ◯	**No** ◯
If ***yes***, please provide the permit number and list any water resource issues or natural resource issues found[10]: **PermitNumber:** **ResourceIssues:** _____ If ***yes***, use the Water Quality Project Screening Tool to identify the appropriate regulatory contact for an Act 250 consultation. **Regulatory Point of Contact Name/Position:**		
II. Lake and Shoreland		
1. Is the project site located within 250 feet of the mean water	**Yes** ◯	**No** ◯

[6] Occasionally permit staff may indicate they need a field visit or to see more completed designs prior to making a permit need determination.

[7] Design phase projects that require an individual wetlands permit must have the permit in hand at the close of the final design phase. Implementation phase projects must have the individual permit in hand to be eligible for funding.

[8] Examples could include planned design changes or inviting permitting staff to stakeholder meetings.

[9] An Act 250 Permit is required for certain categories of development, such as subdivisions of 10 lots or more, commercial projects on more than one acre or ten acres (depending on whether the town has permanent zoning and subdivision regulations), and any development above the elevation of 2,500 feet. The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located on an Act 250 parcel. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

[10] Note that Act 250 permit amendments may require more extensive review of project impacts to natural resources including wildlife habitat, significant natural communities, and riparian zones. Please consult with the Act 250 District Coordinator regarding the nature and scope of that review and what bearing it may have on your project design.

level (shoreline) of a lake or pond? [11]	
If ***yes***, you might need either a Shoreland Protection Act Permit or a Lake Encroachment Permit. Use the Water Quality Project Screening Tool to find the Lakes and Ponds Program contact for your project's region. **Regulatory Point of Contact Name/Position:**	
III. Rivers, River Corridors, and Flood Hazard Areas	
1. Is there any portion of the project site located within 100' of a river corridor and/or mapped Federal Emergency Management Agency (FEMA) flood hazard area[12]**?** (e.g. a stormwater pond's pipe draining into a river corridor area)? Any permanent excavation/filling or construction within a flood hazard area or river corridor may trigger regulatory requirements through municipal bylaws or through state authorities.	Yes ◯ No ◯
If ***yes***, you will need to speak with a Floodplain Manager. Use the Water Quality Project Screening Tool to find the Floodplain Manager for your project's region. **Regulatory Point of Contact Name/Position:**	
2. Is any portion of the project site within a perennial river or stream channel? [13]	Yes ◯ No ◯
If ***yes***, you will need to speak with a Stream Alteration Engineer. Use the Water Quality Project Screening Tool to find the Stream Alteration Engineer for your project's region. **Regulatory Point of Contact Name/Position:**	
IV. Wetland	

[11] The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located in the jurisdictional zone to trigger a Lakeshore permit. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

[12] FEMA mapped Flood Hazard Areas are not available statewide on the ANR Natural Resources Atlas. For projects located in Grand Isle, Franklin, Lamoille, Addison, Essex, Orleans, Caledonia, and Orange Counties, maps are available via the FEMA Flood Map Service Center: https://msc.fema.gov/portal/home. ANR Floodplain Managers are available to provide technical assistance if needed.

[13] Stream Alteration Permits regulate all activities that take place within perennial river and stream channels. Examples of regulated activities include streambank stabilization, dam removal, road improvements that encroach on streams, and bridge/culvert construction or repair. The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located in the jurisdictional zone to trigger a Stream Alteration permit. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

1. Does the Wetland Screening Tool[14] provide a result of wetlands likely, very likely, or present at the project site?	Yes ◯ No ◯
2. Does your project site involve land that is in or near an area that has any of the following characteristics: o Water is present – ponds, streams, springs, seeps, water filled depressions, soggy ground under foot, trees with shallow roots or water marks? o Wetland plants, such as cattails, ferns, sphagnum moss, willows, red maple, trees with roots growing along the ground surface, swollen trunk bases, or flat root bases when tipped over? o Wetland Soils – soil is dark over gray, gray/blue/green? Is there presence of rusty/red/dark streaks? Soil smells like rotten eggs, feels greasy, mushy or wet? Water fills holes within a few minutes of digging? (See Landowners Guide to Wetlands for additional information on identifying wetlands onsite.)	Yes ◯ No ◯ Not Sure ◯
If you answered ***yes*** or ***not sure*** to either of the above questions, you will need to contact your District Wetlands Ecologist using the Wetland Inquiry Form. The District Wetlands Ecologist can help determine the approximate locations of wetlands and whether you need to hire a Wetland Consultant to conduct a wetland delineation. Alternatively, if you answered ***yes*** or ***not sure*** to either of the above questions, you can simply budget for a Wetland Consultant in the proposed scope of work. Any activity within a Class I or II wetland or wetland buffer zone (minimum of 100 feet and 50 feet respectively) which is not exempt or considered an "allowed use" under the Vermont Wetland Rules requires a permit. All permits must go through review and public notice process, which takes at minimum 6 weeks for a General Permit and 5 months for an Individual Permit. **Regulatory Point of Contact Name/Position:**	
1. Is your project a Wetland Restoration project type?	Yes ◯ No ◯
If you answered yes, under the Vermont Wetland Rules you will need an "allowed use" determination from the DEC Wetlands Program. Contact your District Wetlands Ecologist using the Wetland Inquiry Form. **Regulatory Point of Contact Name/Position:**	
V. Fish and Wildlife	
State law protects endangered and threatened species. No person may take or possess such species without a Threatened & Endangered Species Takings permit. 1. **Does your project involve cutting down trees larger than 5 inches in diameter in any of the following towns?** Addison, Arlington, Benson, Brandon, Bridport, Bristol, Charlotte, Cornwall, Danby, Dorset, Fair Haven, Ferrisburgh, Hinesburg, Manchester, Middlebury, Monkton, New Haven, Orwell, Panton, Pawlet, Pittsford, Rupert, Salisbury, Sandgate, Shoreham, Starksboro, St. George, Sudbury, Sunderland, Vergennes, Waltham, West Haven, Weybridge, Whiting	Yes ◯ No ◯

[14] To view the Wetland Screening Tool introduction video, see https://youtu.be/6lv5en0AB1o

2. Is the project site within 1 mile of a mapped[15] Significant Natural Community or Rare, Threatened, or Endangered Species?	Yes ◯ No ◯
If *yes* to either of the above questions, connect with the VT Fish and Wildlife department (everett.marshall@vermont.gov 802-371-7333) to discuss your project and any necessary permitting. **Regulatory Point of Contact Name/Position:**	
VI. Stormwater	
1. Will the project disturb more than an acre of land during construction, add or redevelop impervious surface, create new development or otherwise require a Stormwater permit?	Yes ◯ No ◯
If *yes*, forward to the appropriate Stormwater specialist to ensure necessary permitting. Use the Water Quality Project Screening Tool to find the Stormwater specialist for your project's region. **Regulatory Point of Contact Name/Position:**	
VII. Solid Waste	
2. Will you be creating any debris (including construction and demolition waste, stumps, brush, untreated wood, concrete, masonry, and mortar) with your project that you intend to bury on site? [16]	Yes ◯ No ◯
If yes, connect with the Waste Management & Prevention Division (dennis.fekert@vermont.gov 802-522-0195) to discuss your project and any necessary permitting. **Regulatory Point of Contact Name/Position:**	
Provide below or attach a narrative summary of Table 4 findings. Please include: a. Which permits or permit amendment are needed or might be needed? b. What type might be needed? (e.g. a general or individual permit)? c. What concerns were voiced by permitting staff? d. How will the proposed scope of work address these concerns?	
Is the project, as proposed, reasonably considered permit-able by all applicable	Yes ◯ No ◯

[15] Find both of these layers on the ANR Atlas under Atlas Layers/Fish and Wildlife. Use the Measurement tool to 1) Plot Coordinates for your project 2) select the coordinates from the left panel 3) select the Radius Tool 4) click on your project location 5) Indicate 1 mile distance 6) look for overlap with either of these mapped layers.

[16] If your project will result in the transfer and disposal of debris (including construction and demolition waste, stumps, brush, untreated wood, concrete, masonry and mortar), you do not need a permit from this office as long as you hire a licensed solid waste hauler and bring the material to a certified facility.

ANR permitting programs? (Answer must be Yes to continue)	

Step 5: Conduct Eligibility Criteria #5-8 Screenings

Table 5A. Eligibility Criteria 5-8	
Landowner and Operation and Maintenance Responsible Party Support. Project identifies and demonstrates commitment from a qualified and willing operation and maintenance responsible party. Project demonstrates landowner support for the proposed project phase. (Answer must be YES to proceed)	Yes ◯ No ◯
Budget. Project budget includes ineligible expenses. (Answer must be NO to proceed)	Yes ◯ No ◯
Leveraging. Proposed leveraging meets required leveraging levels (if applicable), meets the definition of leveraging, and comes from eligible sources (Answer must be YES or N/A to proceed)	Yes ◯ No ◯ N/A ◯
Funding Program Specific Eligibility. Project meets additional funding program eligibility requirements*. Please list applicable funding program below: (Answer must be YES to proceed) *If Water Quality Restoration Formula Grant, complete Step 6 below	Yes ◯ No ◯

Step 6: Screening Projects on Agricultural Lands (Water Quality Restoration Formula Grants Only)

For Water Quality Restoration Formula Grant projects, please complete the following information as part of your Funding Program Specific Eligibility Screening (Criteria 8). Please note this must be completed for all projects located on agricultural lands regardless of project type. See CWIP Project Types Table for eligible project types.

Table 6A. Screening Projects on Agricultural Lands	
1. Is the proposed project located on a jurisdictional farm operation[17]? Complete a preliminary review to	◯ **Yes** - Proceed to next question below.

[17] Jurisdictional farm operations are required to meet Vermont's Required Agricultural Practices (RAPs).

determine if it is a jurisdictional farm operation, and any case that requires consultation with AAFM will occur via the farm determination process. Please note this form must be submitted by the farm operation/landowner seeking the determination.	◯ **No**[18] - There is no additional requirements related to agricultural review for these projects.
2. Is the proposed project an agricultural project? Examples of agricultural projects include but are not limited to Production Area Practices – (e.g. Waste Storage Facilities, Heavy Use Area, Diversion) Fence, Livestock Exclusion, Filter Strip, Cover Crop, Reduced Tillage, Manure Injection, Rotational Grazing. Please note this is not an exhaustive list of all agricultural practices.	◯ **Yes** - Agricultural Projects on jurisdictional farms are not an eligible project type. You can provide a referral to an applicable state or federal agricultural assistance program, or a local organization. ◯ **No** - The natural resource, innovative, or other project type will require an agricultural project review and approval from the Vermont Agency of Agriculture, Food and Markets (VAAFM) to ensure a consistent approach on farms statewide that follows rules, regulations, and laws in place. Please follow Steps 1 & 2 below. **Step 1** - Please submit a detailed description of the project, project site, project details, landowner, farm operation, and any other relevant information to VAAFM at AGR.WaterQuality@Vermont.gov . **Step 2** - Once you complete this Agricultural Project Review, please allow 30 days for a response. Once that response has been received, please include a summary of the response in the next section.

Agricultural Project Review Status & Summary:	
Check as Applicable	**Status**
☐	Submitted/ Pending
☐	Approved
☐	Denied

[18] Note CWIP's Agricultural Pollution Prevention project type eligibility is limited to land where owner or operator is not a jurisdictional farm (i.e., not required to meet the Required Agricultural Practices (RAPs)). As such, projects that meet the definition of the Agricultural Pollution Prevention project type in the Appendix B. Project Types Table are not subject to review by VAAFM.

Please include a summary of the response here:

Please note that it is expected that all projects with the status "submitted/pending" will be "approved" prior to a project approval for funding.

Budget – Stonehouse Road

Item	Requested Amt
Personnel	$1,750
Plant Material	$5,824
Planting	$6,807
Project Total	$14,381

Budget Justification

Personnel: ~25 hours at $70/hr for landowner coordination, purchasing materials, etc.

Plant material: $8/stem average for 400 stems/acre. 1.82 acres * 400 stems/acre * $8/stem = $5,824.

Planting: Planting crew + spot spraying

- Planting crew: $6/stem for planting from external contractor. $6/stem * 728 stems * 10% contingency = $4,805.
- Spot spraying: $2.75/stem to have an external contractor spray the site for invasives. $2.75/stem * 728 stems = $2,002.

Proposed Project Schedule – Stonehouse Road

February 2025 – Order stems

April 2025 – Receive stems

May 2025 – Plant stems and spot spray

August 2025 – Site maintenance

October 2025 – Site maintenance

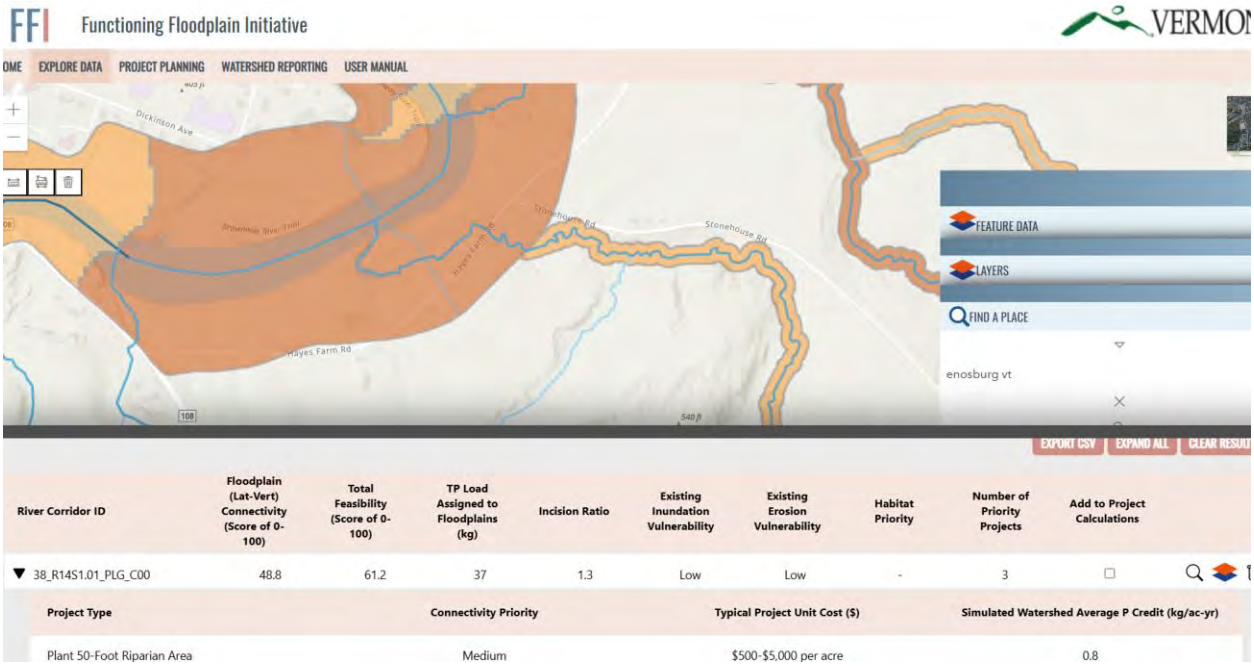
July 2026 – Site maintenance

P Reduction Calculations – Stonehouse Road

0.8 kg/ac-yr * 1.82 ac = 1.456 kg/yr

1.456 kg/yr + 3.28 kg/yr = **4.736 kg/yr**

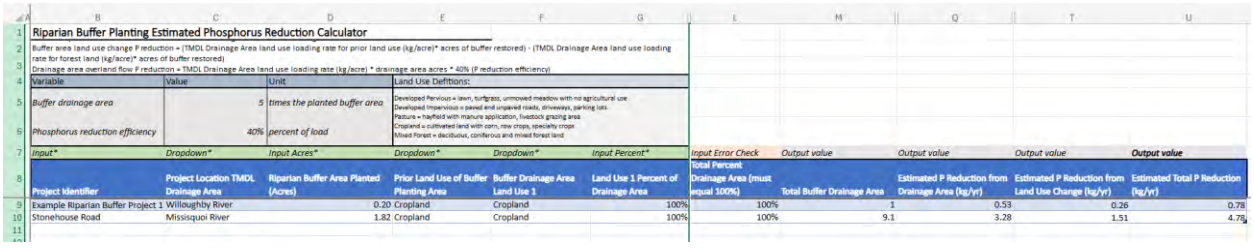
FFI Tool: 0.8 kg/ac-yr



River Corridor ID	Floodplain (Lat-Vert) Connectivity (Score of 0-100)	Total Feasibility (Score of 0-100)	TP Load Assigned to Floodplains (kg)	Incision Ratio	Existing Inundation Vulnerability	Existing Erosion Vulnerability	Habitat Priority	Number of Priority Projects	Add to Project Calculations
▼ 38_R14S1.01_PLG_C00	48.8	61.2	37	1.3	Low	Low	-	3	☐

Project Type	Connectivity Priority	Typical Project Unit Cost ($)	Simulated Watershed Average P Credit (kg/ac-yr)
Plant 50-Foot Riparian Area	Medium	$500-$5,000 per acre	0.8

Interim Phosphorous Reduction Calculator Tool: 3.28 kg/yr (Estimated P Reduction from Drainage Area)



Riparian Buffer Planting Estimated Phosphorus Reduction Calculator

Buffer area land use change P reduction = (TMDL Drainage Area land use loading rate for prior land use (kg/acre)* acres of buffer restored) - (TMDL Drainage Area land use loading rate for forest land (kg/acre)* acres of buffer restored)
Drainage area overland flow P reduction = TMDL Drainage Area land use loading rate (kg/acre) * drainage area acres * 40% (P reduction efficiency)

Variable	Value	Unit	Land Use Deffitions:
Buffer drainage area	5	times the planted buffer area	Developed Pervious = lawn, turfgrass, unmowed meadow with no agricultural use Developed, Impervious = paved and unpaved roads, driveways, parking lots Pasture = hayfield with manure application, livestock grazing area Cropland = cultivated land with corn, row crops, specialty crops Mixed Forest = deciduous, coniferous and mixed forest land
Phosphorus reduction efficiency	40%	percent of load	

Input*	Dropdown*	Input Acres*	Dropdown*	Dropdown*	Input Percent*	Input Error Check	Output value	Output value	Output value	Output value
Project Identifier	Project Location TMDL Drainage Area	Riparian Buffer Area Planted (Acres)	Prior Land Use of Buffer Planting Area	Buffer Drainage Area Land Use 1	Land Use 1 Percent of Drainage Area	Total Percent Drainage Area (must equal 100%)	Total Buffer Drainage Area	Estimated P Reduction from Drainage Area (kg/yr)	Estimated P Reduction from Land Use Change (kg/yr)	Estimated Total P Reduction (kg/yr)
Example Riparian Buffer Project 1	Willoughby River	0.20	Cropland	Cropland	100%	100%	1	0.53	0.26	0.78
Stonehouse Road	Missisquoi River	1.82	Cropland	Cropland	100%	100%	9.1	3.28	1.51	4.78

Stonehouse Road Planting Area

Vermont Agency of Natural Resources

vermont.gov

LEGEND

- Parcels (standardized)
- Roads
  - Interstate
  - US Highway; 1
  - State Highway
  - Town Highway (Class 1)
  - Town Highway (Class 2,3)
  - Town Highway (Class 4)
  - State Forest Trail
  - National Forest Trail
  - Legal Trail
  - Private Road/Driveway
  - Proposed Roads
- Town Boundary

NOTES

Map created using ANR's Natural Resources Atlas

247.0 0 124.00 247.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 406 Ft. 1cm = 49 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

FRANKLIN COUNTY NATURAL RESOURCES CONSERVATION DISTRICT

Orenna Brand <orenna@franklincountynrcd.org>

Re: Discussion about Tree Plantings?

Larry Gervais <larry@gervaisfarms.com> Mon, Jan 20, 2025 at 4:46 PM
To: Lauren Weston <lauren@franklincountynrcd.org>
Cc: Dorothy Kinney-Landis <dorothy@franklincountynrcd.org>, Orenna Brand <orenna@franklincountynrcd.org>

Hi Lauren,
Sorry for the late response.
The property on hayes farm road is owned by Gervais Family Farm No.2 LLC.
Gervais Family Farm gives permission to Franklin County NRCD to carry out tree plantings on 2 of our properties. First property is located on Hayes Farm Road (formerly Pat Hayes Farm) with two tree planting sites. The second property location is located along Giddings Brook across from the Enosburg golf course. See maps for specific areas.
Thanks,
Larry Gervais

Get Outlook for iOS

From: Lauren Weston <lauren@franklincountynrcd.org>
Sent: Monday, January 20, 2025 8:21:12 AM
To: Larry Gervais <larry@gervaisfarms.com>
Cc: Dorothy Kinney-Landis <dorothy@franklincountynrcd.org>; Orenna Brand <orenna@franklincountynrcd.org>
[Quoted text hidden]

[Quoted text hidden]

12364 RIPARIAN BUFFER / GIDDINGS

Basic Eligibility	Yes
Applicant Name	Lauren Weston
Applicant Organization	Franklin County Natural Resources Conservation District
Applicant Email	lauren@franklincountynrcd.org
Applicant telephone	+1 (802) 582-3133
Project ID from WPD	12364
Description of Project	Riparian buffer planting and riparian restoration along Giddings Brook in Enosburg, VT. The length of the buffer to be planted is 2873 feet, and the average width across both sides of the brook is 244 feet, or a 122-foot average buffer width from top of bank on each side. Restoration will include bare root plantings and live stakes.
Project Latitude	44.91240
Project Longitude	-72.80945
Project Phase	Implementation
Annual P Reduction KG	24.116
Any one time P reduction KG	
Total Cost of Proposed Phase	67484
Amount of Funding Requested (Proposed Phase)	$67,484.00
Non DEC Funding as part of Total Project Costs (a	$0.00
Total Project Costs (All Phases)	$76,524.00
KG/$ Current Phase	
KG/$ Overall	
Design Life	20
Adjusted Design Life	
Estimated Annual O&M cost total	$5,040.00
Estimated Annual O&M Cost per KG	
Conformance with Tactical Basin Plan TBP	10
Number of Co-benefit Areas	2
DEC Screening Form Uploaded	Yes
Map of Project Area Uploaded	Yes
Project Budget Uploaded	Yes
Project Schedule Uploaded	Yes
Landowner Support uploaded	Yes
Phosphorus Calculator Tool uploaded	Yes
Created	01/22/25 11:50 AM
Using_As_Match	No
Cultural Resource Review	No

APPENDIX A. CLEAN WATER INITIATIVE PROGRAM - PROJECT ELIGIBILITY SCREENING FORM

This fillable PDF form is designed to assist with project review by systematically walking through all eligibility criteria. It should be completed for all projects seeking funding for 30% + design or implementation work. It may be applied to projects seeking funding for assessment or development if helpful for determining their alignment with eligibility criteria 2, 3, 6, and 8.

Step 1: Conduct Eligibility Criteria #1 Screening: Project Purpose

Table 1A: Project Purpose	
From the drop-down list to the right, please select which of the four objectives of Vermont's Surface Water Management Strategy this project addresses. If multiple, please list below:	Minimize flood and fluvial erosion hazards

Step 2: Conduct Eligibility Criteria #2 Screening: Project Types and Standards

Table 2A: Project Types and Standards	
Please select the most representative project type from the drop-down list to the right.[1,2] If multiple BMPs are included in the project, please list below: This is an assessment/identification project.	None (not eligible for CWIP funding)
Is the project type an eligible project type for the funding program you are applying to as listed in column B of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Does the project meet the project type definitions and minimum standards as provided in column C of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Will the project result in the standard performance measures, milestones, and deliverables as defined by project type in columns D-F of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Is the project listed as an ineligible project or activity in the CWIP Funding Policy? If Yes, please explain below how project meets the allowable exceptions within the CWIP Funding Policy. (Answer must be NO to proceed, unless reasonable justification is provided above)	Yes ◯ No ◯

Step 3: Conduct Eligibility Criteria #3 Screening: Watershed Projects Database

Verify project has been recorded in the Watershed Project Database (WPD). Each project must have a Watershed Project Database number specific to the proposed project phase (for example,

[1] Note that Road/Stormwater Gully project-types must not otherwise be considered intermittent or perennial streams by the DEC Rivers Program and therefore project proponent must show documentation of this determination in order to select this project type.

[2] One project may include multiple best management practices (BMPs) that cross "project types." For example, a single project may include both stormwater and lake shoreland BMPs. Proponents should use their best judgement in selecting the most representative project type for the purposes of eligibility screening and reporting.

a final design will have a different WPD-ID from a preliminary design even if for the same project). If the project, or the specific phase, is not yet in the Watershed Project Database, follow directions provided in the CWIP Funding Policy to secure a WPD-ID. Please see CWIP Funding Policy for more information on the WPD-ID.

Table 3A. WPD-ID	
Watershed Project Database ID number assigned	12355
Watershed Project Database Project Name	Montgomery Flood Resilience Project Development

Step 4: Conduct Eligibility Criteria #4 Screening: Natural Resource Impacts[3]

Agency of Natural Resources (ANR) permit screening for natural resource impacts includes 1) an initial desktop review to identify which ANR permitting programs should be contacted, 2) a review by the relevant ANR permitting staff, and 3) a response summary from the project proponent addressing any permitting staff concerns. [4]

1) **Table 4. Natural Resource Impacts** facilitates a high-level desktop review of the most likely ANR permits to apply to clean water projects. Project proponents should answer all the questions to identify likely permit needs. [5] Please note that "project site" may include both the active restoration location as well as any additional impact footprint related to staging, site access, or storage of waste or disposed materials.
2) If responses to the **Table 4. Natural Resource Impacts** desktop review trigger a permitting staff consultation, **Table 4** provides appropriate contact information.
    a. Proponents should send the identified permitting staff the following:
        i. The watersheds project database identification number (WPD-ID) (if available),
        ii. Project location (GPS coordinates)
        iii. Summary of proposed scope of work, and
        iv. Any other relevant information they request that will be utilized in their review.
    b. **Proponents should clarify they are seeking permitting staff input on potential permitting needs, permit-ability of proposed scope of work, and other design considerations but they are NOT seeking a formal permit determination.**
    c. Project proponents must attempt to communicate with the permitting staff and provide them with at least thirty days to review the project and provide a

[3] Easements and Riparian Buffer Plantings are excluded from this eligibility requirement/step.

[4] In cases where this screening may have already occurred in a prior project phase, project proponents may supply attachments or links to relevant permit needs assessment documents in place of completing Table 4.

[5] Entities selected for funding are expected to perform due diligence to ensure all applicable permits (including non-ANR state, local, and federal permits) are discovered and secured prior to implementation. The ANR Permit Navigator and an Environmental Compliance Division Community Assistance Specialist can help confirm ANR permitting needs for any projects once selected for funding.

response. Project proponents are encouraged to perform this screening during a project development phase as opposed to during a project solicitation round to allow for more time for feedback. Permitting feedback may be up to one year old.

3) Proponents should summarize permitting staff feedback and how the proposed scope of work will address this at the bottom of **Table 4**. Specifically, please include:
   a. Which permits or permit amendment are needed or might be needed? [6]
   b. What type might be needed? (e.g., a general or individual permit[7])?
   c. What concerns were voiced by permitting staff?
   d. How will the proposed scope of work address these concerns?[8]

Table 4A: Natural Resource Impacts		
I. Act 250 Permits		
1. Have any Act 250 (Vermont's Land Use and Development Control Law) Permits been issued in the project site's parcel location?[9]	**Yes** ◯	**No** ◯
If ***yes***, please provide the permit number and list any water resource issues or natural resource issues found[10]: **PermitNumber:** **ResourceIssues:** _____ If ***yes***, use the Water Quality Project Screening Tool to identify the appropriate regulatory contact for an Act 250 consultation. **Regulatory Point of Contact Name/Position:**		
II. Lake and Shoreland		
1. Is the project site located within 250 feet of the mean water	**Yes** ◯	**No** ◯

[6] Occasionally permit staff may indicate they need a field visit or to see more completed designs prior to making a permit need determination.

[7] Design phase projects that require an individual wetlands permit must have the permit in hand at the close of the final design phase. Implementation phase projects must have the individual permit in hand to be eligible for funding.

[8] Examples could include planned design changes or inviting permitting staff to stakeholder meetings.

[9] An Act 250 Permit is required for certain categories of development, such as subdivisions of 10 lots or more, commercial projects on more than one acre or ten acres (depending on whether the town has permanent zoning and subdivision regulations), and any development above the elevation of 2,500 feet. The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located on an Act 250 parcel. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

[10] Note that Act 250 permit amendments may require more extensive review of project impacts to natural resources including wildlife habitat, significant natural communities, and riparian zones. Please consult with the Act 250 District Coordinator regarding the nature and scope of that review and what bearing it may have on your project design.

level (shoreline) of a lake or pond? [11]	
If ***yes***, you might need either a Shoreland Protection Act Permit or a Lake Encroachment Permit. Use the Water Quality Project Screening Tool to find the Lakes and Ponds Program contact for your project's region. **Regulatory Point of Contact Name/Position:**	
III. Rivers, River Corridors, and Flood Hazard Areas	
1. Is there any portion of the project site located within 100' of a river corridor and/or mapped Federal Emergency Management Agency (FEMA) flood hazard area[12]**?** (e.g. a stormwater pond's pipe draining into a river corridor area)? Any permanent excavation/filling or construction within a flood hazard area or river corridor may trigger regulatory requirements through municipal bylaws or through state authorities.	Yes ◯ No ◯
If ***yes***, you will need to speak with a Floodplain Manager. Use the Water Quality Project Screening Tool to find the Floodplain Manager for your project's region. **Regulatory Point of Contact Name/Position:**	
2. Is any portion of the project site within a perennial river or stream channel? [13]	Yes ◯ No ◯
If ***yes***, you will need to speak with a Stream Alteration Engineer. Use the Water Quality Project Screening Tool to find the Stream Alteration Engineer for your project's region. **Regulatory Point of Contact Name/Position:**	
IV. Wetland	

[11] The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located in the jurisdictional zone to trigger a Lakeshore permit. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

[12] FEMA mapped Flood Hazard Areas are not available statewide on the ANR Natural Resources Atlas. For projects located in Grand Isle, Franklin, Lamoille, Addison, Essex, Orleans, Caledonia, and Orange Counties, maps are available via the FEMA Flood Map Service Center: https://msc.fema.gov/portal/home. ANR Floodplain Managers are available to provide technical assistance if needed.

[13] Stream Alteration Permits regulate all activities that take place within perennial river and stream channels. Examples of regulated activities include streambank stabilization, dam removal, road improvements that encroach on streams, and bridge/culvert construction or repair. The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located in the jurisdictional zone to trigger a Stream Alteration permit. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

1. Does the Wetland Screening Tool[14] provide a result of wetlands likely, very likely, or present at the project site?	Yes ◯ No ◯
2. Does your project site involve land that is in or near an area that has any of the following characteristics: o Water is present – ponds, streams, springs, seeps, water filled depressions, soggy ground under foot, trees with shallow roots or water marks? o Wetland plants, such as cattails, ferns, sphagnum moss, willows, red maple, trees with roots growing along the ground surface, swollen trunk bases, or flat root bases when tipped over? o Wetland Soils – soil is dark over gray, gray/blue/green? Is there presence of rusty/red/dark streaks? Soil smells like rotten eggs, feels greasy, mushy or wet? Water fills holes within a few minutes of digging? (See Landowners Guide to Wetlands for additional information on identifying wetlands onsite.)	Yes ◯ No ◯ Not Sure ◯
If you answered ***yes*** or ***not sure*** to either of the above questions, you will need to contact your District Wetlands Ecologist using the Wetland Inquiry Form. The District Wetlands Ecologist can help determine the approximate locations of wetlands and whether you need to hire a Wetland Consultant to conduct a wetland delineation. Alternatively, if you answered ***yes*** or ***not sure*** to either of the above questions, you can simply budget for a Wetland Consultant in the proposed scope of work. Any activity within a Class I or II wetland or wetland buffer zone (minimum of 100 feet and 50 feet respectively) which is not exempt or considered an "allowed use" under the Vermont Wetland Rules requires a permit. All permits must go through review and public notice process, which takes at minimum 6 weeks for a General Permit and 5 months for an Individual Permit. **Regulatory Point of Contact Name/Position:**	
1. Is your project a Wetland Restoration project type?	Yes ◯ No ◯
If you answered yes, under the Vermont Wetland Rules you will need an "allowed use" determination from the DEC Wetlands Program. Contact your District Wetlands Ecologist using the Wetland Inquiry Form. **Regulatory Point of Contact Name/Position:**	
V. Fish and Wildlife	
State law protects endangered and threatened species. No person may take or possess such species without a Threatened & Endangered Species Takings permit. 1. **Does your project involve cutting down trees larger than 5 inches in diameter in any of the following towns?** Addison, Arlington, Benson, Brandon, Bridport, Bristol, Charlotte, Cornwall, Danby, Dorset, Fair Haven, Ferrisburgh, Hinesburg, Manchester, Middlebury, Monkton, New Haven, Orwell, Panton, Pawlet, Pittsford, Rupert, Salisbury, Sandgate, Shoreham, Starksboro, St. George, Sudbury, Sunderland, Vergennes, Waltham, West Haven, Weybridge, Whiting	Yes ◯ No ◯

[14] To view the Wetland Screening Tool introduction video, see https://youtu.be/6lv5en0AB1o

2. Is the project site within 1 mile of a mapped[15] Significant Natural Community or Rare, Threatened, or Endangered Species?	Yes ◯ No ◯
If *yes* to either of the above questions, connect with the VT Fish and Wildlife department (everett.marshall@vermont.gov 802-371-7333) to discuss your project and any necessary permitting. **Regulatory Point of Contact Name/Position:**	
VI. Stormwater	
1. Will the project disturb more than an acre of land during construction, add or redevelop impervious surface, create new development or otherwise require a Stormwater permit?	Yes ◯ No ◯
If *yes*, forward to the appropriate Stormwater specialist to ensure necessary permitting. Use the Water Quality Project Screening Tool to find the Stormwater specialist for your project's region. **Regulatory Point of Contact Name/Position:**	
VII. Solid Waste	
2. Will you be creating any debris (including construction and demolition waste, stumps, brush, untreated wood, concrete, masonry, and mortar) with your project that you intend to bury on site? [16]	Yes ◯ No ◯
If yes, connect with the Waste Management & Prevention Division (dennis.fekert@vermont.gov 802-522-0195) to discuss your project and any necessary permitting. **Regulatory Point of Contact Name/Position:**	
Provide below or attach a narrative summary of Table 4 findings. Please include: a. Which permits or permit amendment are needed or might be needed? b. What type might be needed? (e.g. a general or individual permit)? c. What concerns were voiced by permitting staff? d. How will the proposed scope of work address these concerns?	
Is the project, as proposed, reasonably considered permit-able by all applicable	Yes ◯ No ◯

[15] Find both of these layers on the ANR Atlas under Atlas Layers/Fish and Wildlife. Use the Measurement tool to 1) Plot Coordinates for your project 2) select the coordinates from the left panel 3) select the Radius Tool 4) click on your project location 5) Indicate 1 mile distance 6) look for overlap with either of these mapped layers.

[16] If your project will result in the transfer and disposal of debris (including construction and demolition waste, stumps, brush, untreated wood, concrete, masonry and mortar), you do not need a permit from this office as long as you hire a licensed solid waste hauler and bring the material to a certified facility.

ANR permitting programs? (Answer must be Yes to continue)	

Step 5: Conduct Eligibility Criteria #5-8 Screenings

Table 5A. Eligibility Criteria 5-8	
Landowner and Operation and Maintenance Responsible Party Support. Project identifies and demonstrates commitment from a qualified and willing operation and maintenance responsible party. Project demonstrates landowner support for the proposed project phase. (Answer must be YES to proceed)	Yes ◯ No ◯
Budget. Project budget includes ineligible expenses. (Answer must be NO to proceed)	Yes ◯ No ◯
Leveraging. Proposed leveraging meets required leveraging levels (if applicable), meets the definition of leveraging, and comes from eligible sources (Answer must be YES or N/A to proceed)	Yes ◯ No ◯ N/A ◯
Funding Program Specific Eligibility. Project meets additional funding program eligibility requirements*. Please list applicable funding program below: (Answer must be YES to proceed) *If Water Quality Restoration Formula Grant, complete Step 6 below	Yes ◯ No ◯

Step 6: Screening Projects on Agricultural Lands (Water Quality Restoration Formula Grants Only)

For Water Quality Restoration Formula Grant projects, please complete the following information as part of your Funding Program Specific Eligibility Screening (Criteria 8). Please note this must be completed for all projects located on agricultural lands regardless of project type. See CWIP Project Types Table for eligible project types.

Table 6A. Screening Projects on Agricultural Lands	
1. Is the proposed project located on a jurisdictional farm operation[17]? Complete a preliminary review to	◯ **Yes** - Proceed to next question below.

[17] Jurisdictional farm operations are required to meet Vermont's Required Agricultural Practices (RAPs).

determine if it is a jurisdictional farm operation, and any case that requires consultation with AAFM will occur via the farm determination process. Please note this form must be submitted by the farm operation/landowner seeking the determination.	◯ **No**[18] - There is no additional requirements related to agricultural review for these projects.
2. Is the proposed project an agricultural project? Examples of agricultural projects include but are not limited to Production Area Practices – (e.g. Waste Storage Facilities, Heavy Use Area, Diversion) Fence, Livestock Exclusion, Filter Strip, Cover Crop, Reduced Tillage, Manure Injection, Rotational Grazing. Please note this is not an exhaustive list of all agricultural practices.	◯ **Yes** - Agricultural Projects on jurisdictional farms are not an eligible project type. You can provide a referral to an applicable state or federal agricultural assistance program, or a local organization. ◯ **No** - The natural resource, innovative, or other project type will require an agricultural project review and approval from the Vermont Agency of Agriculture, Food and Markets (VAAFM) to ensure a consistent approach on farms statewide that follows rules, regulations, and laws in place. Please follow Steps 1 & 2 below. **Step 1** - Please submit a detailed description of the project, project site, project details, landowner, farm operation, and any other relevant information to VAAFM at AGR.WaterQuality@Vermont.gov . **Step 2** - Once you complete this Agricultural Project Review, please allow 30 days for a response. Once that response has been received, please include a summary of the response in the next section.

Agricultural Project Review Status & Summary:	
Check as Applicable	**Status**
☐	Submitted/ Pending
☐	Approved
☐	Denied

[18] Note CWIP's Agricultural Pollution Prevention project type eligibility is limited to land where owner or operator is not a jurisdictional farm (i.e., not required to meet the Required Agricultural Practices (RAPs)). As such, projects that meet the definition of the Agricultural Pollution Prevention project type in the Appendix B. Project Types Table are not subject to review by VAAFM.

Please include a summary of the response here:

Please note that it is expected that all projects with the status "submitted/pending" will be "approved" prior to a project approval for funding.

Budget – Giddings Brook

Item	Requested Amt
Personnel	$3,150
Plant Material	$29,664
Planting	$34,670
Project Total	$67,484

Budget Justification

Personnel: ~45 hours at $70/hr for landowner coordination, purchasing materials, etc.

Plant material: $8/stem average for 400 stems/acre. 9.27 acres * 400 stems/acre * $8/stem = $29,664.

Planting: Planting crew + spot spraying

- Planting crew: $6/stem for planting from external contractor. $6/stem * 3,708 stems * 10% contingency = $24,473.
- Spot spraying: $2.75/stem to have an external contractor spray the site for invasives. $2.75/stem * 3,708 stems = $10,197.

Proposed Project Schedule – Giddings Brook

February 2025 – Order stems

April 2025 – Receive stems

May 2025 – Plant stems and spot spray

August 2025 – Site maintenance

October 2025 – Site maintenance

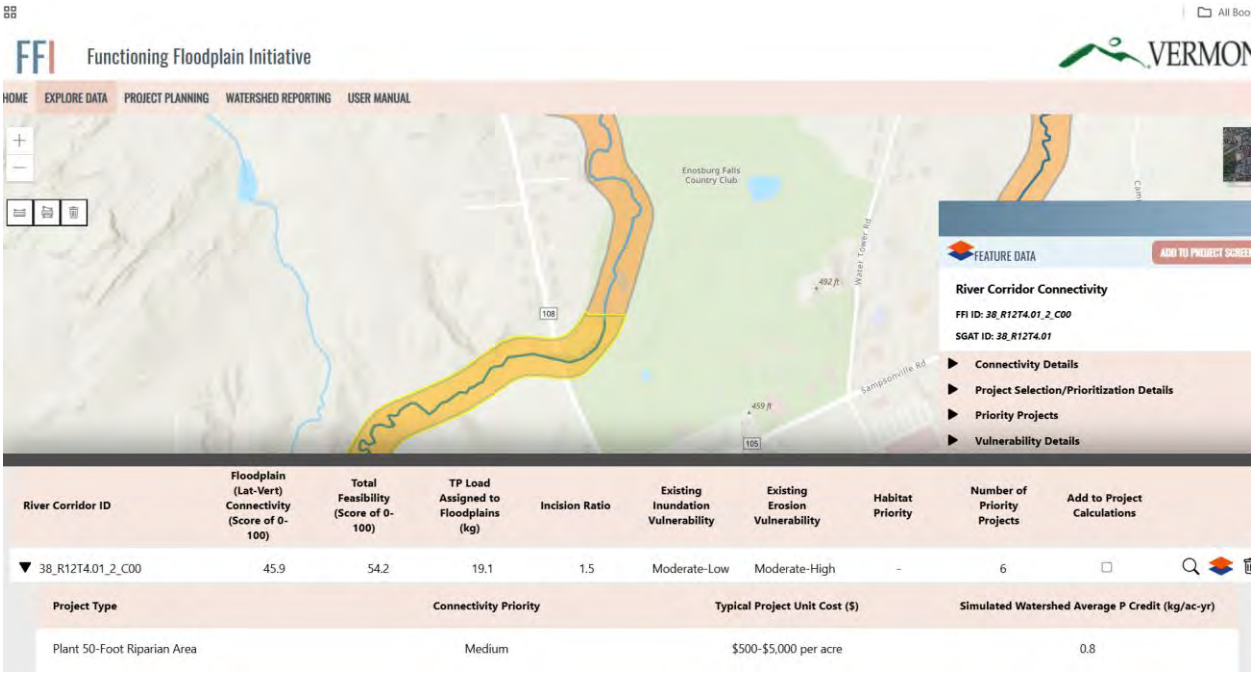
July 2026 – Site maintenance

P Reduction Calculations – Giddings Brook

0.8 kg/ac-yr * 9.27 ac = 7.416 kg/yr

7.416 kg/yr + 16.7 kg/yr = 24.116 **kg/yr**

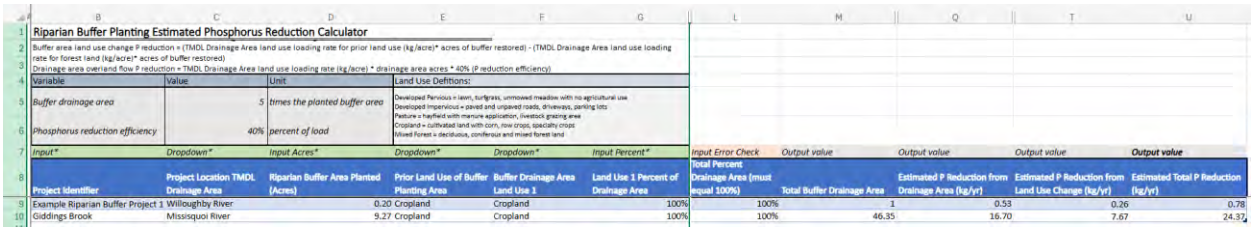
FFI Tool: 0.8 kg/ac-yr



River Corridor ID	Floodplain (Lat-Vert) Connectivity (Score of 0-100)	Total Feasibility (Score of 0-100)	TP Load Assigned to Floodplains (kg)	Incision Ratio	Existing Inundation Vulnerability	Existing Erosion Vulnerability	Habitat Priority	Number of Priority Projects	Add to Project Calculations
38_R12T4.01_2_C00	45.9	54.2	19.1	1.5	Moderate-Low	Moderate-High	-	6	☐

Project Type	Connectivity Priority	Typical Project Unit Cost ($)	Simulated Watershed Average P Credit (kg/ac-yr)
Plant 50-Foot Riparian Area	Medium	$500-$5,000 per acre	0.8

Interim Phosphorous Reduction Calculator Tool: 16.7 kg/yr (Estimated P Reduction from Drainage Area)



Riparian Buffer Planting Estimated Phosphorus Reduction Calculator

Buffer area land use change P reduction = (TMDL Drainage Area land use loading rate for prior land use (kg/acre)* acres of buffer restored) - (TMDL Drainage Area land use loading rate for forest land (kg/acre)* acres of buffer restored)

Drainage area overland flow P reduction = TMDL Drainage Area land use loading rate (kg/acre) * drainage area acres * 40% (P reduction efficiency)

Variable	Value	Unit	Land Use Defitions:
Buffer drainage area	5	times the planted buffer area	Developed Pervious = lawn, turfgrass, unmowed meadow with no agricultural use Developed Impervious = paved and unpaved roads, driveways, parking lots
Phosphorus reduction efficiency	40%	percent of load	Pasture = hayfield with manure application, livestock grazing area Cropland = cultivated land with corn, row crops, specialty crops Mixed Forest = deciduous, coniferous and mixed forest land

Project Identifier	Project Location TMDL Drainage Area	Riparian Buffer Area Planted (Acres)	Prior Land Use of Buffer Planting Area	Buffer Drainage Area Land Use 1	Land Use 1 Percent of Drainage Area	Total Percent Drainage Area (must equal 100%)	Total Buffer Drainage Area	Estimated P Reduction from Drainage Area (kg/yr)	Estimated P Reduction from Land Use Change (kg/yr)	Estimated Total P Reduction (kg/yr)
Input*	Dropdown*	Input Acres*	Dropdown*	Dropdown*	Input Percent*	Input Error Check	Output value	Output value	Output value	Output value
Example Riparian Buffer Project 1	Willoughby River	0.20	Cropland	Cropland	100%	100%	1	0.53	0.26	0.78
Giddings Brook	Missisquoi River	9.27	Cropland	Cropland	100%	100%	46.35	16.70	7.67	24.37

Giddings Brook Planting Area

Vermont Agency of Natural Resources

vermont.gov

LEGEND

- Parcels (standardized)
- Roads
  - Interstate
  - US Highway; 1
  - State Highway
  - Town Highway (Class 1)
  - Town Highway (Class 2,3)
  - Town Highway (Class 4)
  - State Forest Trail
  - National Forest Trail
  - Legal Trail
  - Private Road/Driveway
  - Proposed Roads
- Town Boundary

NOTES

Map created using ANR's Natural Resources Atlas

247.0 0 124.00 247.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 406 Ft. 1cm = 49 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

FRANKLIN COUNTY NATURAL RESOURCES CONSERVATION DISTRICT

Orenna Brand <orenna@franklincountynrcd.org>

Re: Discussion about Tree Plantings?

Larry Gervais <larry@gervaisfarms.com> Mon, Jan 20, 2025 at 4:46 PM
To: Lauren Weston <lauren@franklincountynrcd.org>
Cc: Dorothy Kinney-Landis <dorothy@franklincountynrcd.org>, Orenna Brand <orenna@franklincountynrcd.org>

Hi Lauren,
Sorry for the late response.
The property on hayes farm road is owned by Gervais Family Farm No.2 LLC.
Gervais Family Farm gives permission to Franklin County NRCD to carry out tree plantings on 2 of our properties. First property is located on Hayes Farm Road (formerly Pat Hayes Farm) with two tree planting sites. The second property location is located along Giddings Brook across from the Enosburg golf course. See maps for specific areas.
Thanks,
Larry Gervais

Get Outlook for iOS

From: Lauren Weston <lauren@franklincountynrcd.org>
Sent: Monday, January 20, 2025 8:21:12 AM
To: Larry Gervais <larry@gervaisfarms.com>
Cc: Dorothy Kinney-Landis <dorothy@franklincountynrcd.org>; Orenna Brand <orenna@franklincountynrcd.org>
[Quoted text hidden]

[Quoted text hidden]

12278 TROUT BROOK RESERVOIR DAM REMOVAL

Basic Eligibility	Yes
Applicant Name	Lauren Weston
Applicant Organization	Franklin County Natural Resources Conservation District
Applicant Email	lauren@franklincountynrcd.org
Applicant telephone	+1 (802) 582-3133
Project ID from WPD	12278
Description of Project	Trout Brook Reservoir Dam Removal - Implementation
Project Latitude	44.93743
Project Longitude	-72.78176
Project Phase	Implementation
Annual P Reduction KG	47.1
Any one time P reduction KG	5232.00
Total Cost of Proposed Phase	800000
Amount of Funding Requested (Proposed Phase)	$688,946.00
Non DEC Funding as part of Total Project Costs (a	$116,000.00
Total Project Costs (All Phases)	$900,000.00
KG/$ Current Phase	
KG/$ Overall	
Design Life	10
Adjusted Design Life	
Estimated Annual O&M cost total	2000 - required monitoring for permits
Estimated Annual O&M Cost per KG	
Conformance with Tactical Basin Plan TBP	10
Number of Co-benefit Areas	3
DEC Screening Form Uploaded	Yes
Map of Project Area Uploaded	Yes
Project Budget Uploaded	Yes
Project Schedule Uploaded	Yes
Landowner Support uploaded	Yes
Phosphorus Calculator Tool uploaded	Yes
Created	01/20/25 11:49 AM
Using_As_Match	Yes
Cultural Resource Review	Yes

APPENDIX A. CLEAN WATER INITIATIVE PROGRAM - PROJECT ELIGIBILITY SCREENING FORM

This fillable PDF form is designed to assist with project review by systematically walking through all eligibility criteria. It should be completed for all projects seeking funding for 30% + design or implementation work. It may be applied to projects seeking funding for assessment or development if helpful for determining their alignment with eligibility criteria 2, 3, 6, and 8.

