RUST POND HYDOROLOGY REQUEST FOR PROPOSALS

Town of Wolfeboro
New Hampshire

September 25, 2023

Tavis J. Austin, AICP
Director of Planning and Development
PO Box 629
Wolfeboro, NH 03894
Telephone: (603) 569-5970

PURPOSE
The Town of Wolfeboro is soliciting proposals from experienced Consultants (Civil Engineers, Wetland Scientists) to implement: *Rust Pond—North Inlet Subwatershed Implementation (Phase 2) and Dredging Feasibility Study*. The information contained in this Request for Proposals (RFP) is intended to provide prospective responders with background information to allow for the completion of proposals.

BACKGROUND
In the late 1970's, the hydrologic channel north of Rust Pond experienced a number of land use modifications. These include, but are not limited, to loam stripping north of Cross Road and the expansion of playing fields at Kingswood High School. This caused the hydrologic channel to introduce increased amounts of stormwater run-off and related erosion into the north end of Rust Pond. Additionally, in the mid-1980s a small beaver dam failed; associated water flow through the area increased sediment deposition into Rust Pond.

Concurrently in the mid-1980s, "*Brewster Heights*" subdivision was constructed which significantly increased the percentage of impervious cover to this area which also drains ultimately to Rust Pond. Later, the Cooperative High School field's subsurface system was unearthed with the ~2010 installation of an artificial turf system on the playing fields of Kingwood High School. These two systems then confluence into one channel with increased stormwater flows and related sediment flowing to the Rust Pond inlet area below Cross Road.

The Town of Wolfeboro, in concert with NHDES and others worked to stabilize the land area above and below Cross Road (since 2010) to address the stormwater capacity and reduce the channelization of the unnamed channel and related siltation. This efforts have not been effectively evaluated since their installation to verify slope stabilization and related channelization of flows.

In 2019, Wolfeboro Town Meeting authorized $20, 000.00 (to be expended by December 31, 2021) to be used to evaluate current conditions, and seek proposals to consider mitigation project scheduling, related permitting assessment; and preliminary cost assessments to assess the siltation of Rust Pond. Ultimately, a proposal consideration may be made to investigate dredging of Rust Pond which is experiencing limited access from private docks as water depths are diminished.

Upon the 2021 completion of the *Rust Pond North Inlet Tributary Hydrology Evaluation* ("Evaluation") by Comprehensive Environmental Inc. (attached), the Town and the Rust Pond Association endeavored to secure further funds to implement those BMPs recommended by the *Evaluation*. At this time, the Town has been granted the $52,000.00 to implement the Evaluations recommendations as outlined in the grant documents (see attached)

SCOPE OF SERVICES
The Consultant will work directly with the Rust Pond Association ("Association"), the Director of Planning and Development ("Town"), to complete the work product in a timely fashion. The Consultant shall implement those mitigation efforts outlined in the Evaluation as well as complete the dredging feasibility study as outlined in the grant award (attached).

PROPOSAL FORMAT

Proposals shall include the following information:

1. **Cover letter**. The cover letter shall be signed by a representative of the Consultant authorized to enter into a contractual arrangement with the Town. The cover letter shall also identify the person who will be responsible for regular communications with the Town, including meeting attendance.

2. **Consultant Background**. Provide information on the Consultant's background, including:
   A. Organization, size and office locations.
   B. The office location where work associated with the project would be performed.
   C. A description of the range of services provided by your Consultant. Specify any area of expertise the Consultant has, or members of the Consultant that have special qualifications to handle the Town's planning services.

2. **Professional Staff**. Identify the individual or team who would be providing planning services to the Town. List their experience in providing services to towns of comparable size and character.

3. **Experience and References.** Provide descriptions of recent prior experience with similar communities undertaken within the last five (5) years. For each project, include the name, title, e-mail address, and telephone number of a representative that the Town may contact to discuss their experience.

4. **Samples.** Include representative 3-4 samples (BMP design plans, etc), prepared by the individual who would be assigned to work with the town, material and/or correspondence that may be helpful in assessing the level and quality of service.

5. **Disclosure**. The Town of Wolfeboro expects each potential Planning Consultant to identify any potential conflicts of interest and the plan for handling these matters.

6. **Work Program**. Provide descriptions of each major work task, including key dates in a timeline.

7. **Fees.** Delineate the total fees for the project by work tasks; include billing options for all expected services.

PROPOSAL SUBMISSION GUIDELINES

The proposal submission shall include three (3) copies, to be submitted no later than Thursday, October 19, 2023 at 3:00PM, and be presented in an 8 ½" X 11" format.

Proposals received after this deadline shall not be considered. The cost of preparing and submitting a response is the sole responsibility of the Consultant and shall not be chargeable in any manner to the Town. The Town will not reimburse any Consultant for any costs associated with the preparation and submission of a response or expense incurred in making a presentation, participation in an interview, or negotiating a contract with the Town.

Any Consultant submitting or considering submission of a response to this request that is in doubt as to the meaning of any part of this RFP or the details herein, may submit a written request for interpretation, clarification, or correction directly to Tavis J. Austin, Director of Planning and Development at planningdirector@wolfeboronh.us.

Submissions shall be hand delivered or mailed, and addressed as follows:
Kathryn Carpentier, Finance Director
Town of Wolfeboro
84 South Main St.
PO Box 629
Wolfeboro, NH 03894

Telephone or e-mail proposals will not be accepted in response to a Request for Proposals.

The Town reserves the right to reject any or all proposals, or accept any proposal determined to be in the best interest of the Town.

Selection of a Consultant will be made at the complete discretion of the Town. The Town reserves the right to accept or reject any and all proposals.

All submissions or components thereof become property of