Step 1: Conduct Eligibility Criteria #1 Screening: Project Purpose

Table 1A: Project Purpose	
From the drop-down list to the right, please select which of the four objectives of Vermont's Surface Water Management Strategy this project addresses. If multiple, please list below:	Minimize flood and fluvial erosion hazards

Step 2: Conduct Eligibility Criteria #2 Screening: Project Types and Standards

Table 2A: Project Types and Standards	
Please select the most representative project type from the drop-down list to the right.[1,2] If multiple BMPs are included in the project, please list below: This is an assessment/identification project.	None (not eligible for CWIP funding)
Is the project type an eligible project type for the funding program you are applying to as listed in column B of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Does the project meet the project type definitions and minimum standards as provided in column C of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Will the project result in the standard performance measures, milestones, and deliverables as defined by project type in columns D-F of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Is the project listed as an ineligible project or activity in the CWIP Funding Policy? If Yes, please explain below how project meets the allowable exceptions within the CWIP Funding Policy. (Answer must be NO to proceed, unless reasonable justification is provided above)	Yes ◯ No ◯

Step 3: Conduct Eligibility Criteria #3 Screening: Watershed Projects Database

Verify project has been recorded in the Watershed Project Database (WPD). Each project must have a Watershed Project Database number specific to the proposed project phase (for example,

[1] Note that Road/Stormwater Gully project-types must not otherwise be considered intermittent or perennial streams by the DEC Rivers Program and therefore project proponent must show documentation of this determination in order to select this project type.

[2] One project may include multiple best management practices (BMPs) that cross "project types." For example, a single project may include both stormwater and lake shoreland BMPs. Proponents should use their best judgement in selecting the most representative project type for the purposes of eligibility screening and reporting.

a final design will have a different WPD-ID from a preliminary design even if for the same project). If the project, or the specific phase, is not yet in the Watershed Project Database, follow directions provided in the CWIP Funding Policy to secure a WPD-ID. Please see CWIP Funding Policy for more information on the WPD-ID.

Table 3A. WPD-ID	
Watershed Project Database ID number assigned	12355
Watershed Project Database Project Name	Montgomery Flood Resilience Project Development

Step 4: Conduct Eligibility Criteria #4 Screening: Natural Resource Impacts[3]

Agency of Natural Resources (ANR) permit screening for natural resource impacts includes 1) an initial desktop review to identify which ANR permitting programs should be contacted, 2) a review by the relevant ANR permitting staff, and 3) a response summary from the project proponent addressing any permitting staff concerns. [4]

1) **Table 4. Natural Resource Impacts** facilitates a high-level desktop review of the most likely ANR permits to apply to clean water projects. Project proponents should answer all the questions to identify likely permit needs. [5] Please note that "project site" may include both the active restoration location as well as any additional impact footprint related to staging, site access, or storage of waste or disposed materials.
2) If responses to the **Table 4. Natural Resource Impacts** desktop review trigger a permitting staff consultation, **Table 4** provides appropriate contact information.
    a. Proponents should send the identified permitting staff the following:
        i. The watersheds project database identification number (WPD-ID) (if available),
        ii. Project location (GPS coordinates)
        iii. Summary of proposed scope of work, and
        iv. Any other relevant information they request that will be utilized in their review.
    b. **Proponents should clarify they are seeking permitting staff input on potential permitting needs, permit-ability of proposed scope of work, and other design considerations but they are NOT seeking a formal permit determination.**
    c. Project proponents must attempt to communicate with the permitting staff and provide them with at least thirty days to review the project and provide a

[3] Easements and Riparian Buffer Plantings are excluded from this eligibility requirement/step.

[4] In cases where this screening may have already occurred in a prior project phase, project proponents may supply attachments or links to relevant permit needs assessment documents in place of completing Table 4.

[5] Entities selected for funding are expected to perform due diligence to ensure all applicable permits (including non-ANR state, local, and federal permits) are discovered and secured prior to implementation. The ANR Permit Navigator and an Environmental Compliance Division Community Assistance Specialist can help confirm ANR permitting needs for any projects once selected for funding.

response. Project proponents are encouraged to perform this screening during a project development phase as opposed to during a project solicitation round to allow for more time for feedback. Permitting feedback may be up to one year old.

3) Proponents should summarize permitting staff feedback and how the proposed scope of work will address this at the bottom of **Table 4**. Specifically, please include:
   a. Which permits or permit amendment are needed or might be needed? [6]
   b. What type might be needed? (e.g., a general or individual permit[7])?
   c. What concerns were voiced by permitting staff?
   d. How will the proposed scope of work address these concerns?[8]

Table 4A: Natural Resource Impacts		
I. Act 250 Permits		
1. Have any Act 250 (Vermont's Land Use and Development Control Law) Permits been issued in the project site's parcel location?[9]	**Yes** ◯	**No** ◯
If ***yes***, please provide the permit number and list any water resource issues or natural resource issues found[10]: **PermitNumber:** **ResourceIssues:** _____ If ***yes***, use the Water Quality Project Screening Tool to identify the appropriate regulatory contact for an Act 250 consultation. **Regulatory Point of Contact Name/Position:**		
II. Lake and Shoreland		
1. Is the project site located within 250 feet of the mean water	**Yes** ◯	**No** ◯

[6] Occasionally permit staff may indicate they need a field visit or to see more completed designs prior to making a permit need determination.

[7] Design phase projects that require an individual wetlands permit must have the permit in hand at the close of the final design phase. Implementation phase projects must have the individual permit in hand to be eligible for funding.

[8] Examples could include planned design changes or inviting permitting staff to stakeholder meetings.

[9] An Act 250 Permit is required for certain categories of development, such as subdivisions of 10 lots or more, commercial projects on more than one acre or ten acres (depending on whether the town has permanent zoning and subdivision regulations), and any development above the elevation of 2,500 feet. The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located on an Act 250 parcel. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

[10] Note that Act 250 permit amendments may require more extensive review of project impacts to natural resources including wildlife habitat, significant natural communities, and riparian zones. Please consult with the Act 250 District Coordinator regarding the nature and scope of that review and what bearing it may have on your project design.

level (shoreline) of a lake or pond? [11]	
If ***yes***, you might need either a Shoreland Protection Act Permit or a Lake Encroachment Permit. Use the Water Quality Project Screening Tool to find the Lakes and Ponds Program contact for your project's region. **Regulatory Point of Contact Name/Position:**	
III. Rivers, River Corridors, and Flood Hazard Areas	
1. Is there any portion of the project site located within 100' of a river corridor and/or mapped Federal Emergency Management Agency (FEMA) flood hazard area[12]**?** (e.g. a stormwater pond's pipe draining into a river corridor area)? Any permanent excavation/filling or construction within a flood hazard area or river corridor may trigger regulatory requirements through municipal bylaws or through state authorities.	Yes ◯ No ◯
If ***yes***, you will need to speak with a Floodplain Manager. Use the Water Quality Project Screening Tool to find the Floodplain Manager for your project's region. **Regulatory Point of Contact Name/Position:**	
2. Is any portion of the project site within a perennial river or stream channel? [13]	Yes ◯ No ◯
If ***yes***, you will need to speak with a Stream Alteration Engineer. Use the Water Quality Project Screening Tool to find the Stream Alteration Engineer for your project's region. **Regulatory Point of Contact Name/Position:**	
IV. Wetland	

[11] The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located in the jurisdictional zone to trigger a Lakeshore permit. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

[12] FEMA mapped Flood Hazard Areas are not available statewide on the ANR Natural Resources Atlas. For projects located in Grand Isle, Franklin, Lamoille, Addison, Essex, Orleans, Caledonia, and Orange Counties, maps are available via the FEMA Flood Map Service Center: https://msc.fema.gov/portal/home. ANR Floodplain Managers are available to provide technical assistance if needed.

[13] Stream Alteration Permits regulate all activities that take place within perennial river and stream channels. Examples of regulated activities include streambank stabilization, dam removal, road improvements that encroach on streams, and bridge/culvert construction or repair. The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located in the jurisdictional zone to trigger a Stream Alteration permit. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

1. Does the Wetland Screening Tool[14] provide a result of wetlands likely, very likely, or present at the project site?	Yes ◯ No ◯
2. Does your project site involve land that is in or near an area that has any of the following characteristics: o Water is present – ponds, streams, springs, seeps, water filled depressions, soggy ground under foot, trees with shallow roots or water marks? o Wetland plants, such as cattails, ferns, sphagnum moss, willows, red maple, trees with roots growing along the ground surface, swollen trunk bases, or flat root bases when tipped over? o Wetland Soils – soil is dark over gray, gray/blue/green? Is there presence of rusty/red/dark streaks? Soil smells like rotten eggs, feels greasy, mushy or wet? Water fills holes within a few minutes of digging? (See Landowners Guide to Wetlands for additional information on identifying wetlands onsite.)	Yes ◯ No ◯ Not Sure ◯
If you answered ***yes*** or ***not sure*** to either of the above questions, you will need to contact your District Wetlands Ecologist using the Wetland Inquiry Form. The District Wetlands Ecologist can help determine the approximate locations of wetlands and whether you need to hire a Wetland Consultant to conduct a wetland delineation. Alternatively, if you answered ***yes*** or ***not sure*** to either of the above questions, you can simply budget for a Wetland Consultant in the proposed scope of work. Any activity within a Class I or II wetland or wetland buffer zone (minimum of 100 feet and 50 feet respectively) which is not exempt or considered an "allowed use" under the Vermont Wetland Rules requires a permit. All permits must go through review and public notice process, which takes at minimum 6 weeks for a General Permit and 5 months for an Individual Permit. **Regulatory Point of Contact Name/Position:**	
1. Is your project a Wetland Restoration project type?	Yes ◯ No ◯
If you answered yes, under the Vermont Wetland Rules you will need an "allowed use" determination from the DEC Wetlands Program. Contact your District Wetlands Ecologist using the Wetland Inquiry Form. **Regulatory Point of Contact Name/Position:**	
V. Fish and Wildlife	
State law protects endangered and threatened species. No person may take or possess such species without a Threatened & Endangered Species Takings permit. 1. **Does your project involve cutting down trees larger than 5 inches in diameter in any of the following towns?** Addison, Arlington, Benson, Brandon, Bridport, Bristol, Charlotte, Cornwall, Danby, Dorset, Fair Haven, Ferrisburgh, Hinesburg, Manchester, Middlebury, Monkton, New Haven, Orwell, Panton, Pawlet, Pittsford, Rupert, Salisbury, Sandgate, Shoreham, Starksboro, St. George, Sudbury, Sunderland, Vergennes, Waltham, West Haven, Weybridge, Whiting	Yes ◯ No ◯

[14] To view the Wetland Screening Tool introduction video, see https://youtu.be/6lv5en0AB1o

2. Is the project site within 1 mile of a mapped[15] Significant Natural Community or Rare, Threatened, or Endangered Species?	Yes ◯ No ◯
If *yes* to either of the above questions, connect with the VT Fish and Wildlife department (everett.marshall@vermont.gov 802-371-7333) to discuss your project and any necessary permitting. **Regulatory Point of Contact Name/Position:**	
VI. Stormwater	
1. Will the project disturb more than an acre of land during construction, add or redevelop impervious surface, create new development or otherwise require a Stormwater permit?	Yes ◯ No ◯
If *yes*, forward to the appropriate Stormwater specialist to ensure necessary permitting. Use the Water Quality Project Screening Tool to find the Stormwater specialist for your project's region. **Regulatory Point of Contact Name/Position:**	
VII. Solid Waste	
2. Will you be creating any debris (including construction and demolition waste, stumps, brush, untreated wood, concrete, masonry, and mortar) with your project that you intend to bury on site? [16]	Yes ◯ No ◯
If yes, connect with the Waste Management & Prevention Division (dennis.fekert@vermont.gov 802-522-0195) to discuss your project and any necessary permitting. **Regulatory Point of Contact Name/Position:**	
Provide below or attach a narrative summary of Table 4 findings. Please include: a. Which permits or permit amendment are needed or might be needed? b. What type might be needed? (e.g. a general or individual permit)? c. What concerns were voiced by permitting staff? d. How will the proposed scope of work address these concerns?	
Is the project, as proposed, reasonably considered permit-able by all applicable	Yes ◯ No ◯

[15] Find both of these layers on the ANR Atlas under Atlas Layers/Fish and Wildlife. Use the Measurement tool to 1) Plot Coordinates for your project 2) select the coordinates from the left panel 3) select the Radius Tool 4) click on your project location 5) Indicate 1 mile distance 6) look for overlap with either of these mapped layers.

[16] If your project will result in the transfer and disposal of debris (including construction and demolition waste, stumps, brush, untreated wood, concrete, masonry and mortar), you do not need a permit from this office as long as you hire a licensed solid waste hauler and bring the material to a certified facility.

ANR permitting programs? (Answer must be Yes to continue)	

Step 5: Conduct Eligibility Criteria #5-8 Screenings

Table 5A. Eligibility Criteria 5-8	
Landowner and Operation and Maintenance Responsible Party Support. Project identifies and demonstrates commitment from a qualified and willing operation and maintenance responsible party. Project demonstrates landowner support for the proposed project phase. (Answer must be YES to proceed)	Yes ◯ No ◯
Budget. Project budget includes ineligible expenses. (Answer must be NO to proceed)	Yes ◯ No ◯
Leveraging. Proposed leveraging meets required leveraging levels (if applicable), meets the definition of leveraging, and comes from eligible sources (Answer must be YES or N/A to proceed)	Yes ◯ No ◯ N/A ◯
Funding Program Specific Eligibility. Project meets additional funding program eligibility requirements*. Please list applicable funding program below: (Answer must be YES to proceed) *If Water Quality Restoration Formula Grant, complete Step 6 below	Yes ◯ No ◯

Step 6: Screening Projects on Agricultural Lands (Water Quality Restoration Formula Grants Only)

For Water Quality Restoration Formula Grant projects, please complete the following information as part of your Funding Program Specific Eligibility Screening (Criteria 8). Please note this must be completed for all projects located on agricultural lands regardless of project type. See CWIP Project Types Table for eligible project types.

Table 6A. Screening Projects on Agricultural Lands	
1. Is the proposed project located on a jurisdictional farm operation[17]? Complete a preliminary review to	◯ **Yes** - Proceed to next question below.

[17] Jurisdictional farm operations are required to meet Vermont's Required Agricultural Practices (RAPs).

determine if it is a jurisdictional farm operation, and any case that requires consultation with AAFM will occur via the farm determination process. Please note this form must be submitted by the farm operation/landowner seeking the determination.	◯ **No**[18] - There is no additional requirements related to agricultural review for these projects.
2. Is the proposed project an agricultural project? Examples of agricultural projects include but are not limited to Production Area Practices – (e.g. Waste Storage Facilities, Heavy Use Area, Diversion) Fence, Livestock Exclusion, Filter Strip, Cover Crop, Reduced Tillage, Manure Injection, Rotational Grazing. Please note this is not an exhaustive list of all agricultural practices.	◯ **Yes** - Agricultural Projects on jurisdictional farms are not an eligible project type. You can provide a referral to an applicable state or federal agricultural assistance program, or a local organization. ◯ **No** - The natural resource, innovative, or other project type will require an agricultural project review and approval from the Vermont Agency of Agriculture, Food and Markets (VAAFM) to ensure a consistent approach on farms statewide that follows rules, regulations, and laws in place. Please follow Steps 1 & 2 below. **Step 1** - Please submit a detailed description of the project, project site, project details, landowner, farm operation, and any other relevant information to VAAFM at AGR.WaterQuality@Vermont.gov . **Step 2** - Once you complete this Agricultural Project Review, please allow 30 days for a response. Once that response has been received, please include a summary of the response in the next section.

Agricultural Project Review Status & Summary:	
Check as Applicable	**Status**
☐	Submitted/ Pending
☐	Approved
☐	Denied

[18] Note CWIP's Agricultural Pollution Prevention project type eligibility is limited to land where owner or operator is not a jurisdictional farm (i.e., not required to meet the Required Agricultural Practices (RAPs)). As such, projects that meet the definition of the Agricultural Pollution Prevention project type in the Appendix B. Project Types Table are not subject to review by VAAFM.

Please include a summary of the response here:

Please note that it is expected that all projects with the status "submitted/pending" will be "approved" prior to a project approval for funding.

Technical Memorandum

To:	Lauren Weston	**From:**	Alex Marcucci and Jessica Louisos
Company:	Franklin County Natural Resources Conservation District		**SLR International Corporation**
cc:		**Date:**	November 7, 2024
		Project No.	13528.00002

RE: Trout Brook Dam Removal
Anticipated Permits

The following permits are likely needed for the removal of Trout Brook Reservoir Dam. A site visit was conducted with many of the regulatory agencies on September 19, 2023 to gain initial feedback on the design and insight into the permitting process needed. Regulatory comments collected have been incorporated into the concept design.

Permit application are expected to be submitted Fall of 2024 and early winter 2025 to receive final permit applications in spring 2025.

US Army Corps of Engineers Vermont General Permit

The USACE reported during the September 2023 site visit that the project is likely to be covered under a general permit for this restoration activity. The permit will allow for fill associated with accessing the dam for removal and possible stabilization measures. The permit will also allow for dredging of accumulated sediment that is anticipated as part of the channel restoration. This permit may be triggered if dewatering the impoundment, even if no construction activities are proposed. Fill sites will also need to be reviewed.

Vermont Dam Safety Permit

The Vermont Dam Safety Section reported during the September 2023 visit that it is likely to issue a Dam Order for this project to remove the obsolete and breached dam that is creating an unnecessary public hazard. Dewatering of the impoundment is recommended and can be implemented at any time without a permit.

Vermont Stream Alteration Permit

A stream alteration permit is likely to be obtained, as the design is moving the channel toward dynamic equilibrium. Initial feedback from the Vermont River Scientist to restore the 100-foot wide river corridor has already been incorporated into the design. Email with Jaron Borg, River Management Engineer confirmed that the removal of the structure is generally in line with permit requirements.

Vermont Wetlands

The Vermont Wetlands Program reported during the September 2023 visit that it is likely to issue necessary approvals. The removal of the dam and restoration of the impoundment would need to be reviewed, but likely authorized as an allowed use not requiring a permit. Depending on the access to the project a permit may be necessary for where the access crosses wetland buffer not within the footprint of the restoration.

Vermont Public Water System

The Drinking Water and Groundwater Protection Division reported during the September 2023 site visit that the dam removal will need to be reviewed by the Division to determine what would be needed for construction activities. This would not need a permit unless there is alteration of the drinking water system. Lowering of the water main between Well #2 and the reservoir would require this permit.

Construction General Permit

This permit is needed because the project disturbs 1 acre or more above ordinary high water, which is expected based on disturbance for access and reed canary grass mitigation in the concept design. This is expected to be a low-risk project based on recent dam removal permitting.

Berkshire Zoning Permit

The Flood Hazard Area Regulations exempt the need for development review, but do need a zoning permit for removal of part or all of a building or other structure, however channel management is subject to conditional approval. This project will require flood hazard area review from the Town of Berkshire for the work that is located in the river corridor and the FEMA-mapped Special Flood Hazard Area (SFHA). Under the Berkshire 2019 Land Use & Development regulations, they require conditional use review for grading and excavation in a SFHA, as well as channel management activities located in or near the channel. The key review criteria to be able to demonstrate in any local permitting review is that flood heights and flood risk will not increase from the project. The removal of the dam and the sediment within the mapped river corridor will remove a potential future flood hazard and help restore habitat. The hydraulic modeling will be able to demonstrate that flood heights are not anticipated to increase on surrounding properties due to the project.

Through the lowering of flood levels with dam removal, we should be able to obtain a permit under the Flood Hazard Area Regulations. A site visit has occurred with Rebecca Pfeiffer, River Corridor & Floodplain Protection Manager at VTDEC who confirmed the permit approach.

The dam and therefore also the access to the dam is within the Source Water Protection Zone 1 for Well #2. Coordination and review from the state and Town will be required to make sure that the design is completed in accordance with acceptable practices. Once a design has been chosen, review of project will be necessary with the Town of Berkshire and state regulators to make sure that the dam removal design would be allowed within the source water protection plan.

Vermont Division of Historic Preservation

The Vermont Division of Historic Preservation will review this project for the Army Corps and is a confirmation process NOT a permit. It does require review and possibly additional assessment work.

An Archaeological Resource Assessment (ARA) has been completed and design plans will work to comply with the recommended design specifications per the ARA. A final sign off from the VDHP on the Final Design Plans will be required.

CWSP Project Budget

Franklin County Natural Resources Conservation District

Trout Brook Reservoir Dam Removal - Implementation

Personnel (Name, Title)	Tasks/Responsibilities	Hours	Hourly Rate	Salary Expense
Lauren Weston, District Manager	Procurement process, coordination with contractor and landowners, field visits, construction oversight, reporting	160.00	$75.00	$12,000.00
Natural Resources Planner(s)	Procurement process, coordination with contractor and landowners, field visits, construction oversight, reporting	80.00	$70.00	$5,600.00
Personnel Subtotal				**$17,600.00**

Anticipated Travel	Purpose	Miles	Mileage Rate	Travel Expense
Travel to Berkshire, VT	20 trips to site for project coordination and construction oversight	880.00	$0.70	$616.00
Travel Subtotal				**$616.00**

Contractual	Description/Use	# of Units	Unit Cost	Contract. Expense
Engineering Design Contractor	Bid Phase Services, Part Time Construction Oversight, Post-Construction Regulatory Compliance (three years)	1.00	$84,000.00	$84,000.00
Historic and Cultural Review	Construction Oversight	1.00	$10,000.00	$10,000.00
Construction Contractor	Construction - mobilization, dam removal, channel work, drinking water pipe protection, site restoration, 10% contingency	1.00	$576,730.00	$576,730.00
Contractual Subtotal		0		**$670,730.00**

Total Project Cost: **$688,946.00**

Project Schedule

Trout Brook Reservoir Dam Removal

1. Prepare Request for Bids + Bid Selection Process
   February – June 2025
2. Secure Permits
   February – July 2025
3. Construction – Earthwork
   July – October 2025
4. Site Restoration
   July 2025 – May 2026 (weather and planting stock dependent)
5. Post-Construction Regulatory Compliance
   2026, 2028, 2030 (required by US Army Corps of Engineers)
6. Reporting and Project Closeout
   October 2025 – June 2026 (if payment in advance for Engineer's work on US Army Corps of Engineers future monitoring can be paid in advance).

Total Phosphorus Removal Estimation
Trout Brook Dam Removal
Berkshire, VT

Non-TMDL	TP (kg)	Notes
Sediment in impoundment	5,232	One-time, non-TMDL, legacy sediment removal.

TMDL	TP (kg/yr)	Notes
Longitudinal connectivity due to dam removal	17.2	Annual removal estimated from Functioning Floodplain Initiaite (FFI) web application.
Upstream Later-Vertical Reconnection	9.5	Credit due to low incision ratio
Downstream Lateral-Vertical Reconnection	0.0	N/A for this site.
Storage	20.4	Annual storage credit year 2 and on. Year 1 storage credit 40.8 kg.
TOTAL	**47.1**	**Total Estimated TMDL P credit in kg/yr.**

103.6	**Total Estimated TMDL P credit in pounds per year.**

Estimated Phosphorus Credit for Stream Stability and Storage

SubUnit(s) IDs: 38_R14T5.04_PLG_C00, 38_R14T5.04

Town: BERKSHIRE

Projects Included: Plant Floodplain, Plant River Corridor, Plant 50-Foot Riparian Area, Lower Floodplain, Restore Channel Roughness and Wood, Remove Medium Run of River Dam

Stream Names: Trout Brook

Project Area (acres): 4.5

Stream Stability and Storage Credit Summary

	Year 1 Credit (kg)	Year 2+ Credit (kg/yr)	Estimated 15 Yr Lifespan Credit (kg)
Floodplain Connectivity (Lateral - Vertical)			
Stream Stability	9.5	9.5	142.5
Storage	40.8	20.4	326.8
Stream Connectivity (Longitudinal - Temporal)			
Stream Stability	17.2	17.2	258.0
TOTAL	67.5	47.1	727.3

Stream Stability Credit and Connectivity Details

Floodplain Connectivity (Lateral-Vertical)

River Corridor ID	Project Connectivity Credit Score	Existing Subunit Floodplain/Corridor Connectivity Score	Proposed Lateral Credit Score	Proposed Vertical Credit Score	Proposed Subunit Floodplain/Connectivity Score	Lateral P Reduction Credit (kg/yr)	Vertical P Reduction Credit (kg/yr)	Total P Reduction Credit (kg/yr)	Total P Reduction Credit (lb/yr)
38_R14T5.04_PLG_C00	6.1	53	3.4	0.1	59.1	2.2	7.3	9.5	20.9

Stream Connectivity (Longitudinal-Temporal)

Stream ID	Project Connectivity Credit Score	Existing Stream Segment Connectivity Score	Proposed Longitudinal Credit Score	Proposed Temporal Credit Score	Proposed Stream Segment Connectivity Score	Longitudinal P Reduction Credit (kg/yr)	Temporal P Reduction Credit (kg/yr)	Total Stream Connectivity P Credit (kg/yr)	Total Stream Connectivity P Credit (lb/yr)
38_R14T5.04	33.2	58	50	8	91.2	21.8	5.8	17.2	38

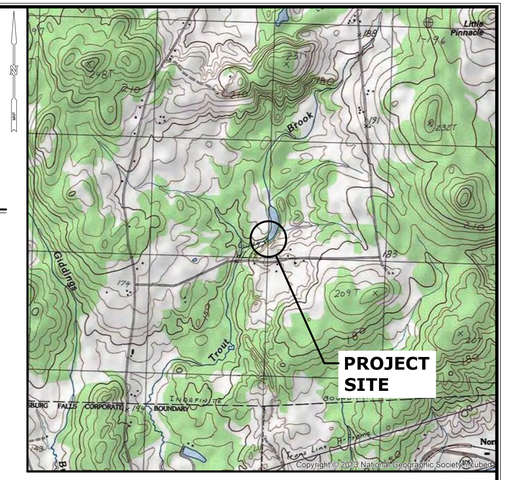
TROUT BROOK RESERVOIR DAM REMOVAL
(VT ID 19.02)

RESERVOIR ROAD
BERKSHIRE, VERMONT

PRELIMINARY DESIGN
JANUARY 10, 2025

PROJECT SITE VICINITY MAP:

0' 100' 200'
0 1/2" 1"
SCALE 1" = 200'



LOCATION MAP:

0' 1000' 2000'
0 1/2" 1"
SCALE 1" = 2000'

PREPARED FOR:

FRANKLIN COUNTY NATURAL RESOURCES CONSERVATION DISTRICT
50 SOUTH MAIN STREET, SUITE B-20
SAINT ALBANS, VT 05478

FRANKLIN COUNTY NATURAL RESOURCES CONSERVATION DISTRICT

PREPARED BY:

SLR

1 SOUTH MAIN STREET
WATERBURY, VT 05676
802.882.8335
SLRCONSULTING.COM

LIST OF DRAWINGS

NO.	NAME	TITLE
1	--	TITLE SHEET
2	EX-1	SITE PLAN - EXISTING CONDITIONS
3	PR-1	SITE PLAN - PROPOSED CONDITIONS
4	CON-1	SITE PLAN - CONSTRUCTION ACCESS, SEQUENCE & CONTROLS
5	RE-1	SITE RESTORATION PLAN
6	PRO-1	CHANNEL PROFILE AND DAM ELEVATION
7	XS-1	TYPICAL SECTIONS
8	XS-2	TYPICAL SECTIONS
9	XS-3	TYPICAL SECTIONS
10	XS-4	TYPICAL SECTIONS
11	DET-1	DETAILS I
12	DET-2	DETAILS II

811
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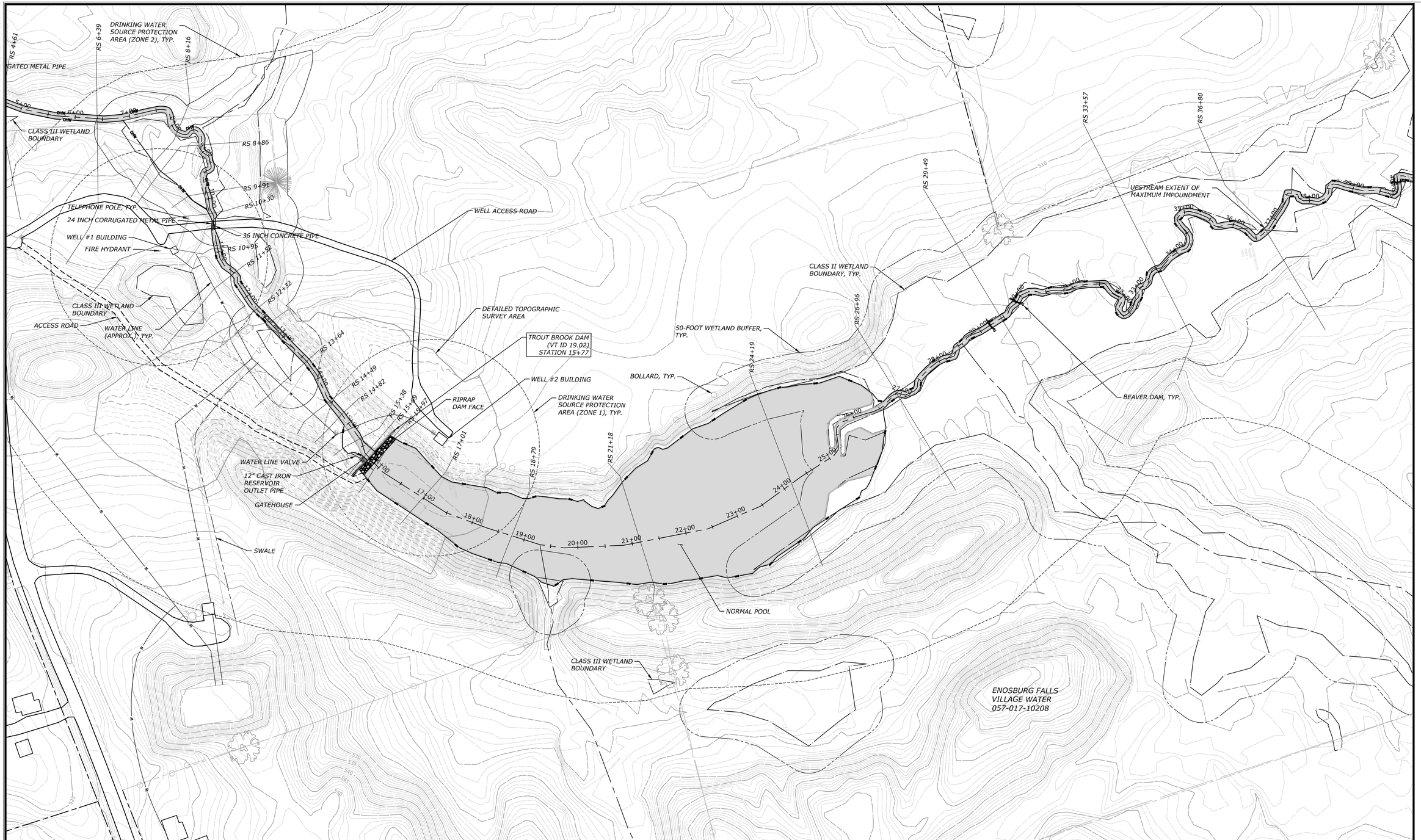

MAPPING NOTES:

1. SURVEY COLLECTED BY BUTTON LAND SURVEY OF SOUTH BURLINGTON, VERMONT, JUNE AND JULY 2024.
2. TOPOGRAPHIC CONTOURS ACQUIRED FROM VERMONT CENTER FOR GEOGRAPHICAL INFORMATION (VCGI). LIDAR ELEVATION SURFACES WERE GENERATED FROM A HIGH-RESOLUTION DATASET COVERING "WESTERN VT" (ADDISON, BENNINGTON & FRANKLIN COUNTIES) COLLECTED IN 2017 (0.7M RESOLUTION).
3. WETLAND DELINEATION INFORMATION FROM VHB OF SOUTH BURLINGTON, VT, COLLECTED 2022.
4. ALL ELEVATIONS ARE ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), AND MEASURED IN FEET. NORTH ARROW, BEARINGS AND COORDINATES ARE BASED UPON THE VERMONT STATE PLANE COORDINATE SYSTEM (NAD 83 FEET).
5. PROPERTY LINE INFORMATION OBTAINED FROM AVAILABLE 2022 GIS DATA FROM VCGI AND SHOWN AS APPROXIMATE.
6. BASE MAP SUPPLEMENTED USING AVAILABLE GIS SHAPEFILES, FIELD MEASUREMENTS, AND BY DIGITIZING SITE FEATURES USING AERIAL PHOTOGRAPHY.
7. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER FOR DETERMINATION.
8. ALL CONTRACTORS ARE ADVISED TO VISIT THE SITE TO CONFIRM CURRENT CONDITIONS PRIOR TO SUBMITTING BIDS.

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING EDGE OF ROAD
- APPROX. PROPERTY LINE
- ORDINARY HIGH WATER
- EDGE OF WATER
- EXISTING OVERHEAD ELECTRIC
- WETLAND BOUNDARY
- 50-FOOT WETLAND BUFFER

N

0' 40' 80'
0 1/2" 1"

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1 SOUTH MAIN STREET
MIDDLEBURY, VT 05576
802.382.8331
SLRCONSULTING.COM

DESCRIPTION	DATE	BY

PRELIMINARY DESIGN

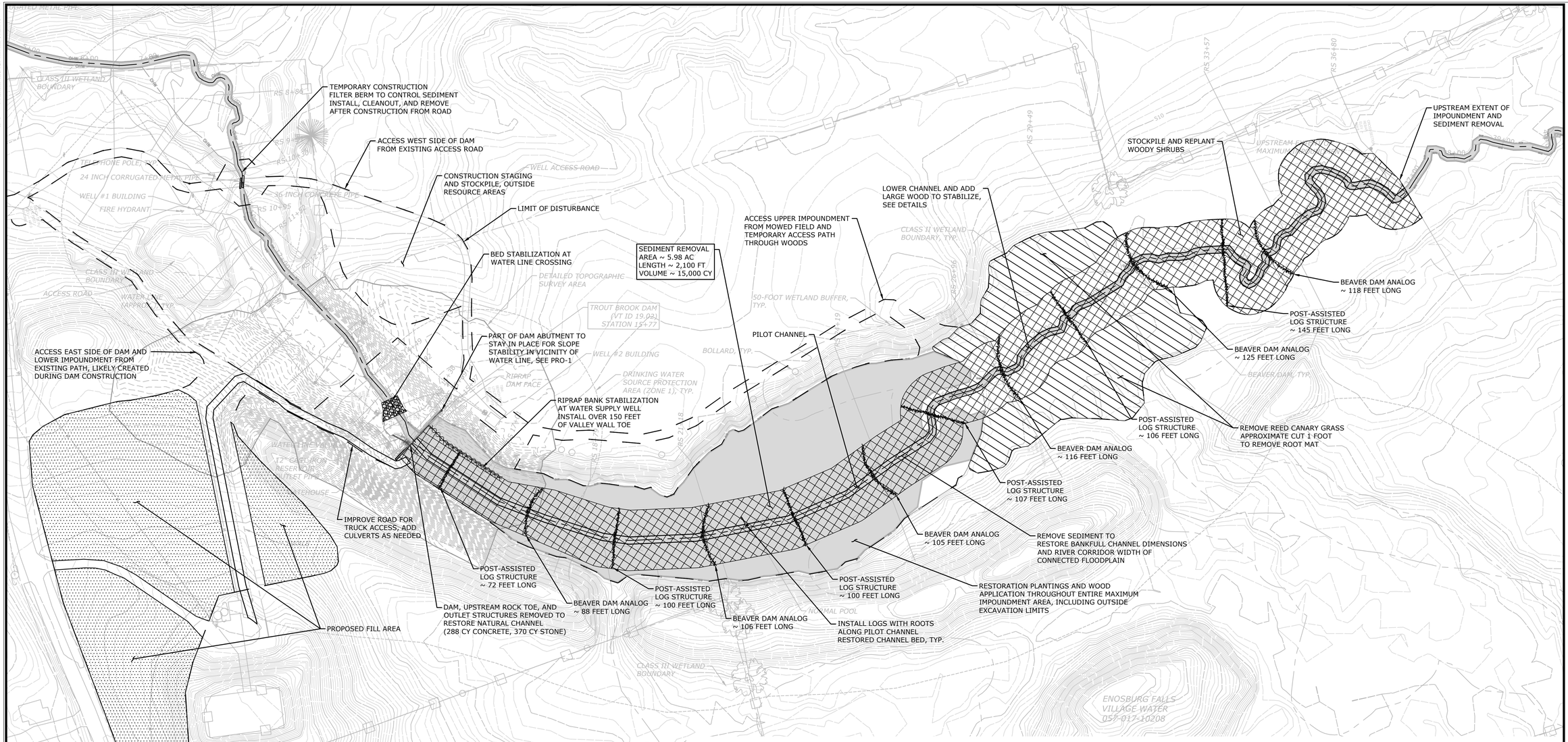
SITE PLAN - EXISTING CONDITIONS

TROUT BROOK DAM REMOVAL (VT ID 19.02)

RESERVOIR ROAD
BERKSHIRE, VERMONT

JCL	AOM	JCL
DESIGNED	DRAWN	CHECKED

SCALE	1"=80'
DATE	JANUARY 10, 2025
PROJECT NO.	13528.00002
SHEET NO.	2 OF 12
SHEET NAME	EX-1



SEDIMENT REMOVAL

INVASIVE SPECIES REMOVAL

PILOT CHANNEL

BED STABILIZATION

FILL AREA

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING EDGE OF ROAD
- PROPOSED RIPRAP BANK STABILIZATION
- APPROX. PROPERTY LINE
- EXISTING OHW
- PROPOSED OHW
- MEANDER BELT
- EDGE OF WATER
- EXISTING WATER LINE
- EXISTING OVERHEAD ELECTRIC
- WETLAND BOUNDARY
- 50-FOOT WETLAND BUFFER

SEDIMENT MANAGEMENT NOTES

1. EXISTING SEDIMENT VOLUME ACCUMULATED BEHIND DAM = 27,600 CY. EXPECTED MECHANICAL REMOVAL VOLUME = +/- 12,500 CY OVER A CHANNEL LENGTH OF 2,100 FEET. ADDITIONAL SEDIMENT REMOVAL VOLUME FOR INVASIVE SPECIES REMOVAL IS 2,400 CY. REMAINING SEDIMENT EXPECTED TO NATURALLY ERODE DOWNSTREAM OR STABILIZE IN PLACE.
2. PILOT CHANNEL DIMENSIONS WILL FOLLOW THE TYPICAL CROSS SECTION WITH CREATION OF A LOW FLOW CHANNEL AND LEAVING SEDIMENT TO FORM BARS WITHIN THE EXISTING CHANNEL.
3. STOCKPILE NATURAL STREAM GRAVEL, COBBLES, AND BOULDERS TO REBUILD CHANNEL.
4. STOCKPILE BOULDERS >12" AND <48" AND LOGS OR STUMPS FOR REUSE AS CHANNEL ROUGHNESS ELEMENTS WHEN RESTORING CHANNEL BED.
5. STOCKPILE WOODY SHRUBS AND KEEP MOIST IN SHADY LOCATION FOR REPLANTING.
6. TREES CLEARED OR LOGS ENCOUNTERED IN SEDIMENT TO BE REINSTALLED IN CHANNEL OR FLOODPLAIN.
7. LONG ARM EXCAVATOR RECOMMENDED TO LIMIT ACCESS PATH BUILDING ON SOFT SOILS.

GENERAL NOTES

1. THE PURPOSE OF THIS PROJECT IS TO REMOVE TROUT BROOK DAM IN BERKSHIRE, VERMONT.
2. THE LOCATION OF ALL EXISTING UTILITIES SHOULD BE CONFIRMED PRIOR TO BEGINNING CONSTRUCTION. CALL "DIG SAFE" AT 1-888-DIG-SAFE (344-7233). THE CONTRACTOR SHALL TAKE PRECAUTIONS NOT TO DISTURB EXISTING UTILITIES.
3. THE CONTRACTOR SHALL DESIGNATE A SUPERINTENDENT AT THE START OF CONSTRUCTION AND THE CONTRACTOR'S SUPERINTENDENT SHALL BE ON-SITE AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR AND HIS/HER JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR COMPLYING WITH THE JOB SPECIFICATIONS AND PERMIT REQUIREMENTS.
4. ALL STORAGE AND ACCESS ROUTES, PEDESTRIAN FENCES/BARRIERS, AND LIMITS OF CLEARING SHALL BE FLAGGED BY CONTRACTOR PRIOR TO CONSTRUCTION AND APPROVED BY PROJECT ENGINEER.
5. WORKING HOURS SHALL BE APPROVED BY PROJECT ENGINEER AND LANDOWNERS.
6. NO CONSTRUCTION VEHICLES SHALL BE STORED, SERVICED, WASHED OR FLUSHED IN A LOCATION WHERE LEAKS, SPILLAGE, WASTE MATERIALS, CLEANERS, OR WATERS WILL BE INTRODUCED OR FLOW INTO WETLANDS OR WATERCOURSES. AN EMERGENCY MANAGEMENT PLAN AND SPILL KIT WILL BE MAINTAINED ON SITE AT ALL TIMES. IN THE EVENT OF AN ACCIDENTAL RELEASE, IMMEDIATELY STOP CONSTRUCTION WORK, CONTAIN THE SPILL, AND NOTIFY THE TOWN, APPROPRIATE AUTHORITIES AND PROJECT ENGINEER. THE SPILL KIT MUST CONTAIN AT A MINIMUM A CONTAINMENT BOOM, STRAW OR OTHER ABSORBENT MATERIALS, AND BUCKETS.
7. STORAGE AND OR USE OF CHEMICALS, FUELS, OILS, GREASES, BITUMINOUS MATERIALS, SOLIDS, WASTE WASHINGS, AND CEMENT SHALL BE HANDLED APPROPRIATELY AS TO PREVENT LEACHING OR SURFACE RUNOFF INTO WETLANDS, WATERCOURSES, OR DRAINS. ALL APPROVED STORAGE FOR THESE MATERIALS MUST BE CONTAINED.
8. EQUIPMENT SHALL BE REMOVED FROM THE RIVER PRIOR TO REFUELING. NO REFUELING OF EQUIPMENT ALLOWED IN THE WATER.
9. ALL EQUIPMENT AND VEHICLES SHALL BE CLEANED PRIOR TO AND FOLLOWING CONSTRUCTION TO REDUCE THE POTENTIAL FOR SPREAD OF INVASIVE SPECIES AND SEDIMENT.
10. THE PROJECT SITE IS SUBJECT TO FLOODING. THE CONTRACTOR SHALL MONITOR WEATHER FORECASTS AND STABILIZE THE CONSTRUCTION SITE AND REMOVE EQUIPMENT FROM FLOOD PRONE AREAS. ALL EQUIPMENT TO BE STORED ON HIGH GROUND.
11. WORK SHOULD BE PERFORMED DURING LOW WATER.
12. THERE SHALL BE NO CLAIMS FOR EXTRA COMPENSATION DUE TO DELAYS IN WATER CONTROL ASSOCIATED WITH HIGH WATER LEVELS FROM NATURAL EVENTS SUCH AS FLOODS.
13. THE CONTRACTOR SHALL MAINTAIN ALL ROADWAYS, SIDEWALKS, AND WALKWAYS IN THE AREA FREE OF SOIL, MUD, AND CONSTRUCTION DEBRIS. CONSTRUCTION ENTRANCES MUST BE MAINTAINED AT EACH SITE ACCESS POINT. SEE PLANS AND DETAILS.
14. CONTRACTOR MUST COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL PERMITS THROUGHOUT DURATION OF PROJECT.
15. ALL CONCRETE AND REINFORCING STEEL IS TO BE REMOVED FROM RIVER AND DISPOSED OF OR RECYCLED OFF SITE.
16. PROPOSED LAYOUT, PROFILE, AND CROSS SECTIONS ARE TO BE STAKED BY THE CONTRACTOR AND REVIEWED BY THE PROJECT ENGINEER. FINAL DIMENSIONS WILL BE FINE-TUNED IN THE FIELD BY THE PROJECT ENGINEER.
17. BEDROCK REMOVAL IS NOT PROPOSED. DO NOT REMOVE BEDROCK WITHOUT DIRECTION OF PROJECT ENGINEER.
18. ANY MATERIAL EXPORTED OFF-SITE SHALL BE LEGALLY DISPOSED OF IN AN UPLAND LOCATION AT NO ADDITIONAL COST. THE CONTRACTOR IS RESPONSIBLE FOR FINDING A SUITABLE RECIPIENT OF THE MATERIAL, GAINING REGULATORY APPROVAL FOR EXPORTED MATERIAL PLACEMENT IF NEEDED, AND HAULING.
19. ALL AREAS SURROUNDING THE PROJECT SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED UPON COMPLETION OF CONSTRUCTION. THE RESTORATION OF THE SITE IS SUBJECT TO APPROVAL BY THE PROJECT ENGINEER AND LANDOWNER.
20. FOLLOWING COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL PARTICIPATE IN A FINAL SITE INSPECTION WITH PROJECT ENGINEER FOR THE PURPOSE OF VERIFYING THAT THE PROJECT HAS BEEN COMPLETED ACCORDING TO THE CONSTRUCTION PLANS AND THE TERMS AND CONDITIONS OF THE CONTRACT.

OPERATION AND MAINTENANCE NOTES

1. DAM REMOVALS ARE INTENDED TO RESTORE STREAM DYNAMIC EQUILIBRIUM TO ALLOW THE STREAM TO MEANDER OVER TIME. THE CHANNEL WILL MOVE IN THE FUTURE.
2. PLANTED VEGETATION IS TO BE MONITORED DURING THE GROWING SEASON FOR TWO YEARS TO EVALUATE A SUCCESSFUL VEGETATION ESTABLISHMENT OF 80% AERIAL COVERAGE.
3. ANY AREAS OF POOR VEGETATIVE COVER SHALL BE REPLANTED ACCORDINGLY.

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1 SOUTH MAIN STREET
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DESCRIPTION	DATE	BY
PRELIMINARY DESIGN		

SITE PLAN - PROPOSED CONDITIONS

TROUT BROOK DAM REMOVAL (VT ID 19.02)

RESERVOIR ROAD
BERKSHIRE, VERMONT

JCL	AOM	JCL
DESIGNED	DRAWN	CHECKED

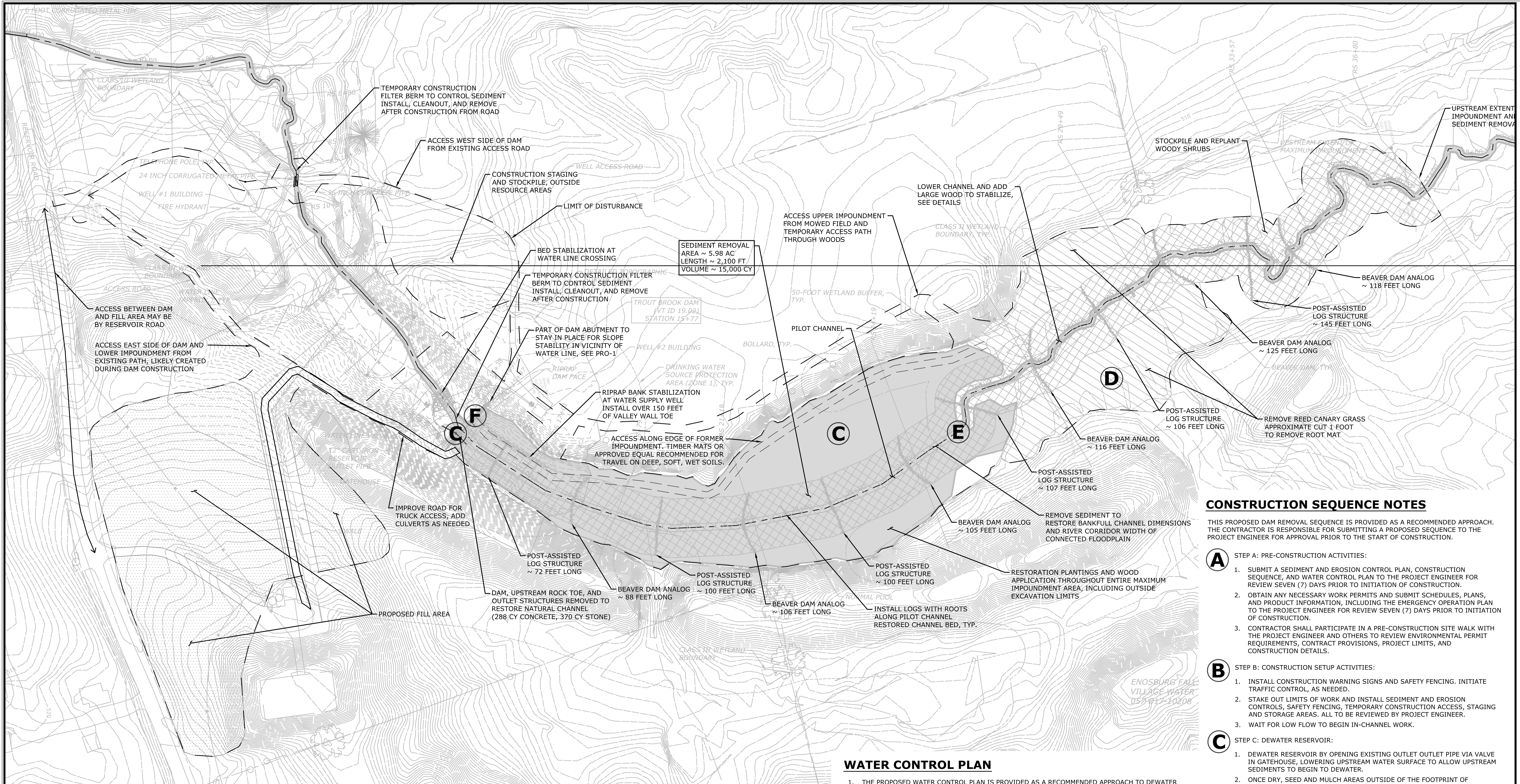
1"=80'
SCALE

JANUARY 10, 2025
DATE

13528.00002
PROJECT NO.

3 OF 12
SHEET NO.

PR-1
SHEET NAME



EROSION CONTROL NOTES

1. THE SEDIMENT AND EROSION CONTROL PRACTICES IMPLEMENTED AS PART OF THE PROJECT SHALL BE IMPLEMENTED AND MAINTAINED ACCORDING TO "THE LOW RISK SITE HANDBOOK FOR EROSION PROTECTION AND SEDIMENT CONTROL" GUIDANCE DOCUMENT FROM THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION, WHERE APPLICABLE IN CONSULTATION WITH PROJECT ENGINEER.
2. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
3. MARK LIMIT OF DISTURBANCE BOUNDARIES.
4. CLEARING OF NATIVE VEGETATION FOR CONSTRUCTION ACCESS SHOULD BE MINIMIZED.
5. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES. THE CONTRACTOR WILL VERIFY THE MAINTENANCE WEEKLY AND AFTER RAIN EVENTS AND REPORT TO PROJECT ENGINEER.
7. THE PROJECT ENGINEER IS TO BE NOTIFIED IMMEDIATELY IF EXCESSIVE SEDIMENT EROSION TAKES PLACE, IF SIGNIFICANT FINE GRAINED SEDIMENT IS ENCOUNTERED OR IF POTENTIALLY CONTAMINATED SEDIMENTS ARE ENCOUNTERED (OILY, DARK COLOR, CHEMICAL ODOR).
8. PERFORM WORK DURING LOW FLOW PERIODS. IF A LARGE FLOOD IS PREDICTED, STOP WORK, STABILIZE THE SITE AND REMOVE EQUIPMENT.
9. STOCKPILE AND STAGING LOCATIONS AS INDICATED ON THE PLANS AND AS APPROVED BY THE PROJECT ENGINEER, SHALL BE PLACED WITHIN THE LIMIT OF DISTURBANCE. WETLANDS SHALL BE PROTECTED AND REMAIN UNDISTURBED THROUGHOUT THE DURATION OF THE PROJECT.
10. NO DISTURBED EARTH WILL REMAIN EXPOSED FOR MORE THAN SEVEN (7) CONSECUTIVE DAYS WITHOUT APPLYING TEMPORARY OR PERMANENT STABILIZATION MEASURES.
11. EXPOSED AREAS SHALL BE SEEDED AND MULCHED OR PROTECTED WITH EROSION CONTROL MATTING WITHIN 48 HOURS OF ACHIEVING FINAL GRADE.
12. ANY DISTURBED SLOPES 2:1 OR STEEPER SHALL BE STABILIZED WITH EROSION CONTROL BLANKET PER DIRECTION OF PROJECT ENGINEER, SEE DETAIL.

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING EDGE OF ROAD
- APPROX. PROPERTY LINE
- ORDINARY HIGH WATER
- EDGE OF WATER
- EXISTING OVERHEAD ELECTRIC
- WETLAND BOUNDARY
- 50-FOOT WETLAND BUFFER
- EXISTING RIVER CHANNEL
- PILOT CHANNEL

WATER CONTROL PLAN

1. THE PROPOSED WATER CONTROL PLAN IS PROVIDED AS A RECOMMENDED APPROACH TO DEWATER THE WORK AREA. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING A PROPOSED WATER CONTROL PLAN TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION
2. BEGIN WORK DURING LOW WATER.
3. FILTER BERMS SHALL BE INSTALLED PRIOR TO IN-CHANNEL WORK AND MAINTAINED THROUGH END OF PROJECT.
4. AS MUCH WORK AS POSSIBLE TO BE COMPLETED IN THE DRY TO MINIMIZE RIVER CHANNEL DISTURBANCE.
5. INSTALL DEWATERING BASIN OR OTHER APPROVED DEWATERING DEVICE TO RECEIVE WET SEDIMENT IF NOT IMMEDIATELY REMOVED FROM THE SITE. NO PERMANENT DISTURBANCE SHOULD TAKE PLACE DUE TO DEWATERING BASIN PLACEMENT.
6. FLOW TO BE MAINTAINED IN A COMBINATION OF THE EXISTING AND PROPOSED CHANNELS DURING SEDIMENT REMOVAL.
7. COFFERDAMS MAY BE USED TO DIRECT WATER AWAY FROM CURRENT WORK AREAS. ALL COFFERDAMS NEED TO BE REMOVED AT END OF PROJECT.
8. REMOVE DEWATERING BASIN AND FILTER BERMS AND DISPOSE OF COLLECTED SEDIMENT IN LEGAL AREA OUTSIDE OF FLOODPLAIN OR WETLAND AREAS.
9. PUMPING IS NOT EXPECTED TO BE NECESSARY FOR THIS PROJECT. TEMPORARY ISOLATION BERMS WILL BE USED TO SEPARATE THE WORK FROM NORMAL LOW FLOW. SHOULD THE CONTRACTOR FEEL PUMPING IS BENEFICIAL, PRIOR APPROVAL WILL BE REQUIRED, AND PUMPING WILL BE PERFORMED AT THE CONTRACTORS EXPENSE. DIRTY WATER SHOULD BE DISCHARGED TO A DEWATERING DISCHARGE BASIN OR OTHER DEVICE APPROVED BY THE PROJECT ENGINEER.

TRAFFIC MANAGEMENT NOTES

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS.
2. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3. ALL CONSTRUCTION SIGNS SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
5. BARRICADE ACCESS POINTS WHEN NOT WORKING.
6. ACCESS MUST BE MAINTAINED TO THE TWO WELL BUILDINGS ONSITE AT ALL TIMES.

CONSTRUCTION SEQUENCE NOTES

THIS PROPOSED DAM REMOVAL SEQUENCE IS PROVIDED AS A RECOMMENDED APPROACH. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING A PROPOSED SEQUENCE TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION.

(A) STEP A: PRE-CONSTRUCTION ACTIVITIES:

1. SUBMIT A SEDIMENT AND EROSION CONTROL PLAN, CONSTRUCTION SEQUENCE, AND WATER CONTROL PLAN TO THE PROJECT ENGINEER FOR REVIEW SEVEN (7) DAYS PRIOR TO INITIATION OF CONSTRUCTION.
2. OBTAIN ANY NECESSARY WORK PERMITS AND SUBMIT SCHEDULES, PLANS, AND PRODUCT INFORMATION, INCLUDING THE EMERGENCY OPERATION PLAN TO THE PROJECT ENGINEER FOR REVIEW SEVEN (7) DAYS PRIOR TO INITIATION OF CONSTRUCTION.
3. CONTRACTOR SHALL PARTICIPATE IN A PRE-CONSTRUCTION SITE WALK WITH THE PROJECT ENGINEER AND OTHERS TO REVIEW ENVIRONMENTAL PERMIT REQUIREMENTS, CONTRACT PROVISIONS, PROJECT LIMITS, AND CONSTRUCTION DETAILS.

(B) STEP B: CONSTRUCTION SETUP ACTIVITIES:

1. INSTALL CONSTRUCTION WARNING SIGNS AND SAFETY FENCING. INITIATE TRAFFIC CONTROL, AS NEEDED.
2. STAKE OUT LIMITS OF WORK AND INSTALL SEDIMENT AND EROSION CONTROLS, SAFETY FENCING, TEMPORARY CONSTRUCTION ACCESS, STAGING AND STORAGE AREAS. ALL TO BE REVIEWED BY PROJECT ENGINEER.
3. WAIT FOR LOW FLOW TO BEGIN IN-CHANNEL WORK.

(C) STEP C: DEWATER RESERVOIR:

1. DEWATER RESERVOIR BY OPENING EXISTING OUTLET OUTLET PIPE VIA VALVE IN GATEHOUSE, LOWERING UPSTREAM WATER SURFACE TO ALLOW UPSTREAM SEDIMENTS TO BEGIN TO DEWATER.
2. ONCE DRY, SEED AND MULCH AREAS OUTSIDE OF THE FOOTPRINT OF EXCAVATION THAT WERE FORMERLY UNDERWATER IN THE RESERVOIR TO STABILIZE EXPOSED SEDIMENT.

(D) STEP D: INVASIVE SPECIES REMOVAL:

1. EXCAVATE REED CANARY GRASS AND UNDERLYING SOIL TO REMOVE PLANT RHIZOMES.
2. DISPOSE OF INVASIVE SPECIES AND SOIL IN APPROVED OFFSITE LOCATION.

(E) STEP E: SEDIMENT REMOVAL:

1. REMOVE SEDIMENT FROM FORMER IMPOUNDMENT. SEE SHEETS XS-1, XS-2, XS-3, AND XS-4 FOR CHANNEL DIMENSIONS.
2. STOCKPILE COBBLE AND GRAVEL MATERIAL TO SEED CHANNEL WITH AT COMPLETION OF EXCAVATION.
3. CREATE PILOT CHANNEL AND ADD STOCKPILED ROUGHNESS ELEMENTS.
4. INSTALL LARGE WOOD IN CHANNEL AND FLOODPLAIN. SEE SHEET XS-4.
5. PLANT STOCKPILED SHRUBS AND SEED AND MULCH FLOODPLAIN INCREMENTALLY AS AREAS OF EXCAVATION ARE COMPLETED.

(F) STEP F: DAM REMOVAL:

1. INCREMENTALLY LOWER DAM ALTERNATING WITH UPSTREAM SEDIMENT REMOVAL/CHANNEL RESTORATION.
2. REMOVE ALL DAM COMPONENTS AND RESHAPE BANKS TO TIE INTO UPSTREAM AND DOWNSTREAM BANKS, LEAVING A PORTION OF THE RIGHT DAM ABUTMENT FOR BANK STABILITY.

(G) STEP G: POST-CONSTRUCTION ACTIVITIES:

1. PERFORM SITE RECOVERY. REMOVE ALL ACCESS ROADS AND CONSTRUCTION ENTRANCES, AND STABILIZE AND RESTORE ALL DISTURBED AREAS. COMPLETE SITE RESTORATION. RESTORE TO ORIGINAL CONDITION, OR AS INDICATED ON THE PLANS. SEE SHEET RE-1.
2. COMPLETE POST-CONSTRUCTION SITE WALK WITH PROJECT ENGINEER.

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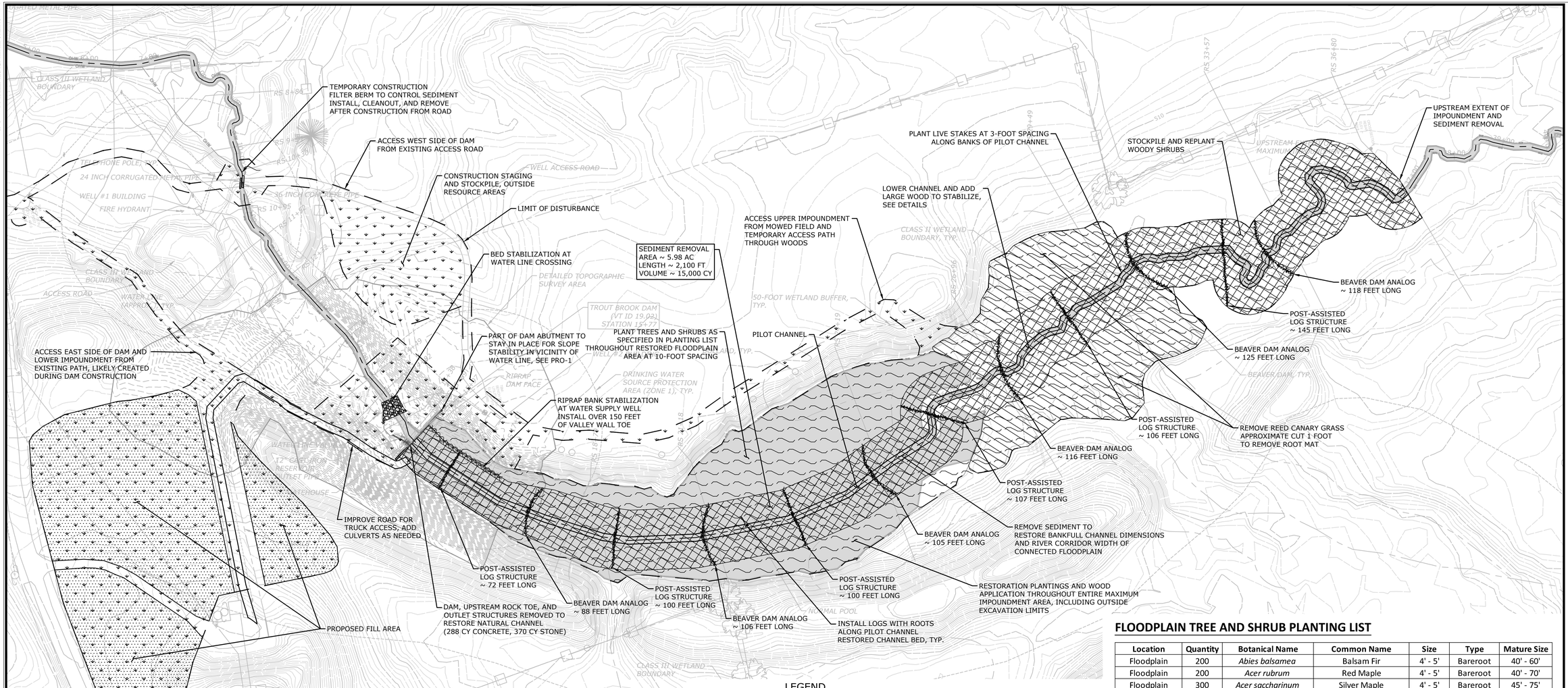
DESCRIPTION	DATE	BY

PRELIMINARY DESIGN

SITE PLAN - CONSTRUCTION ACCESS, SEQUENCE & CONTROLS
TROUT BROOK DAM REMOVAL (VT ID 19.02)
RESERVOIR ROAD
BERKSHIRE, VERMONT

JCL	AOM	JCL
DESIGNED	DRAWN	CHECKED

SCALE: 1"=80'
DATE: JANUARY 10, 2025
PROJECT NO.: 13528.00002
SHEET NO.: 4 OF 12
SHEET NAME: CON-1



LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING EDGE OF ROAD
- PROPOSED RIPRAP BANK STABILIZATION
- APPROX. PROPERTY LINE
- EXISTING OHW
- PROPOSED OHW
- EDGE OF WATER
- EXISTING WATER LINE
- EXISTING OVERHEAD ELECTRIC
- WETLAND BOUNDARY
- 50-FOOT WETLAND BUFFER
- SEDIMENT REMOVAL
- INVASIVE SPECIES REMOVAL
- PILOT CHANNEL
- BED STABILIZATION
- FILL AREA

	Species	Application Rate	Area	Estimated Quantity
Vermont Wet Meadow Mix	Switchgrass (*Panicum virgatum*), Virginia wild rye (*Elymus virginicus*), Red fescue (*Festuca rubra*), Fox sedge (*Carex vulpinoidea*), Woolgrass (*Scirpus cyperinus*), Green bulrush (*Scirpus atrovirens*), Nodding bur-marigold (*Bidens cernua*), Boneset (*Eupatorium perfoliatum*), Joe-pye weed (*Eupatoriadelphus maculatus*), soft rush (*Juncus effusus*), Sensitive fern (*Onoclea sensibilis*), Blue vervain (*Verbena hastata*), New England aster (*Symphyotrichum nova-angliaea*)	35 Lbs. / Acre	7.4 Acres	258 Lbs.
Vermont Native Wildflower & Grass Mix	Indiangrass (*Sorghastrum nutans*), Little bluestem (*Schizachyrium scoparium*), Virginia wild rye (*Elymus virginicus*), Side oats grama (*Bouteloua curtipendula*), wild bergamot (*Monarda fistulosa*), common milkweed (*Asclepias incarnata*), Black-eyed susan (*Rudbeckia hirta*),), Golden alexanders (*Zizia aurea*), Big bluestem (*Andropogon gerardii*), Ox-eye sunflower (*Heliopsis helianthoides*), Showy ticktrefoil (*Desmodium canadense*), Lanceleaf tickseed (*Coreopsis lanceolata*), Sneezeweed (*Helenium autumnale*), and Great St. Johnswort (*Hypericum pyramidatum*)	35 Lbs. / Acre	6.1 Acres	214 Lbs.

RESTORATION NOTES

1. SEED UPLAND AREAS WITH VERMONT NATIVE WILDFLOWER AND GRASS SEED MIX, FROM VERMONT WETLAND PLANT SUPPLY OR APPROVED EQUAL. SEED WETLAND AREAS WITH VERMONT WET MEADOW MIX, FROM VERMONT WETLAND SUPPLY OR APPROVED EQUAL. ALSO SEED WITH FAST GROWING ANNUALS SUCH AS WINTER RYE, BUCKWHEAT, OR OATS. APPLICATION RATE VARIES BY SPECIES CHOSEN.
2. APPLY 2 INCHES STRAW MULCH OVER ALL SEEDED AREAS. HAY IS NOT ALLOWED.
3. ANY DISTURBED SOIL SLOPES 2:1 OR STEEPER SHALL BE STABILIZED WITH EROSION CONTROL BLANKET PER DIRECTION OF PROJECT ENGINEER, SEE DETAIL.
4. REMOVE TEMPORARY ACCESS ROADS AND TEMPORARY STOCKPILE AREAS.
5. RESTORE ALL ACCESS ROUTES USED DURING CONSTRUCTION TO PRE-EXISTING OR IMPROVED CONDITIONS, FILL RUTS CREATED BY EQUIPMENT TO RESTORE GRADE AND REVEGETATE AS NEEDED.
6. CONTRACTOR IS RESPONSIBLE FOR REPAIRS TO SITE FEATURES IF DAMAGED BY CONSTRUCTION ACTIVITIES.
7. RESTORE ALL OTHER DISTURBED AREAS WITHIN THE PROJECT SITE SUCH AS TEMPORARY ACCESS ROADS, STOCKPILE AREAS, STAGING AREAS, AND SURPLUS DISPOSAL AREAS TO ORIGINAL OR IMPROVED CONDITION.
8. THE SITE IS TO BE FULLY SEEDED AND MULCHED FOLLOWING CONSTRUCTION.
9. ALL PLANT MATERIALS SHALL CARRY A GUARANTEE FOR A PERIOD OF TWO YEARS FROM THE DATE OF PROJECT COMPLETION. THIS WILL INCLUDE REPLACEMENT OF TREES AND SHRUBS FOUND TO BE DEFECTIVE INCLUDING DEATH AND UNSATISFACTORY GROWTH (MORE THAN 20% DIEBACK). THIS ALSO APPLIES TO AREAS OF POOR VEGETATION COVER WHERE SEED DID NOT ESTABLISH WHERE OVER-SEEDING WILL BE REQUIRED. ALL REPLACEMENTS SHALL BE OF THE SAME KIND AND SIZE OF PLANTS SPECIFIED IN THE PLANT LIST.

FLOODPLAIN TREE AND SHRUB PLANTING LIST

Location	Quantity	Botanical Name	Common Name	Size	Type	Mature Size
Floodplain	200	*Abies balsamea*	Balsam Fir	4' - 5'	Bareroot	40' - 60'
Floodplain	200	*Acer rubrum*	Red Maple	4' - 5'	Bareroot	40' - 70'
Floodplain	300	*Acer saccharinum*	Silver Maple	4' - 5'	Bareroot	45' - 75'
Floodplain	600	*Alnus incana spp.*	Speckled Alder	4' - 5'	Bareroot	6' - 15'
Floodplain	200	*Betula alleghaniensis*	Yellow Birch	4' - 5'	Bareroot	70' - 80'
Floodplain	500	*Cornus sericea*	Red Osier Dogwood	4' - 5'	Bareroot	4' - 10'
Floodplain	200	*Larix laricina*	Tamarack	4' - 5'	Bareroot	40' - 80'
Floodplain	200	*Picea rubens*	Red Spruce	4' - 5'	Bareroot	60' - 80'
Floodplain	500	*Sambucus nigra*	Black Elderberry	4' - 5'	Bareroot	5' - 12'
Channel Bank	400	*Cornus sericea*	Red Osier Dogwood	1" x 2'	Live Stake	4' - 10'
Channel Bank	400	*Cornus amomum*	Silky Dogwood	1" x 2'	Live Stake	6' - 10'
Channel Bank	600	*Salix spp.*	Shrub Willow	1" x 2'	Live Stake	10' - 15'

INVASIVE SPECIES HANDLING NOTES

1. REED CANARY GRASS (*PHALARIS ARUNDINACEA*) IS AN INVASIVE SPECIES COVERING MUCH OF THE FLOODPLAIN THAT SPREADS EASILY. THESE NOTES PROVIDE BEST MANAGEMENT PRACTICES FOR PREVENTING THE SPREAD OF INVASIVE SPECIES. ADDITIONAL INFORMATION ON HANDLING AND IDENTIFICATION OF INVASIVE SPECIES CAN BE FOUND AT WWW.VTINVASIVES.ORG.
2. LOCATE AND USE STAGING AREAS THAT ARE FREE OF INVASIVE SPECIES TO AVOID SPREADING SEEDS AND OTHER VIABLE PLANT PARTS.
3. PLAN WORK SEQUENCE SO CONSTRUCTION EQUIPMENT IS MOVED FROM AREAS NOT INFESTED BY INVASIVE SPECIES, MOVING INTO AREAS INFESTED WITH INVASIVE SPECIES WHENEVER POSSIBLE.
4. ALL EQUIPMENT, MACHINERY, AND HAND TOOLS USED IN AREAS WHERE INVASIVE PLANTS OCCUR SHOULD BE CLEANED OF ALL VISIBLE SOIL AND PLANT MATERIALS BEFORE LEAVING THE SITE OR MOVING TO AREAS NOT ALREADY INFESTED. CLEANING SHOULD OCCUR WITHIN THE AREA ALREADY INFESTED. ACCEPTABLE CLEANING METHODS INCLUDE:
   - 4.1. PORTABLE WASH STATION THAT CONTAINS RUNOFF FROM WASHED EQUIPMENT
   - 4.2. HIGH PRESSURE AIR
   - 4.3. BRUSH, BROOM, OR HAND TOOLS USED WITHOUT WATER.
5. EXCAVATED MATERIAL TAKEN FROM SITES THAT CONTAIN INVASIVE PLANTS CANNOT BE USED AWAY FROM THE SITE OF INFESTATION UNTIL ALL VIABLE PLANT MATERIAL IS RENDERED NONVIABLE.
6. EXPORT OF MATERIAL CONTAMINATED WITH REED CANARY GRASS CAN ONLY GO TO LOCATIONS WHERE REED CANARY GRASS IS PRESENT, OR CAN BE BURIED BELOW NON-CONTAMINATED SOILS TWO FEET DEEP, OR RENDERED NONVIABLE BY ANOTHER METHOD OUTLINED IN ITEM 8.
7. SOIL AND OTHER MATERIALS CONTAINING INVASIVE PLANT MATERIAL MUST BE COVERED DURING TRANSPORT.
8. INVASIVE SPECIES CAN BE RENDERED NONVIABLE BY THE FOLLOWING METHODS:
   - 8.1. BAGGING: PLANT MATERIAL MAY BE COLLECTED AND PUT INTO BLACK PLASTIC BAGS THEN PLACED IN THE SUN. AFTER THREE DAYS OR WHEN ALL PLANT MATERIAL IS ROTTEN, THE PLANTS ARE NONVIABLE.
   - 8.2. BURNING: PLANT MATERIAL SHOULD BE TAKEN TO A DESIGNATED BURN PILE. OBTAIN ALL NECESSARY PERMITS BEFORE BURNING.
   - 8.3. BURYING: REED CANARY GRASS MUST BE BURIED AT LEAST 2 FEET BELOW GROUND.

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DESCRIPTION	DATE	BY

PRELIMINARY DESIGN

SITE RESTORATION PLAN

TROUT BROOK DAM REMOVAL (VT ID 19.02)

RESERVOIR ROAD
BERKSHIRE, VERMONT

JCL	AOM	JCL
DESIGNED	DRAWN	CHECKED

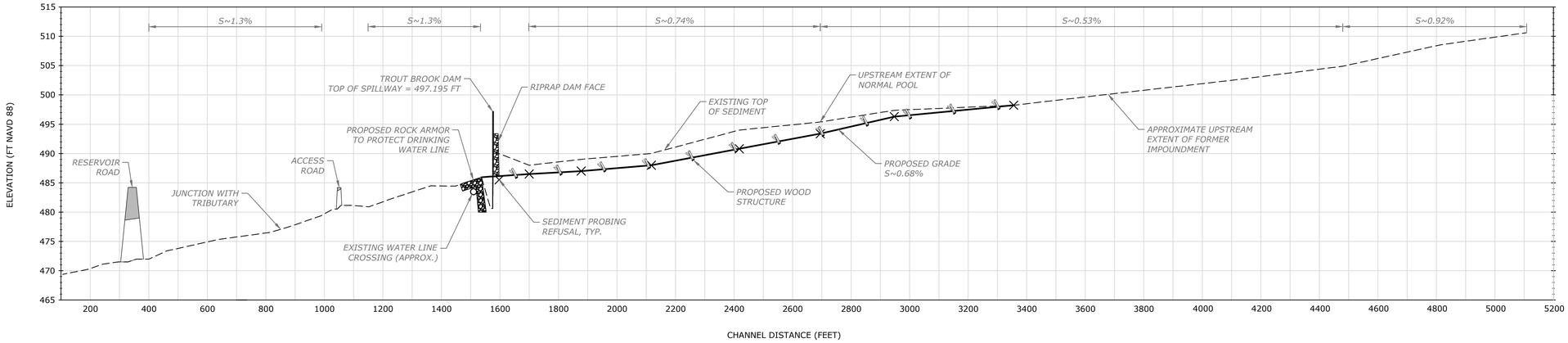
1"=80'
SCALE

JANUARY 10, 2025
DATE

13528.00002
PROJECT NO.

5 OF 12
SHEET NO.

RE-1
SHEET NAME

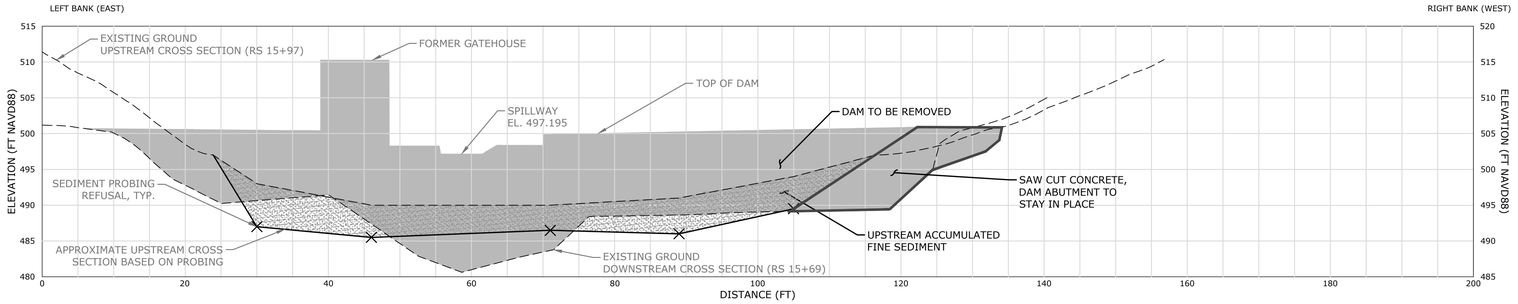


TROUT BROOK CHANNEL PROFILE

SCALE: H: 1"=200', V: 1"=10'

*NOTE: PROFILE BASED ON LIDAR DATA, DECEMBER 2021 SURVEY, AND MAY/JUNE 2023 FIELD MEASUREMENTS

(SECTION VIEWED LOOKING DOWNSTREAM)



DAM ELEVATION

SCALE: 1"=10'

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PRELIMINARY DESIGN

CHANNEL PROFILE AND DAM ELEVATION

TROUT BROOK DAM REMOVAL (VT ID 19.02)

RESERVOIR ROAD
BERKSHIRE, VERMONT

JCL	AOM	JCL
DESIGNED	DRAWN	CHECKED

SCALE: AS NOTED

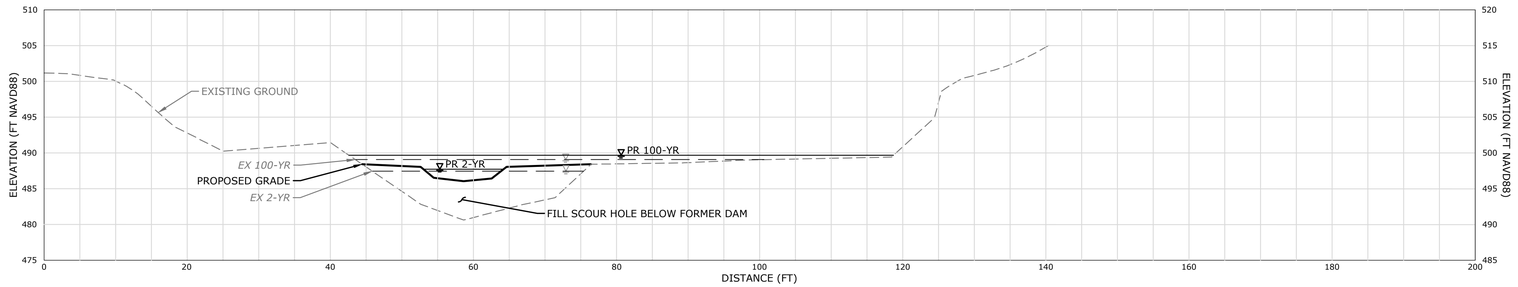
DATE: JANUARY 10, 2025

PROJECT NO.: 13528.00002

SHEET NO.: 6 OF 12

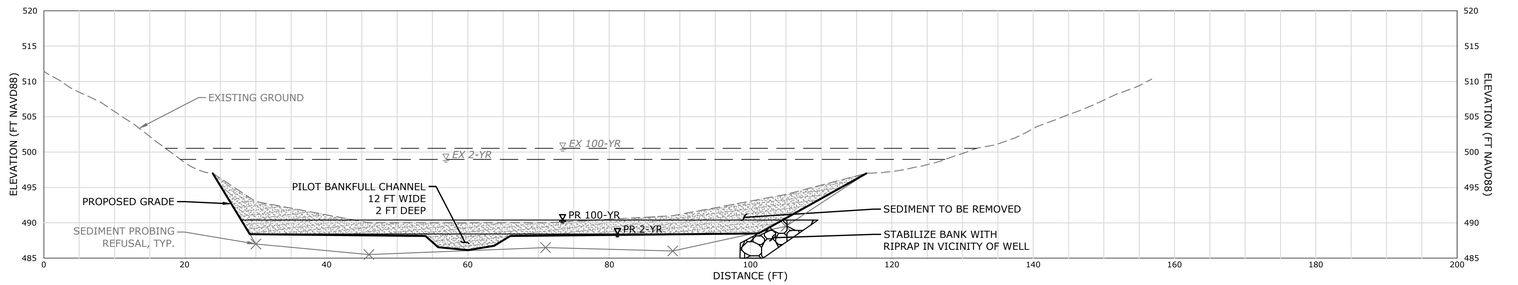
SHEET NAME: PRO-1

(ALL SECTIONS VIEWED LOOKING DOWNSTREAM)



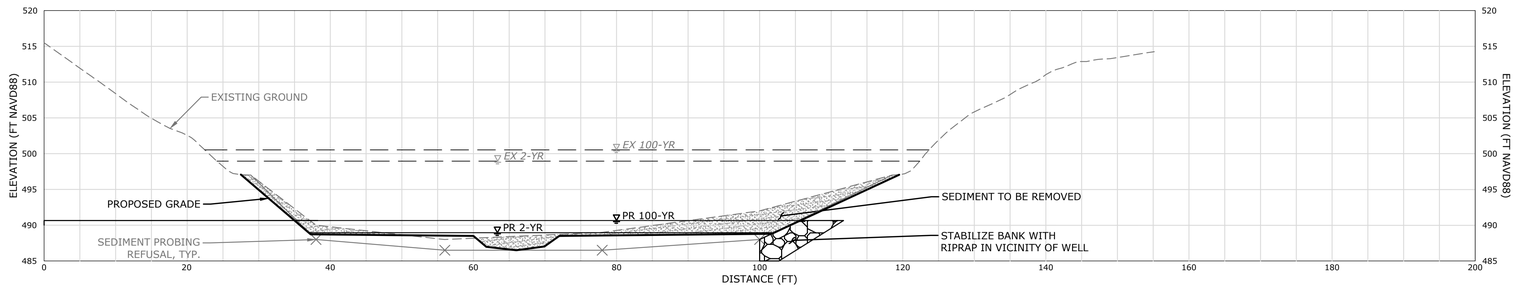
CROSS-SECTION 15+69 (8 FEET DOWNSTREAM OF DAM)

SCALE: 1"=10'



CROSS-SECTION 15+97 (20 FEET UPSTREAM OF DAM)

SCALE: 1"=10'



CROSS-SECTION 17+01 (124 FEET UPSTREAM OF DAM)

SCALE: 1"=10'

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TYPICAL SECTIONS

TROUT BROOK DAM REMOVAL (VT ID 19.02)

RESERVOIR ROAD
BERKSHIRE, VERMONT

JCL	AOM	JCL
DESIGNED	DRAWN	CHECKED

1"=10'
SCALE

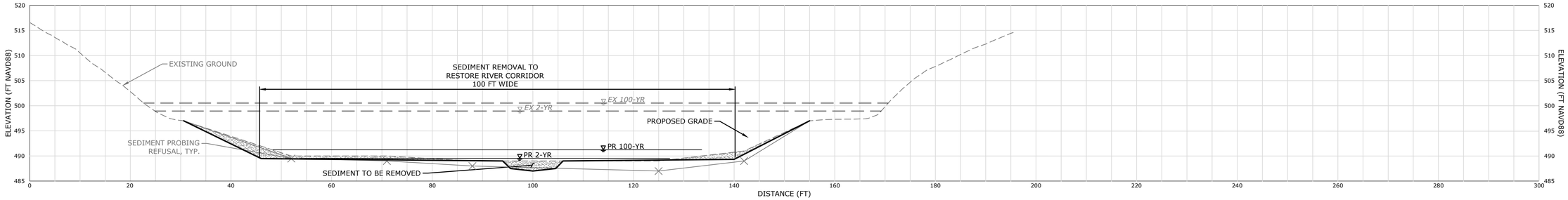
JANUARY 10, 2025
DATE

13528.00002
PROJECT NO.

7 OF 12
SHEET NO.

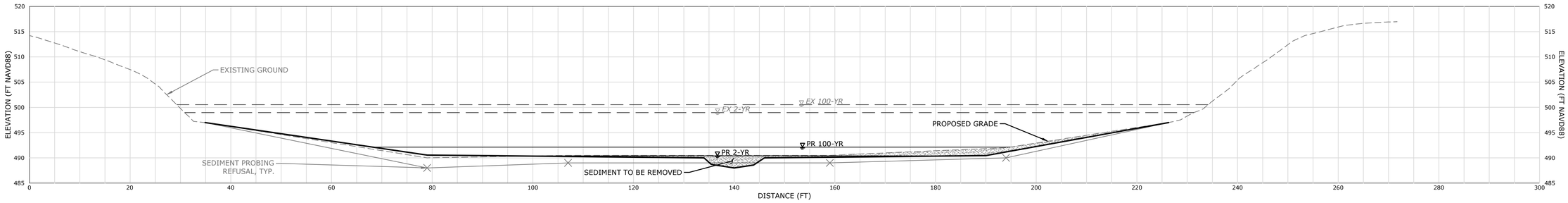
XS-1
SHEET NAME

(ALL SECTIONS VIEWED LOOKING DOWNSTREAM)



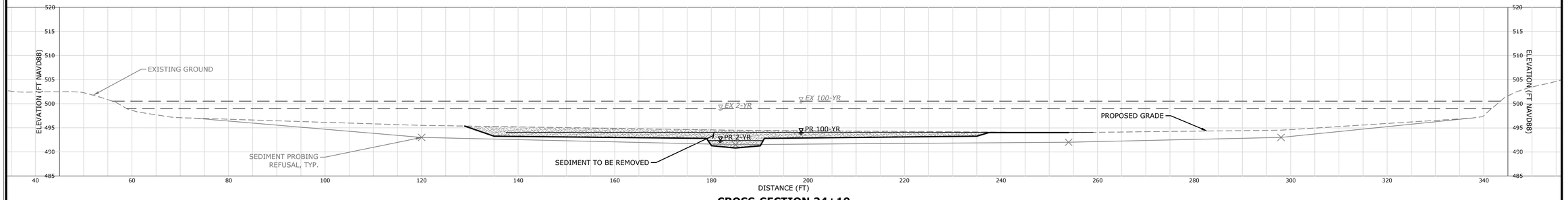
CROSS-SECTION 18+79

SCALE: 1"=10'



CROSS-SECTION 21+18

SCALE: 1"=10'



CROSS-SECTION 24+19

SCALE: 1"=10'

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DESCRIPTION	DATE	BY

PRELIMINARY DESIGN

TYPICAL SECTIONS

TROUT BROOK DAM REMOVAL (VT ID 19.02)

RESERVOIR ROAD
BERKSHIRE, VERMONT

JCL	AOM	JCL
DESIGNED	DRAWN	CHECKED

1"=10'
SCALE

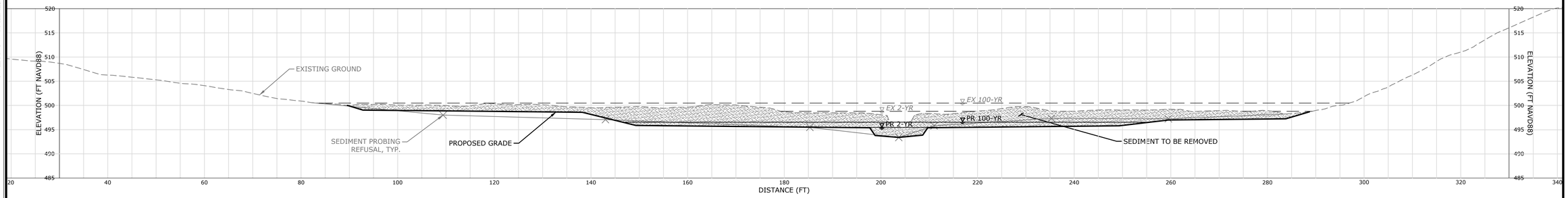
JANUARY 10, 2025
DATE

13528.00002
PROJECT NO.

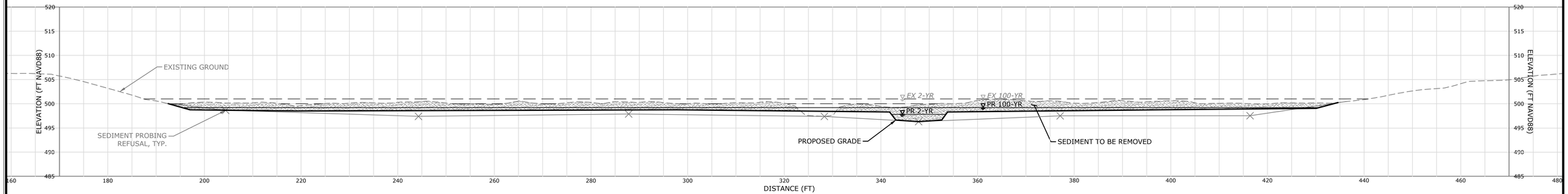
8 OF 12
SHEET NO.

XS-2
SHEET NAME

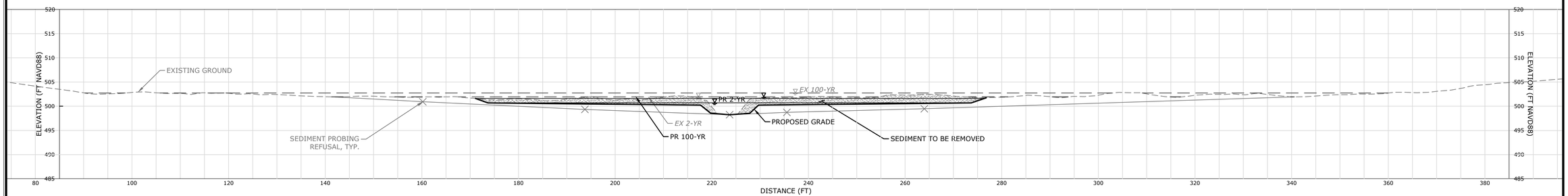
(ALL SECTIONS VIEWED LOOKING DOWNSTREAM)



CROSS-SECTION 26+96
SCALE: 1"=10'



CROSS-SECTION 29+49
SCALE: 1"=10'



CROSS-SECTION 33+57
SCALE: 1"=10'

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PRELIMINARY DESIGN

TYPICAL SECTIONS

TROUT BROOK DAM REMOVAL (VT ID 19.02)

RESERVOIR ROAD
BERKSHIRE, VERMONT

JCL	AOM	JCL
DESIGNED	DRAWN	CHECKED

1"=10'
SCALE

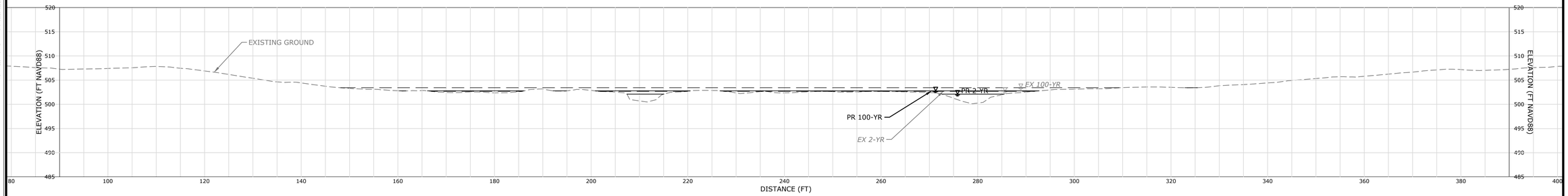
JANUARY 10, 2025
DATE

13528.00002
PROJECT NO.

9 OF 12
SHEET NO.

XS-3
SHEET NAME

(ALL SECTIONS VIEWED LOOKING DOWNSTREAM)



CROSS-SECTION 36+80

SCALE: 1"=10'

CROSS SECTION NOTES

1. CROSS SECTIONS VIEWED LOOKING DOWNSTREAM.
2. CONSTRUCTED CHANNEL TO BE CONSTRUCTED USING NATIVE CHANNEL BED MATERIAL, OR BE COMPOSED OF EXISTING BEDROCK, WITH ROUGHNESS (SEE DETAILS).
3. CHANNEL TYPE (BEDROCK OR SEDIMENT) TO BE REFINED IN FIELD WITH PROJECT ENGINEER AFTER DEWATERING AND SEDIMENT REMOVAL.

4. BEDROCK CHANNEL SECTIONS

4A. DO NOT ATTEMPT TO MATCH PROPOSED GRADING IN AREAS WHERE BEDROCK IS ENCOUNTERED

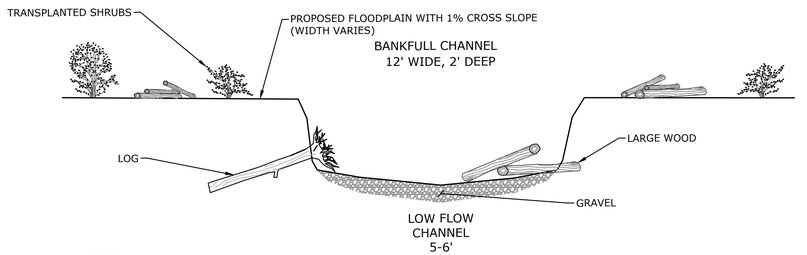
4B. BEDROCK NOT TO BE REMOVED

4C. LOW-FLOW CHANNEL SET BY BEDROCK

5. RIVER SEDIMENT CHANNEL SECTIONS

5A. REFER TO RESTORED CHANNEL BED AND TYPICAL CHANNEL SECTION DETAILS

5B. ALIGNMENT OF THE LOW-FLOW CHANNEL TO BE LOCATED IN THE FIELD DURING CONSTRUCTION BY THE PROJECT ENGINEER.



NOTES:

1. SET LOW FLOW CHANNEL WIDTH TO APPROXIMATELY ½ THE BANKFULL CHANNEL WIDTH.
2. SEE TYPICAL CHANNEL DIMENSIONS.
3. ALIGNMENT OF THE LOW FLOW CHANNEL TO BE LOCATED IN THE FIELD DURING CONSTRUCTION BY THE PROJECT ENGINEER.
4. PROPOSED CHANNEL TO BE CONSTRUCTED USING NATIVE CHANNEL BED MATERIAL. MAINTAIN ROUGH AND IRREGULAR CROSS SECTION.
5. SEED PROPOSED CHANNEL BED AND FLOODPLAIN WITH LARGE WOOD AS DIRECTED BY THE PROJECT ENGINEER.
6. CHANNEL BED SHOULD BE ROUGH AND "MESSY". SEE UNDAMMED CHANNEL FOR LOCAL EXAMPLE. WOOD TO BE EMBEDDED IN SEDIMENT PER ENGINEER'S DIRECTION IN FIELD TO CREATE HABITAT FEATURES. PLACE NATIVE BOULDERS IN CHANNEL.
7. ADD A 6" MINIMUM LAYER OF RIVER GRAVEL ACROSS CHANNEL BOTTOM IF MUCK SOILS ARE UNCOVERED WITHIN THE EXCAVATED CHANNEL.

RESTORED MEADOW CHANNEL

NOT TO SCALE

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TYPICAL SECTIONS

TROUT BROOK DAM REMOVAL (VT ID 19.02)

RESERVOIR ROAD
BERKSHIRE, VERMONT

JCL	AOM	JCL
DESIGNED	DRAWN	CHECKED

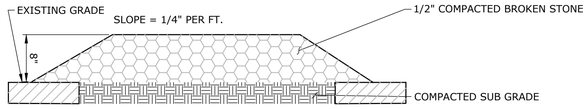
1"=10'
SCALE

JANUARY 10, 2025
DATE

13528.00002
PROJECT NO.

10 OF 12
SHEET NO.

XS-4
SHEET NAME

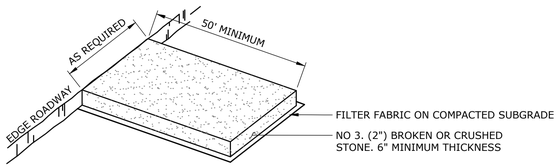


NOTES:

1. STRIP TOP SPOIL AND STORE FOR REUSE.
2. WITHIN IMPOUNDMENT USE CLEAN TRACK MATS WITH NO INVASIVE SPECIES CONTAMINATION TO ACCESS OVER SOFT SOILS

CONSTRUCTION ACCESS ROAD

NOT TO SCALE

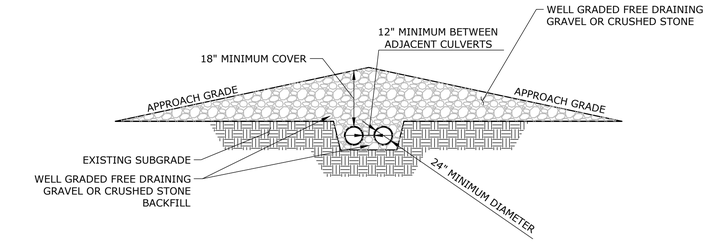


NOTES:

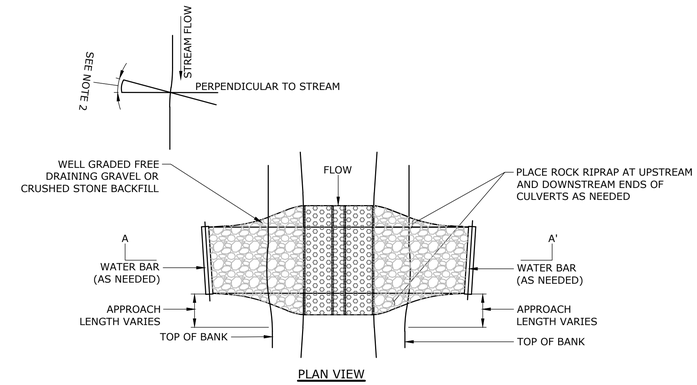
1. CONSTRUCTION ENTRANCE PAD SHALL BE INSTALLED AND MAINTAINED DURING OPERATIONS WHICH GENERATE VEHICULAR TRACKING OF MUD.

CONSTRUCTION ENTRANCE PAD

NOT TO SCALE



CROSS SECTION A-A'



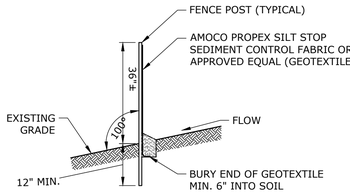
PLAN VIEW

NOTES:

1. CULVERT LENGTH SHALL NOT EXCEED 40 FEET.
2. THE CENTER OF THE STREAM CROSSING SHALL BE ALIGNED SO THAT IT IS NO GREATER THAN 15° FROM A LINE PERPENDICULAR TO THE STREAM FLOW.
3. CULVERTS SIZED TO CONVEY AVERAGE JULY FLOW WITH HEADWATER/DEPTH=0.8.

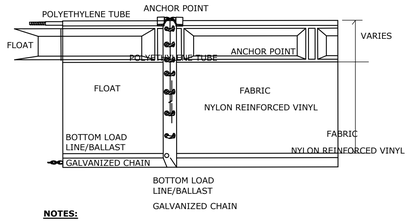
TEMPORARY CULVERT CROSSING

NOT TO SCALE



SEDIMENT FILTER FENCE

NOT TO SCALE

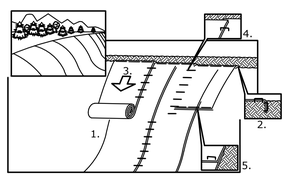


NOTES:

1. HEIGHT OF THE CURTAIN SHALL BE 20% GREATER THAN THE DEPTH OF WATER TO ALLOW FOR WATER LEVEL FLUCTUATIONS.
2. TURBIDITY CURTAIN IS EXPECTED TO FOLD AND BUNCH IN THE WATER COLUMN.
3. ALTERNATIVES MAY BE APPROVED BY THE PROJECT ENGINEER.

TURBIDITY CURTAIN

NOT TO SCALE



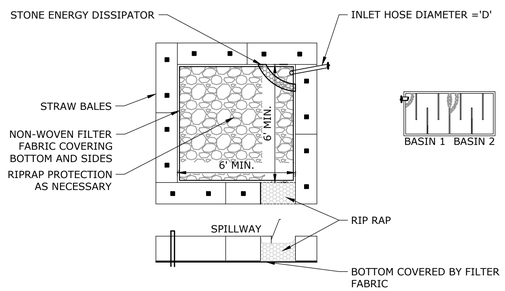
NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING SCC225, DO NOT SEED PREPARED AREA. SCC225 MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL THE BLANKETS DOWN THE SLOPE IN THE DIRECTION OF THE WATER FLOW.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 6" OVERLAP. STAPLE THROUGH OVERLAP AREA, APPROXIMATELY 12" APART.

REFER TO GENERAL STAPLE PATTERN GUIDE IN NORTH AMERICAN GREEN CATALOG FOR CORRECT STAPLE PATTERN RECOMMENDATIONS FOR SLOPE INSTALLATIONS.

APPLICATION OF EROSION CONTROL BLANKET ON SLOPES

NOT TO SCALE

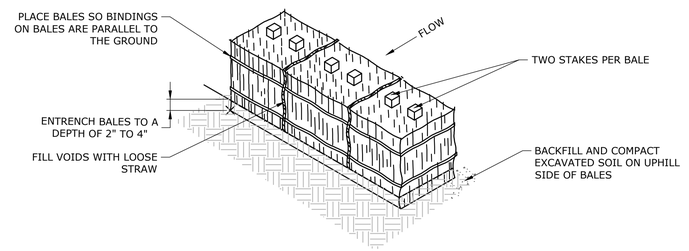


NOTES:

1. IF PUMPING VOLUME EXCEEDS BASIN CAPACITY, BASIN MAY BE USED IN SERIES.
2. INCREASE RIPRAP SIZE ON BASIN BOTTOM AS NECESSARY TO MAINTAIN SEDIMENT-FREE DISCHARGE WATERS

PUMP SETTLING BASIN

NOT TO SCALE



NOTES:

1. IDEALLY BALES SHOULD BE ENTRENCHED 2 TO 4 INCHES AND TIGHTLY BUTTED TOGETHER. BALES CAN BE SUCCESSFULLY PLACED WITHOUT A TRENCH IF GOOD GROUND CONTACT IS MADE. REMOVE HEAVY BRUSH AND FILL ALL VOIDS WITH LOOSE STRAW.
2. BALES SHALL BE ONLY USED AS A TEMPORARY BARRIER AND FOR NO LONGER THAN 60 DAYS.
3. WHEN SEDIMENTATION DEPOSITS REACH WITHIN 3" OF THE TOP OF BALES, REMOVE THE SEDIMENTATION OR ADD ADDITIONAL BALES ON SEDIMENTATION DIRECTLY BEHIND FIRST ROW OF BALES AS DIRECTED BY THE ENGINEER.
4. UPON ESTABLISHMENT OF GROUND COVER ON DISTURBED AREAS AND WHEN DIRECTED BY THE ENGINEER, HAY BALES WILL BE REMOVED AND USED AS MULCH. ANY SEDIMENTATION WILL BE THINLY SPREAD UPON ESTABLISHED GROUND COVER.

STRAW BALE BARRIER PROTECTION

NOT TO SCALE

SLR
11 SOUTH MAIN STREET
WATERBURY, VT 05676
802.882.8335
SLRCONSULTING.COM

DESCRIPTION	DATE	BY

PRELIMINARY DESIGN

DETAILS I

TROUT BROOK DAM REMOVAL (VT ID 19.02)

RESERVOIR ROAD
BERKSHIRE, VERMONT

JCL	AOM	JCL
DESIGNED	DRAWN	CHECKED

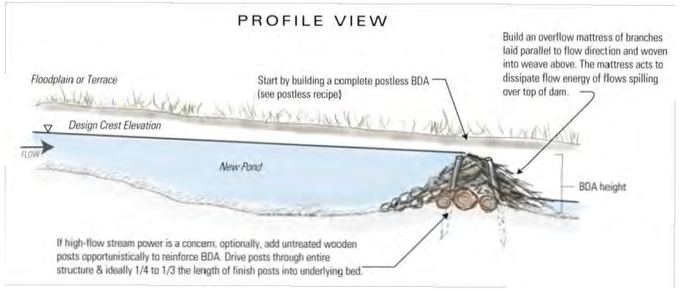
NOT TO SCALE
SCALE

JANUARY 10, 2025
DATE

13528.00002
PROJECT NO.

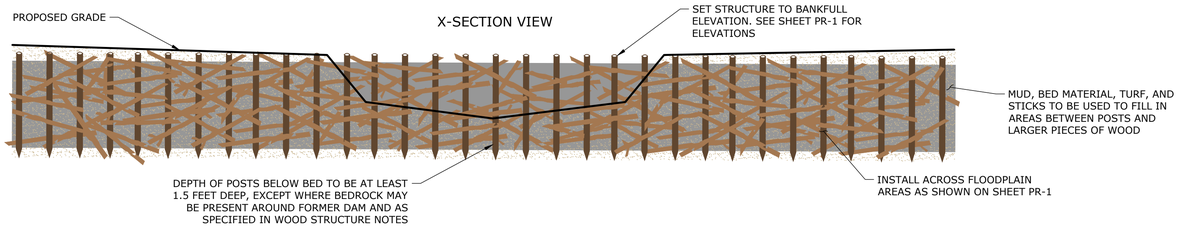
11 OF 12
SHEET NO.

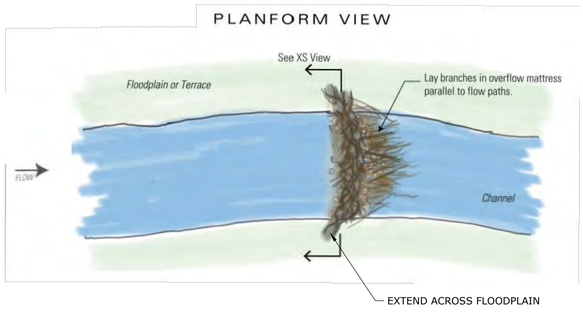
DET-1
SHEET NAME

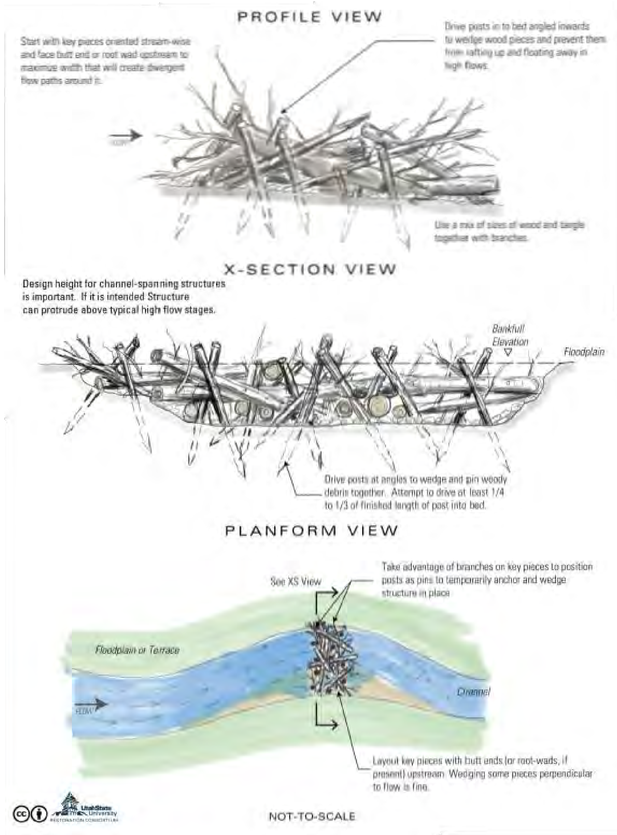


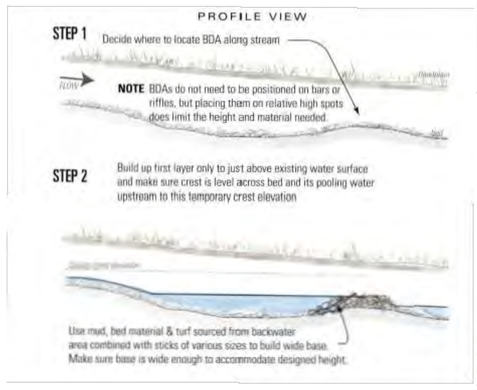
WOOD STRUCTURE NOTES:

1. FINAL LOCATION AND SHAPE OF WOOD STRUCTURES WILL BE DETERMINED DURING INSTALLATION. LOCATION SHOWN ON PLANS IS CONCEPTUAL AND EXPECTED TO BE ADJUSTED IN THE FIELD.
2. POSTS AT UPSTREAM STRUCTURES TO BE INSTALLED TO DEPTH BELOW POTENTIAL NATURAL RIVER CHANNEL SLOPE SHOWN ON SHEET PRO-1.
3. WOOD IS EXPECTED TO BE MESSY AND NATURAL LOOKING. MATERIALS AND CONFIGURATION WILL VARY DUE TO NATURAL MATERIALS.
4. NO INVASIVE SPECIES WILL BE USED IN CONSTRUCTION OF WOOD STRUCTURES.
5. WOOD STRUCTURES ARE NOT PERMANENT AND WILL EVOLVE OVER TIME INCLUDING BREACHING AND NATURALIZATION INTO THE RIVER SYSTEM. THEY ARE EXPECTED TO ADD TEMPORARY RESISTANCE TO EROSION AND HABITAT.









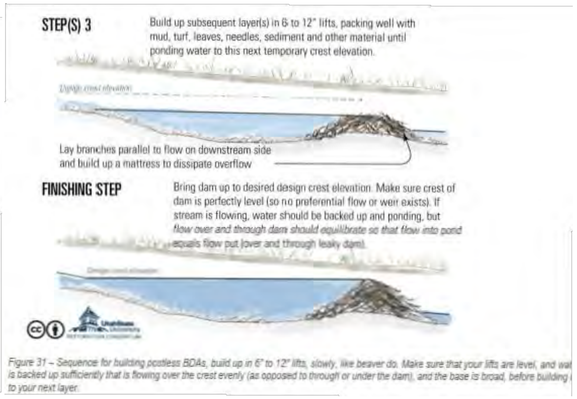
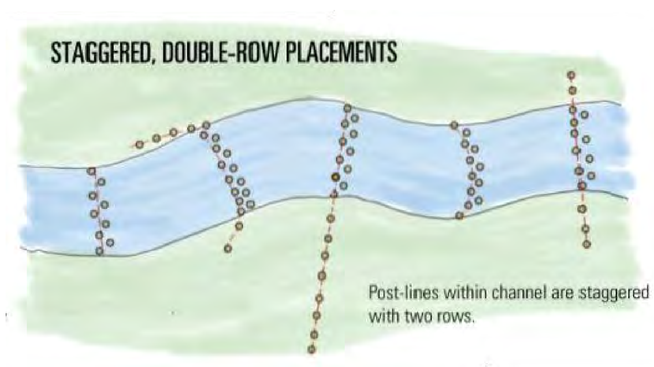


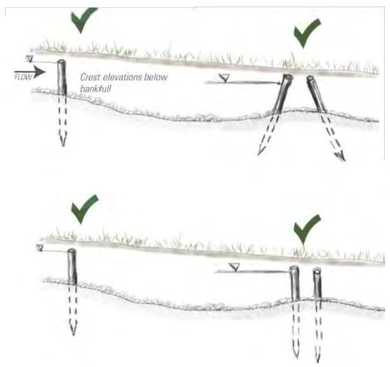
Figure 31 – Sequence for building postless BDAs, build up in 6" to 12" lifts, slowly, like beaver do. Make sure that your lifts are level, and wat is backed up sufficiently that is flowing over the crest evenly (as opposed to through or under the dam), and the base is broad, before building to your next layer.

NOTES:

1. POST-ASSISTED BEAVER DAM ANALOGS TO BE INSTALLED IN PILOT CHANNEL THROUGHOUT ACTIVE EXCAVATION AREA. BDAS WILL SPAN THE BANKFULL CHANNEL AND EXTEND OUT ONTO THE FLOODPLAIN.
2. IT IS ANTICIPATED THAT A VARIETY OF TECHNIQUES WILL BE USED AND ARE TO BE DETERMINED BY THE PROJECT ENGINEER.
3. SCHEMATICS FROM UTAH STATE DESIGN GUIDANCE DOCUMENT "LOW-TECH PROCESS-BASED RESTORATION OF RIVERSCAPES: DESIGN MANUAL" (SHAHVERDIAN ET AL., 2019). SECTION VIEW MODIFIED BY SLR.
4. TRENCH WOOD ACROSS FLOODPLAIN AREAS. GENERAL ELEVATION ACROSS FLOODPLAIN IS LEVEL WITH NATURAL VARIATION OF TOP ELEVATION. ELEVATIONS CALLED OUT ON PLAN ARE AVERAGE.

POST-ASSISTED BEAVER DAM ANALOG
NOT TO SCALE





NOTES:

1. POST-ASSISTED LOG STRUCTURES TO BE INSTALLED IN PILOT CHANNEL THROUGHOUT ACTIVE EXCAVATION AREA. PALS WILL SPAN THE BANKFULL CHANNEL AND EXTEND OUT ONTO THE FLOODPLAIN.
2. IT IS ANTICIPATED THAT A VARIETY OF TECHNIQUES WILL BE USED AND ARE TO BE DETERMINED BY THE PROJECT ENGINEER.
3. SCHEMATICS FROM UTAH STATE DESIGN GUIDANCE DOCUMENT "LOW-TECH PROCESS-BASED RESTORATION OF RIVERSCAPES: DESIGN MANUAL" (SHAHVERDIAN ET AL., 2019).

POST-ASSISTED LOG STRUCTURE
NOT TO SCALE

SLR
1 SOUTH MAIN STREET
WATERBURY, VT 05676
802.882.8315
SLRCONSULTING.COM

DESCRIPTION	DATE	BY

PRELIMINARY DESIGN

DETAILS II

TROUT BROOK DAM REMOVAL

RESERVOIR ROAD
BERKSHIRE, VERMONT

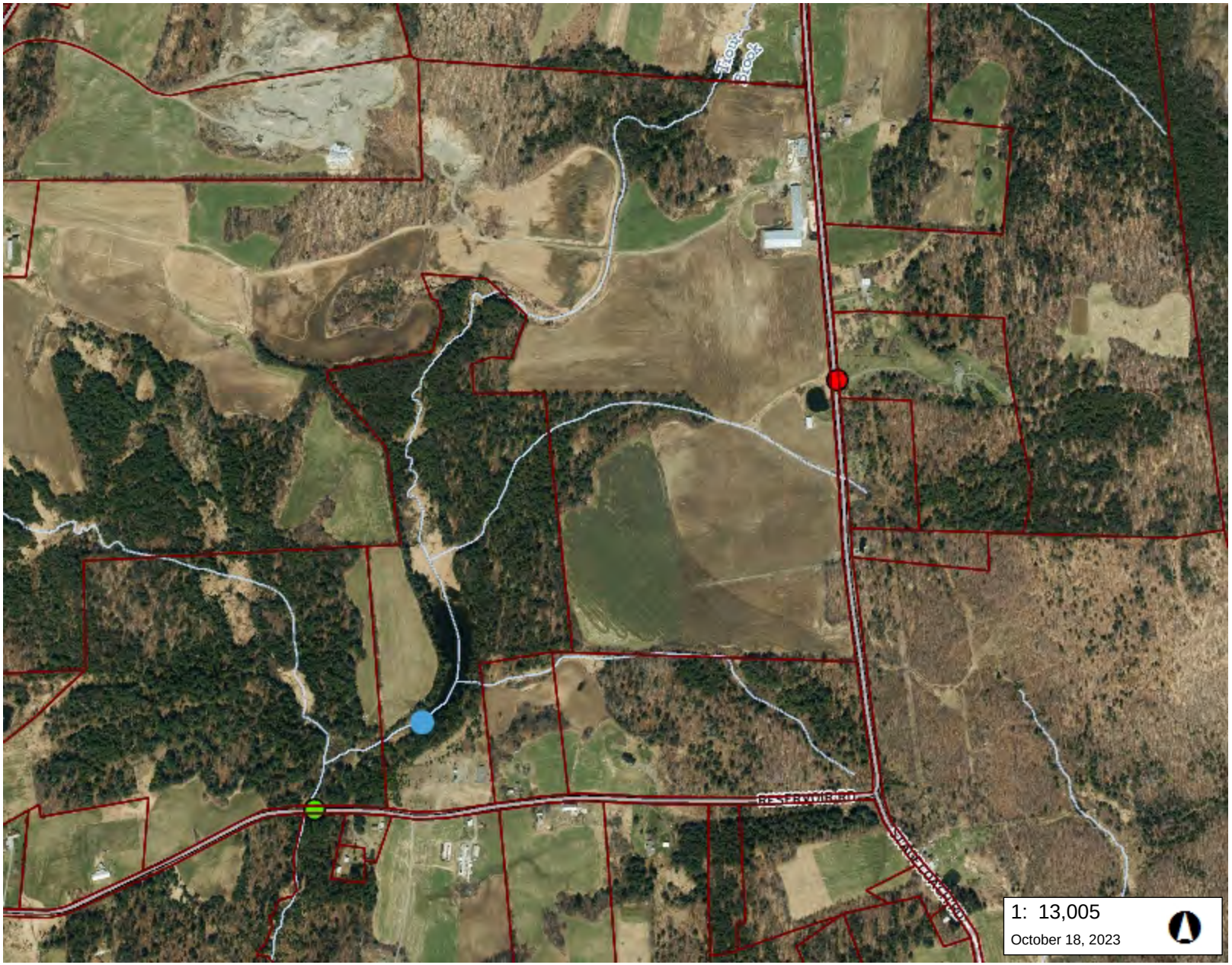
JCL	AOM	JCL
DESIGNED	DRAWN	CHECKED

SCALE: NOT TO SCALE
DATE: JANUARY 10, 2025
PROJECT NO.: 13528.00002.00009
SHEET NO.: 12 OF 12
SHEET NAME: DET-2

Trout Brook Reservoir Dam

Vermont Agency of Natural Resources

vermont.gov



LEGEND

Stream Crossings
- Fully Passable
- Reduced Passage
- Impassable except for Adult Trout
- Impassable
- Bridge/Arch (Fully Passable)

Parcels (standardized)

Stream
- Stream
- Intermittent Stream

Roads
- Interstate
- US Highway; 1
- State Highway
- Town Highway (Class 1)
- Town Highway (Class 2,3)
- Town Highway (Class 4)
- State Forest Trail
- National Forest Trail
- Legal Trail
- Private Road/Driveway
- Proposed Roads

Town Boundary

NOTES

Map created using ANR's Natural Resources Atlas

661.0 0 330.00 661.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 1084 Ft. 1cm = 130 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

ARCHEOLOGICAL RESOURCES ASSESSMENT AND HISTORIC RESOURCE REVIEW, TROUT BROOK RESERVOIR DAM REMOVAL PROJECT, BERKSHIRE, FRANKLIN COUNTY, VERMONT

View northeast of the Trout Brook Reservoir Dam

University of Vermont
Consulting Archaeology Program
111 Delehanty Hall
180 Colchester Avenue
Burlington, VT 05405

UVM Report No. 1639

October 21, 2024

ARCHEOLOGICAL RESOURCES ASSESSMENT AND HISTORIC RESOURCE REVIEW, TROUT BROOK RESERVOIR DAM REMOVAL PROJECT, BERKSHIRE, FRANKLIN COUNTY, VERMONT

Submitted to:
Lauren Weston
District Manager
Franklin County Natural Resources Conservation District
50 South Main Street, Suite B-20
Saint Albans, Vermont 05478

Submitted by:
Kate Kenny
and
Catherine A. Quinn
University of Vermont
Consulting Archaeology Program
111 Delehanty Hall
180 Colchester Avenue
Burlington, VT 05405

UVM Report No. 1639

October 21, 2024

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LIST OF FIGURES

PROJECT DESCRIPTION

The Franklin County Natural Resources Conservation District proposes the removal of the Trout Brook Reservoir Dam[1] (VT State ID #19.02), located in Berkshire, Franklin County, Vermont (Figures 1 – 3). The dam, which is owned by the Village of Enosburg Falls and located on an 87.67-acre parcel north of Reservoir Road, was built in 1924 to supply water to the Village of Enosburg Falls (SLR 2023:13). The proposed project will reconnect 4.8 mi (7.7 km) of the Missisquoi River watershed (SLR 2023:1). The proposed sediment disposal site is located near the chlorination facility on the same village owned property as the dam. Two possible construction access routes have been identified. One follows up the eastern side of the brook from Reservoir Road along an old overgrown access road to the dam, which was probably cut during the dam's construction, and the other runs along a modern access road leading from Reservoir Road to the wells currently used by the village on the western side of the brook, before continuing northward along the east edge of an open field to the north end of the current impoundment (Figure 4) (SLR 2023:38).

This combined Archeological Resource Assessment (ARA) and Historic Resource Review (HRR) was prepared by the University of Vermont Consulting Archaeology Program (UVM CAP) to assist with satisfying federal and state permitting requirements, including Section 106 of the National Historic Preservation Act (NHPA) as amended, and Vermont's Historic Preservation Act, 22 VSA 14. Historic Preservation Specialist Catherine Quinn and Archaeological Research Technician/Program Historian Kate Kenny of the University of Vermont Consulting Archaeology Program (UVM CAP) conducted the review.

The objective of the HRR is to identify and document any historic resources on or eligible for listing on the National Register of Historic Places that have the potential to be directly or indirectly affected by project work, and if present, to recommend a determination of effect on the resources by the proposed project. The proposed project was reviewed according to standards set forth in 36 CFR Part 800, the regulations established by the Advisory Council on Historic Preservation to implement Section 106 of the National Historic Preservation Act, and its amendments.

The goals of the ARA are to identify any portions of the project's APE that may contain precontact Native American and/or historic archaeological sites, to provide sufficient information to gauge their potential for archaeological significance, and to recommend if further archaeological work would be needed prior to project work. To assess the potential of the proposed project for precontact Native American sites, a review of the files maintained by the Vermont Division for Historic Preservation (VDHP) was undertaken to identify the location and nature of nearby previously reported sites in order to understand the archeological potential of the general area. Additionally, the criteria outlined in the VDHP's *Environmental Predictive Model for Locating PreContact Archaeological Sites* were used to establish the general sensitivity of the project area for precontact Native American sites.

[1] Also known as the 'Enosburg Reservoir Dam.'

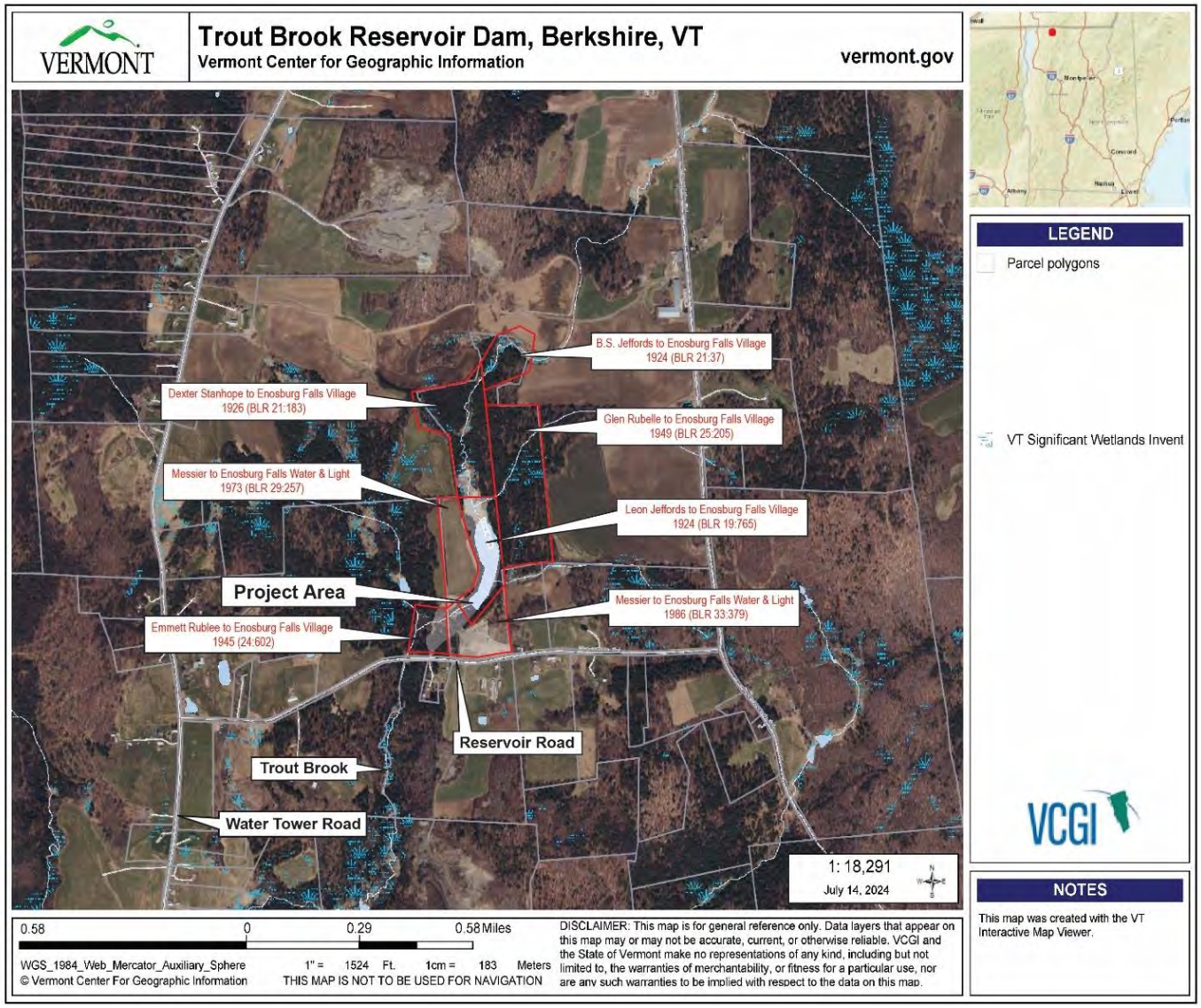

Figure 1. Map showing the location of the Trout Brook Reservoir Dam Removal Project in Berkshire, Franklin County, Vermont, along with parcels acquired by the Village of Enosburg over the years (VCGI 2024; Appendix I). .

Figure 2. View of the downstream face of the Trout Brook Dam, looking north.

Figure 3. View of the upstream face of the Trout Brook Dam, looking southeast from the right bank of the impoundment.

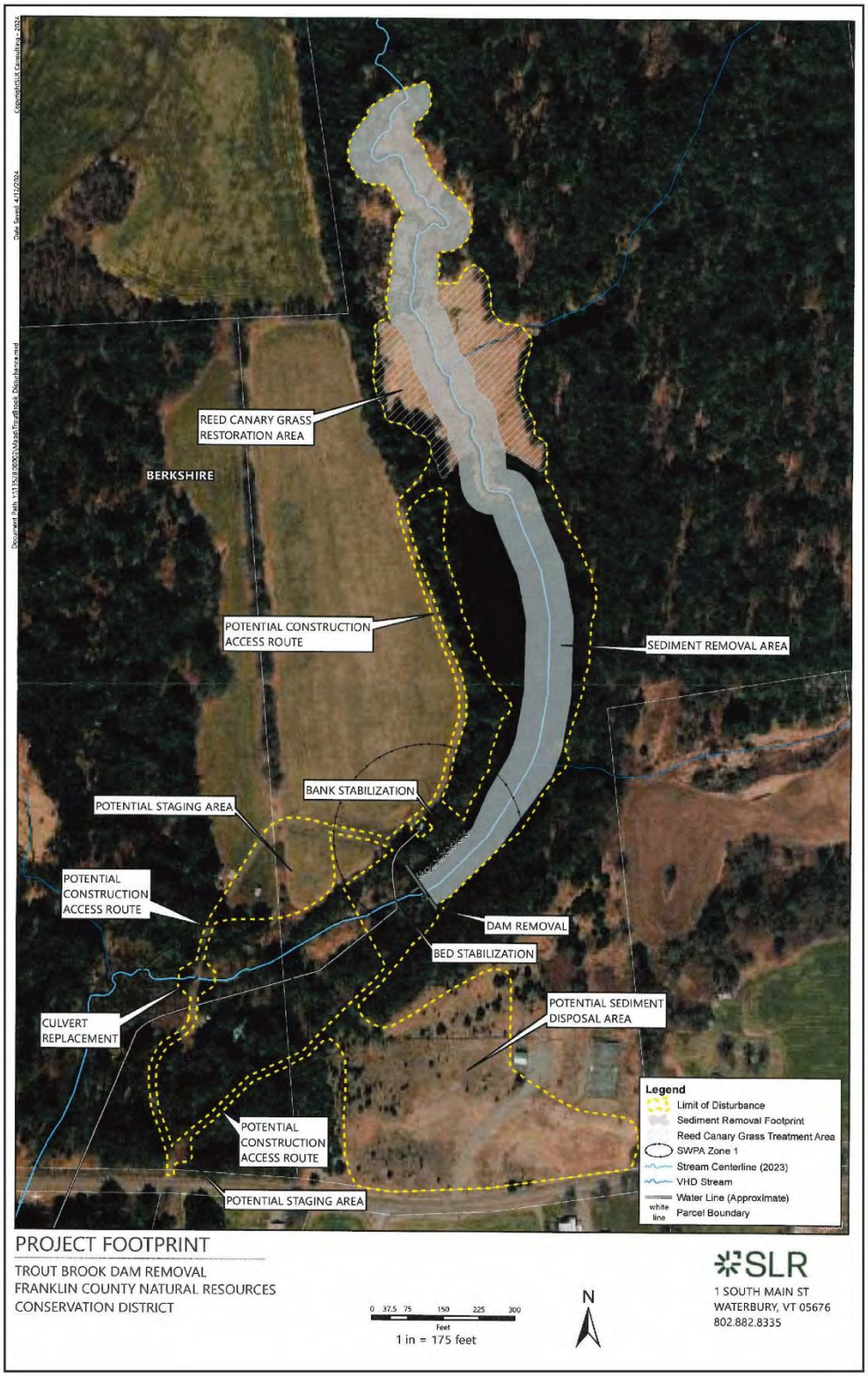

Figure 4. Trout Brook Dam Removal Project plans (provided by SLR).

The archival records examined in the preparation of this report included historic maps, land records, newspapers, town histories, vital records, municipal records, and aerial photographs. The on-line databases utilized included: www.https://newspapers.com; www.https://findagrave.com; and www.https://Ancestry.com. Aerial imagery was accessed at the Vermont Archives and Records Administration Center (VARAC) in Middlesex, Vermont, and at the University of Vermont's Howe Library Map Room, Burlington, Vermont. The files of the VDHP were accessed through the Vermont Agency of Commerce and Community Development's Online Resources Center at www.https://orc.vermont.gov (ORC). Land records were examined at the Berkshire Town Clerk's Office in Berkshire, Vermont. Municipal records were checked at the Enosburg Town Clerk's Office in Enosburg, Vermont. The archives of the Vermont Historical Society's Leahy Library in Barre, Vermont, and the University of Vermont's Silver Special Collections, Billings Library Annex, Burlington, Vermont, were checked. The Berkshire Historical Society was contacted. Additional secondary sources were accessed on-line at www.https://books.google.com/ and at https://www.hathitrust.org. Environmental information was drawn from the Vermont Center for Geographic Information's website www.https://vcgi.vermont.gov/ (VCGI); the USDA's Natural Resources Conservation Service's Web Soil Survey website at www.http://websoilsurvey.nrcs.usda.gov; and from the ORC. The descriptions and illustrations of the dam were derived from a 1924 description of the dam by the engineer in charge of the project, the 2023 SLR engineering report, and from a field visit conducted by UVM CAP on April 22, 2024. All current photographs were taken during the field visit.

ENVIRONMENTAL SETTING

The Town of Berkshire is in the northeastern part of Franklin County and lies within the eastern part of the Champlain Hills Biophysical Region of Vermont (Thompson, Sorenson, and Zaino 2019:45). The region begins about 6-9 mi east of Lake Champlain and continues eastwards to the western foot of the Green Mountains (Thompson, Sorenson, and Zaino 2019:45). The region is bounded south by the Lewis Creek watershed in Addison County and north by the Canadian border (Thompson, Sorenson, and Zaino 2019:45). This region is an elevated glaciated plateau characterized by "compact rugged" till covered foothills and broad valleys dominated by "sediments deposited by post-glacial lakes and seas" (Thompson, Sorenson, and Zaino 2019:51-52). The forest cover in this area consists predominantly of Northern Hardwood Forest and Hemlock-Northern Hardwood Forest (Thompson, Sorenson, and Zaino 2019:53). Berkshire's topography is "somewhat hilly" with elevations ranging from about 440 ft amsl in the Missisquoi River Valley up to about 1,320 ft amsl on top of Ayers Hill (Figure 5) (VCGI 2024; Vermont Bureau of Publicity 1914:101). The Missisquoi River is the largest watercourse in town. It originates northwest of Lowell, Vermont, at the union of its two main branches, and flows about 81 mi (130 km) westward to Lake Champlain, clipping the eastern and southeastern part of Berkshire along the way (VCGI 2024).

The dam is located on Trout Brook,[2] a primary tributary of the Missisquoi River. This brook rises in the central part of Berkshire at about 720 ft amsl and flows southward about 4.7 mi (7.6 km) to its confluence with the Missisquoi River just above the Village of Enosburg Falls at about 390 ft amsl (Figure 6) (Pierce 1917:209; VCGI 2024). The dam is located about

[2] Also known as Jeffords Brook.

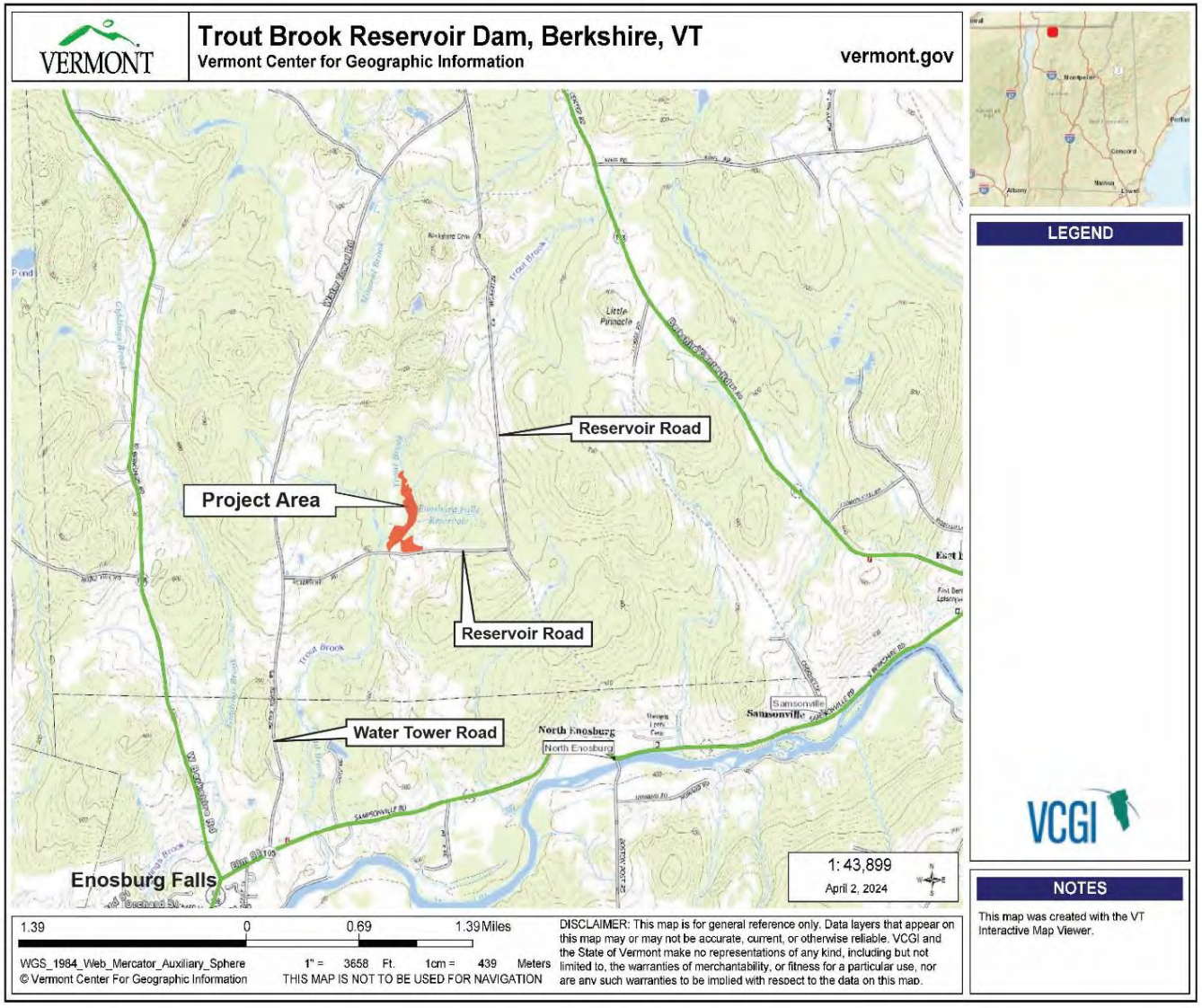

Figure 5. Map showing the location of the Trout Brook Reservoir Dam Removal Project in Berkshire, Franklin County, Vermont, in relation to the surrounding topography and hydrology (VCGI 2024).

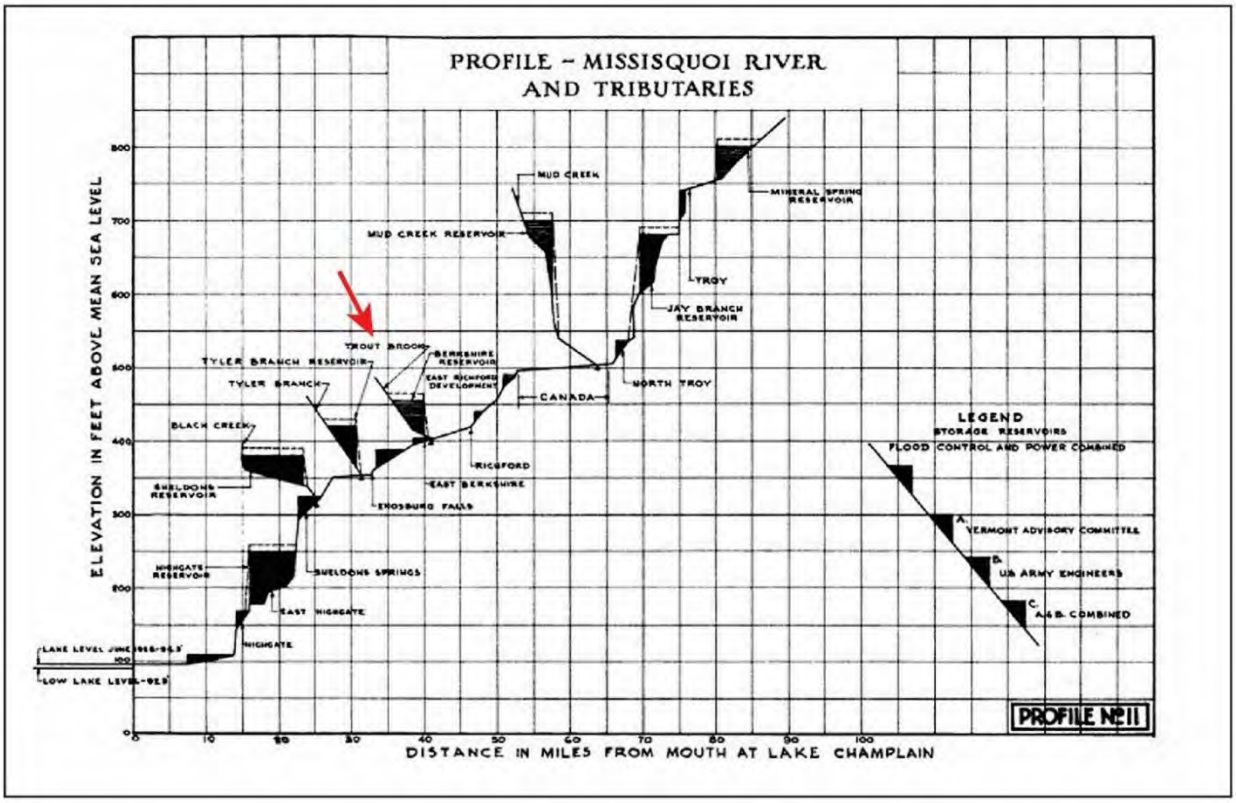

Figure 6. Graphic from the New England Regional Planning Commission's *Water Resources of New England: Drainage Basin Data and Problems* (1937), illustrating the geographical context and the storage capacity of the Trout Brook / Berkshire Reservoir Dam.

2.3 mi (3.7 km) upstream of the confluence between Trout Brook and the Missisquoi River at about 500-520 ft amsl (SLR 2023:8; VCGI 2024). The dam has a drainage area of about 1.8 sq mi (SLR 2023:1). As designed, the depth of the impoundment ranged "from 11 ft [3.35 m] at the dam to from 6 to 8 ft [1.83-2.43 m] through the center and upper portions" and had a "storage capacity of approximately eight million gallons" (Figure 7) (Enosburg Falls 1925:28-29). The impoundment has an estimated maximum area of about 8.23 acres (SLR 2023:13). However, the impoundment retreated significantly between 1995 and 2021, and it now covers only about 3.7 acres (SLR 2023:3, 13).

The dam is located within a narrow and steep sided portion of the Trout Brook Valley (Figure 8). Near the dam, the slopes of the embankments are over 20%, but the bank declines in height going north along the western side of the impoundment. Three short unnamed tributaries, which appear to flow from small spring fed wetlands, join Trout Brook in or near the project area. One stream, about 0.58 mi (0.93 km) long, joins the left side of Trout Brook about halfway up the present impoundment, about 385 ft (117.4 m) upstream of the dam. Another stream, about 0.68 mi (1.1 km) in length, joins the left side about 1,150 ft (350.5 m) upstream of the dam (within the old impoundment area). The last tributary, which is about 1.2 mi (1.9 km) long, joins the right side of Trout Brook about 740 ft (225.5 m) below the dam (VCGI 2024).

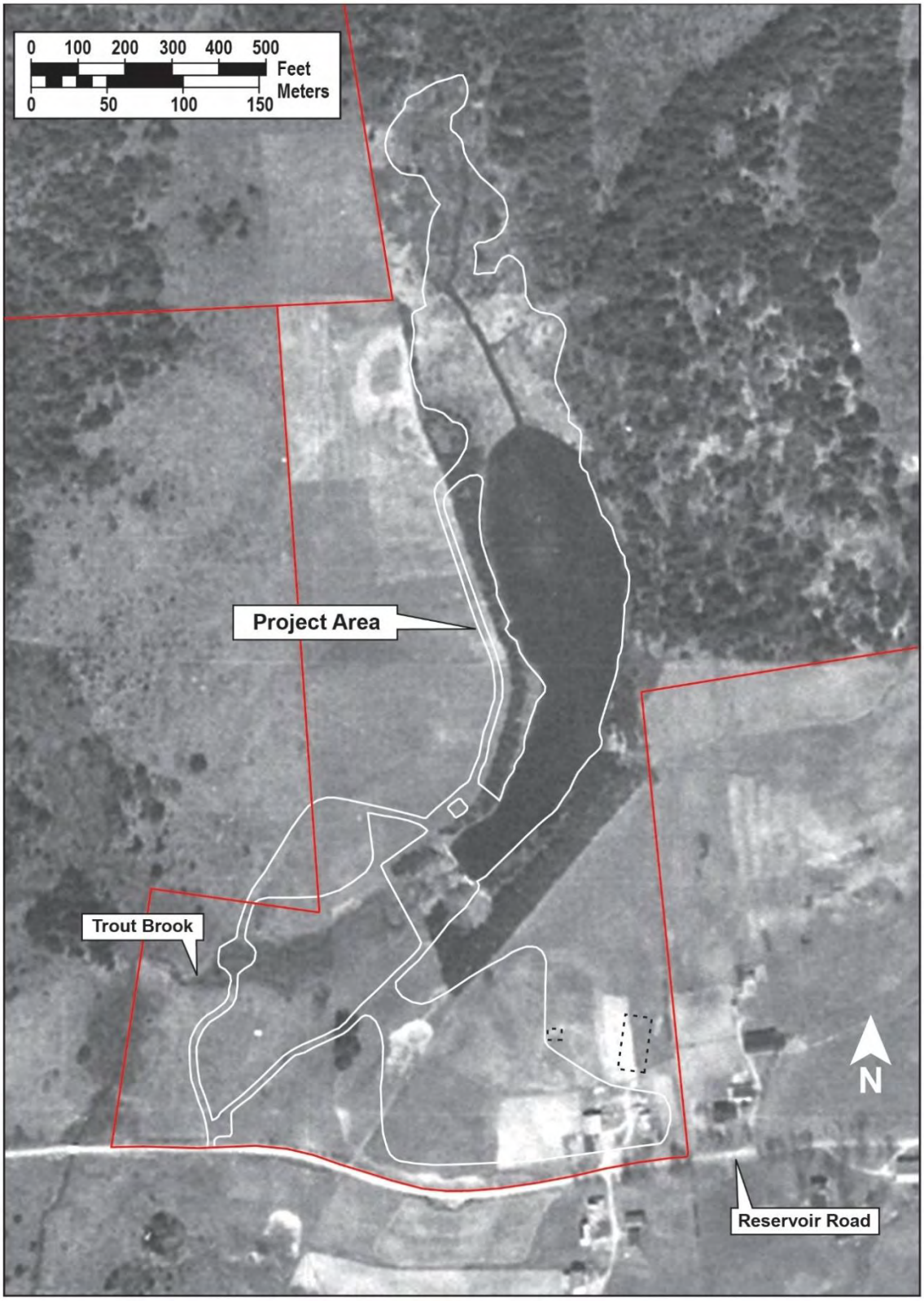

Figure 7. Detail of an aerial photograph showing the Trout Brook Reservoir in 1941; note dashed boxes north of farmstead are added current buildings/structures (Woltz Studios Inc., 1941).

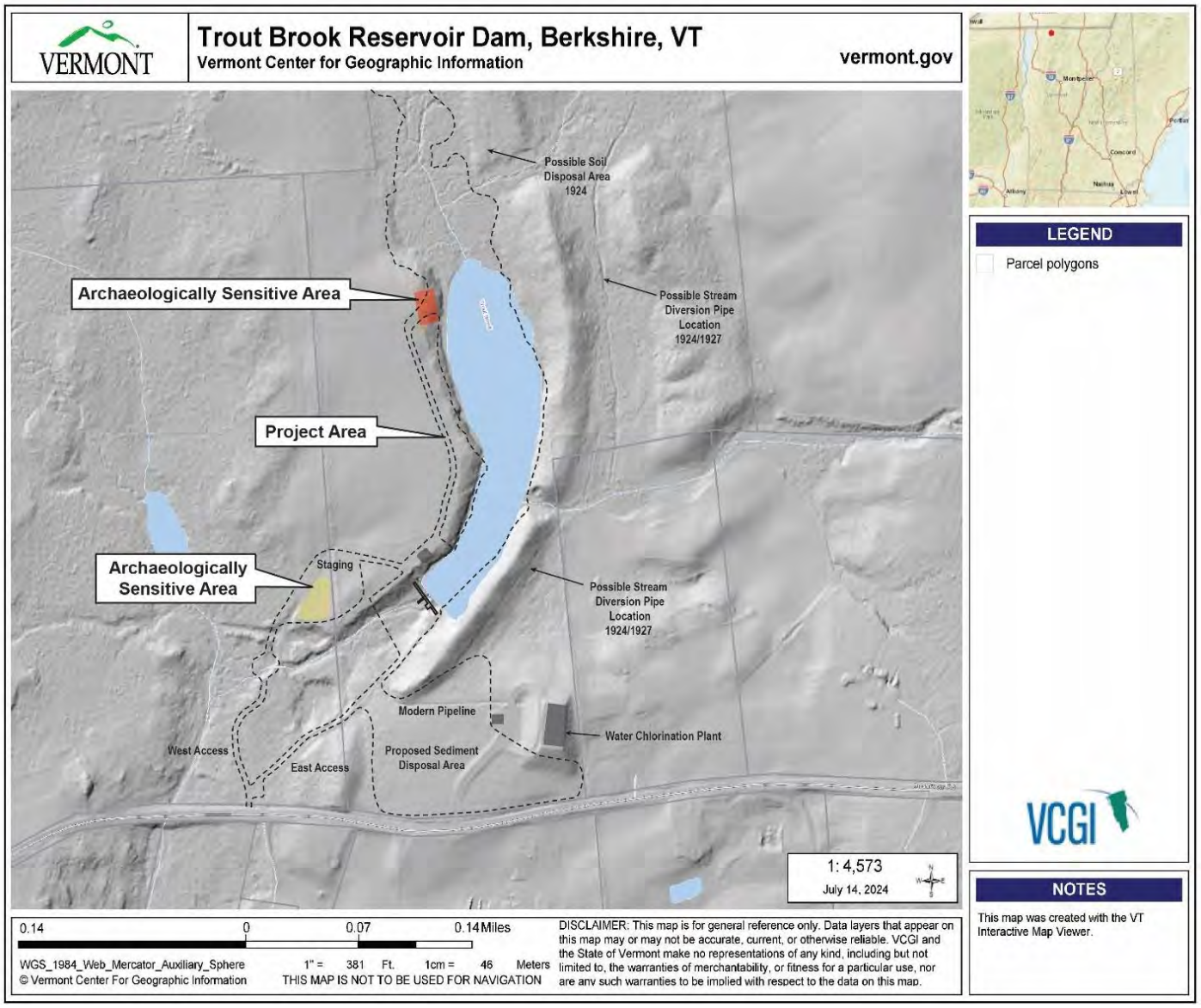

Figure 8. LiDAR image showing the Trout Brook Reservoir Dam Removal Project, Berkshire Vermont (VCGI 2024).

At the dam, the land along west side of Trout Brook is part of the northern end of a small esker (a glacial outwash feature composed of glacio-fluvial gravel and sand deposits) while the land on the east side of the dam is identified as Isolated Kame (Cannon 1964:7; VCGI 2024). The field northwest of the dam is part of glacial lake plain, and off beyond the northern end of the of the impoundment there is a large area of lake sand (a glaciolacustrine deposit) likely associated with Lake Vermont. At one time, the projected shoreline of this glacial lake was only about 230 ft (70.1 m) below the dam (ORC 2024).

Along the project area on the west side of the dam (on the esker) and on the east side of the dam and extending eastward through the proposed soil spoil disposal site (in the isolated kame area), the NRCS had identified the soil as Missisquoi loamy sand (25 to 60% slopes). This is a deep excessively drained sandy / gravelly soil. A typical profile includes an upper dark brown loamy sand (5% gravel) (Ap); underlain by a brown to strong brown loamy to gravelly sand (15% gravel) (Bs); then a yellowish brown gravelly coarse sand (15% gravel) (BC); and, finally, a light olive brown grading to grayish brown gravelly coarse sand (20% gravel) (C). The soil on the western side of the upper reservoir (north of the esker) is identified by the NRCS as Binghamville silt loam, a deep, poorly drained soil that forms in silty glacial lacustrine deposits. A typical profile consists of an upper historically disturbed very dark grayish brown silt loam (Ap) underlain by a grayish brown silt loam (often with redox features) that grades to an olive gray silt loam with depth (Bg); over a firm or very firm gray silt loam that grades to a dark grayish brown silt loam (C). Finally, within both the current and former impoundment area north of the dam, the NRCS has identified the soil as Terric Medisaprists. This is a very deep, poorly drained soil found in depressional areas on till plains, which forms in organic material and alluvium, often having woody organic material over loamy lacustrine deposits. When the preliminary tests were made for the construction of the dam in 1923, “about 35 or 40 places scattered over the entire area were examined and in nearly every case fine white sand was found at a depth of six to eight inches below the surface,” and this sand, “overlaid a stratum of decayed vegetable matter which extended, in places, to a depth of three feet below the surface” (Enosburg Falls 1925:26-27). The area within the former impoundment near the dam is likely composed of recent sediment deposits covering a stripped or truncated profile, because the upper organic horizons were intentionally removed from the site in 1924 to prevent the contamination of the water supply.

CULTURAL CONTEXT

Precontact Native American Background

The VDHP’s Vermont Archaeological Inventory (VAI) indicates that there is one previously reported precontact Native American site, VT-FR-466, within a 0.93 mi (1.5 km) radius of the proposed project area (Figure 9). VT-FR-466 was identified in April of 2023 at the northern end of the field immediately west of the reservoir and about 1,100 ft north northwest of the dam. This site was identified during a pedestrian survey undertaken for the proposed Encore Renewable Energy’s Reservoir Road Solar Project[3] by the recovery of one chert stemmed projectile point (Middle to Late Archaic, ca. 5500-1000 BC), a chert biface, and two quartz

[3] This project proposes a 2.25MW solar array to be located on a 11.26-acre site owned by the Village of Enosburg Falls.

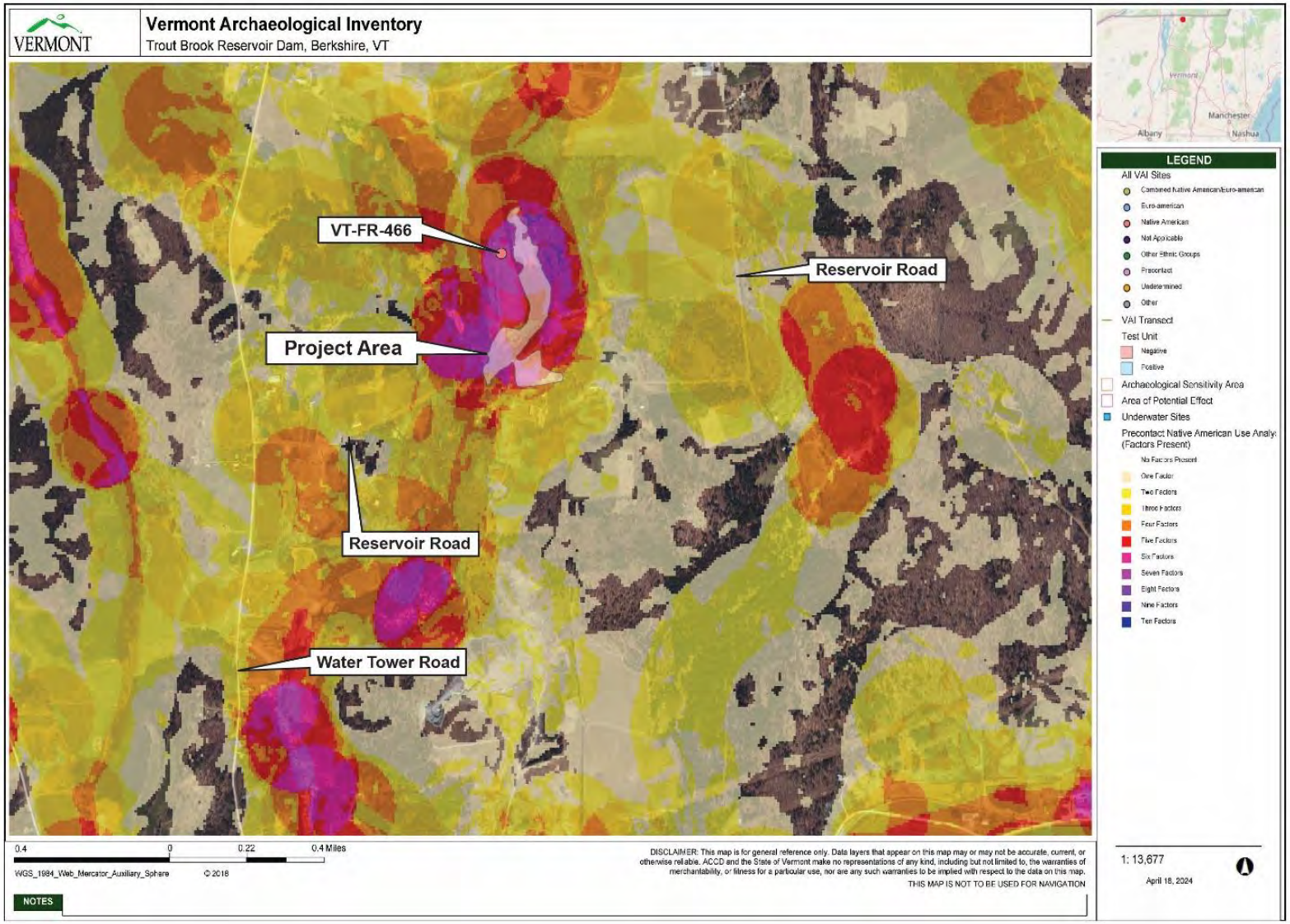

Figure 9. GIS based map with overlay of habitability factors that correlate with the location of precontact Native American sites for the Trout Brook Reservoir Dam Removal Project in Berkshire, Vermont (ORC 2024).

flakes (ORC 2024). A GIS version of the VDHP's *Environmental Predictive Model for Locating Archaeological Sites* indicates that portions of the project area may include up to five habituality factors which have been identified as important to precontact Native American populations including Drainage Proximity Presence; Kame Terrace or Glacial Outwash Soils Proximity Presence; Paleo Lake Soil Proximity Presence; Level Terrain Presence and Steam-Stream Proximity Presence.[4] The VDHP's paper version of the predictive model is a checklist that provides an area a score based on environmental features statistically associated with precontact Native American sites. A score of 32 or greater indicates that an area may be archaeologically sensitive. This project area scores a 64 indicating that it may be sensitive for precontact Native American sites (Appendix II).

Historic Euroamerican Background

The Vermont legislature created the town of Berkshire in 1780 and Euro-American settlement began around 1792 (Thompson 1824:63). Throughout the 19th century and well into the 20th century, farming and dairying were the principal occupations (Vermont Bureau of Publicity 1914:101). While Berkshire remained a quiet agricultural community, the Village of Enosburg Falls, located about two miles south on the bank of the Missisquoi River, grew rapidly into a regionally important trading and manufacturing center (Aldrich 1891:439). In the early 1880s (ca. 1882), Enosburg Falls developed its first public water system. Initially, this system consisted "of pump logs and storage tank of wood" which drew water from the Missisquoi River "at a dam in the village" (Vermont State Board of Health 1916:56-57). However, in the late 1890s, serious problems began to emerge.[5] Beginning around 1898-1899 and continuing for about five years, typhoid fever "prevailed excessively" in the village cumulating in "a severe epidemic" in the winter of 1903-1904 (*Swanton Courier* March 3, 1904; Vermont State Board of Health 1906:20). In 1903, there were 24 cases of the disease (12 cases per thousand population), "with two deaths" (*Swanton Courier* March 3, 1904). Then, in just the first three months of 1904 there were "nine cases" all "in a very serious form" with one death resulting (*Swanton Courier* March 3, 1904). The village water supply was the obvious suspect. According to one observer, "in practically every place in Vermont where typhoid has been more or less prevalent it has been where the main water supply came from a river or stream exposed to sewage contamination" (*Swanton Courier* March 3, 1904).

In response, the Village of Enosburg Falls warned their citizens against "the use of this water for drinking purposes unless boiled or distilled" and retained three outside experts, Dr. H.D. Holton of Brattleboro, Dr. T.R. Stiles of St. Johnsbury, and X.H. Goodnough, the chief engineer of the Massachusetts State Board of Health, to examine the existing system and recommend changes (*St. Albans Daily Messenger* August 1, 1904; *Swanton Courier* March 3, 1904). The consultants concluded that, "the most favorable conditions for securing a sufficient supply of pure water for the village" by "the expenditure of the least money" was to be "found in the valley of Trout Brook . . . northeast of the village" (Vermont State Board of Health 1906:21;

[4] Some areas of the project's APE may have included Wetland Proximity Presence before the development of the reservoir (e.g., beaver pond/meadow).

[5] In ca. 1901, Charles P. Moat, a chemist for the Vermont State Laboratory Hygiene, reported that water taken from the "river system" at Enosburg Falls could have a bacteria load ranging anywhere from "400-10,000 per C.C." (Moat 1901:514-521)

St. Albans Daily Messenger August 1, 1904). They noted that "this stream drains an area of three-or four-square miles and the ground in the valley is porous and much spring water finds its way into the stream" (Vermont State Board of Health 1906:21; *St. Albans Daily Messenger* August 1, 1904).

Despite these recommendations, the Village of Enosburg Falls chose to contract with the Doctor B.J. Kendall Company to provide the whole community with drinking water from a spring that it owned "about two miles away in Berkshire" (*Burlington Free Press* September 12, 1905; Vermont State Board of Health 1916:56-57).[6] In September of 1905, it was reported that, the Dr. B.J. Kendall Company's water system was "being extended so by the fall the entire village will be covered" (*Burlington Free Press* September 12, 1905). In 1906, it was reported that "the work of tearing out the storage tanks on the Dr. B. J. Kendall company's water system is in progress. They will build one of cement on the same site but with double the capacity of the old ones" (*Burlington Free Press* August 4, 1906). Meanwhile, the village retained the system connected to the Missisquoi River "for fire purposes" (Vermont State Board of Health 1916:56-57). This "double supply," although deeply "unsatisfactory," was still in use as late as 1923 (Moat 1923:292; *St. Albans Daily Messenger* August 4, 1916). As the village and the demand for water grew, it was found that the Kendall Spring could not keep pace (Moat 1923:292). For example, in 1911, it was reported that "owing to the large amount of water being used, it has become necessary for the Dr. B.J. Kendall Co. to shut off the spring water system for a time from the village from 8 pm until 6 am, so as to keep an adequate supply for daily use, and to give time for the storage reservoir to gain what it loses through the day" (*St. Albans Weekly Messenger* July 13, 1911). A few years later, it was reported that "so many users of the Dr. B.J. Kendall company's spring water were allowing the water to run all the time that the company has found it necessary to shut it off at night" (*Burlington Free Press* February 28, 1914). Around 1923, the village "tried with poor success [to] double [the] supply in each house" but found the spring water supply "inadequate to furnish water for all domestic purposes" (Moat 1923:292).

In the fall of 1923, David W. Ames (1876-1949), a local contractor chaired a village committee charged with finding a solution to the village's inadequate water system (*Burlington Free Press* September 14, 1923; October 22, 1936; May 6, 1949; *St. Albans Daily Messenger* June 3. 1903). In the latter part of August of 1923, the village hired Lewis D. Thorpe, a Boston based civil and sanitary engineer who specialized in water supply systems, to examine the problem (Enosburg Falls 1925:23).[7] In November of 1923, the village commissioned Thorpe to "design a system, prepare the necessary contracts, and superintend the construction of the same" (Enosburg Falls 1925:23). In 1923-1924, the village embarked on a $75,000 plan, which quickly grew to an almost $98,000 project, to secure its water supply (Table 1).[8]

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[6] In reference to this spring, it was noted that although its "watershed is inhabited . . . the nearest farm building is a quarter of a mile from the spring" (Vermont State Board of Health 1916:56-57).

[7] Lewis Drummond Thorpe (1871-1942) was a son of William J. and Elizabeth Sarah Thorpe of Boothbay Harbor, Maine (*Boston Globe* December 5, 1942; *Maine Birth Records 1715-1922*; *Massachusetts U.S. Marriage Records 1840-1915*). Over the course of his professional career, he "installed water works systems in more than a score of New England cities and towns" (*Boston Globe* December 5, 1942). His work in Vermont included a dam in the Town of Orange built to supply the City of Barre in 1909 and the water system in Richford, which was built in 1933 (*Barre Daily Times* June 14, 1909; *St. Albans Daily Messenger* August 1, 1933).

[8] *Very roughly*, about 1.7 to 1.8 million in today's money.

Table 1. Reported cost of the new Enosburg Falls Village water system to 1925 (Enosburg Falls 1925:19-20).

Item	Cost to 1925	Projected Additional Costs	Total
Land Damages [Purchases & ROW]	$3,143.75		
Damages claimed by D. Stanhope [Land]		$5,000.00	
Damages claimed by W. Lafley [Land]		$200.00	
Reservoir	$9,331.87		
Dam	$11,958.90	$3,118.34	
Stand Pipe	$2,000.00	$7,950.00	
Stand Pipe Foundation	$997.72		
Gate House	$202.78		
Pump House	$943.21		
Electric Pump and Motor	$200.00	$1,649.71	
Cast Iron Pipe	$31,232.54		
Pipe Line	$9,710.01		
Valves, Fittings, etc.	$1,191.75		
Fencing	$216.93		
Unloading & Trucking	$810.97		
Engineer	$3,500.00	$1,300.00	
Miscellaneous	$1,163.17		
East Branch Estimate		$2000.00	
Totals	**$76,603.89**	**$21,217.85**	**$97,821.74**

The site chosen for the dam and reservoir was located on the dairy farm of Leon Temple Jeffords. Other locations were considered including the East Branch of Ladd Brook, but this was found "less pure" as it received "drainage from certain farms" (Burlington Free Press September 14, 1923).Leon Jeffords (1890-1967) was a son of Burton S. (1867-1938) and Lillian (Temple) Jeffords, a grandson of Merrill L. Jeffords (1832-1899), and a great-grandson of Stephen Jeffords (1806-1882) who all lived in the same general area (Figures 10 and 11) (*Burlington Free Press* October 26, 1967). According to Thorpe, the dam site had a 1.25 square mile watershed,

> "composed of meadow, pasture, and woodland with but little low swampy land. There is within the watershed and particularly in the vicinity of the reservoir large areas of sandy material. This is saturated with water which breaks out in the form of springs. Owing to the character of the watershed the dry weather flow in the brook will be more uniform than in the case of a watershed with steep rocky banks or clayey material" (Enosburg Falls 1925:29-30).

On June 2, 1924, the Village of Enosburg Falls bought the initial 10.8 acres for the dam and reservoir site from Leon Jeffords for $1,500 (see Figure 1) (BLR 19:765; *St. Albans Daily Messenger* April 3, 1925). This purchase came with the right to travel to and from the dam and reservoir during the construction (BLR 19:765). As part of the exchange, Jeffords got the right to tap into the water line for free (BLR 19:765). In an effort to control and protect the water quality, the village also purchased land to the north (upstream) of the reservoir including 6 and 15/100 acres from B.S. Jeffords for $768.75 on November 15, 1924, and 18.5 acres from Dexter H. Stanhope on February 15, 1926 (see Figure 1) (BLR 21:37; 21:183; St. Albans Daily Messenger

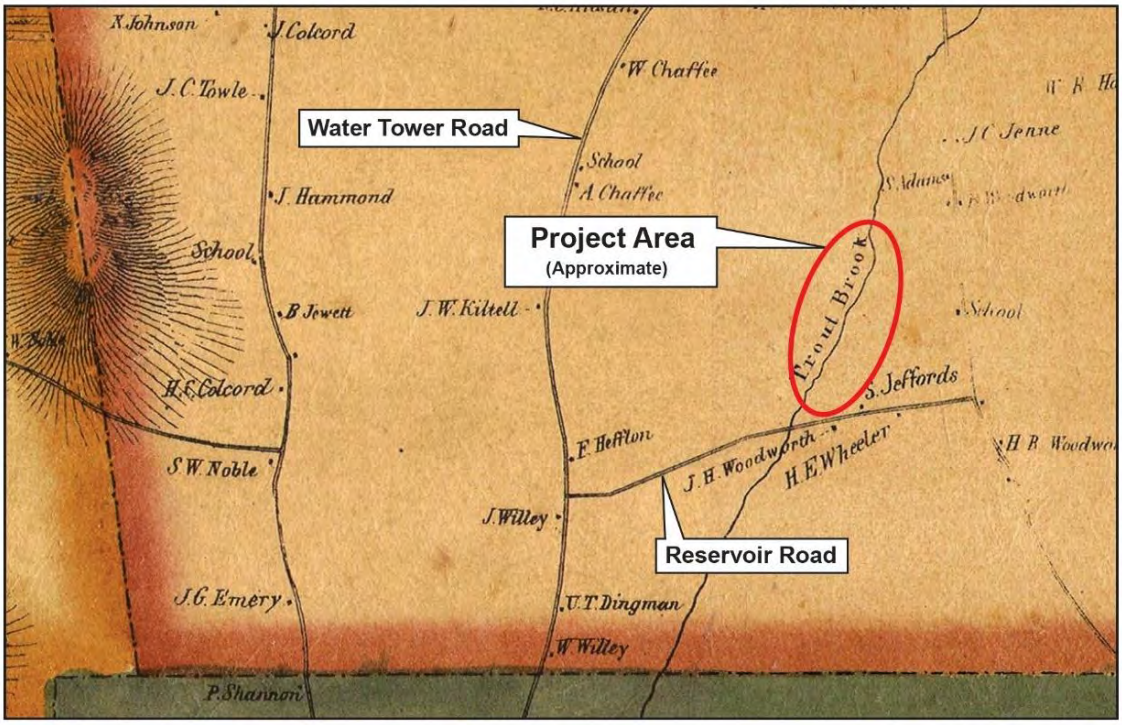

Figure 10. Detail of H.W. Walling's *Map of the Counties of Franklin and Grand Isle, Vermont*. (1857).

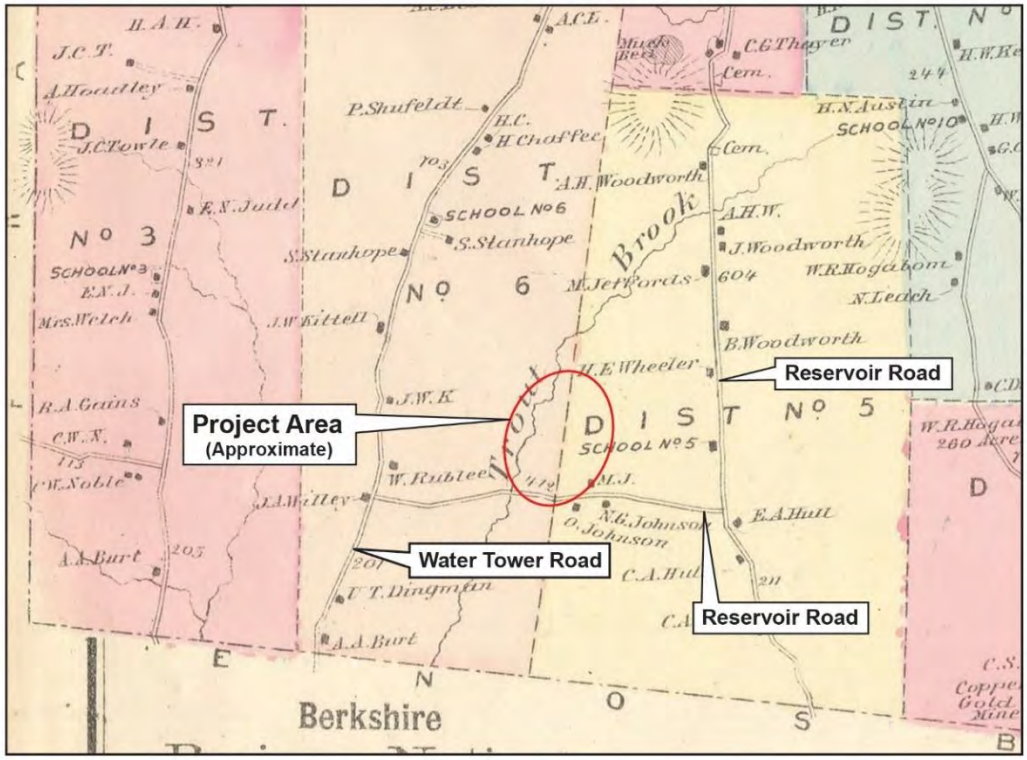

Figure 11. Detail of "Berkshire" from F.W. Beers' *Atlas of Franklin and Grand Isle Counties, Vermont* (1871).

April 3, 1925). The village purchased the right of way for the pipeline from the reservoir to the village from Thomas Green, Myron Tracy, D.C. Woodworth, and R.M. Stanhope as well as the location for the standpipe from William Lafley (*St. Albans Daily Messenger* April 3, 1925).

Late in 1923, Lewis D. Thorpe made all the necessary contracts for the completion of the project. The pipe contract went to the Central Foundry Company of New York City;[9] the standpipe contract went to the Chicago Bridge Company; and the contract for the dam and reservoir, which "involved building the dam with overflow, gate house, laying diversion pipes, the clearing of trees, bushes, stumps, etc., and removing loam and vegetable matter from the reservoir site," was awarded to the G. Ferullo Company of Boston (Enosburg Falls 1925:23-25). Work on the dam and reservoir started on July 1, 1924, and was completed by the middle of September (Enosburg Falls 1925:24). Soon afterwards, the Village "thoroughly cleaned the West Branch and the springs along its banks, removing all roots, leaves, branches and other objectionable material. A fence was built around the entire property and notices prohibiting hunting and fishing were posted" (Enosburg 1927:26).

A little over a decade after the completion of the dam, the reservoir began experiencing issues with its water quality. In 1938, the village considered "the possibility of constructing filtering tanks at the reservoir to reduce the silt and coloring entering our system" (Enosburg Falls 1939:19). Routine maintenance, which included the clearing of all hardwood brush from around the reservoir, did not resolve the problem and in 1940 there were still "many complaints from dirty water" (Enosburg Falls 1940:21). In 1941, an exceptionally dry year provided the village an opportunity to do "considerable work" on the reservoir and to "maintain our dam, spillway and gate house" (Enosburg Falls 1942:17). On August 16, 1942, a flash flood caused "much damage . . . around our reservoir that had to be repaired" (Enosburg Falls 1943:18).

By 1944, boil water recommendations for Enosburg Falls Village were again in place (*St. Albans Daily Messenger* July 6, 1946). Subsequently, "all attempts to purify the water by chlorinating the large reservoir" by the "regular treatment of 60 pounds chlorine every 12 days" failed (*St. Albans Daily Messenger* July 6, 1946). In 1946, Edward L. Tracy, the director of the Division of Sanitary Engineering of the State Board of Health, indicated that the village might have to install chlorinating equipment "at the water reservoir outlet" noting that water samples taken from Jeffords' Brook, Well Brook, and Vaillancourt Brook had all "showed presence of animal bacteriological content" (*St. Albans Daily Messenger* July 6, 1946). Tracy indicated that the only other option for the village "would be to acquire all land adjacent to the brooks feeding into the reservoir," but observed that acquiring "the large area would be an expensive purchase" (*St. Albans Daily Messenger* July 6, 1946). In the summer of 1946, the water system was condemned as "unsafe for drinking purposes" and the town drilled its first test well (Enosburg Falls 1946:21; *Newport Daily Express* August 14, 1946). In 1949, a gravel packed well, which produced about 600 gallons per minute ("about twice the present need of village") was drilled by the Layen NY Co. of Arlington, Massachusetts (Enosburg Falls 1949:20; *St. Albans Daily Messenger* August 31, 1949). In ca. 1950-1951 another well was added to the system (*Richford Journal* February 22, 1951).

[9] The pipe leading from the reservoir to the village was approximately 12,200 ft (2.3 mi) in length (Enosburg Falls 1925:24).

Even after switching over well water, the village continued to maintain the dam on Trout Brook for a few decades. For example, in 1966, the brush was again cleared, the fence fixed, and the "pond was completely drained, the gate house cleaned, and the intake valve replaced" (Enosburg Falls 1965:17; 1966:16-17). At this time,

> "the intake line to the gate house was extended and raised so that it is now out of the mud and silt. The bottom of the reservoir was found to be covered with silt and decayed organic matter . . . it was estimated there is about four thousand yards of this muck which will have to be removed before the water will be clear and, hopefully, more palatable" (Enosburg Falls 1965:17; 1966:16-17).

However, at the same time efforts were being made to locate another well (Enosburg Falls 1965:17; 1966:16-17). The village purchased additional land around the reservoir in the later 20th century including land north of Reservoir Road including the course of Brook Trout in 1945 from Emmett Rublee (BLR 24:603); land to the east of the reservoir from Glen Rublee in 1949 (25:205); the land to the west of the reservoir (including the open field) from Maurice Messier in 1973 (BLR 29:257); and 9.67 acres north of Reservoir Road which includes the area of the proposed sediment disposal area (presently the location of the 1988 chlorination system) from Maurice Messier in 1986 (BLR 33:379; plaque on Chemical Feed Building) (see Figure 1).

ARCHAEOLOGICAL RESOURCES ASSESSMENT

The Area of Potential Effect (APE) for archaeological resources was identified as the project area, including the dam removal site, potential construction access roads and staging areas, and the sediment removal and disposal areas (see Figure 4). All of these areas were walked during the field visits and hand soil cores were taken.

Precontact Native American Archaeology

Dam Removal Site, Bank Stabilization and Bed Stabilization Area

A combination of excessive slope and previous ground disturbance eliminates the area immediately around the dam, including the bank and bed stabilization areas, as archaeologically sensitive areas for precontact Native American sites. The natural slope to the embankments on either side of the dam are 30 degrees or more (Figure 10). Furthermore, the construction of the dam likely involved significant ground disturbances immediately around it not only to place the dam but also for the temporary construction infrastructure it likely required, such as access roads, a derrick location, a space for concrete mixing,[10] and places for the general staging of equipment and material. There is a former access road and work area on the left bank of the stream at the dam, which has been cut into the hillside (Figure 11). The area below the dam, if not sloped, is in a narrow, largely level, heavily eroded/scoured stream bottom having little to no soil development (Figure 12). This part of the project's APE is therefore not considered sensitive for precontact Native American archaeological sites.

[10] The concrete could have been hand mixed on specially built 12 to 20 ft square platforms or by a powered mixer brought to the site (Reid 1907:87; Portland Cement Association 1916). The concrete could have been placed in the forms in any number of ways (e.g., by wheelbarrows or cement carts, by dump cars on a light tramway, or by buckets handled by a crane) (Reid 1907:87; Portland Cement Association 1916).

Figure 10. View of the steep bank on the east side of the impoundment immediately upstream of the dam, looking northeast.

Figure 11. View of a former access road cut into the hillside at the left end of the dam, looking south.

Figure 12. View of the right bank of Trout Brook immediately below the dam, looking west.

Sediment Removal Area

In the proposed project, the accumulated sediments will be removed up to about 1,800 ft (549 m) upstream from the dam following up the thread of the natural stream and about 50 ft (15 m) either side of it (Figures 13 and 14; see Figure 4). Archival documents indicate that much of the area upstream from the dam was likely entirely stripped of its upper soil horizons during the construction of the reservoir. According to Thorpe,

> "in preparing the reservoir, all trees, bushes, stumps, etc. were removed from the flooded area. The loam and vegetable matter were then removed and placed in an embankment at the upper end of the reservoir. The top of the embankment being from 1 to 2 ft [0.3 to 0.61 m] above the high-water line. The removal of the loam and muck makes the reservoir clean and attractive and will prevent the water from becoming colored and reduces the shallow flooded areas and prevents, to a large degree, vegetable growths" (Enosburg Falls 1925:26-27).

The amount of material removed was impressive. In 1923, the preliminary shovel tests for the dam indicated a layer of fine white sand just 6 to 8 in below the surface and

> "the amount thought necessary to remove was, therefore, based upon this examination. During construction it was found that, with few exceptions, the sand above mentioned, overlaid a stratum of decayed vegetable matter and which extended in places to a depth of three feet below the surface. It was necessary to remove all of this muck so as to have a clean bottom. The preliminary estimate

Figure 13. View of the impoundment area, looking north from the crest of the dam.

Figure 14. View of the impoundment area, looking south from the north end of the present pool's limit, towards the dam.

> was based on 3,000 cubic yards. The total amount removed, however, was 8,215 yards or 5,215 cubic yards in excess of the estimate and which at the contract price amounted to $6,518.00" (Enosburg Falls 1925:26-27).

Although not discussed by Thorpe, the speed of the project suggests the employment of heavy machinery such as drag line excavators, power shovels, and/or dump trucks to remove the organic material and upper soil horizons from the reservoir. Cores made in this area by UVM CAP indicate extensive sediment accumulation, but no buried surfaces, up to 3-4 ft (0.9-1.2 m) below the modern ground surface. Therefore, this area is not considered sensitive for precontact Native American archaeological sites, based on the documentary evidence of widespread ground disturbance as well as the area was likely formerly a wetland.

Western Construction Access

The proposed western construction access route follows an established improved dirt road from Reservoir Road northward to the active well houses near the dam then continues north running along the easterly edge of an open field to the north end of the current impoundment, then heads down a steep bank into the former impoundment area (see Figure 4). In the first part of the route, it is only in the area around the Trout Brook crossing that the proposed project's APE extends beyond the currently traveled dirt road, as culvert replacement is proposed here (see Figure 4). This area has been extensively altered by flooding and subsequent culvert and road repair and it is not considered sensitive for precontact Native American sites (Figures 15 – 17).

Most of the proposed access route in the field north of the well house has already been subject to an archaeological study including a pedestrian survey and subsurface testing, with no archaeological remains reported in the path of the proposed access route (Figure 18) (Knight 2023). However, within the access route in a small space between the field and the high bank overlooking the north end of the impoundment, an area not included in the earlier survey, intact soil profiles were found (some areas have a slight overburden) (Figures 19 and 20; see Figure 8). Given its proximity to a known site, its position on a level area overlooking the little valley of Trout Brook, and its intact soils, this area is considered sensitive for precontact Native American sites. Phase I testing is therefore recommended if it cannot be avoided during project work.

Figure 15. View of the culvert crossing Trout Brook on the proposed western access route, looking north.

Figure 16. View of the proposed western access route in the area where it crosses Trout Brook, looking south.

Figure 17. View of a cement culvert on Trout Brook and an extensive area of fill around it on the proposed western access route, looking southeast.

Figure 18. View of proposed western access route along the east side of the open farm field and on the right side of the impoundment, looking south.

Figure 19. View of the archaeologically sensitive area within the western access route, looking east towards the impoundment from the open field.

Figure 20. View of a hand core showing a largely undisturbed upper soil profile in the archaeologically sensitive area within the western access route on the right (west) side of the impoundment.

Eastern Construction Access

The proposed eastern access route follows an old road cut in 1924 when the dam was built. This road was created by extensive cut and fill into a moderate to steep side slope (Figures 21 – 23; see Figure 4). The area is not considered sensitive based on the steepness of the original slope and the historic period ground disturbance.

Figure 21. View along the proposed eastern access route to the project area, looking north; note cut and fill into steep slope.

Figure 22. View along the proposed eastern access route, looking south; note cut and fill into steep slope.

Figure 23. View of the terminus of the proposed eastern access route at the south end of the dam, looking northeast.

Staging Area

Two potential staging areas are proposed for the project. One is located within the farm field along the west side of the proposed western access route, between the established dirt road and the top of the high stream bank, on either side of a modern property line (Figure 24; see Figure 4). The higher portions of the APE in this area lie on top of a sandy / gravelly esker feature. Cores made on top of this feature did not encounter developed soil horizons, suggesting the possibility of either overburden or stripping in this area (the cores could not get very far). It was also noted that there is a slight but distinct difference in elevation running along a straight-line feature directly on the property boundary also suggesting the possibility of land modification on the Village's property. The lower lying ground in this part of the overall APE is situated on the silty glacial lake plain soil and not far from the projected shoreline of glacial Lake Vermont. Although moderately sloped, this area is potentially sensitive for precontact Native American sites. However, the abutting property could not be tested by coring at the time of the site visit as that landowner was not informed of the study and the village only has a right of way easement to the established road. Dure to its sensitivity, if the area on the adjacent property is to be used as a staging area for the proposed project, Phase I testing is recommended (see Figure 8).

A second staging area is located immediately north of Reservoir Road, at the juncture of the two proposed construction access routes (Figure 25; see Figure 4). This area has been modified by the construction and use of the roads and its use as a pull-off area. Little to no intact soils remain in this area and it is not considered sensitive for potential precontact Native American archaeological sites.

Figure 24. View of proposed staging area within the farm field along the west side of the western construction access route, looking south, along the property boundary (the bushes). The tree line in background is located near the projected margin of glacial Lake Vermont (VTORC 2024).

Figure 25. View of proposed staging area immediately north of Reservoir Road, at the juncture of the construction access routes, looking northeast.

Sediment Disposal Area

The proposed sediment disposal area is located on the isolated kame landform southeast of the dam, on both sides of an access drive that leads to the village's chlorination plant (Figures 26 – 28; see Figure 4). This area was purchased by the Village of Enosburg Falls in 1986 and previously had a farmstead complex on it (see Figures 1 and 7). The complex was removed between 1941 and 1962, and the area was subsequently redeveloped by the village for the chlorination system c. 1988 (Figure 29; see Figure 7). Large areas of ground with minimal vegetation and/or bare soils to the west of the chlorination plant, along with an aerial photograph from 1974, suggest that this area may have been disturbed an/or partially stripped (e.g., borrow/topsoil removal) (Figure 30). Hand cores attempted in this area confirm this disturbance as they go directly to gravel with no developed soil noted. This area is also located about 110 m (360 ft) southeast of Trout Brook, with a moderate slope to the brook. Due to the setting and significant disturbance, the sediment disposal area is recommended as not sensitive for precontact Native American sites.

Figure 26. View east of the sediment disposal site on the east side of the drive to the chlorination plant; note that this area is the location of former farmstead buildings.

Figure 27. View west of the sediment disposal site on the west side of the drive to the chlorination plant.

Figure 28. View southeast of the sediment disposal site on the west side of the drive to the chlorination plant, looking towards Reservoir Road.

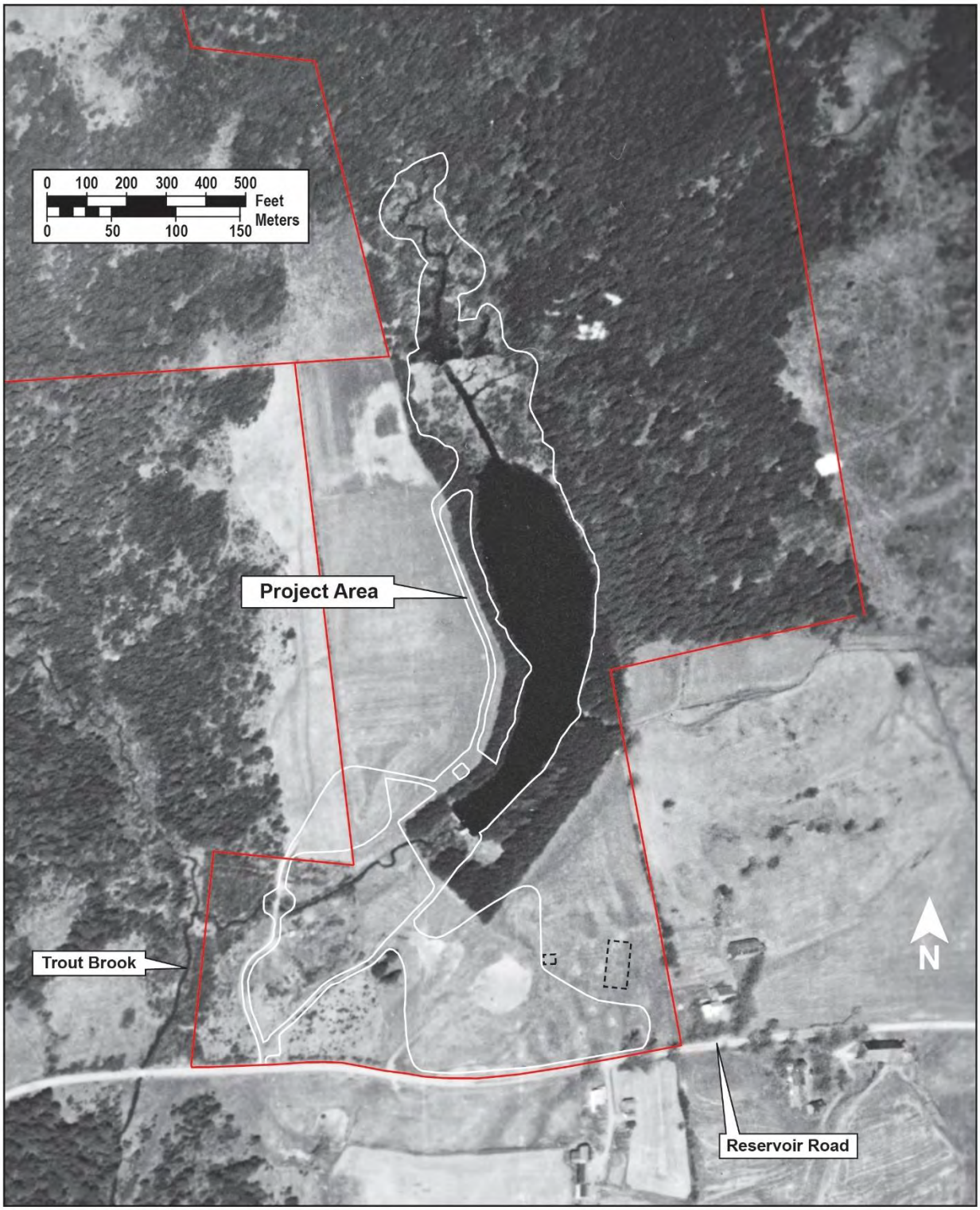

Figure 29. Detail of aerial photograph showing the Trout Brook Reservoir in 1962 and the farm buildings no longer present south of the reservoir; note dashed boxes are added current buildings/structures (Geotechnics & Resources Inc. 1962).

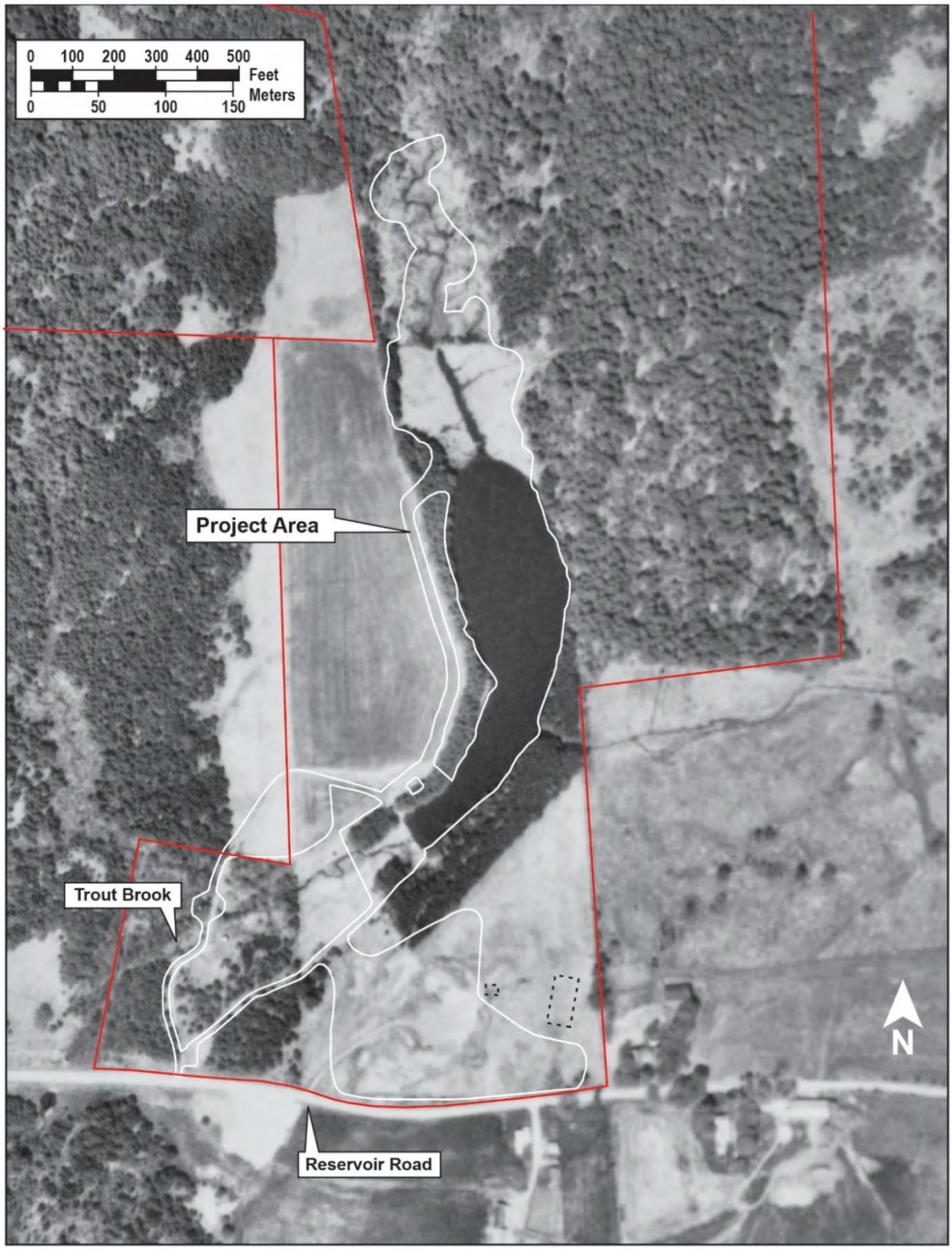

Figure 30. Detail of aerial photograph showing the Trout Brook Reservoir in 1974 and disturbed and/or partially stripped area west of the chlorination plant structures (dashed lines) (AreoGraphics Corp. 1974).

Red Canary Grass Restoration Area

The red canary grass restoration area is located upstream of the dam, toward the northern extent of the project area (Figure 31; see Figure 4). As noted in the sediment removal section, archival documents indicate that much of the area upstream from the dam was likely entirely stripped of its upper soil horizons during the construction of the reservoir. Soil cores taken in this area showed about 15 cm (6 in) of gray, probable impoundment sediments overlying more than 46 cm (18 in) of very homogeneous gray sediments with no soil development indicated (Figure 32). Soils here are mapped as Terric Medisaprists, which are described as poorly drained, so the area may have been a wetland type environment during the precontact period. Based on the lack of developed soils and likely disturbance from the creation of the reservoir, the red canary grass restoration area is recommended as not sensitive for precontact Native American sites.

Figure 31. View north toward the northern extent of the project area, within the red canary grass restoration area.

Figure 32. View of a hand core showing soil profile within the red canary grass restoration area.

Historic Euro-American Archaeology

Based on historic maps and land records research, other than its use as farm land, no early historic development took place at the dam site or along the proposed access roads leading to it (see Figures 10 and 11). The historic c. 1850 Jeffords farmstead formerly located at the proposed sediment disposal site, was removed between 1941 and 1962, and no evidence of the complex, such as foundation remains or historic debris scatter, was identified during the field visit (see Figures 7 and 29). The ground here appears to have been heavily disturbed during the construction of the chlorination plant and is very unlikely that any significant historic period archaeological resources remain intact. No portions of the Trout Brook Reservoir Dam Removal project are recommended as sensitive for historic Euroamerican archaeology sites.

HISTORIC RESOURCES REVIEW

At the Trout Brook Reservoir Dam, the APE for standing historic resources was identified as the project area and buildings / structures immediately adjacent to it (Figure 33). In addition to the dam, identified resources consist of buildings and structures associated with the current Village of Enosburg Falls well water supply system which includes two well houses, a chemical feed building and a concrete reservoir, along with a culvert that carries Trout Brook under the access road to the farm field, dam and well houses (see Figure 33). Buildings along Reservoir Road, near the sediment disposal portion of the project, were not identified as within the APE given that the spreading of the sediment would have no indirect effect on them. No resources within the APE in the dam area are listed on the National Register (NR) or State Register (SR) of Historic Places and none are included in the Vermont Architectural Resource Inventory / Historic Sites & Structures Survey. A farm complex that was located on the north side of Reservoir Road, just south of the concrete reservoir, was listed on the SR but it was demolished by 1962 (see Figures 7 and 29) (VDHP 1983).

The Trout Brook Reservoir Dam was built to supply water to the Village of Enosburg Falls, and so has a direct relationship to the Village. The downtown portion of the Village is listed on the SR as the "Enosburg Falls Downtown Historic District" (Figures 34 and 35) (VDHP 1984). The District is described as "a well-preserved example of an early mill and agricultural village in Northern Vermont which experienced a large amount of economic and residential growth in the last quarter of the 19th century due to the coming of the railroad" (VDHP 1984). The District consists of numerous residential and commercial buildings, along with churches, a school, two parks and a cemetery. The buildings date from c. 1830 – 1930 and represent the various styles of architecture from this 100-year period. Built in 1924, the construction of the Trout Brook Reservoir Dam falls within the period of significance for the Enosburg Falls Downtown Historic District and is recommended as a contributing resource to the District as it was constructed in response to the growing population of the Village and the need for a steady and sanitary water supply[11]. The Enosburg Falls Downtown Historic District is therefore also

[11] The dam is also likely a contributing resource to two adjacent SR-listed Historic Districts, the "Historic Railroad District" and the "Orchard Street – North Main Street Historic District." A desk review of these two districts indicates that they have histories and resources similar to the Enosburg Falls Downtown Historic District, and that they also retain integrity.

considered part of the APE for standing historic resources. A desk review that consisted of comparing photographs from the 1984 SR listing to current Google Earth imagery was conducted and determined that although some listed resources are no longer extant and others may no longer contribute due to alteration, the majority of the District retains integrity and remains eligible for inclusion on the SR. The Enosburg Falls Downtown Historic District also appears eligible for inclusion on the NR. A sample of the compared images are presented.

Figure 33. Map showing the Area of Potential Effect for standing historic resources at the Trout Brook Reservoir Dam site, with the location of buildings / structures within it identified.

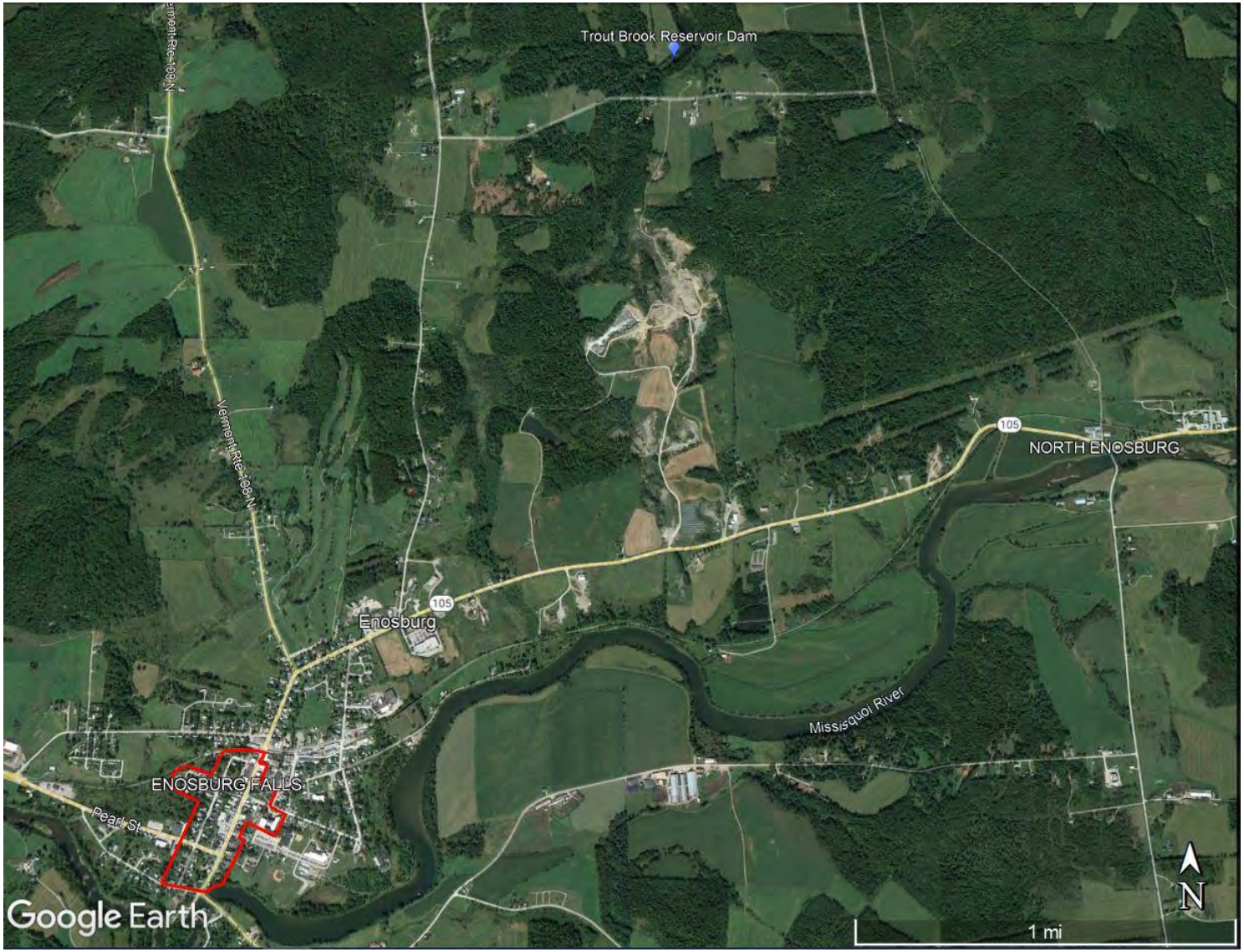

Figure 34. Map showing the location of the Enosburg Falls Downtown State Register-listed Historic District (red polygon) and the Trout Brook Reservoir Dam.

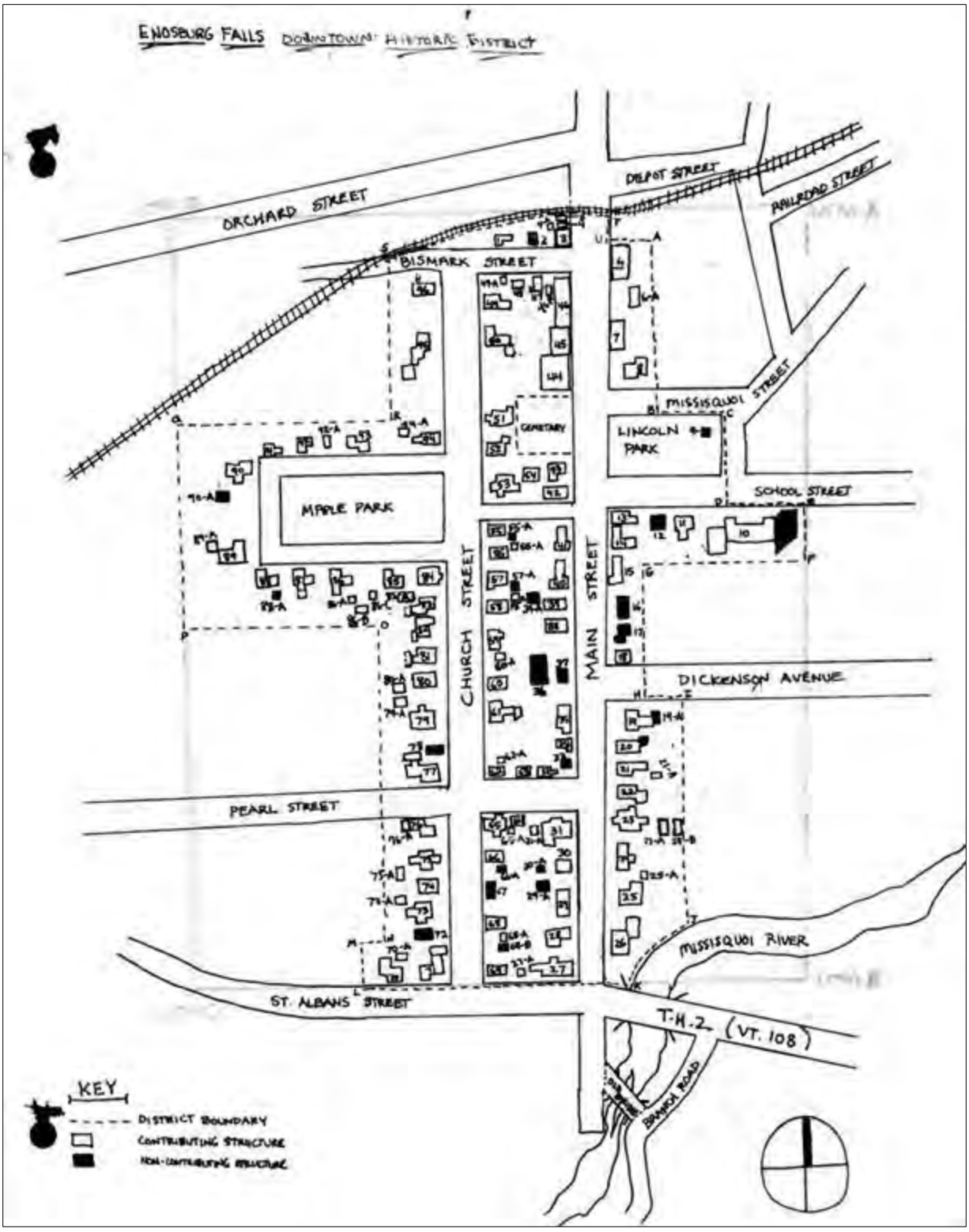

Figure 35. Map of the Enosburg Falls Downtown State Register-listed Historic District (VDHP 1984).

Trout Brook Reservoir Dam APE

Trout Brook Reservoir Dam

The Trout Brook Reservoir Dam, VT State ID #19.02, lies at latitude 44.9373114, longitude -72.78175971. The dam is a low, reinforced concrete masonry, straight, gravity-type dam on an earthen foundation[12] and has earthen embankments on both its upstream and downstream sides (Figures 36 and 37). The dam is assessed as in poor condition with significant cracks through its horizontal construction joints and seepage occurring under the structure (SLR 2023:1).[13] The main (or central) section of the dam is 112 ft long and is about 16 ft high (Figure 38) (Enosburg Falls 1925:26; SLR 2023:3-4). The crest sits about 14 ft above the bottom of the reservoir (Enosburg Falls 1925:26; SLR 2023:3-4).[14] The dam has a crest thickness of 3 ft and a base thickness of 8 ft (Figure 39) (Enosburg Falls 1925:26). However, the crest length given for the main dam does not include the "cut off walls" (wings) that "extend from the main section into the banks at both ends" (Figure 40) (Enosburg Falls 1925:26). Presently, the full traceable crest of the structure is about 128 ft (see Figure 12).

The geology of the site, specifically the unconsolidated sandy/gravelly deposits associated with the isolated kame and esker features at either the end of the structure resulted in the addition of two 'cut-off' walls[15] to the design while the dam was being built to prevent the flow of water under or around the structure (see Figure 36) (Enosburg Falls 1925:26). According to Thorpe,

> "in constructing the dam conditions were encountered which could not be foreseen and which had to be overcome. When the preliminary examination was made in 1923, test wells were dug at the site of the dam. These tests indicated hard impervious material at a depth of 5 to 7 ft below the surface. On excavating the base of the dam this material was found and extended for about 100 ft across the lower portion of the valley. At each end of this section the impervious material ended abruptly and sand and gravel thoroughly saturated with water was encountered, which extended into the banks at both ends of the dam. These conditions made work extremely difficult and in order to ensure tightness it was necessary to go to a large expense. All reasonable precautions are being used in order to prevent the water from finding its way either under or around the ends. At the south [left] end a trench three feet in width was excavated, beginning in the tight close material and extending southerly into the bank, a distance of 41 ft. The bottom at the deepest portion, being 29 ft below the top of the dam. A concrete cut-off wall

[12] Dams can be built on sand and gravel, "provided that water be prevented from flowing through the body of sand on which the dam rests, and the streambed be protected against wash on the downstream side, so that the toe may not be undermined. The complete prevention of any flow through the sand is practically impossible, but the path of water may be so lengthened, and its passage so retarded, that the velocity can never be sufficiently high to move any particles of sand" (Wegmann 1922:237).

[13] Concrete dams typically last 50-100 years, with maintenance.

[14] The full structural height of this dam is 36 ft.

[15] The term 'cut-off wall' usually refers to a section of wall built below the bottom of the dam proper to combat seepage under the structure. Standard cut off depth was usually a minimum of 1.6 x dam height (but was often up to 2.5 x dam height).

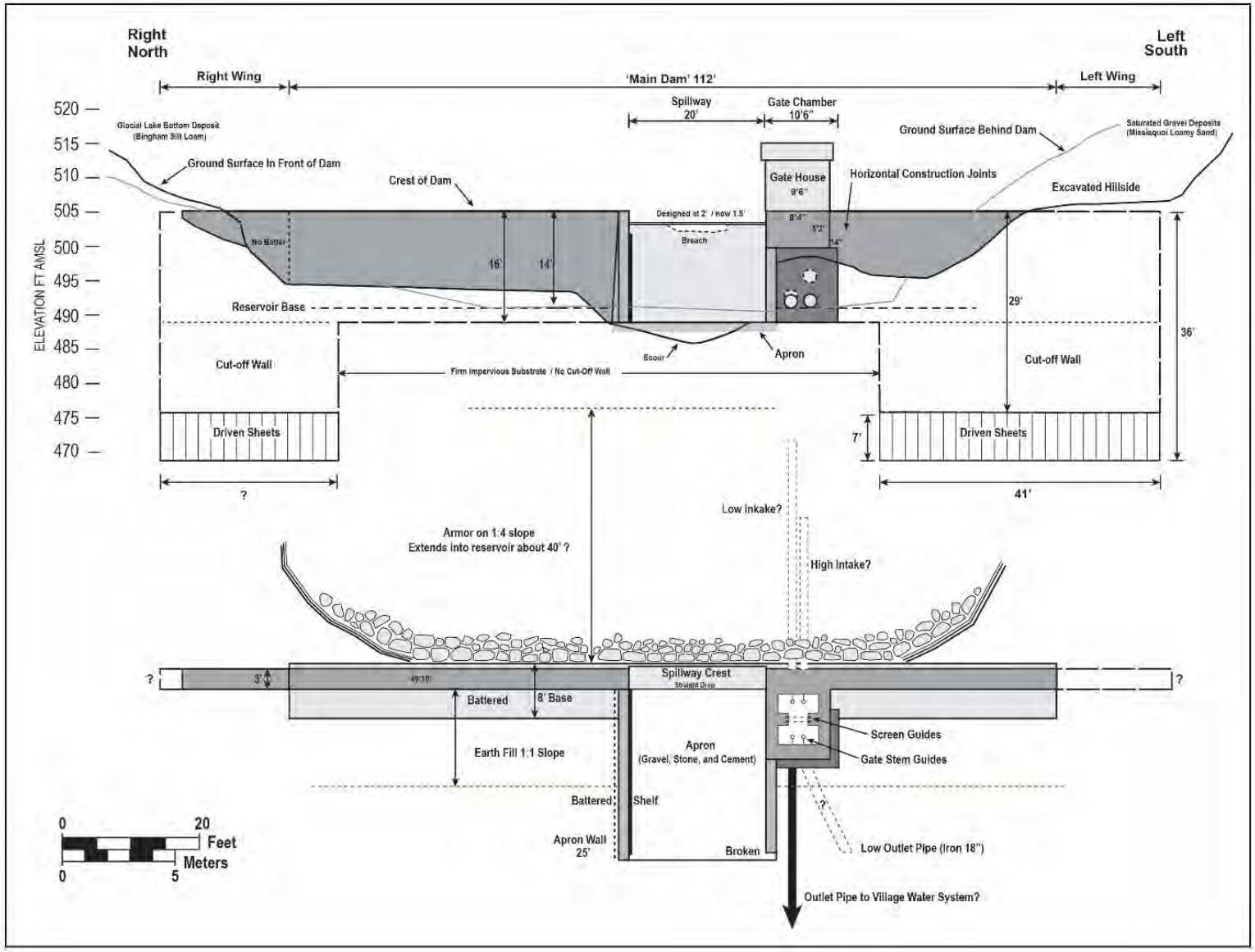

Figure 36. Elevation and plan of the Trout Brook Reservoir Dam, Bakersfield, Vermont.

Figure 37. View of the Trout Reservoir Dam, looking northeast.

Figure 38. View of the spillway and apron area of the main dam, looking north.

Figure 39. View of the crest of the dam, looking east across the spillway from the control chamber.

Figure 40. View of the right side of the main dam, looking west.

> was then constructed and forms a portion of the dam. Before the concrete was poured, the sheet piling on the upstream side was driven to a depth of about 7 feet below the bottom of the trench or at a total depth of 36 ft below the top of the dam.[16] At the north [right] end, the same conditions were encountered and met by the same method. The extra work at the ends of the dam involved an expenditure of about $3,000.00" (Enosburg Falls 1925:26).[17]

The spillway is located roughly in the center of the dam (Figure 41) (Enosburg Falls 1925:26). It was designed as "20 ft in width" and its crest was set at "2 ft below the top of the main dam" (Figure 42) (Enosburg Falls 1925:26). It appears that the spillway crest has been modified since its construction by the addition of some concrete, possibly to repair and/or reinforce this area, as it is now only 18 in deep. On either side of the spillway on the downstream

[16] According to a contemporary text, "where practicable, seepage should be prevented by carrying a tight cut-off, under the heel of the dam, to an impermeable foundation" (Creager 1917:184). Options for this included "interlocking steel sheet-piling, or tongued and grooved wood sheet-piling," however it was noted that "wooden sheet piling should never be used where the foundation contains boulders which are large enough to cause the piles to buckle or deflect. Even steel sheet-piling has been made useless under very heavy driving" (Creager 1917:184). Another period text noted, "where the layer of sand or gravel is so deep . . . the best plan is to drive sheet piling of wood or metal along the line of the cut-off wall. To do this a trench 2 or 3 feet deep should be dug the full length of the embankment and the piling driven continuously in the bottom of this trench. If the sand or gravel layer is under several feet of subsurface soil, the bottom of the reservoir should be puddled so that little water will seep through the bottom into the sand or gravel layer" (Lewis 1934:6).

[17] As in the case of all dams, "the site . . . will greatly influence the character of construction" (Lewis 1934:3). If there is "earth foundation, to prevent erosion and excessive seepage, requires an expenditure far in excess of that necessary for foundations of dam on rock. In fact, the cost of foundation treatment for dams on earth is often the major part of the total cost of the structure" (Creager 1917:183).

Figure 41. View of the right side of the spillway crest, looking east.

Figure 42. View of the right side of the spillway crest, looking west.

side of the structure are the apron (or lead) walls (Figures 43 and 44). These board formed concrete walls are 18 in thick and extend downstream about 25-26 ft. They guided the water away from the dam and in this case, protected the downstream earthen fill along the front of the dam. The right apron wall has a slight batter outward and a narrow 6 in 'shelf' running parallel to and 30.5 in below its top. The purpose of this last feature is not clear, but it could be a reinforcement. Directly below the spillway's straight drop was the dam's apron.[18] According to Thorpe, the apron's deck was composed of "gravel, over which stone paving, bedded in cement mortar, [was] laid" (Enosburg Falls 1925:26). Although this could not be directly observed during the field visit due to the water levels, this apron may be significantly damaged and/or largely lost. The SLR 2023 report indicates that there is a "large scour hole below the spillway undermining the dam" as well as a significant amount of displaced concrete and rip rap that has been distributed up to 40 ft downstream from the dam (SLR 2023:3-4). The apron would have dissipated the force and velocity of the water coming off the spillway and prevented scour at the toe of the dam. The main or central portion of this dam is battered outward slightly on its downstream side (Figure 45) (SLR 2023:3-4). According to Thorpe, "the downstream face" of the dam was also "protected by an earth embankment" when the structure was built (Enosburg Falls 1925:26). However, not much of this feature remains in place. It appears that water has been flowing over the non-spillway section of the dam and eroding this material away for some time.

[18] If water overflows a dam on a non-bedrock foundation site "there must be an apron" (Wegmann 1922:237). The apron "serves to protect the streambed from the power of the falling water and to prevent seepage of water under the structure" (Wegmann 1922:238). The length of the apron was generally calculated at "not less than 1.5 times the height of the dam" (Wegmann 1922:238).

Figure 43. View of the outside surface of the right apron wall, looking east.

Figure 44. View of the spillway and apron area, looking west.

Figure 45. View of the left side of the main dam's downstream face, looking west.

To the left of the spillway, on the downstream side of the dam, there is a gate chamber (or control chamber), which was built as "an integral part of the dam" (e.g., one part of the chamber wall is also part of the left apron wall and another part of the chamber wall is also part of the main dam[19]) (Figures 46 – 49) (Enosburg Falls 1925:26; SLR 2023:3-4). The exterior of the chamber measures 9.33 by10.25 ft and it "extends from the bottom of the reservoir to the top of the dam" (Enosburg Falls 1925:26). The lower part of the chamber is reinforced by an additional 13-14 in of concrete on two sides starting at 4 ft 6 in down from the crest next to the dam face and angling down to 5 ft 2 in below the dam crest on its downstream face. The interior space of the chamber measures 7 ft 4 in by 6 ft and has walls about 26 in thick. This space likely included both the intake and outlet gates for the dam. Four ferrous gate thread guides are still in position protruding from the chamber's walls, two on the upstream wall and two on the downstream wall, but the floor of the gate house and the hoist mechanisms are no longer present. It is possible that the gate leaf(s) and guides, or, possibly in this case, gate valves could still be present under the water (Figure 50). According to Thorpe, "the gates are so located that the water can be drawn from the bottom of the reservoir or from a point 5 ft above the bottom" (Enosburg Falls 1925:26). Built into the foundation of the control chamber were formed concrete guides designed to retain frames equipped with ¼ in copper mesh screens (Enosburg Falls 1925:26). These screens were placed to "prevent all floating matter as well as fish from entering the piping system" (Enosburg Falls 1925:26). All the water in the system had to pass these screens (Enosburg Falls 1925:26). The screens were "removable and can easily be taken out and cleaned when necessary" (Enosburg Falls 1925:26). The formed gate guides were 2.5 in wide.

[19] Along the gate chamber area, the dam crest is 3 ft 9 in (1.1 m) wide.

Figure 46. View of the gate house and control chamber on the left side of the spillway, looking east.

Figure 47. View of the gate house and control chamber on the left side of the spillway, looking north.

Figure 48. View of the gate house and control chamber on the left side of the spillway, looking west.

Figure 49. View of the gate house and control chamber on the left side of the spillway, looking west.

Figure 50. View of the interior of the gate chamber; note the concrete formed guides for the copper screens and the metal gate thread guides.

A wooden gate house sits on top of the gate chamber. The structure has vertical board siding and a shed roof. On its upstream side, it measures 116 in from the top of the dam to the bottom its roof, on the downstream side is measures 93 in to the base of the roof . The structure has one 30 in wide door opening centered on in its upstream (north) side, two rectangular openings at ground level to the left of the door, one rectangular opening at ground level to the right of the door, and a small window type opening under the roof line on the east wall. A plain wooden bracket is attached to the rear (south) wall of the gate house just above the concrete chamber (Figures 51 and 52).

Thorpe noted that, "a blow-off pipe is provided and discharges into the brook at a point a short distance below the dam" (Enosburg Falls 1925:26). The end of an 18 in diameter iron pipe was observed partially buried in the streambed about 18.5 ft south of and about 5 ft below the visible concrete portion of the control chamber, which could be the 'blow-off pipe'(Figure 53; see Figure 51).

According to Thorpe, "the dam is constructed of concrete mixed in the proportion of 1 part cement to 2.5 parts sand and 4.5 parts gravel screened.[20] Small boulders[21] were bedded in the concrete. These were thoroughly washed and cleaned before being put in place. By their use a material saving was made to the Village in the cost of cement" (Enosburg Falls 1925:26).[22] The concrete was placed into the structure in a series of lifts.[23] The two uppermost lifts are three feet high, and the lower lifts appear to be somewhat higher. There are clear longitudinal construction joints between the upper lifts that have deteriorated significantly (see Figures 15 and 20).

[20] According to the SLR dam inspection report, the concrete aggregate was composed of "river gravel and cobble" (SLR 2023).

[21] Larger aggregates were often employed as a cost cutting filler in massed concrete work where "the walls are not less than 3 or 4 feet thick" (Cochran 1913:366; Hool, Johnson, and Hollister 1918:20). According to contemporary sources, coarse aggregate was defined as under 3 inches and 'rubble' aggregate was defined as greater than 3 inches and up to 100 pounds (American Society for Testing Materials Vol. 21 Proceedings of the Twenty-Fourth Annual Meeting 1921:227 American Society for Testing Materials, Philadelphia, Pennsylvania). Of the rubble aggregate, pieces larger than 5 inches were often referred to as 'plums' (Hool, Johnson, and Hollister 1918:21) and larger aggregates were often called pudding stones, boulders, displacement stones, or bulk-swellers (Cochran 1913:366-367). The amount of rubble stone incorporated into massed concrete structures at this time usually ranged from 15% to 25% (though up to 60% could be used) (Cochran 1913:366). Modern definitions put 'cobbles' at 6.4 cm to 25.6 cm and boulders at more than 24.5 cm.

[22] Not until the 1940s were trucks developed to transport wet concrete, therefore, the concrete for this dam was probably mixed on site (https://mudmixer.com/the-evolution-of-concrete-mixers-from-traditional-to-modern/). It could have been mixed by hand on temporary wooden platforms specially built for the purpose or by machine. In the early 1900s, the "technologies for mixing and distributing concrete developed quickly" (Slaton 2001:146). "Steam and then gas-operated mixers proliferated between 1900 and 1920" to supply "a nonstop flow of concrete to waiting forms" (Slaton 2001:146).

[23] A 'lift' refers to a series 6 to 8 in (15.2 to 20.3 cm) thick layers of concrete placed in quick succession measuring up to several feet, thick top to bottom, which were then rammed or hand tamped (Reid 1907:87; Portland Cement Association 1916). Before the next lift could be started, the surface of the previous one was cleaned, roughened, and a bonding layer of mortar / cement paste "having the consistency of cream" was laid down (Reid 1907:87).

Figure 51. View of the gate house and control chamber on the left side of the spillway, looking west, note bracket on back of structure.

Figure 52. Close up view of bracket on back of gate house structure.

Figure 53. View of iron pipe / possible "blow-off pipe" south of the gate house and control chamber on the left side of the spillway.

In addition to adding 'small boulders' into the concrete, another cost cutting tactic used in this dam appears to have been the use of 'scrap metal reinforcement.'[24] Metal reinforcement was commonly used in dams by the early 20th century. While 'twisted bar' (aka. Ransome Bar), 'plain bar,' and 'deformed bars' (aka. rebar), were all available when this dam was built, the builders chose to use scrap metal. Initial research suggests that some low head concrete dams built from ca. 1904 up to the 1920s may contain scrap metal, such as old rails (especially light gauge rails), rods, iron wagon tires, iron pipes, collected from blacksmith shops, machine shops, manufacturing plants, etc., instead of the more standardized / engineered metal reinforcements (Brown 1905:346; Fegley 1915:5; Van Wegenen 1909:107). In this dam, all the metal reinforcement elements observed were different: different sizes, different shapes; some perforated, some not. The most common group appears to be very slightly curved, punched beveled bars with rounded ends ranging from 2 to 2.5 in wide (Figure 54) (SLR 2023). However, other pieces are very different (Figure 55). The method of reinforcement placement was the 'loose bar' or 'loose-rod system,' meaning that each piece of reinforcement was placed "as a separate unit without any mechanical union to its neighboring piece" (Ballinger and Perrot 1909:10). Though some of the pieces appeared to be lapped, they were not connected. The larger metal elements run horizontally through the structure, but between the lifts there appears to be a

[24] According to one concrete manual from 1918, "in recent years the use of reinforced concrete has spread very rapidly, and in 1904 a beginning was made of building dams of this material" (Wegmann 1918:210). It appears that various metal reinforcement was integrated into dams (to add strength to concrete under tension) increasingly as the "laws governing the combination of concrete and steel" (especially in connection with water) "although not absolutely fixed, are known with sufficient exactness to permit the design of nearly all classes of structures with assurance" (Taylor and Thompson 1905:282).

Figure 54. View of exposed metal reinforcement elements on the left side downstream face of structure; also note the concrete aggregate sizes and volume.

Figure 55. View of an exposed metal reinforcement element embedded in the right apron wall.

series of two strand twisted wires (together totaling about 1/8" in diameter) placed every 16 in / 1.33 ft (or so) running from heel to toe through the structure (SLR 2023). These are most likely wire form ties used to stabilize the wooden concrete forms used in the construction of the dam when filled with concrete.

According to Thorpe, "the upstream face of the dam is protected by an earth embankment over which stone paving is laid" (Figures 56 and 57) (Enosburg Falls 1925:26). This large feature starts about 3-4 ft below the top of the dam, has a relatively level top up to about 3 ft wide, then slopes down into the impoundment on a 1:4 slope (SLR 2023:Dam Inspection Report). The flat pavement stones armoring the entire top of the embankment were tabular and generally ranging from 2 to 3 ft in either top dimension and were from 2-5 in thick. Both the upstream and downstream earthen embankment features were likely included to help prevent seepage under the structure.

One final feature of the site was mentioned by Thorpe, who wrote,

> "there is at this location an area of meadow and pastureland, the run-off from which, during heavy rains, discharged into the reservoir at a point about 500 ft above the dam. Acting upon the advice of the State Board of Health, this portion of the watershed was diverted to a point below the dam. In order to prevent the water from entering the reservoir, a small collecting dam was built at a point near the Davis property and about 500 ft above the main dam. A line of cast iron pipe, 16 inches in diameter, was laid from the collecting dam, along the bottom and southerly side of the reservoir and through the main dam to a point where the water finds its way into the brook" (see Figure 8) (Enosburg Falls 1925:26-27).

This feature may have been revisited in ca. 1927 to comply with recommendations made by the State Board of Health. At that time the village,

> "diverted the so-called East Branch in such a manner that there should be no overflow from this branch into our reservoir. This was done by digging a suitable ditch from a point above the reservoir down to the dam on the south side of the reservoir. The water collected by this dam is discharged below the main dam, through a proper size cast iron pipe" (see Figure 8) (Enosburg 1927:26).

Figure 56. View of the upstream stone pavement feature, looking eastwards.

Figure 57. View of the pavement feature on the upstream side of the dam, looking northeast.

Current Well Water Supply System Buildings / Structures

Buildings and structures within the APE that are associated with the current Enosburg Falls well water supply system include two well houses, a chemical feed building and a concrete reservoir (Figure 58; see Figure 33). These resources date from c. 1950 – 1988 and do not have a direct relationship to the Trout Brook Reservoir Dam as they were constructed as part of the well water system that replaced the dam water system. Although they are directly related to the Village of Enosburg Falls and to the Enosburg Falls Downtown Historic District, they lie outside of the period of significance for the District so are not recommended as contributing resources to the District. All but one of the buildings / structures are less than fifty years old, so they are also not recommended as eligible for inclusion on the NR or SR as a separate district / complex due to age. The one building that is greater than fifty years old, Well House #1, is not recommended as eligible due to a lack of distinctive characteristics of type, period or method of construction.

Well House #1 is a square plan, board-formed concrete building with a flat roof (Figures 59 and 60). It has a solid metal door centered on its front (west) side and a 6-pane fixed wooden window with concrete sill centered on its rear (east) wall. It rests on a concrete footing / slab. Small air vents are in place on its north and south walls, and numerous electrical components are attached to its north wall. Well House #1 appears in the 1962 aerial photograph, and it is likely one of the early well houses, dating to c. 1950 (see Figure 29).

Well House #2 is a square plan, brick building with a shed roof (Figures 61 and 62). It has a solid metal door centered on its front (west) side and a 6-pane fixed wooden window with concrete sill centered on its rear (east) wall. It rests on a concrete footing / slab. Small air vents are in place on its north and south walls, and electrical components enter the building at its southwest corner. A large water pipe enters the building at ground level on its north side. Well House #2 does not appear in the 1974 aerial photograph, but it is constructed by 1989 (see Figures 30 and 58). It may date to c. 1988 when the Concrete Reservoir and Chemical Feed Building on the north side of Reservoir Road were completed (plaque on Chemical Feed Building).

The Chemical Feed Building is a one-story, square plan building with a metal gable roof (Figure 63). It has vinyl siding, a solid metal door at the south end of its front (east) wall, single pane casement windows, gable peak triangular vents, and square vents under the gable peak vents. It rests on a concrete slab. A plaque on the door of the buildings indicates that its construction was completed in 1988 (Figure 64).

The Concrete Reservoir is built into an approximately 24 ft earthen mound (Figures 65 and 66; see Figure 58). Plans describe it as a "700,000 gallon, 2 cell, poured in-place concrete reservoir" (see Figure 58). The structure is surrounded by a chain link fence. The reservoir was part of the Village of Enosburg Falls Water Supply Improvements Project completed in 1988 (see Figure 64).

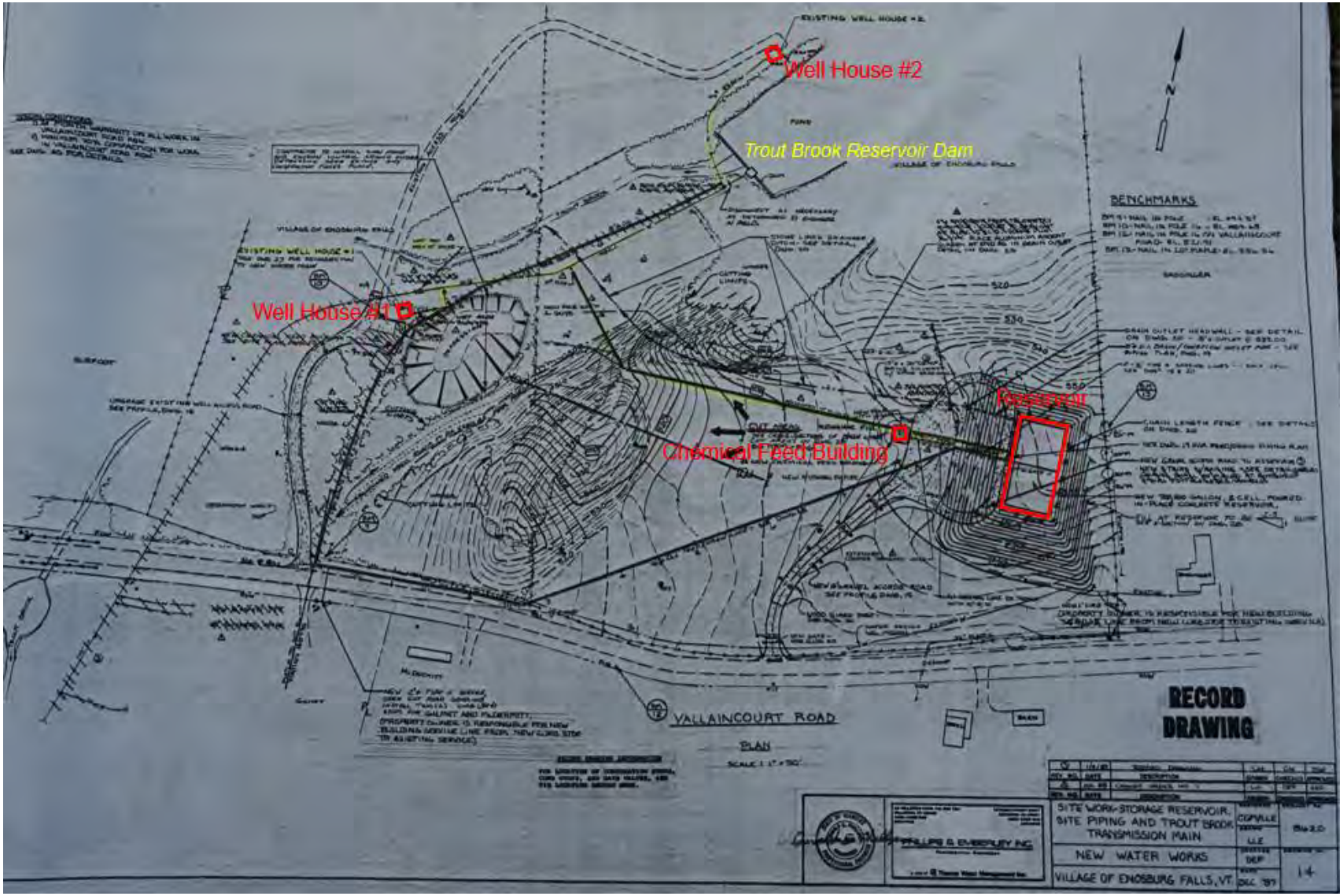

Figure 58. Plan (1989) of the Enosburg Falls Water Works with identified standing buildings and structures within the historic resources Area of Potential Effect labeled (provided by the Village of Enosburg).

Figure 59. View northeast (left) and southeast (right) of Well House #1.

Figure 60. View northwest of the rear side of Well House #1.

Figure 61. View northeast (left) and southwest (right) of Well House #2.

Figure 62. View southwest of window in the rear side of Well House #2.

Figure 63. View northwest of the Chemical Feed Building.

Figure 64. Plaque on the door of the Chemical Feed Building.

Figure 65. View east of the Concrete Reservoir.

Figure 66. View northeast of the Concrete Reservoir.

Culvert

The culvert that carries Trout Brook under the access road to the farm field, well houses and dam, consists of two side-by-side pipes (Figures 67 and 68; see Figures 15 – 17). The large pipe is a 30-inch diameter concrete pipe, and the smaller pipe is a 24-inch diameter corrugated metal pipe. They are surrounded by road fill consisting of sediment, gravel, cobbles and rock and have no associated features such as head walls or wing walls. The culvert is not recommended as eligible for listing on the NR or SR due to a lack of distinctive characteristics of type, period or method of construction.

Figure 67. View southwest of the inlet side of the culvert that carries Trout Brook under the west access road.

Figure 68. View southeast of the outlet side of the culvert that carries Trout Brook under the west access road.

Enosburg Falls Downtown Historic District APE

Figure 69. View southwest along Main Street (1984).

Figure 70. Google Earth view southwest along Main Street (2019).

Figure 71. View west of the cemetery on the west side of Main Street (1984).

Figure 72. Google Earth view west of the cemetery on the west side of Main Street (2019).

Figure 73. View southwest along Main Street (1984).

Figure 74. Google Earth view southwest along Main Street (2019).

Figure 75. View northeast along Main Street (1984).


Figure 76. Google Earth view northeast along Main Street (2019)

Figure 77. View northwest along Main Street (1984).

Figure 78. Google Earth view along Main Street (2012).

Figure 79. View southeast along Main Street (1984).


Figure 80. Google Earth view southeast along Main Street (2019).

Figure 81. View southwest of house at the corner of Pearl and Main streets (1984).

Figure 82. Google Earth view southwest of the house at the corner of Pearl and Main streets (2019).

Figure 83. View northwest of a house along the west side of Church Street (1984).

Figure 84. Google Earth view northwest of a house along the west side of Church Street (2019).

Figure 85. View northwest of a house along the north side of St. Albans Street (1984).

Figure 86. Google Earth view north of a house along the north side of St. Albans Street (2019).

Figure 87. View northwest of a church along the west side of Church Street (1984).

Figure 88. Google Earth view northwest of a church along the west side of Church Street (2019).

Figure 89. View southwest of a house along the south side of Maple Park (1984).

Figure 90. Google Earth view southwest of a house along the south side of Maple Park (2019).

Figure 91. View northeast of the house at the corner of Bismark and Church streets (1984).

Figure 92. Google Earth view northeast of the house at the corner of Bismark and Church streets (2019).

Figure 93. View southwest of livery stable along the south side of Bismark Street (1984).

Figure 94. View southwest of livery stable along the south side of Bismark Street (2019).

Figure 95. View southeast of school along the north side of School Street (1984).

Figure 96. Google Earth view southeast of school along the north side of School Street (2019).

SUMMARY AND RECOMMENDATIONS

The Franklin County Natural Resources Conservation District proposes the removal of the Trout Brook Reservoir Dam, located in Berkshire, Franklin County, Vermont. The dam, which is owned by the Village of Enosburg Falls and located north of Reservoir Road, was built in 1924 to supply water to the Village of Enosburg Falls and operated until 1946. The proposed project will reconnect 4.8 mi (7.7 km) of the Missisquoi River watershed. A proposed sediment disposal site is located near the chlorination facility on the same village owned property as the dam. Two possible construction access routes have been identified. One follows up the eastern side of the brook from Reservoir Road along an old overgrown access road to the dam, which was probably cut during the dam's construction, and the other runs along a modern access road leading from Reservoir Road to the wells currently used by the village on the western side of the brook, before continuing northward along the east edge of an open field to the north end of the current impoundment. Kate Kenny and Catherine Quinn of the University of Vermont Consulting Archaeology Program conducted an Historic Resources Review (HRR) and Archaeological Resources Assessment (ARA) of the proposed project to assist with satisfying Section 106 permit requirements. Extensive background research was conducted, and a field inspection of the project area was conducted by Kenny and Quinn on April 22, 2024.

Archaeological Resources Assessment

As a result of the ARA, two locations within the archaeological APE for the Trout Brook Reservoir Dam Removal project were identified as sensitive for precontact Native American sites (see Figure 8). Both areas are located on the west side of Trout Brook, the dam and its reservoir. One area lies within the proposed west access route in a small space between the field and the high bank overlooking the north end of the impoundment. Given its proximity to a known site, its position on a level area overlooking the little valley of Trout Brook, and its intact soils, this area is considered sensitive for precontact Native American sites. Phase I testing is therefore recommended if it cannot be avoided during project work.

The second sensitive area is located within the farm field along the west side of the proposed western access route, between the established dirt road and the top of the high stream bank. Although moderately sloped, this area is situated near the projected shoreline of glacial Lake Vermont which would have been an attractive habitat for Native American populations. If the area is to be used as a staging area for the proposed project, Phase I testing is recommended.

Based on historic maps and land records research, other than its use as farm land, no early historic development took place at the dam site or along the proposed access roads leading to it. The historic c. 1850 Jeffords farmstead formerly located at the proposed sediment disposal site, was removed between 1941 and 1962, and no evidence of the complex, such as foundation remains or historic debris scatter, was identified during the field visit. The ground here appears to have been heavily disturbed during the construction of the chlorination plant and it is very unlikely that any significant historic period archaeological resources remain intact. No portions of the Trout Brook Reservoir Dam Removal project are recommended as sensitive for historic Euroamerican archaeology sites.

Historic Resources Review

The HRR review of the proposed removal of the Trout Brook Reservoir Dam project recommends that based on its relationship to the Village of Enosburg Falls, the dam is a contributing resource to at least one, and probably two additional State Register-listed Districts that are designated within the Village: the Enosburg Falls Downtown Historic District, the Historic Railroad District, and the Orchard Street – North Main Street Historic District. The dam was constructed in response to the growing population of the Village and the need for a steady and sanitary water supply, and its construction falls within the period of significance for the Districts, c. 1830 – 1930. Review of the Enosburg Falls Downtown Historic District recommends that it is eligible for inclusion on the National Register of Historic Places; removal of the dam is therefore recommended as an Adverse Effect.

The completion of a Historic Resources Documentation Package (HRDP) is recommended to assist with mitigation of the Adverse Effect by fully documenting the dam. Given the wooded setting of the dam, additional photographs for the HRDP should be taken in the early spring or late fall when vegetation is less dense. As part of the HRDP, monitoring is recommended during the dewatering and exposure of the interior of the lower control / gate chamber on the dam as operating mechanisms may still remain below water and may add to the knowledge of how the dam operated. The results of the control / gate chamber monitoring could be reported in the HRDP.

This ARA and HRR of the Trout Brook Reservoir Dam Removal project is based on conceptual plans prepared by SLR. Final plans will require additional review. Any substantial changes to the conceptual plans may result in different recommendations. The Vermont State Historic Preservation Office (SHPO) will have the opportunity to review and comment on all recommendations prior to project work.

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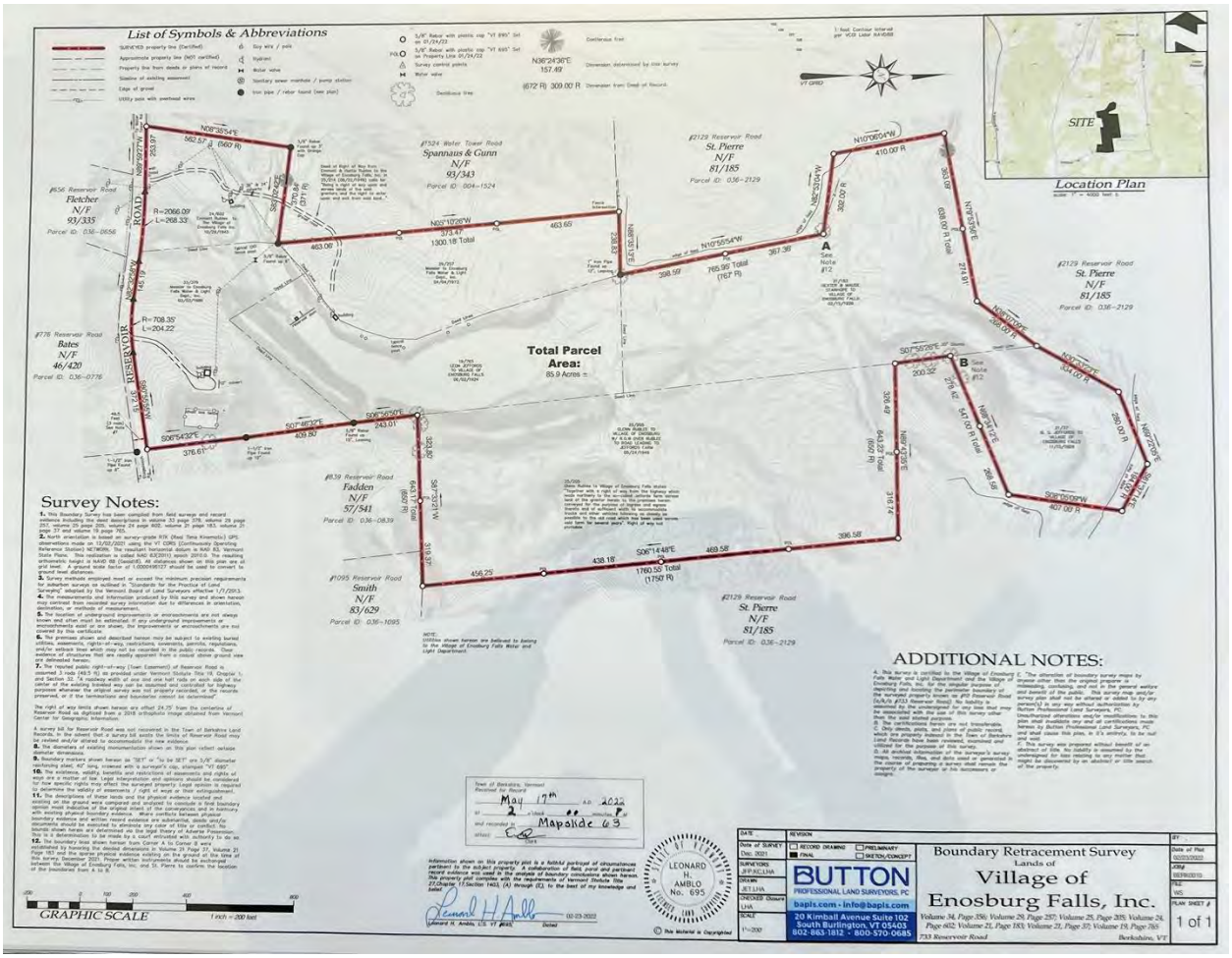
APPENDIX I: BUTTON PROFESSIONAL LAND SURVEYORS BOUNDARY RETRACEMENT SURVEY



2021 Boundary Retracement Survey Lands of Village of Enosburg Falls, Inc., 733 Reservoir Road, Berkshire, Vermont. Button Professional Land Surveyors PC.

APPENDIX II: VDHP ENVIRONMENTAL PREDICTIVE MODEL FOR LOCATING PRECONTACT ARCHAEOLOGICAL SITES

VERMONT DIVISION FOR HISTORIC PRESERVATION

Environmental Predictive Model for Locating Precontact Archeological Sites

Project Name Trout Brook Reservoir Dam County FR Town Berkshire
DHP No. _____ Map No. _____ Staff Init. _____ Date _____
Additional Information _____

Environmental Variable	Proximity	Value	Assigned Score
A. RIVERS and STREAMS (EXISTING or RELICT):			
1) Distance to River or Permanent Stream (measured from top of bank)	0- 90 m 90- 180 m	12 6	12
2) Distance to Intermittent Stream	0- 90 m 90-180 m	8 4	8
3) Confluence of River/River or River/Stream	0-90 m 90 –180 m	12 6	0
4) Confluence of Intermittent Streams	0 – 90 m 90 – 180 m	8 4	0
5) Falls or Rapids	0 – 90 m 90 – 180 m	8 4	0
6) Head of Draw	0 – 90 m 90 – 180 m	8 4	0
7) Major Floodplain/Alluvial Terrace		32	0
8) Knoll or swamp island		32	0
9) Stable Riverine Island		32	0
B. LAKES and PONDS (EXISTING or RELICT):			
10) Distance to Pond or Lake	0- 90 m 90 -180 m	12 6	0
11) Confluence of River or Stream	0-90 m 90 –180 m	12 6	0
12) Lake Cove/Peninsula/Head of Bay		12	0
C. WETLANDS:			
13) Distance to Wetland (wetland > one acre in size)	0- 90 m 90 -180 m	12 6	12
14) Knoll or swamp island		32	0
D. VALLEY EDGE and GLACIAL LAND FORMS:			
15) High elevated landform such as Knoll Top/Ridge Crest/ Promontory		12	0
16) Valley edge features such as Kame/Outwash Terrace**		12	0

-over-

May 23 ,2002

17) Marine/Lake Delta Complex**		12	0
18) Champlain Sea or Glacial Lake Shore Line**		32	32
E. OTHER ENVIRONMENTAL FACTORS:			
19) Caves /Rockshelters		32	0
20) [ ] Natural Travel Corridor [ ] Sole or important access to another drainage [ ] Drainage divide		12	0
21) Existing or Relict Spring	0 – 90 m 90 – 180 m	8 4	0
22) Potential or Apparent Prehistoric Quarry for stone procurement	0 – 180 m	32	0
23)) Special Environmental or Natural Area, such as Milton acquifer, mountain top, etc. (these may be historic or prehistoric sacred or traditional site locations and prehistoric site types as well)		32	0
F. OTHER HIGH SENSITIVITY FACTORS:			
24) High Likelihood of Burials		32	0
25) High Recorded Site Density		32	0
26) High likelihood of containing significant site based on recorded or archival data or oral tradition		32	0
G. NEGATIVE FACTORS:			
27) Excessive Slope (>15%) or Steep Erosional Slope (>20)		- 32	0
28) Previously disturbed land as evaluated by a qualified archeological professional or engineer *based on coring, earlier as-built plans, or* obvious surface evidence (such as a gravel pit)		- 32	0

** **refer to 1970 Surficial Geological Map of Vermont**

Total Score: 64

Other Comments :

0- 31 = Archeologically Non- Sensitive
32+ = Archeologically Sensitive

END OF FIELD LETTER REPORT FOR ARCHAEOLOGICAL PHASE I SITE IDENTIFICATION FOR THE TROUT BROOK RESERVOIR DAM REMOVAL PROJECT, BERKSHIRE, FRANKLIN COUNTY, VERMONT

University of Vermont
Consulting Archaeology Program
180 Colchester Avenue
111 Delehanty Hall
Burlington, VT 05405
Report No. 1669

December, 2024

END OF FIELD LETTER REPORT FOR ARCHAEOLOGICAL PHASE I SITE IDENTIFICATION FOR THE TROUT BROOK RESERVOIR DAM REMOVAL PROJECT, BERKSHIRE, FRANKLIN COUNTY, VERMONT

Prepared by:

Geoffrey A. Mandel
&
John G. Crock, Ph.D.

Prepared for:

Lauren Weston
District Manager
Franklin County Natural Resources Conservation District
50 South Main Street, Suite B-20
Saint Albans, Vermont 05478

University of Vermont
Consulting Archaeology Program
180 Colchester Avenue
111 Delehanty Hall
Burlington, VT 05405
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INTRODUCTION

The Franklin County Natural Resources Conservation District (FCNRCD) proposes the removal of the Trout Brook Reservoir Dam[1] (VT State ID #19.02), located in Berkshire, Franklin County, Vermont (Figures 1). The dam, which is owned by the Village of Enosburg Falls and located on an 87.67-acre parcel north of Reservoir Road, was built in 1924 to supply water to the Village of Enosburg Falls (SLR 2023:13). The proposed project will reconnect 4.8 mi (7.7 km) of the Missisquoi River watershed (SLR 2023:1) (Figure 2). The proposed sediment disposal site is located near the chlorination facility on the same village owned property as the dam. Two possible construction access routes have been identified. One follows up the eastern side of the brook from Reservoir Road along an old overgrown access road to the dam, which was probably cut during the dam's construction, and the other runs along a modern access road leading from Reservoir Road to the wells currently used by the village on the western side of the brook, before continuing northward along the east edge of an open field to the north end of the current impoundment (Figure 4) (SLR 2023:38).

The University of Vermont Consulting Archaeology Program (UVM CAP) completed an Archaeological Resources Assessment (ARA) and Historic Resource Review (HRR) of the proposed project on behalf of the Village of Enosburg Falls and (FCNRCD) (Kenny and Quinn, 2024). The ARA and HRR were undertaken to assist with satisfying federal and state permitting requirements, including Section 106 of the National Historic Preservation Act (NHPA) as amended, and Vermont's Historic Preservation Act, 22 VSA 14. The ARA included detailed cultural and environmental contexts and will be referenced in this letter report as needed. As a result of the ARA, two areas within the proposed project's Area of Potential Effects (APE) were determined to be archaeologically sensitive for containing precontact Native American sites. These areas were designated as the Western Construction Access and Staging Area (Figure 3).

The proposed western construction access route follows an established improved dirt road from Reservoir Road northward to the active well houses near the dam then continues north running along the easterly edge of an open field to the north end of the current impoundment, then heads down a steep bank into the former impoundment area (see Figure 4). In the first part of the route, it is only in the area around the Trout Brook crossing that the proposed project's APE extends beyond the currently traveled dirt road, as culvert replacement is proposed here (see Figure 3). This area has been extensively altered by flooding and subsequent culvert and road repair and it is not considered sensitive for precontact Native American sites.

Most of the proposed access route in the field north of Well House 2 was studied at the Phase I site identification level relating to the installation of solar array project. This study resulted in the identification of precontact Native American site VT-FR-0466 (Knight 2023). This site was identified by the recovery of four lithic artifacts collected from the plowed surface of the field in the northeast corner of the solar project APE (Figure 4) (Knight 2023). Much of the proposed construction vehicle access road was surveyed during the unrelated study for the adjacent solar project and no sites were identified. At the northern end of the proposed construction access route, however, the area where the proposed access road heads toward the impoundment over a small terrace was not previously studied and is considered sensitive for precontact Native American sites. This sensitivity is based upon the local topography, proximity

[1] Also known as the 'Enosburg Reservoir Dam.'

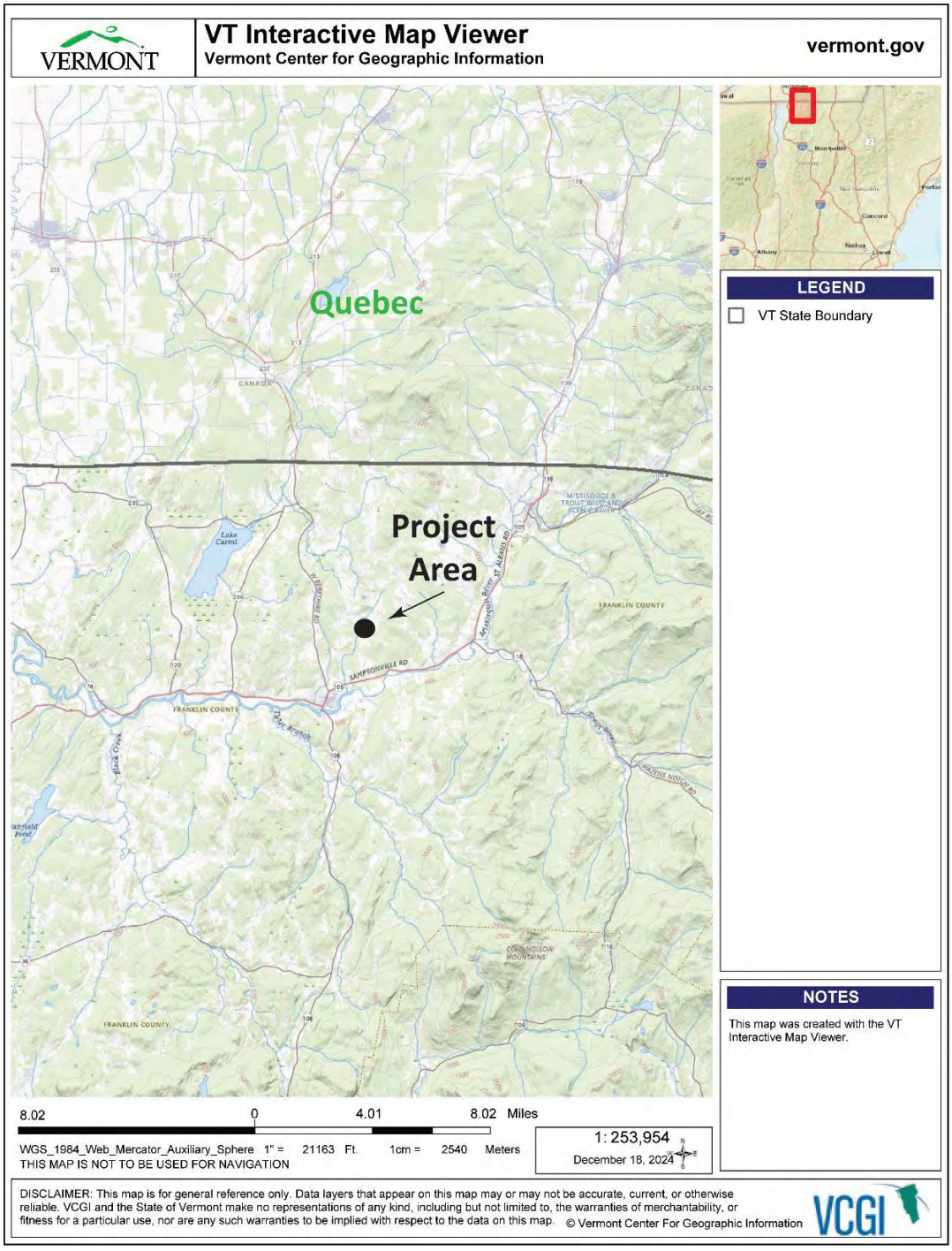

Figure 1. Topographic map showing the location of the proposed Berkshire Trout Brook Dam Removal Project, Berkshire, Franklin County, Vermont.

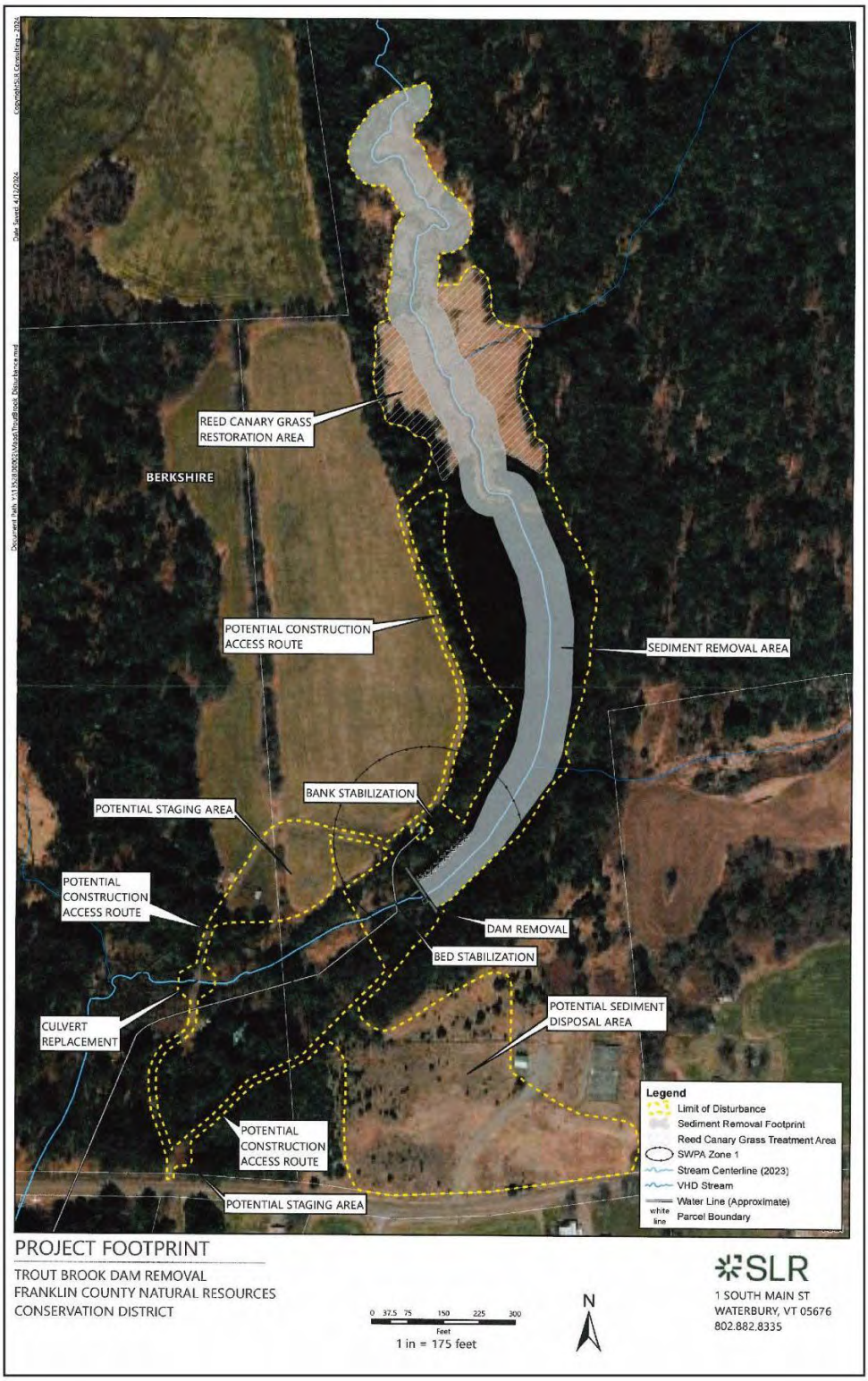

Figure 2. Trout Brook Dam Removal Project plans (provided by SLR).

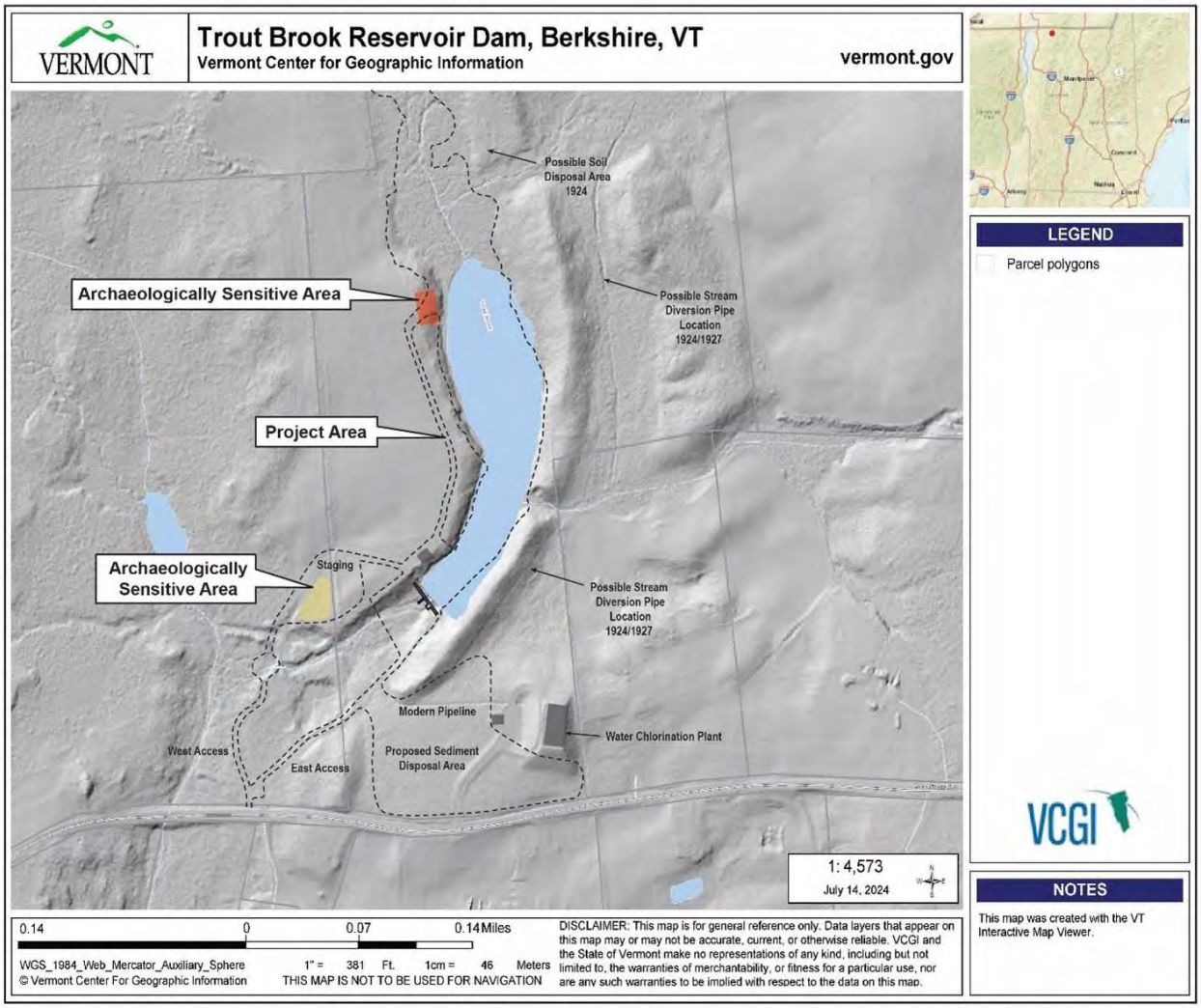

Figure 3. LiDAR base map showing the archaeologically sensitive Western Access Route and Staging Area locations, Berkshire Trout Brook Dam Removal Project, Berkshire, Franklin County, Vermont.

to the now inundated Trout Brook, hand soil cores indicating relatively intact soils and nearby site VT-FR-0466, located approximately 75 m (246 ft) to the northwest. Thus, a Phase I site identification survey was recommended in this portion of the proposed project APE.

A proposed staging area located within the farm field along the western access route, west of the Trout Brook Dam is situated on top of the high stream bank and lower landform that overlook the Trout Brook outlet and dam (see Figure 2). The higher portions of the APE in this area lie on top of a sandy / gravelly esker feature. Cores made on top of this feature did not encounter developed soil horizons, suggesting the possibility of either overburden or stripping in this area (the cores could not get very far). The lower-lying ground in this part of the overall APE is considered archaeologically sensitive, however. The landform is comprised of silty glacial lake plain soil and maps as being located not far from the projected shoreline of ancient glacial Lake Vermont. Although moderately sloped, this area is potentially sensitive for precontact era Native American sites and, as with the final section of access road was recommended for an Archaeological Phase I survey.

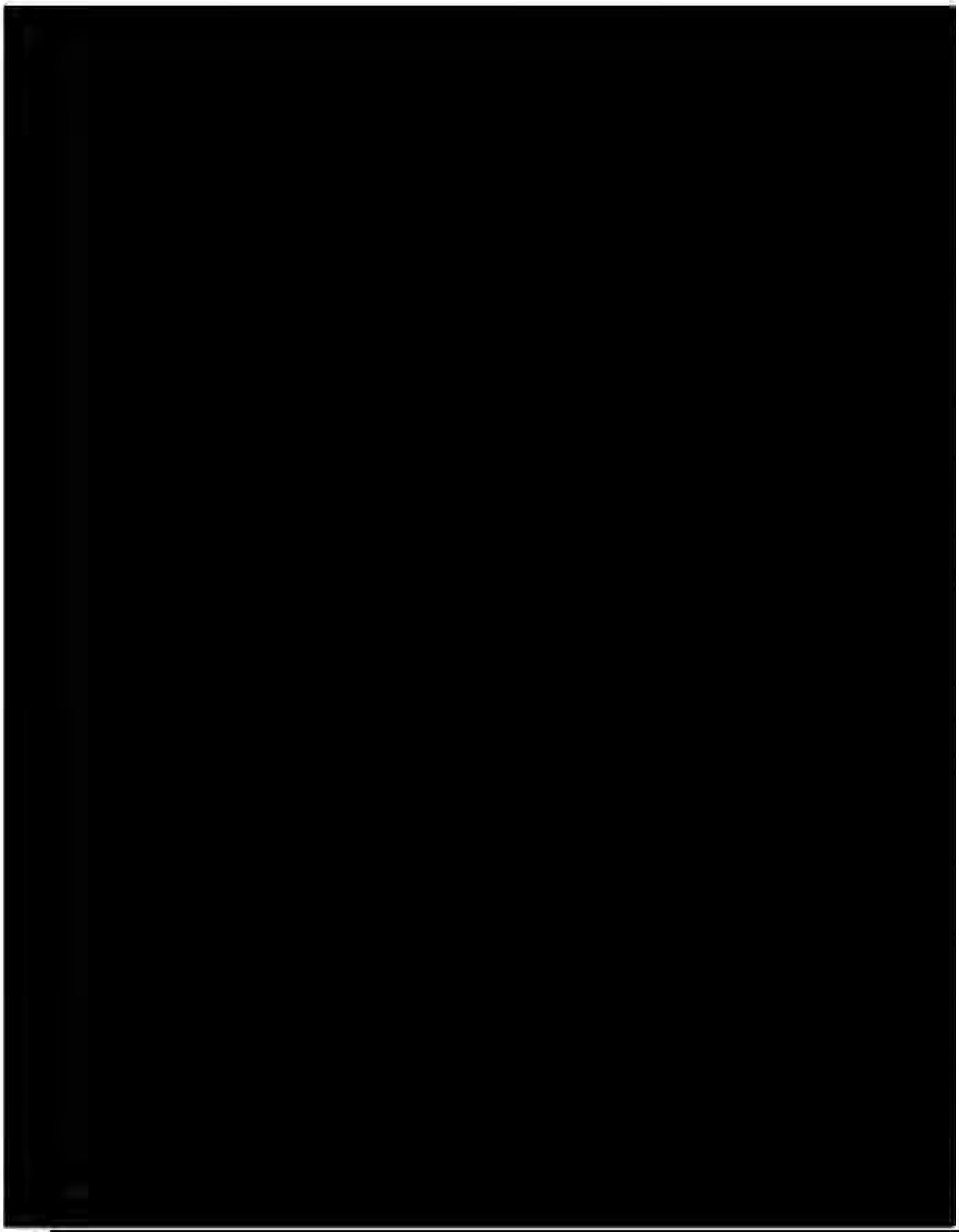

Figure 4.

ENVIRONMENTAL SETTING

The Town of Berkshire is in the northeastern part of Franklin County and lies within the eastern part of the Champlain Hills Biophysical Region of Vermont (Thompson, Sorenson, and Zaino 2019:45). The region begins about 6-9 mi east of Lake Champlain and continues eastwards to the western foot of the Green Mountains (Thompson, Sorenson, and Zaino 2019:45). The region is bounded south by the Lewis Creek watershed in Addison County and north by the Canadian border (Thompson, Sorenson, and Zaino 2019:45). This region is an elevated glaciated plateau characterized by "compact rugged" till covered foothills and broad valleys dominated by "sediments deposited by post-glacial lakes and seas" (Thompson, Sorenson, and Zaino 2019:51-52). The forest cover in this area consists predominantly of Northern Hardwood Forest and Hemlock-Northern Hardwood Forest (Thompson, Sorenson, and Zaino 2019:53). Berkshire's topography is "somewhat hilly" with elevations ranging from about 440 ft amsl in the Missisquoi River Valley up to about 1,320 ft amsl on top of Ayers Hill (VCGI 2024; Vermont Bureau of Publicity 1914:101). The Missisquoi River is the largest watercourse in town. It originates northwest of Lowell, Vermont, at the union of its two main branches, and flows about 81 mi (130 km) westward to Lake Champlain, clipping the eastern and southeastern part of Berkshire along the way (VCGI 2024).

The dam is located on Trout Brook, a primary tributary of the Missisquoi River. This brook rises in the central part of Berkshire at about 720 ft amsl and flows southward about 4.7 mi (7.6 km) to its confluence with the Missisquoi River just above the Village of Enosburg Falls at about 390 ft amsl (Pierce 1917:209; VCGI 2024). The dam is located about 2.3 mi (3.7 km) upstream of the confluence between Trout Brook and the Missisquoi River at about 500-520 ft amsl (SLR 2023:8; VCGI 2024). The dam has a drainage area of about 1.8 sq mi (SLR 2023:1). As designed, the depth of the impoundment ranged "from 11 ft [3.35 m] at the dam to from 6 to 8 ft [1.83-2.43 m] through the center and upper portions" and had a "storage capacity of approximately eight million gallons" (Enosburg Falls 1925:28-29). The impoundment has an estimated maximum area of about 8.23 acres (SLR 2023:13). However, the impoundment retreated significantly between 1995 and 2021, and it now covers only about 3.7 acres (SLR 2023:3, 13).

The dam is located within a narrow and steep sided portion of the Trout Brook Valley. Near the dam, the slopes of the embankments are over 20%, but the bank declines in height going north along the western side of the impoundment. Three short unnamed tributaries, which appear to flow from small spring fed wetlands, join Trout Brook in or near the project area. One stream, about 0.58 mi (0.93 km) long, joins the left side of Trout Brook about halfway up the present impoundment, about 385 ft (117.4 m) upstream of the dam. Another stream, about 0.68 mi (1.1 km) in length, joins the left side about 1,150 ft (350.5 m) upstream of the dam (within the old impoundment area). The last tributary, which is about 1.2 mi (1.9 km) long, joins the right side of Trout Brook about 740 ft (225.5 m) below the dam (VCGI 2024).

PRECONTACT NATIVE AMERICAN CONEXT

A review of the Vermont Archaeological Inventory (VAI) indicates that site VT-FR-0466 is the only known site located within 1.5 km (0.93 mi) radius of the project area (Figure 5). The site was identified during a Phase I surface inspection of the plowed and harrowed surface of the agricultural field (Knight 2023). Four lithic artifacts, the stem and midsection of a chert projectile point, a chert biface, and two milky quartz debitage specimens were found in the northeast portion of the proposed solar project. The projectile point fragment, typologically classified as a Susquehanna or Snook Kill, dates to the Transitional Late Archaic period, ca. 3,200-2,700 years ago. The remaining three artifacts are not dateable. Site VT-FR-0466 appears to be focused along the north side of short drainage gully that trends downslope and joins Trout Brook.

A GIS based version of the Vermont Division for Historic Preservation's *Environmental Predictive Model for Locating Archaeological Sites* indicates that portions of the project area include up to six habitability factors important to precontact Native American populations (see Figure 5). These factors include proximity to known sites, water, proximity to stream confluence, Kame Terrace or Glacial Outwash Plain, Level Terrain and Travel Corridor. The VDHP's paper version of the model is a checklist that provides an area a score based on environmental features statistically associated with precontact Native American sites. A score of 32 or greater indicates that an area may be archaeologically sensitive. The Berkshire Trout Brook Dam Removal project area scores a 96 indicating that it is sensitive for precontact Native American sites.

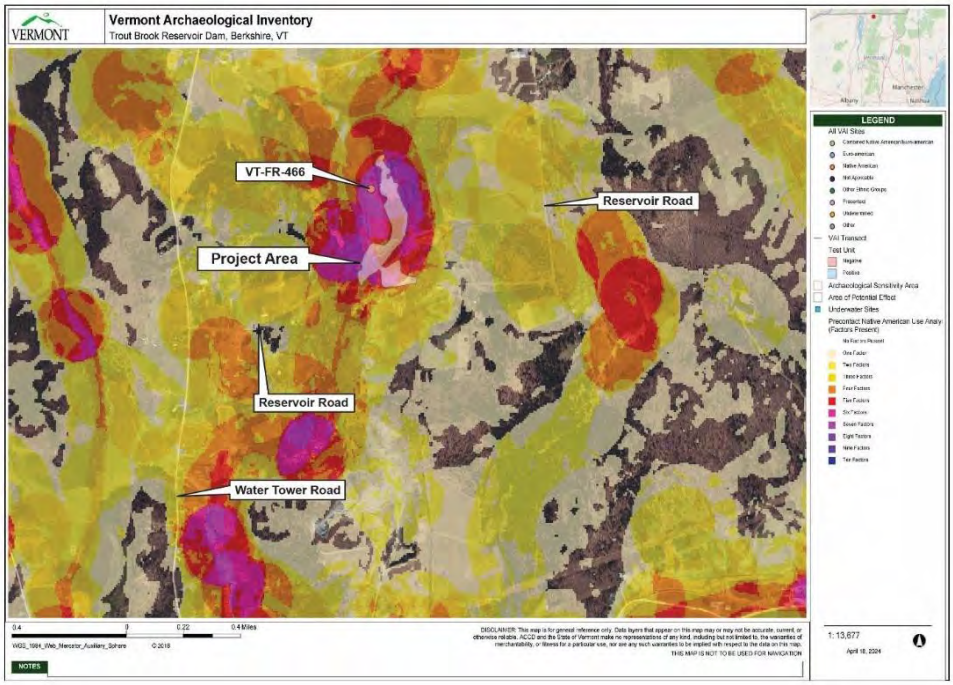

Figure 5. GIS based map with overlay of habitability factors that correlate with the location of precontact Native American sites for the Trout Brook Reservoir Dam Removal Project in Berkshire, Vermont.

PHASE I FIELD METHODS

The initial step of the Phase I Site Identification Survey included the use of an EOS Arrow Gold GPS system that was used to navigate to the sensitive areas following the georeferencing of the project design data into the GPS system. Once the areas were identified and following minimal vegetation clearing, a mounted Brunton Compass and metric tape were employed to install three linear transects. Two of the transects were located within the proposed Western Construction Access and one within the Staging Area. In total, the Phase I study resulted in the excavation of a total of 13 50 x 50 cm (20 x 20 in) test pits across the two areas.

All soils were excavated in arbitrary 10 cm (4 in) vertical levels with respect to the identified soil stratigraphy and screened through 0.64 cm (1/4 in) mesh screens. Field soil stratigraphy designation followed the standard nomenclature such as "Ap1" (first historic plowzone), "Ap2" (second historic plowzone), "B" and "Bs" ("weathered" subsoil stratum), and "Fill" for historic fill strata. Individual test pit walls were schematically profiled according to soil texture and Munsell chart color, and select profiles were photographed in digital color format. Following the completion of the Phase I excavations, The EOS GPS system was used to record the location of each test pit to ensure accurate placement on maps and project design plans. Lastly, each test pit was backfilled and returned as close as possible to its original state and all labelled range pin flags marking the locations of each test pit were removed. All field notes, photographs, field maps, and other data will be curated at the UVM CAP laboratory in Burlington, Vermont.

PHASE I FIELD RESULTS

Western Construction Access

Two transects, designated Transects 1 and 2, were placed south-north across the interior level portion of the West Construction Access APE (Figure 6). The eastern side of the APE sloped sharply down to the reservoir, and the southern end, at first included a gradual slope before descending steeply down to a narrow intermediate terrace above the reservoir. At the time of the Phase I study, the APE was vegetated with dense pine trees on both the southern and northern ends with a small opening in its center (Figure 7).

Transect 1 was located approximately 2 m (6.6 ft) to the east and parallel to the fallen fenceline along the western side of the APE. A 50 cm (20 in) high earthen berm followed along the fallen fenceline. This transect contained five test pits spaced at 4 m (13 ft) intervals (see Figure 6). No archaeological sites were identified in these test pits. Dense roots were encountered in each test pit. The soil profiles recorded for the test pits excavated along Transect 1 The soil stratigraphy documented in these test pits included a thin uppermost "Ao" stratum of dark brown duff and very fine sandy loam and an underlying "AP" stratum characterized as very dark grayish brown fine sandy loam (Figure 8). This thin "Ap" stratum may relate to past historic plowzone or it could be overburden/colluvium from the agricultural field to the west. This stratum was generally 10 cm (4 in) thick, but was absent in the northernmost Test Pit 5. Beneath the "Ap", intact subsoil of strong brown fine sand and silt and light yellowish brown fine sand was present to the base of excavation.

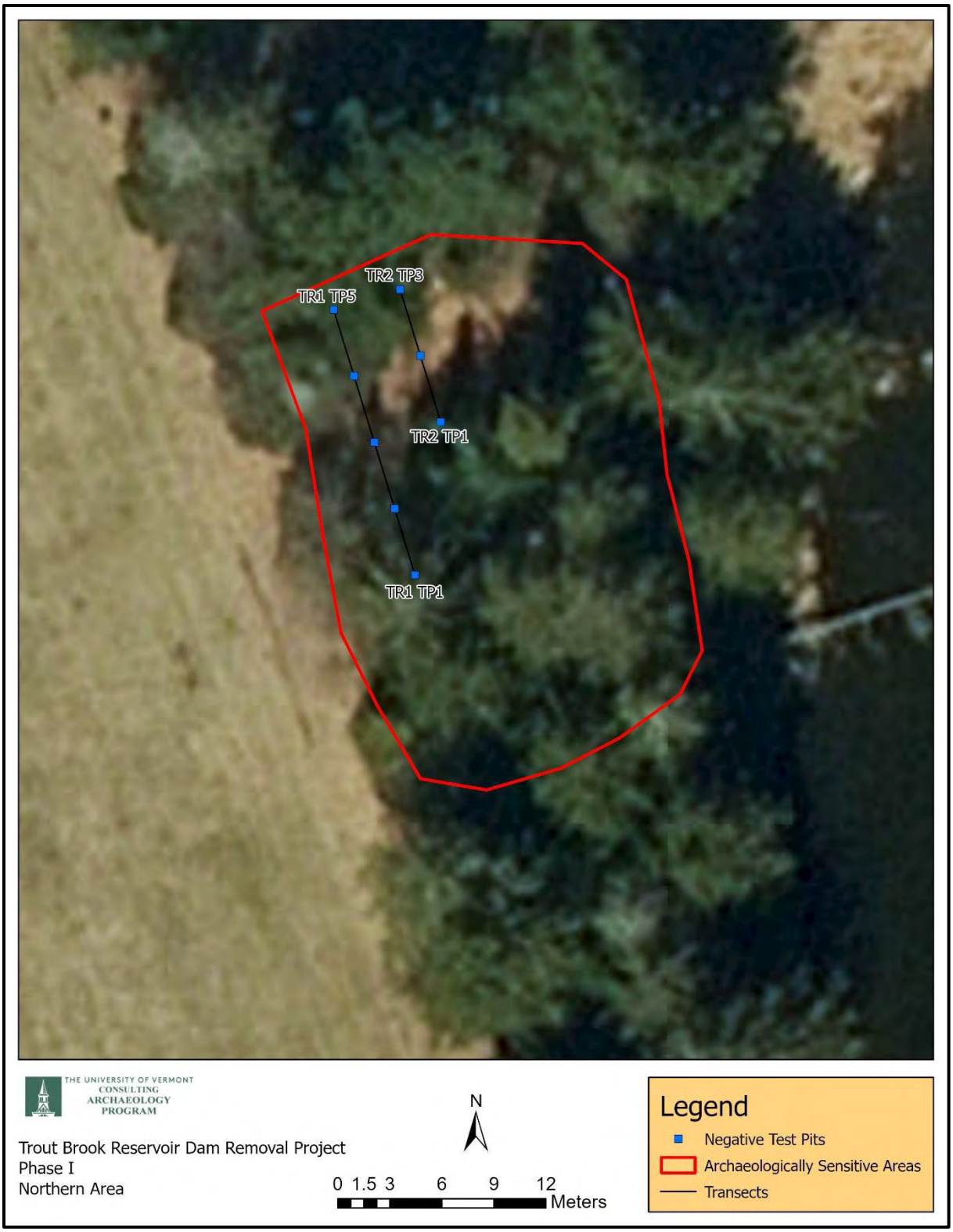

Figure 6. Aerial image showing the location of Transects 1 and 2 within the Western Construction Access, Berkshire Trout Brook Dam Removal Project, Berkshire, Franklin County, Vermont.

Figure 7. View south of UVM CAP archaeologists excavating test pits along Transect 1, West Construction Access, Berkshire Trout Brook Dam Removal Project, Berkshire, Franklin County, Vermont.

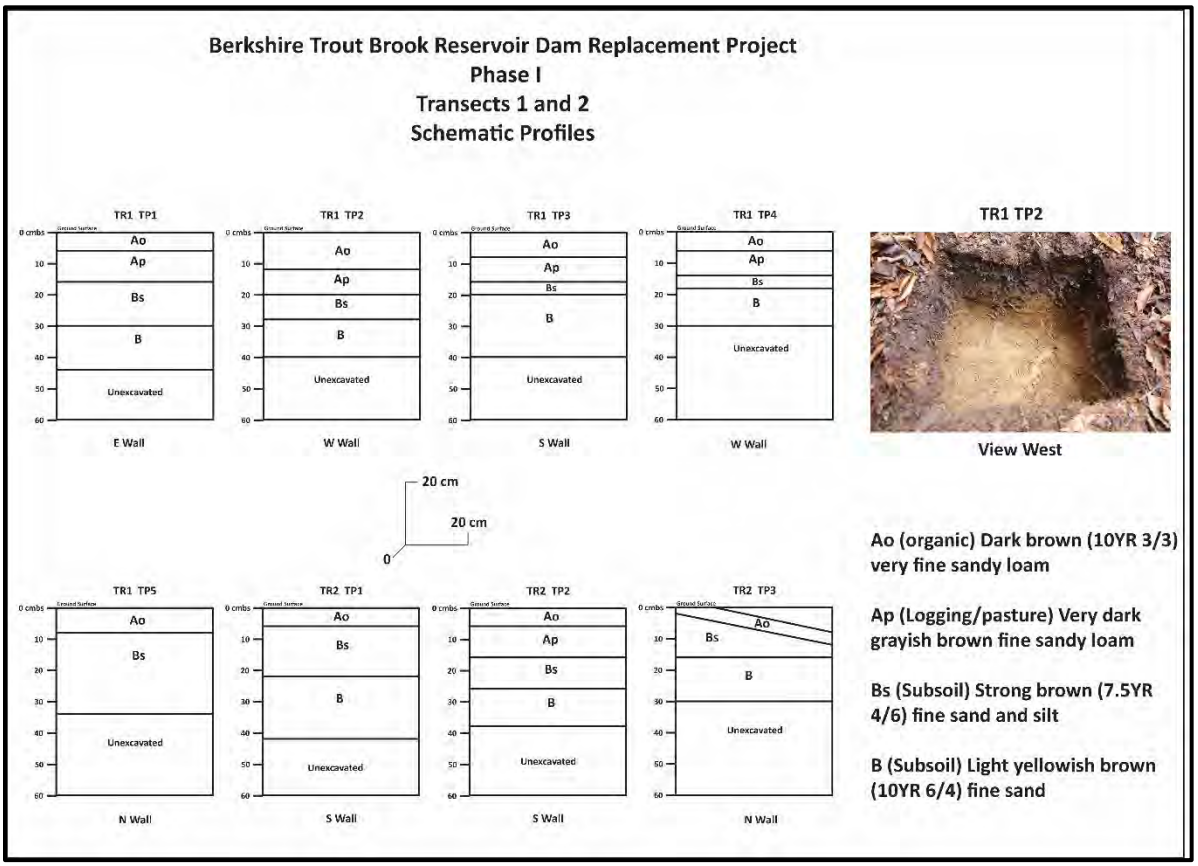

Figure 8. Schematic profiles and image of Phase I, Transects 1 and 2, West Construction Access, Berkshire Trout Brook Dam Removal Project, Berkshire, Franklin County, Vermont.

Transect 2 was located 4 m (13 ft) to the east and parallel to Transect 1 (see Figure 6). The alignment of this transect followed the crest of the steep slope overlooking the reservoir to the east. Test Pit 1 of Transect 2 was located 4m (13 ft) east of Transect 1, Test Pit 3. Transect 2 contained three test pits spaced at 4 m (13 ft) intervals. No archaeological sites were identified in the test pits excavated along Transect 2. The "Ap" stratum was absent in Test Pits 1 and 3, but present in Test Pit 2 (see Figure 8). Intact subsoil was present beneath the Ao/Ap strata in all test pits.

Staging Area

At the time of the Phase I study, the proposed Staging Area was covered in seasonally dead grass (Figure 9). One transect, designated Transect 3, was aligned parallel to the wooded treeline and grassy field (Figure 10). The transect was from 3-5 m (10-16 ft) north of the channelized Trout Brook stream channel flowing west from the reservoir impoundment. Transect 3 contained four test pits spaced at 5 m (16 ft) intervals (see Figure 10). Two additional test pits were excavated in cardinal south and north directions from Transect 3, Test Pit 3). No archaeological sites were identified in the test pits excavated along Transect 3.

Figure 9. View east of UVM CAP archaeologists excavating Phase I test pits along Transect 3, Staging Area, Berkshire Trout Brook Dam Removal Project, Berkshire, Franklin County, Vermont.

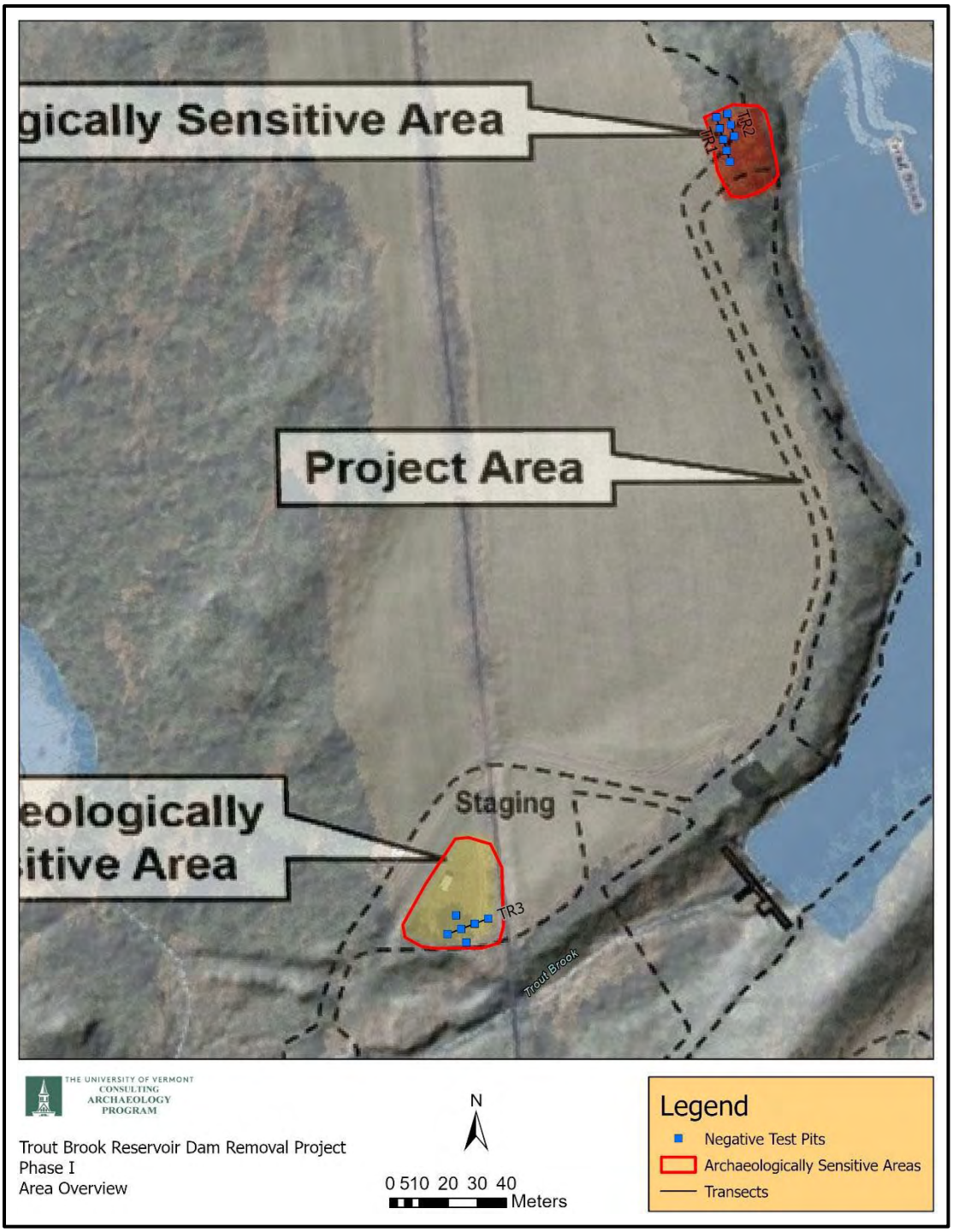

Figure 10. Aerial image showing project design plan and location of Phase I testing within the West Construction Access and Staging Area, Berkshire Trout Brook Dam Removal Project, Berkshire, Franklin County, Vermont.

The soil stratigraphy recorded for the test pits excavated along Transect 3 included an uppermost 18-30 cm (7-12 in) thick dark brown silt loam plowzone underlain by intact olive brown silt (Figure 11). Both strata were culturally sterile.

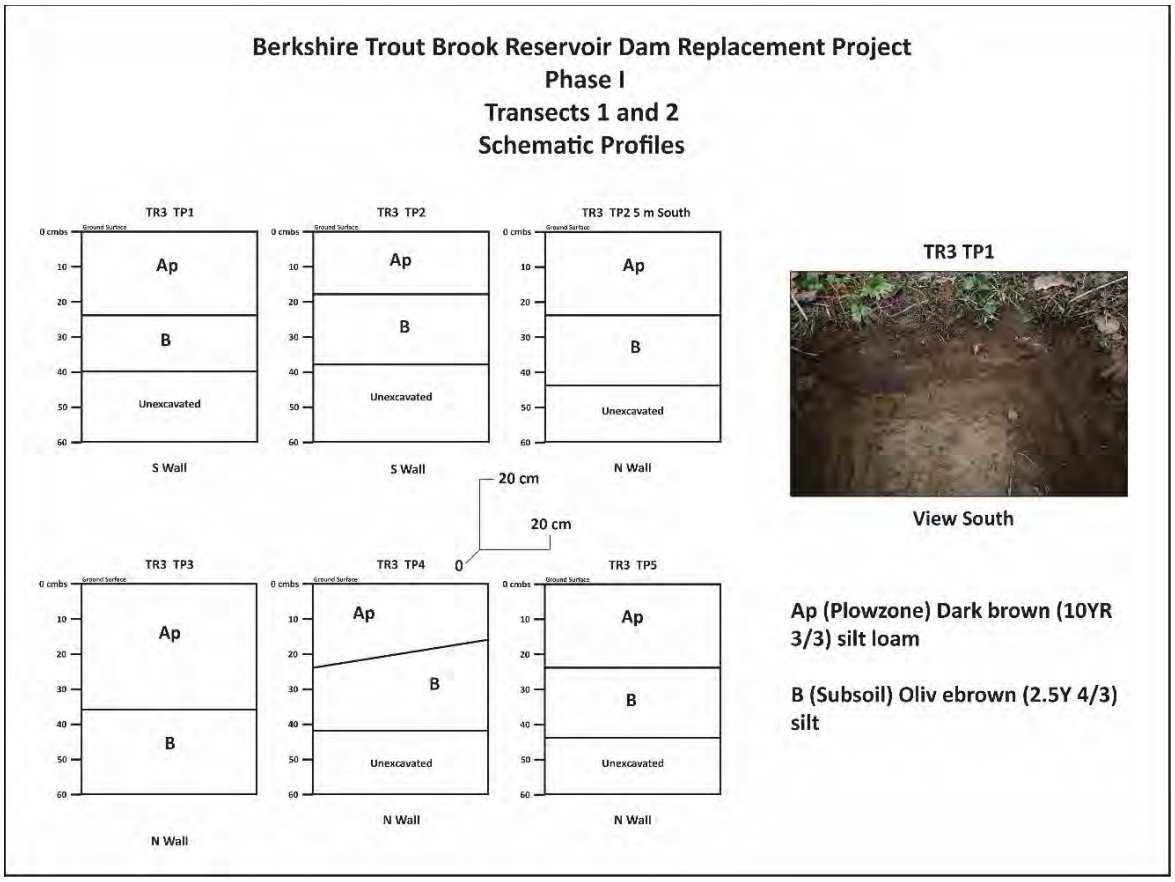

Figure 11. Schematic profiles and image of Phase I, Transects 1 and 2, West Construction Access, Berkshire Trout Brook Dam Removal Project, Berkshire, Franklin County, Vermont.

CONCLUSIONS AND RECOMMENDATIONS

The University of Vermont Consulting Archaeology Program completed a Phase I site identification survey within two archaeologically sensitive areas identified in the proposed Berkshire Trout Brook Dam Removal project area. This Phase I study entailed the excavation of 14 test pits aligned along three linear transects in the two separate sensitive areas. As a result of this additional Phase I study, no archaeological sites were identified. We recommend that no further study of these areas is warranted and that the proposed dam removal project receive a determination of No Historic Properties Affected.

REFERENCES

Kenny, Kate and Catherine A. Quinn

2024 *Archaeological Resources Assessment and Historic Resource Review, Trout Brook Reservoir Dam Removal Project, Berkshire, Franklin County, Vermont.* University of Vermont Consulting Archaeology Program, Report No. 1639.

Knight, Charles

2023 *End of Field Letter Report for the Archaeological Phase I Site Identification of the Proposed Reservoir Road Solar Project, Enosburg Falls, Franklin County, Vermont.* Crown Consulting Archaeology Report No. 2023-39.

FRANKLIN COUNTY NATURAL RESOURCES CONSERVATION DISTRICT

Lauren Weston <lauren@franklincountynrcd.org>

Trout Brook Reservoir Dam Removal - Approval Needed for Screening Form

Pomeroy, Staci <Staci.Pomeroy@vermont.gov> Thu, Oct 31, 2024 at 11:21 AM
To: "Bates, Karen" <Karen.Bates@vermont.gov>, lauren <lauren@franklincountynrcd.org>

Hi,

Feedback from both Floodplain and Stream Alt. permitting has been provided and design efforts are underway to meet those needs. I continue to support the project to move to implmentation.

Enjoy the day.

Staci

VERMONT

Staci Pomeroy, River Scientist

Vermont Department of Conservation

Watershed Management, Rivers Program

111 West Street | Essex Jct., VT 05452

802-490-6191 cell

staci.pomeroy@vermont.gov

http://dec.vermont.gov/watershed/rivers

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FRANKLIN COUNTY
NATURAL RESOURCES
CONSERVATION DISTRICT

Lauren Weston <lauren@franklincountynrcd.org>

Trout Brook Reservoir Dam Removal - Approval Needed for Screening Form

Borg, Jaron <Jaron.Borg@vermont.gov> Mon, Oct 7, 2024 at 6:58 PM
To: lauren <lauren@franklincountynrcd.org>, "Pomeroy, Staci" <Staci.Pomeroy@vermont.gov>, "Bates, Karen" <Karen.Bates@vermont.gov>
Cc: "Crocker, Jeff" <Jeff.Crocker@vermont.gov>, "Brunelle, Chris" <Chris.Brunelle@vermont.gov>

Lauren,

Removal of this structure is generally in line with the values of the Vermont Rivers Program. That said there are a few notes. This will require permitting under Vermont's Stream Alteration Rule and the type will depend on the final design. If the proposal is to remove the bulk of the sediment, i.e. allow for 2 years sediment supply or less in the impoundment to be mobilized with removal it would be eligible under the Stream Alteration General Permit. Allowing a greater volume of sediment would best proceed under the Stream Alteration Individual Permit; with a 303d stream below the impoundment there will be concern with further degradation of water quality. This was recently the case with removal of the Wainwright Dam in Salisbury VT and concerns with discharges were addressed under the Army Corps permit but should be kept in mind as the State will need to assure discharges are compliant with the Clean Water Act. I have copied in Chris Brunelle as the Reginal River Management Engineer and Jeff Crocker with the Rivers Science team for awareness. Glad to have a conversation.

Warmest Regards,

Jaron

Jaron Borg | River Management Engineer

Vermont Agency of Natural Resources | Watershed Management Division

1 National Life Drive, Davis 3, Montpelier VT 05620-3901

(802) 371-8342 | Jaron.Borg@vermont.gov

From: Lauren Weston <lauren@franklincountynrcd.org>
Sent: Monday, October 7, 2024 12:50 PM
To: Pomeroy, Staci <Staci.Pomeroy@vermont.gov>; Bates, Karen <Karen.Bates@vermont.gov>; Borg, Jaron <Jaron.Borg@vermont.gov>
Subject: Trout Brook Reservoir Dam Removal - Approval Needed for Screening Form

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FRANKLIN COUNTY NATURAL RESOURCES CONSERVATION DISTRICT

Lauren Weston <lauren@franklincountynrcd.org>

Project Review - Trout Brook Reservoir Dam Removal

3 messages

Lauren Weston <lauren@franklincountynrcd.org> Mon, Oct 7, 2024 at 12:52 PM
To: "Sewell, Krystal T" <krystal.t.sewell@vermont.gov>

Hi Krystal,

I am working on the Project Eligibility and Screening Form to apply to WUV's dam removal funding pool for the Implementation of the removal of the Trout Brook Reservoir Dam in Berkshire, VT. (Application due Nov 8th)

Lat: 44.93744° N
Lon: 72.78186° W

SLR is still finalizing the Final Design Plans and working on permits, but I am hoping to secure implementation funding for the 2025 field season now (as grants are open now). I am attaching their reporting following the 30% design phase as that may be of interest to you. Please let me know if I can provide any additional information.

With this email, I am "seeking permitting staff input on potential permitting needs, permit-ability of proposed scope of work, and other design considerations but are NOT seeking a formal permit determination."

Specifically, I need the following information:
a. Which permits or permit amendment are needed or might be needed?
b. What type might be needed? (e.g., a general or individual permit)?
c. What concerns do permitting staff have?

Thank you for your review!

--

Lauren Weston *(she/her)*

District Manager

Franklin County Natural Resources Conservation District (FCNRCD)

50 South Main St., Suite B-20

St. Albans, VT 05478

802-528-4176

lauren@franklincountynrcd.org

info@franklincountynrcd.org

FranklinCountyNRCD.org

TroutBrookDamRemoval_Report_v3 (3).pdf
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Sewell, Krystal T <Krystal.T.Sewell@vermont.gov> Fri, Oct 18, 2024 at 1:32 PM
To: lauren <lauren@franklincountynrcd.org>

Hi Lauren,

Thank you for sending over the 30% design.

a. Which permits or permit amendment are needed or might be needed? Individual Wetlands Permit for proposed work that is not an allowed use: access road, riprap, culvert upgrade. Culvert may be covered under water quality registration- final design and proposal will tease out these details. Other activity may require being included on an individual permit- such as invasive treatment plan, depending on the scope.

b. What type might be needed? (e.g., a general or individual permit)? Individual

c. What concerns do permitting staff have? No major concerns other than potential tree clearing for access- we would be looking for the least impactful alignment and restoration. A NNIS Plan will need to be submitted for review to determine if this aspect of the project is an allowed use.

Krystal T. Sewell (she/her) | District Wetlands Ecologist

Vermont Department of Environmental Conservation

Watershed Management Division, Wetlands Program

Davis 3, 1 National Life Dr | Montpelier, VT 05620-3901

802-490-6758

https://dec.vermont.gov/watershed/wetlands

For resources related to flood recovery: https://anr.vermont.gov/flood

VERMONT

From: Lauren Weston <lauren@franklincountynrcd.org>
Sent: Monday, October 7, 2024 12:52 PM
To: Sewell, Krystal T <Krystal.T.Sewell@vermont.gov>
Subject: Project Review - Trout Brook Reservoir Dam Removal

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

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Lauren Weston <lauren@franklincountynrcd.org> Mon, Oct 21, 2024 at 11:34 AM
To: "Sewell, Krystal T" <Krystal.T.Sewell@vermont.gov>

Thank you very much, Krystal - deeply appreciated!
[Quoted text hidden]

FRANKLIN COUNTY NATURAL RESOURCES CONSERVATION DISTRICT

Lauren Weston <lauren@franklincountynrcd.org>

Trout Brook Reservoir Dam Removal - Approval Needed for Screening Form

3 messages

Lauren Weston <lauren@franklincountynrcd.org> Mon, Oct 21, 2024 at 11:39 AM
To: "Pfeiffer, Rebecca" <Rebecca.Pfeiffer@vermont.gov>

Hi Rebecca,

I am working on the Project Eligibility and Screening Form to apply to WUV's dam removal funding pool for the Implementation of the removal of the Trout Brook Reservoir Dam in Berkshire, VT. (Application due Nov 8th)

Lat: 44.93744° N
Lon: 72.78186° W

SLR is still finalizing the Final Design Plans and working on permits, but I am hoping to secure implementation funding for the 2025 field season now (as grants are open now). I am attaching their reporting following the 30% design phase as that may be of interest to you. Please let me know if I can provide any additional information.

With this email, I am "seeking permitting staff input on potential permitting needs, permit-ability of proposed scope of work, and other design considerations but are NOT seeking a formal permit determination."

Specifically, I need the following information:
a. Which permits or permit amendments are needed or might be needed?
b. What type might be needed? (e.g., a general or individual permit)?
c. What concerns do permitting staff have?

Thank you for your review!

--

Lauren Weston *(she/her)*

District Manager

Franklin County Natural Resources Conservation District (FCNRCD)

50 South Main St., Suite B-20

St. Albans, VT 05478

802-528-4176

lauren@franklincountynrcd.org

info@franklincountynrcd.org

FranklinCountyNRCD.org

TroutBrookDamRemoval_Report_v3 (3) (1).pdf
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Pfeiffer, Rebecca <Rebecca.Pfeiffer@vermont.gov> Mon, Oct 21, 2024 at 1:31 PM
To: lauren <lauren@franklincountynrcd.org>
Cc: "Brunelle, Chris" <Chris.Brunelle@vermont.gov>, "Pomeroy, Staci" <Staci.Pomeroy@vermont.gov>, "Brayton, Asa" <Asa.Brayton@vermont.gov>

Hi Lauren –

For my input on the implementation of the Trout Brook Dam removal –

We have been to the site and have seen the access road and the dam, as well as discussed the dam removal project concept. From a flood hazard area standpoint, this project will require flood hazard area review from the Town of Berkshire for the work that is located in the river corridor and the FEMA-mapped Special Flood Hazard Area (SFHA). Under the Berkshire 2019 Land Use & Development regulations, they require conditional use review for grading and excavation in a SFHA, as well as channel management activities located in or near the channel.

The preliminary design plans that you've included has detailed hydraulic study data that can be used for the local permitting process and review. The key review criteria to be able to demonstrate in any local permitting review is that flood heights and flood risk will not increase from the project. The removal of the dam and the sediment within the mapped river corridor will remove a potential future flood hazard and help restore habitat. The hydraulic modeling will be able to demonstrate that flood heights are not anticipated to increase on surrounding properties due to the project.

Please let me know if you have any additional questions,

Rebecca

Rebecca J. Pfeiffer, CFM (she/her)

VT DEC Watershed Management Division

River Corridor & Floodplain Protection Program Manager | VT NFIP Coordinator

C 802.490.6157 | **Rebecca.Pfeiffer@vermont.gov**

From: Lauren Weston <lauren@franklincountynrcd.org>
Sent: Monday, October 21, 2024 11:39 AM
To: Pfeiffer, Rebecca <Rebecca.Pfeiffer@vermont.gov>
Subject: Trout Brook Reservoir Dam Removal - Approval Needed for Screening Form

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Lauren Weston <lauren@franklincountynrcd.org> Mon, Oct 21, 2024 at 2:23 PM
To: "Pfeiffer, Rebecca" <Rebecca.Pfeiffer@vermont.gov>
Cc: "Brunelle, Chris" <Chris.Brunelle@vermont.gov>, "Pomeroy, Staci" <Staci.Pomeroy@vermont.gov>, "Brayton, Asa" <Asa.Brayton@vermont.gov>

Thank you very much for this information, Rebecca - it is deeply appreciated!
[Quoted text hidden]

FRANKLIN COUNTY NATURAL RESOURCES CONSERVATION DISTRICT

Lauren Weston <lauren@franklincountynrcd.org>

Project Screening Form Review - Trout Brook Reservoir Dam

10 messages

Lauren Weston <lauren@franklincountynrcd.org> Mon, Oct 7, 2024 at 12:51 PM
To: "Benoit, Thomas" <Thomas.Benoit@vermont.gov>

Hello Thomas,

I am working on the Project Eligibility and Screening Form to apply to WUV's dam removal funding pool for the Implementation of the removal of the Trout Brook Reservoir Dam in Berkshire, VT. (Application due Nov 8th). We suspect more than 1 acre will be disturbed as part of this project.

Lat: 44.93744° N
Lon: 72.78186° W

SLR is still finalizing the Final Design Plans and working on permits, but I am hoping to secure implementation funding for the 2025 field season now (as grants are open now). I am attaching their reporting following the 30% design phase as that may be of interest to you. Please let me know if I can provide any additional information.

With this email, I am "seeking permitting staff input on potential permitting needs, permit-ability of proposed scope of work, and other design considerations but armNOT seeking a formal permit determination."

Specifically, I need the following information:
a. Which permits or permit amendment are needed or might be needed?
b. What type might be needed? (e.g., a general or individual permit)?
c. What concerns do permitting staff have?

Thank you for your review!

--

Lauren Weston *(she/her)*

District Manager

Franklin County Natural Resources Conservation District (FCNRCD)

50 South Main St., Suite B-20

St. Albans, VT 05478

802-528-4176

lauren@franklincountynrcd.org

info@franklincountynrcd.org

FranklinCountyNRCD.org

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Benoit, Thomas <Thomas.Benoit@vermont.gov> Mon, Oct 7, 2024 at 12:57 PM
To: lauren <lauren@franklincountynrcd.org>

Thanks Lauren. Please complete the determination form (link below) and include the required information. I can then review and provide input on permit needs. Let me know if you have any questions. Thanks, Tom,

Construction Stormwater permit determination

Thomas A. Benoit Sr, MPA | Construction and Industrial Section Supervisor

Vermont Agency Of Natural Resources | Department of Environmental Conservation

Watershed Management Division | Stormwater Program

1 National Life Drive, Davis 3 | Montpelier, VT 05620-3901

802-490-6164 Office/cell | Thomas.Benoit@vermont.gov

https://dec.vermont.gov/watershed/stormwater |

The Agency of Natural Resources supports telework, and there are times when I may be working from another office location. I am available to connect by phone and email. I am also available to connect in-person upon request.

From: Lauren Weston <lauren@franklincountynrcd.org>
Sent: Monday, October 7, 2024 12:52 PM
To: Benoit, Thomas <Thomas.Benoit@vermont.gov>
Subject: Project Screening Form Review - Trout Brook Reservoir Dam

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Lauren Weston <lauren@franklincountynrcd.org> Mon, Oct 7, 2024 at 1:11 PM
To: "Benoit, Thomas" <Thomas.Benoit@vermont.gov>

Done -thanks!
[Quoted text hidden]

Benoit, Thomas <Thomas.Benoit@vermont.gov> Mon, Oct 7, 2024 at 1:17 PM
To: lauren <lauren@franklincountynrcd.org>

Thanks Lauren. Is all the 6 acres of earth disturbance above ordinary high water? Staging/laydown areas included in the earth disturbance total? Have you spoke with Rivers and dams on this project? Thanks, Tom.

[Quoted text hidden]

Lauren Weston <lauren@franklincountynrcd.org> Mon, Oct 7, 2024 at 1:59 PM
To: "Benoit, Thomas" <Thomas.Benoit@vermont.gov>

Hi Tom,

The 6 acres is an estimate based off the concept design, it may fluctuate a little once we get the final design plans completed. I estimated what the footprint for staging might be, so this total could fluctuate.
The estimated acreage includes earth disturbance below ordinary high water.
We are in close communication with River and Dams - yes.
[Quoted text hidden]

Benoit, Thomas <Thomas.Benoit@vermont.gov> Mon, Oct 7, 2024 at 2:06 PM
To: lauren <lauren@franklincountynrcd.org>

Thanks Lauren. For the Stormwater construction permit, I would only need the earth disturbance above ordinary high water. Please send me a breakdown of the earth disturbance (i.e., 2 acres below OHW, 2 acres staging/laydown, 2 acres earth disturbance above OHW, etc). Thanks, Tom.

[Quoted text hidden]

Lauren Weston <lauren@franklincountynrcd.org> Mon, Oct 7, 2024 at 3:39 PM
To: "Benoit, Thomas" <Thomas.Benoit@vermont.gov>

Hi Thomas,

I'll ask my engineers to get that exact info - it may be a little while.

Thanks!
[Quoted text hidden]

Lauren Weston <lauren@franklincountynrcd.org> Fri, Nov 1, 2024 at 5:51 PM
To: "Benoit, Thomas" <Thomas.Benoit@vermont.gov>

Hi Thomas,

Here is the information regarding disturbance. Thank you for your help!

Disturbance above OHW = 10.3 acres

Total disturbance = 14.7 acres

Some of these areas are on established roads.

Screenshot of dist above OHW below :

[Quoted text hidden]

image001.png
1021K

Benoit, Thomas <Thomas.Benoit@vermont.gov> Mon, Nov 4, 2024 at 1:13 PM
To: lauren <lauren@franklincountynrcd.org>

Thanks Lauren.

Based on the informa on you provided, the project **needs a stormwater construc on permit**. Let me know if you have any addi onal ques ons. Thanks, Tom.

[Quoted text hidden]

Lauren Weston <lauren@franklincountynrcd.org> Mon, Nov 4, 2024 at 1:14 PM
To: "Benoit, Thomas" <Thomas.Benoit@vermont.gov>

Thank you very much!
[Quoted text hidden]

Weston, Lauren - FPAC-NRCS, VT

From: Hanna, Steven <Steven.Hanna@vermont.gov>
Sent: Tuesday, July 25, 2023 8:53 AM
To: Weston, Lauren - FPAC-NRCS, VT
Cc: Brunelle, Chris; Pomeroy, Staci
Subject: RE: Trout Brook Reservoir Dam in Berkshire, removal

Good Morning

I quickly skimmed the document and see that SLR confirmed the impoundment size and that a dam order will be required for removal of the dam. The Rivers Program will handle the river restoraı on porı on of the project, either through a permit or general guidance.

Thanks
Steven

VERMONT
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Steven Hanna, Dam Safety Engineer
Dam Safety Program, Water Investment Division
National Life Building
1 National Life Drive
Montpelier, VT 05620-3510

802-490-6123
Dam Safety Program | Department of Environmental Conservation (vermont.gov)

"you can accomplish a lot if you don't care who gets credit"

From: Weston, Lauren - FPAC-NRCS, VT <Lauren.Weston@usda.gov>
Sent: Tuesday, July 25, 2023 8:15 AM
To: Pfeiffer, Rebecca <Rebecca.Pfeiffer@vermont.gov>; Brunelle, Chris <Chris.Brunelle@vermont.gov>; Benjamin Matthews <b.j.matthews@TNC.ORG>; kdailey <kdailey@vnrc.org>; jlouisos <jlouisos@slrconsulting.com>; Alexandra Marcucci <amarcucci@slrconsulting.com>; Pomeroy, Staci <Staci.Pomeroy@vermont.gov>; Repella, Angela C CIV USARMY CENAE (US) <Angela.C.Repella@usace.army.mil>; Hanna, Steven <Steven.Hanna@vermont.gov>; Minkoff, David <david_minkoff@fws.gov>; cmiller@lcbp.org; Vaughan, Matt <mvaughan@lcbp.org>; Simard, Lee <Lee.Simard@vermont.gov>; Eldridge, William <William.Eldridge@vermont.gov>; Follensbee, Julie <Julie.Follensbee@vermont.gov>; Ranker, Laura <Laura.Ranker@vermont.gov>; Roy Schiff

<rschiff@slrconsulting.com>
Subject: Trout Brook Reservoir Dam in Berkshire, VT - Invitation to a site visit to discuss possible removal

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.
Good morning all,

I know everyone is quite busy responding to flood recovery efforts, I hope you are all doing well.

For those of you who might not know me, I am Lauren Weston, District Manager with the Franklin County Natural Resources Conservation District. We have been partnering with VNRC, TNC, and SLR, alongside the Village of Enosburg Falls, on an alternatives analysis for the possible removal of the Trout Brook Reservoir Dam in Berkshire, VT (owned by the Village of Enosburg Falls). Location: 44.937317, -72.781978 Near 733 Reservoir Road, Berkshire, VT. You are receiving this email because the project team believes you or your organization might have some interest in providing early input to this process. If you believe others should be involved, please let me know and I will reach out to them.

SLR has completed an initial alternatives analysis – see attached report. We are currently at a stage where we would like to gather input/reactions from regulators and other potential stakeholders (you all) before we formalize a proposal to present back to the Trustees of the Village of Enosburg Falls for their consideration. At this time, the Village has approved this alternatives analysis, but has not yet reviewed this report or approved removal of the dam; we hope to present them with a proposal that has taken your inputs into consideration. We are hoping to gather all of your feedback as part of a 1-2 hour site visit with you all at the dam in Berkshire towards the end of August or September. We would like to schedule it so that as many folks are able to attend as possible.

In order to schedule this, we ask that **you please fill out this lettucemeet poll: https://lettucemeet.com/l/J7NGp by end of day on Tuesday August 1st**, at which time I will select the best time based on the most people's availability and coordination with the Village. If you have any trouble with the scheduling poll, please let me know and I can gladly assist you.

If you are not interested in attending, but are interested in providing feedback based on the report attached, please feel free to send that to me directly via email.

Please note, SLR will also prepare a light concept design for the preferred alternative prior to the site visit that will be sent around.

Thank you very much for your time and consideration, and I would be happy to answer any questions you might have in the meantime.

Thanks again!

Lauren Weston *(she/her)*
District Manager
Franklin County Natural Resources Conservation District
50 South Main St., Suite B-20
St. Albans, VT 05478
802-528-4176
Lauren.Weston@USDA.gov
info@franklincountynrcd.org
FranklinCountyNRCD.org

Village of Enosburg Falls

Franklin County Natural Resources Conservation District
50 S. Main St. Ste B20
St. Albans, VT 05478

To whom it may concern,

The Village of Enosburg Falls Board of Trustees writes this letter in support of an application for funding for implementation for the Trout Brook Reservoir Dam Removal in Berkshire, VT. The Dam is owned by the Village of Enosburg Falls and thus this project falls under the purview of the Board of Trustees.

The Board of Trustees heard from the Franklin County Natural Resources Conservation District previously regarding this removal. Past presentations highlighted the potential ecological, public safety, and climate resilience benefits of dam removal.

We previously supported the feasibility study and final design projects that have been underway since 2023 which led to this request for funds to move to implementation. We understand that the final design for this project has not been completed, but that it is on track to be completed this winter with the hopes of implementing the actual dam removal in July – late summer 2025. Prior to implementation, we will host the Franklin County NRCD and SLR to review the final design plans and required permits to ensure that the plans have thoroughly addressed our concerns and any others from other members of the public. Previously, our concerns have included: the potential to see a return of brook trout to this area, concerns over the infrastructure for the public water supply wells and lines in proximity to the dam, costs and benefits of removal alternatives, culverts underneath access roads leading up towards the dam, and potential restoration design alternatives regarding the historic path of the Trout Brook stream channel and surrounding floodplains and wetlands.

We are supportive of the Franklin County Natural Resources Conservation District managing a project to continue to work with SLR to finalize plans and prepare for and oversee implementation of the dam removal with a qualified contractor at the Trout Brook Reservoir Dam. We would like to continue to be updated on the progress of this project and meet with project managers and engineers at relevant stages of this process. Thank you for your consideration.

Sincerely,

Sam Vaillancourt

Village Trustees Chair

42 Village Drive
Enosburg Falls, Vermont 05450

Phone: (802) 933-4443
Fax: (802) 933-4145

12343 BLACK WOODS ASSOCIATION SHORE

Basic Eligibility	Yes
Applicant Name	Lauren Weston
Applicant Organization	Franklin County Natural Resources Conservation District
Applicant Email	lauren@franklincountynrcd.org
Applicant telephone	+1 (802) 582-3133
Project ID from WPD	12343
Description of Project	This project proposes to reduce erosion from ice push at the Black Woods Association southern common lot on Lake Carmi through bioengineering methods including but not limited to a stone toe, encapsulated soil lifts, regrading, and planting.
Project Latitude	44.97294
Project Longitude	-72.88623
Project Phase	Final Design
Annual P Reduction KG	1.05kg/yr
Any one time P reduction KG	1.23kg/yr
Total Cost of Proposed Phase	24125.24
Amount of Funding Requested (Proposed Phase)	$24,125.24
Non DEC Funding as part of Total Project Costs (a	$0.00
Total Project Costs (All Phases)	$40,000 to $80,000
KG/$ Current Phase	
KG/$ Overall	
Design Life	10
Adjusted Design Life	
Estimated Annual O&M cost total	$1,000.00
Estimated Annual O&M Cost per KG	
Conformance with Tactical Basin Plan TBP	10
Number of Co-benefit Areas	4
DEC Screening Form Uploaded	Yes
Map of Project Area Uploaded	Yes
Project Budget Uploaded	Yes
Project Schedule Uploaded	Yes
Landowner Support uploaded	Yes
Phosphorus Calculator Tool uploaded	Yes
Created	01/20/25 11:02 AM
Using_As_Match	No
Cultural Resource Review	No

APPENDIX A. CLEAN WATER INITIATIVE PROGRAM - PROJECT ELIGIBILITY SCREENING FORM

This fillable PDF form is designed to assist with project review by systematically walking through all eligibility criteria. It should be completed for all projects seeking funding for 30% + design or implementation work. It may be applied to projects seeking funding for assessment or development if helpful for determining their alignment with eligibility criteria 2, 3, 6, and 8.

Step 1: Conduct Eligibility Criteria #1 Screening: Project Purpose

Table 1A: Project Purpose	
From the drop-down list to the right, please select which of the four objectives of Vermont's Surface Water Management Strategy this project addresses. If multiple, please list below:	Minimize flood and fluvial erosion hazards

Step 2: Conduct Eligibility Criteria #2 Screening: Project Types and Standards

Table 2A: Project Types and Standards	
Please select the most representative project type from the drop-down list to the right.[1,2] If multiple BMPs are included in the project, please list below: This is an assessment/identification project.	None (not eligible for CWIP funding)
Is the project type an eligible project type for the funding program you are applying to as listed in column B of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Does the project meet the project type definitions and minimum standards as provided in column C of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Will the project result in the standard performance measures, milestones, and deliverables as defined by project type in columns D-F of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◯ No ◯
Is the project listed as an ineligible project or activity in the CWIP Funding Policy? If Yes, please explain below how project meets the allowable exceptions within the CWIP Funding Policy. (Answer must be NO to proceed, unless reasonable justification is provided above)	Yes ◯ No ◯

Step 3: Conduct Eligibility Criteria #3 Screening: Watershed Projects Database

Verify project has been recorded in the Watershed Project Database (WPD). Each project must have a Watershed Project Database number specific to the proposed project phase (for example,

[1] Note that Road/Stormwater Gully project-types must not otherwise be considered intermittent or perennial streams by the DEC Rivers Program and therefore project proponent must show documentation of this determination in order to select this project type.

[2] One project may include multiple best management practices (BMPs) that cross "project types." For example, a single project may include both stormwater and lake shoreland BMPs. Proponents should use their best judgement in selecting the most representative project type for the purposes of eligibility screening and reporting.

a final design will have a different WPD-ID from a preliminary design even if for the same project). If the project, or the specific phase, is not yet in the Watershed Project Database, follow directions provided in the CWIP Funding Policy to secure a WPD-ID. Please see CWIP Funding Policy for more information on the WPD-ID.

Table 3A. WPD-ID	
Watershed Project Database ID number assigned	12355
Watershed Project Database Project Name	Montgomery Flood Resilience Project Development

Step 4: Conduct Eligibility Criteria #4 Screening: Natural Resource Impacts[3]

Agency of Natural Resources (ANR) permit screening for natural resource impacts includes 1) an initial desktop review to identify which ANR permitting programs should be contacted, 2) a review by the relevant ANR permitting staff, and 3) a response summary from the project proponent addressing any permitting staff concerns. [4]

1) **Table 4. Natural Resource Impacts** facilitates a high-level desktop review of the most likely ANR permits to apply to clean water projects. Project proponents should answer all the questions to identify likely permit needs. [5] Please note that "project site" may include both the active restoration location as well as any additional impact footprint related to staging, site access, or storage of waste or disposed materials.
2) If responses to the **Table 4. Natural Resource Impacts** desktop review trigger a permitting staff consultation, **Table 4** provides appropriate contact information.
    a. Proponents should send the identified permitting staff the following:
        i. The watersheds project database identification number (WPD-ID) (if available),
        ii. Project location (GPS coordinates)
        iii. Summary of proposed scope of work, and
        iv. Any other relevant information they request that will be utilized in their review.
    b. **Proponents should clarify they are seeking permitting staff input on potential permitting needs, permit-ability of proposed scope of work, and other design considerations but they are NOT seeking a formal permit determination.**
    c. Project proponents must attempt to communicate with the permitting staff and provide them with at least thirty days to review the project and provide a

[3] Easements and Riparian Buffer Plantings are excluded from this eligibility requirement/step.

[4] In cases where this screening may have already occurred in a prior project phase, project proponents may supply attachments or links to relevant permit needs assessment documents in place of completing Table 4.

[5] Entities selected for funding are expected to perform due diligence to ensure all applicable permits (including non-ANR state, local, and federal permits) are discovered and secured prior to implementation. The ANR Permit Navigator and an Environmental Compliance Division Community Assistance Specialist can help confirm ANR permitting needs for any projects once selected for funding.

response. Project proponents are encouraged to perform this screening during a project development phase as opposed to during a project solicitation round to allow for more time for feedback. Permitting feedback may be up to one year old.

3) Proponents should summarize permitting staff feedback and how the proposed scope of work will address this at the bottom of **Table 4**. Specifically, please include:
   a. Which permits or permit amendment are needed or might be needed? [6]
   b. What type might be needed? (e.g., a general or individual permit[7])?
   c. What concerns were voiced by permitting staff?
   d. How will the proposed scope of work address these concerns?[8]

Table 4A: Natural Resource Impacts		
I. Act 250 Permits		
1. Have any Act 250 (Vermont's Land Use and Development Control Law) Permits been issued in the project site's parcel location?[9]	**Yes** ◯	**No** ◯
If ***yes***, please provide the permit number and list any water resource issues or natural resource issues found[10]: **PermitNumber:** **ResourceIssues:** _____ If ***yes***, use the Water Quality Project Screening Tool to identify the appropriate regulatory contact for an Act 250 consultation. **Regulatory Point of Contact Name/Position:**		
II. Lake and Shoreland		
1. Is the project site located within 250 feet of the mean water	**Yes** ◯	**No** ◯

[6] Occasionally permit staff may indicate they need a field visit or to see more completed designs prior to making a permit need determination.

[7] Design phase projects that require an individual wetlands permit must have the permit in hand at the close of the final design phase. Implementation phase projects must have the individual permit in hand to be eligible for funding.

[8] Examples could include planned design changes or inviting permitting staff to stakeholder meetings.

[9] An Act 250 Permit is required for certain categories of development, such as subdivisions of 10 lots or more, commercial projects on more than one acre or ten acres (depending on whether the town has permanent zoning and subdivision regulations), and any development above the elevation of 2,500 feet. The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located on an Act 250 parcel. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

[10] Note that Act 250 permit amendments may require more extensive review of project impacts to natural resources including wildlife habitat, significant natural communities, and riparian zones. Please consult with the Act 250 District Coordinator regarding the nature and scope of that review and what bearing it may have on your project design.

level (shoreline) of a lake or pond? [11]	
If ***yes***, you might need either a Shoreland Protection Act Permit or a Lake Encroachment Permit. Use the Water Quality Project Screening Tool to find the Lakes and Ponds Program contact for your project's region. **Regulatory Point of Contact Name/Position:**	
III. Rivers, River Corridors, and Flood Hazard Areas	
1. Is there any portion of the project site located within 100' of a river corridor and/or mapped Federal Emergency Management Agency (FEMA) flood hazard area[12]**?** (e.g. a stormwater pond's pipe draining into a river corridor area)? Any permanent excavation/filling or construction within a flood hazard area or river corridor may trigger regulatory requirements through municipal bylaws or through state authorities.	Yes ◯ No ◯
If ***yes***, you will need to speak with a Floodplain Manager. Use the Water Quality Project Screening Tool to find the Floodplain Manager for your project's region. **Regulatory Point of Contact Name/Position:**	
2. Is any portion of the project site within a perennial river or stream channel? [13]	Yes ◯ No ◯
If ***yes***, you will need to speak with a Stream Alteration Engineer. Use the Water Quality Project Screening Tool to find the Stream Alteration Engineer for your project's region. **Regulatory Point of Contact Name/Position:**	
IV. Wetland	

[11] The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located in the jurisdictional zone to trigger a Lakeshore permit. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

[12] FEMA mapped Flood Hazard Areas are not available statewide on the ANR Natural Resources Atlas. For projects located in Grand Isle, Franklin, Lamoille, Addison, Essex, Orleans, Caledonia, and Orange Counties, maps are available via the FEMA Flood Map Service Center: https://msc.fema.gov/portal/home. ANR Floodplain Managers are available to provide technical assistance if needed.

[13] Stream Alteration Permits regulate all activities that take place within perennial river and stream channels. Examples of regulated activities include streambank stabilization, dam removal, road improvements that encroach on streams, and bridge/culvert construction or repair. The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located in the jurisdictional zone to trigger a Stream Alteration permit. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

1. Does the Wetland Screening Tool[14] provide a result of wetlands likely, very likely, or present at the project site?	Yes ◯ No ◯
2. Does your project site involve land that is in or near an area that has any of the following characteristics: o Water is present – ponds, streams, springs, seeps, water filled depressions, soggy ground under foot, trees with shallow roots or water marks? o Wetland plants, such as cattails, ferns, sphagnum moss, willows, red maple, trees with roots growing along the ground surface, swollen trunk bases, or flat root bases when tipped over? o Wetland Soils – soil is dark over gray, gray/blue/green? Is there presence of rusty/red/dark streaks? Soil smells like rotten eggs, feels greasy, mushy or wet? Water fills holes within a few minutes of digging? (See Landowners Guide to Wetlands for additional information on identifying wetlands onsite.)	Yes ◯ No ◯ Not Sure ◯
If you answered ***yes*** or ***not sure*** to either of the above questions, you will need to contact your District Wetlands Ecologist using the Wetland Inquiry Form. The District Wetlands Ecologist can help determine the approximate locations of wetlands and whether you need to hire a Wetland Consultant to conduct a wetland delineation. Alternatively, if you answered ***yes*** or ***not sure*** to either of the above questions, you can simply budget for a Wetland Consultant in the proposed scope of work. Any activity within a Class I or II wetland or wetland buffer zone (minimum of 100 feet and 50 feet respectively) which is not exempt or considered an "allowed use" under the Vermont Wetland Rules requires a permit. All permits must go through review and public notice process, which takes at minimum 6 weeks for a General Permit and 5 months for an Individual Permit. **Regulatory Point of Contact Name/Position:**	
1. Is your project a Wetland Restoration project type?	Yes ◯ No ◯
If you answered yes, under the Vermont Wetland Rules you will need an "allowed use" determination from the DEC Wetlands Program. Contact your District Wetlands Ecologist using the Wetland Inquiry Form. **Regulatory Point of Contact Name/Position:**	
V. Fish and Wildlife	
State law protects endangered and threatened species. No person may take or possess such species without a Threatened & Endangered Species Takings permit. 1. **Does your project involve cutting down trees larger than 5 inches in diameter in any of the following towns?** Addison, Arlington, Benson, Brandon, Bridport, Bristol, Charlotte, Cornwall, Danby, Dorset, Fair Haven, Ferrisburgh, Hinesburg, Manchester, Middlebury, Monkton, New Haven, Orwell, Panton, Pawlet, Pittsford, Rupert, Salisbury, Sandgate, Shoreham, Starksboro, St. George, Sudbury, Sunderland, Vergennes, Waltham, West Haven, Weybridge, Whiting	Yes ◯ No ◯

[14] To view the Wetland Screening Tool introduction video, see https://youtu.be/6lv5en0AB1o

2. Is the project site within 1 mile of a mapped[15] Significant Natural Community or Rare, Threatened, or Endangered Species?	Yes ◯ No ◯
If *yes* to either of the above questions, connect with the VT Fish and Wildlife department (everett.marshall@vermont.gov 802-371-7333) to discuss your project and any necessary permitting. **Regulatory Point of Contact Name/Position:**	
VI. Stormwater	
1. Will the project disturb more than an acre of land during construction, add or redevelop impervious surface, create new development or otherwise require a Stormwater permit?	Yes ◯ No ◯
If *yes*, forward to the appropriate Stormwater specialist to ensure necessary permitting. Use the Water Quality Project Screening Tool to find the Stormwater specialist for your project's region. **Regulatory Point of Contact Name/Position:**	
VII. Solid Waste	
2. Will you be creating any debris (including construction and demolition waste, stumps, brush, untreated wood, concrete, masonry, and mortar) with your project that you intend to bury on site? [16]	Yes ◯ No ◯
If yes, connect with the Waste Management & Prevention Division (dennis.fekert@vermont.gov 802-522-0195) to discuss your project and any necessary permitting. **Regulatory Point of Contact Name/Position:**	
Provide below or attach a narrative summary of Table 4 findings. Please include: a. Which permits or permit amendment are needed or might be needed? b. What type might be needed? (e.g. a general or individual permit)? c. What concerns were voiced by permitting staff? d. How will the proposed scope of work address these concerns?	
Is the project, as proposed, reasonably considered permit-able by all applicable	Yes ◯ No ◯

[15] Find both of these layers on the ANR Atlas under Atlas Layers/Fish and Wildlife. Use the Measurement tool to 1) Plot Coordinates for your project 2) select the coordinates from the left panel 3) select the Radius Tool 4) click on your project location 5) Indicate 1 mile distance 6) look for overlap with either of these mapped layers.

[16] If your project will result in the transfer and disposal of debris (including construction and demolition waste, stumps, brush, untreated wood, concrete, masonry and mortar), you do not need a permit from this office as long as you hire a licensed solid waste hauler and bring the material to a certified facility.

ANR permitting programs? (Answer must be Yes to continue)	

Step 5: Conduct Eligibility Criteria #5-8 Screenings

Table 5A. Eligibility Criteria 5-8	
Landowner and Operation and Maintenance Responsible Party Support. Project identifies and demonstrates commitment from a qualified and willing operation and maintenance responsible party. Project demonstrates landowner support for the proposed project phase. (Answer must be YES to proceed)	Yes ◯ No ◯
Budget. Project budget includes ineligible expenses. (Answer must be NO to proceed)	Yes ◯ No ◯
Leveraging. Proposed leveraging meets required leveraging levels (if applicable), meets the definition of leveraging, and comes from eligible sources (Answer must be YES or N/A to proceed)	Yes ◯ No ◯ N/A ◯
Funding Program Specific Eligibility. Project meets additional funding program eligibility requirements*. Please list applicable funding program below: (Answer must be YES to proceed) *If Water Quality Restoration Formula Grant, complete Step 6 below	Yes ◯ No ◯

Step 6: Screening Projects on Agricultural Lands (Water Quality Restoration Formula Grants Only)

For Water Quality Restoration Formula Grant projects, please complete the following information as part of your Funding Program Specific Eligibility Screening (Criteria 8). Please note this must be completed for all projects located on agricultural lands regardless of project type. See CWIP Project Types Table for eligible project types.

Table 6A. Screening Projects on Agricultural Lands	
1. Is the proposed project located on a jurisdictional farm operation[17]? Complete a preliminary review to	◯ **Yes** - Proceed to next question below.

[17] Jurisdictional farm operations are required to meet Vermont's Required Agricultural Practices (RAPs).

determine if it is a jurisdictional farm operation, and any case that requires consultation with AAFM will occur via the farm determination process. Please note this form must be submitted by the farm operation/landowner seeking the determination.	◯ **No**[18] - There is no additional requirements related to agricultural review for these projects.
2. Is the proposed project an agricultural project? Examples of agricultural projects include but are not limited to Production Area Practices – (e.g. Waste Storage Facilities, Heavy Use Area, Diversion) Fence, Livestock Exclusion, Filter Strip, Cover Crop, Reduced Tillage, Manure Injection, Rotational Grazing. Please note this is not an exhaustive list of all agricultural practices.	◯ **Yes** - Agricultural Projects on jurisdictional farms are not an eligible project type. You can provide a referral to an applicable state or federal agricultural assistance program, or a local organization. ◯ **No** - The natural resource, innovative, or other project type will require an agricultural project review and approval from the Vermont Agency of Agriculture, Food and Markets (VAAFM) to ensure a consistent approach on farms statewide that follows rules, regulations, and laws in place. Please follow Steps 1 & 2 below. **Step 1** - Please submit a detailed description of the project, project site, project details, landowner, farm operation, and any other relevant information to VAAFM at AGR.WaterQuality@Vermont.gov . **Step 2** - Once you complete this Agricultural Project Review, please allow 30 days for a response. Once that response has been received, please include a summary of the response in the next section.

Agricultural Project Review Status & Summary:	
Check as Applicable	**Status**
☐	Submitted/ Pending
☐	Approved
☐	Denied

[18] Note CWIP's Agricultural Pollution Prevention project type eligibility is limited to land where owner or operator is not a jurisdictional farm (i.e., not required to meet the Required Agricultural Practices (RAPs)). As such, projects that meet the definition of the Agricultural Pollution Prevention project type in the Appendix B. Project Types Table are not subject to review by VAAFM.

Please include a summary of the response here:

Please note that it is expected that all projects with the status "submitted/pending" will be "approved" prior to a project approval for funding.

CWSP Project Budget

Franklin County Natural Resources Conservation District

Black Woods Association Shoreline Bionengineering Final Design

Personnel (Name, Title)	Tasks/Responsibilities	Hours	Hourly Rate	Salary Expense
Lauren Weston, District Manager	Grant management, staff oversight, field visits, design review and oversight	25.00	$75.00	$1,875.00
Mel Auffredou, Senior Natural Resources Planner	Procurement process, coordination with contractor and landowners, field visits, review contractor's produced materials	45.00	$70.00	$3,150.00
Personnel Subtotal				**$5,025.00**

Anticipated Travel	Purpose	Miles	Mileage Rate	Travel Expense
Travel to Franklin, VT	4 Site visits with contractors and landowners	143.20	$0.70	$100.24
Travel Subtotal				**$100.24**

Contractual	Description/Use	# of Units	Unit Cost	Contract. Expense
Engineering Design Contractor	Site visits, Final Design Draft, permitting, Final Design Report, and Cost Opinions	1.00	$11,000.00	$11,000.00
Historic and Cultural Review	Background research, field work, report writing, mapping, and production of Archaeological Resources Assessment and Phase I Investigation	1.00	$8,000.00	$8,000.00
Contractual Subtotal		0		**$19,000.00**

Total Project Cost: **$24,125.24**

Black Woods Association Shoreline Bioengineering Final Design Schedule

Franklin County Natural Resources Conservation District

Task #	Title	Description	Schedule
1	Hire Consultants	It is expected that two consultants will be needed for this project, including an engineering firm and an historical and archaeological consultant. FCNRCD will prepare requests for proposals for each scope of work, solicit proposals following CWSP guidelines, select consultants, and execute contracts with the consultants.	February – March 2025
2	Initial Project Site Visit	FCNRCD will hold a project kickoff site visit with consultants and landowners to discuss data collection needs and adjust any timelines as needed.	March – April 2025
3	Final Design Draft	The engineering consultant will create a draft design plan, drawings, and specifications. Based upon the findings of the Archaeological Resources Assessment, a Phase I Investigation may be conducted by the archaeological consultant. FCNRCD will coordinate with both consultants to ensure that the final design is updated based on cultural resources recommendations.	April – June 2025
4	Site Visit with Regulators	FCNRCD will hold a site visit with regulators, consultants, and landowners to finalize the design draft and permitting requirements.	June – July 2025
5	Permitting	The Engineering consultant will complete any relevant permit-required assessments or plans and submit required permit applications.	July – September 2025
6	Final Design Report & Cost Opinions	The engineering consultant will create a Final Design Report, including: a summary of existing site conditions; updated 100% Conceptual design sheets showing typical cross-section(s) and longitudinal profile; and feasibility summary, including stakeholder and regulator feedback and site-specific constraints. The engineering consultant will also create a 10-year access license or easement plan and 10-year operation and maintenance plan in coordination with FCNRCD. They will also complete an initial engineer's opinion of probable cost for permitting, construction, construction oversight, and long-term maintenance and operation.	September – December 2025

6	Final Site Visit	FCNRCD will hold a final meeting with consultants and landowners to review the 100% Design Report and address landowner questions or concerns.	December 2025
7	Reporting	FCNRCD will complete reporting for CWSP funding requirements. Deliverables will include DEC Programmatic staff comments on design, Signed VDHP Project Review Form, Final Design Report, 10-year O&M Plan, 10-year access license or easement documentation, relevant permit materials, Media Announcement, Final Performance Report of ANR Online Clean Water Project – Project Closeout Form (once available) and/or Batch Import File or ANR Online Clean Water Project – New Project Form (once available).	December 2025 – January 2026

Bioengineered Lake Shoreline Stabilization Estimated Phosphorus Reduction Calculator

Volume of sediment erosion (ft^3/yr) = Length of Shoreline (feet)∗Average Bank Height (feet)∗Average Shoreline Recession Rate (feet/year)

kg of TP eroded = Volume of sediment erosion (ft^3/yr) * Average sediment bulk density (34 kg/ft^3) * Average sediment P content (0.000621 kg TP/kg sed.) = volume of sediment (ft^3/yr) * 0.021 kg TP/ft^3

Variable	Value	Unit	Notes
Average sediment bulk density	*34*	*kg/ft^3*	**Low erosion: 0-2 inches/year**. The most common type of shoreland erosion occurs slowly over time, causing less than two inches of soil erosion per year or even pausing for a period of time until continuing to erode again under severe storms. **Moderate erosion: 2-4 inches/year.** Vegetative banks buffer shorelines from wind, wave, and ice energy while binding the soils together also protecting the bank from erosive upland runoff. When the vegetation is removed, erosion can occur in many forms, including scouring underneath which ultimately undermines and weakens the entire bank. **Severe erosion: 4-6 inches/year.** Shorelands with more than a 20 percent slope (one foot vertical to five feet horizontal) are considered steep shores with increased erosion potential. Plants typically root best on slopes less than 30 percent but can grow on slopes up to 50 percent. Another type of severe erosion occurs on man-made beaches made of sand. Sand is very unstable and will severely erode annually, washing into the lake and disturbing natural aquatic habitats. ***If your shoreline recession rate is greater than 6 inches/ year, please contact DEC Lakes and Ponds Program prior to initiating a project.***
Average sediment P content	*0.000621*	*kg TP / kg sediment*	
Phosphorus reduction efficiency	*85%*	*percent of load*	

*Input**	*Input value**	*Input value**	*Input value (0-6)**	*Output value*	*Output value*	*0.021*	*Output value*	*Output value*
Project Identifier	**Length of eroded shoreline to be fixed (feet)**	**Average Bank Height (feet)**	**Average Shoreline Recession Rate (in/yr)**	**Average Shoreline Recession Rate (ft/yr)**	**Volume of sediment erosion (ft^3/yr)**	**Average P content per ft^2 of sedment (kg/ft^2)**	**kg of TP eroded**	**Estimated Annual P Reduction (kg/yr)**
BWA Shoreline Bioengineering	50.00	3.50	4.00	0.33	58.33	0.021	1.23	1.05

Fitzgerald Environmental Associates, LLC
18 Severance Green, Suite 203
Colchester, VT 05446
Telephone: 802.876.7778
www.fitzgeraldenvironmental.com

Notes:
- VCGI Imagery from 2023.
- DEM from 2017 LiDAR (0.7 m).

Site Plan LW1: BWA Shoreline

Lake Carmi LWAP

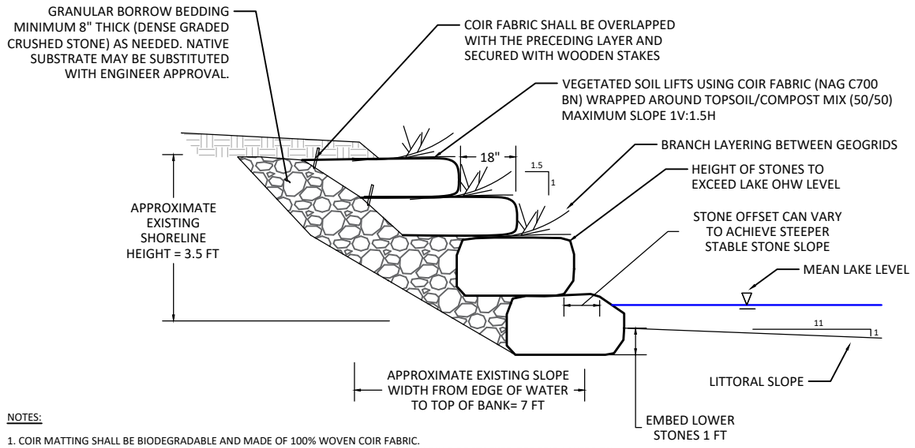
249 Black Woods Road
Franklin, VT
Concept Plans
NOT FOR CONSTRUCTION

AEM	EPF
MAP BY	CHECKED

1 inch = 40 feet
SCALE

September 18, 2024
DATE

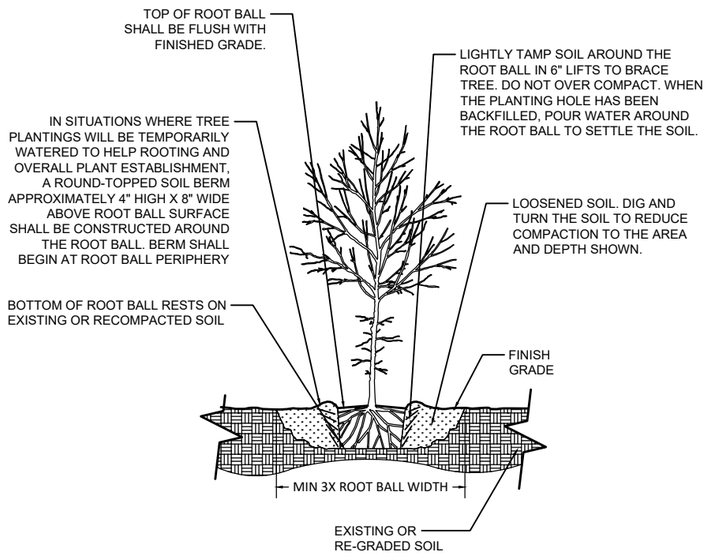
LW1-1
SHEET NO.



NOTES:

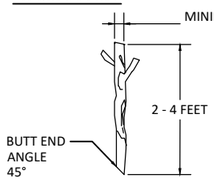
1. COIR MATTING SHALL BE BIODEGRADABLE AND MADE OF 100% WOVEN COIR FABRIC.
2. MATTING SHALL HAVE A MINIMUM WIDTH OF 2 METERS (6.5 FEET) TO FACILITATE BUILDING OF STACKED GEOGRID LAYERS ON STREAM BANKS.
3. MATTING FOR GEOGRID LAYERS SHALL BE SECURED WITH WOODEN STAKES ON LOWER AND UPPER LAYERS. STAKE SPACING SHALL NOT EXCEED 3 FEET IN THE WIDTH DIMENSION OR 8 FEET IN THE LENGTH DIMENSION.
4. ACCEPTABLE COIR MATTING PRODUCTS ARE LISTED BELOW.
   A. NORTH AMERICAN GREEN BIONET C700BN (HTTPS://NAGREEN.COM/EROSION-CONTROL-PRODUCTS/ROLLMAX/ERONET)
   B. ALTERNATIVE PRODUCTS EQUIVALENT TO THOSE LISTED ABOVE SHALL BE APPROVED BY PROJECT ENGINEER.
5. STEMS USED FOR BRANCH LAYERING SHALL HAVE A MINIMUM BASE DIAMETER OF ½ INCH, MINIMUM LENGTH OF 4 FEET, AND SHALL BE INSTALLED AT A MINIMUM DENSITY OF 3 STEMS PER LINEAR FOOT ALONG THE BANK.

ENCAPSULATED SOIL LIFT AND STONE BANK STABILIZATION N.T.S

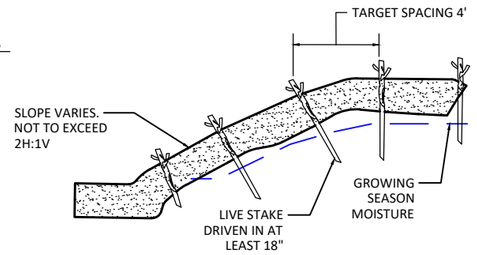


PLANTINGS N.T.S

LIVE STAKE DETAIL



SECTION VIEW ON SLOPE



WILLOW SPECIFICATIONS:

RECOMMENDED NATIVE WILLOW SPECIES:
SALIX DISCOLOR - PUSSY WILLOW
SALIX ERIOCEPHALA - MISSOURI RIVER WILLOW
SALIX LUCIDA - SHINING WILLOW

WILLOW STAKES SHALL BE HARVESTED DURING THE DORMANT PERIOD FOLLOWING FALL LEAF DROP AND BEFORE PLANT LEAF BUDDING IN SPRING. ALTERNATIVELY, WILLOW TUBELINGS WITH WELL-ESTABLISHED ROOT SYSTEMS (MINIMUM 1-YEAR GROWTH IN TUBE) MAY BE SUBSTITUTED TO PROVIDE FLEXIBILITY IN THE PLANTING SCHEDULE.

SEQUENCE:

1. ACHIEVE FINAL GRADING. SEED WITH APPROPRIATE SEED MIX AND INSTALL ROLLED EROSION CONTROL PRODUCT.
2. INSTALL WILLOW STAKES THROUGH RECP. IF NECESSARY, USE METAL BAR TO CREATE "PILOT HOLE" FOR STAKE.
3. FILL REMAINING VOIDS AROUND STAKES ON FACE OF SLOPE WITH TOPSOIL AND LIGHTLY TAMP AROUND EACH STAKE.

LIVE STAKE PLANTING N.T.S

Fitzgerald Environmental Associates, LLC
164 Main Street, Suite 2
Colchester, VT 05446
Telephone: 802.876.7778
www.fitzgeraldenvironmental.com

Notes:

Design Details LW1: BWA Shoreline

Lake Carmi LWAP

249 Black Woods Road
Franklin, VT
Concept Plans
NOT FOR CONSTRUCTION

AEM	EPF
DRAWN	CHECKED

Not to Scale
SCALE

2024-09-18
DATE

SHEET LW1-2
SHEET NO.

S:\2022\22015_FCCD_LAKE_CARMI_SCOPING\CAD\LAKECARMILWAP_CONCEPTS.DWG 9/18/2024 4:51:14 PM

FRANKLIN COUNTY
NATURAL RESOURCES
CONSERVATION DISTRICT

Mel Auffredou <mel@franklincountynrcd.org>

Digital Plans

Chad Spooner <chaddyvt@gmail.com> Tue, Dec 31, 2024 at 12:51 PM
To: Mel Auffredou <mel@franklincountynrcd.org>

Mel,

Thank you so much and I also hope you are having a pleasant holiday season. You have the full support of the project per the vote at the May meeting. The minutes I shared previously showed unanimous in favor. The plans you shared with me on December 10th are right in line with what was discussed in May.

If you need anything further, please do not hesitate to ask!

Cs

Sent from my iPhone

> On Dec 30, 2024, at 1:58 PM, Mel Auffredou <mel@franklincountynrcd.org> wrote:
>
> Hello Chad,
>
> I hope you are enjoying the holiday season! I am writing to request a written confirmation of your approval to move forward with the 100% design for the shoreline bioengineering project on the BWA southern common lot. We would like to include landowner support in our application for funding.
>
> Thank you in advance and Happy New Year!
>
> Mel
>
> On Fri, Dec 20, 2024 at 9:22 AM Mel Auffredou <mel@franklincountynrcd.org> wrote:
>> Hi Chad,
>>
>> Yes, I've attached the plans here. Please feel free to reach out with any questions!
>>
>> Happy holidays!
>>
>> Best,
>> Mel
>>
>> On Thu, Dec 19, 2024 at 5:35 PM Chad Spooner <chaddyvt@gmail.com> wrote:
>>> Mel,
>>>
>>> Good seeing you yesterday at the Town meeting. Could you please send me an electronic copy of the plans you shared with me so I can share with the Association before the Xmas holiday.
>>>
>>> Many thanks in advance! I hope you have a wonderful holiday season and a safe new year.
>>>
>>> Cs
>>>
>>> Sent from my iPhone
>>
>> --

Mel Auffredou (*she/her*)

Natural Resources Planner

Franklin County Natural Resources Conservation District

50 South Main St., Suite B-20

St. Albans, VT 05478

802-528-4159

Mel@FranklinCountyNRCD.org

FranklinCountyNRCD.org

--

Mel Auffredou (*she/her*)

Natural Resources Planner

Franklin County Natural Resources Conservation District

Mailing: 50 South Main St., Suite B-20, St. Albans, VT 05478

Physical: 431 Franklin Park West, Suite 100A, St. Albans, VT 05478

802-582-3133

Mel@FranklinCountyNRCD.org

FranklinCountyNRCD.org

- Training time

MEMORANDUM

TO: MISSISQUOI BASIN WATER QUALITY COUNCIL (BWQC)
FR: MISSISQUOI BASIN CLEAN WATER SERVICE PROVIDER (CWSP) STAFF
RE: MATERIALS FOR TRAINING AGENDA ITEM
DA: JANUARY 29, 2025
==========

Should time allow, ECO AmeriCorps Service member Nora Brown will lead a training session relating to Operations and Maintenance (O&M) at the meeting on February 5. Her presentation will address DEC requirements and NRPC's system for monitoring signed agreements over the design life of a project.

All completed clean water projects are required to have a completed O&M plan and companion site access agreement—or site access easement, when the investment costs made by the State of Vermont will be $200,000 or higher. The CWSP and/partner organization will document required maintenance and yearly verifications.

Documents relating to O&M can be found on DEC's website. Nora will go over the recent changes to the site access agreement form, which were implemented in October. (See attached.)

Nora will also go over NRPC's internal procedures for documenting O&M. Completed agreements, once fully executed, will be added to a database for monitoring. Those responsible for O&M on given projects will be asked to use the following forms to provide NRPC with updates regarding individual projects:

- Ownership Conveyance: in the case of a transfer of land ownership where a clean water project is located, this form will be used to update landowner contact information.
- Notification of Automatic Renewal: site access agreements that automatically renew at the end of the project's stated design life require notification to be sent to landowners at least 60 days in advance of the renewal. This form documents that these notifications have been sent and when.
- Expenditure Documentation: this form allows for the reporting of individual maintenance expenses, which are then used to track what has been spent on a given project to date.

Dean Pierce may offer further comments relating to O&M expenditures, including the potential for implementation projects to include in their budgets some O&M related expenses, and other training topics.

- Round Table: Project Sharing

- Updates/Announcements
- Conclusion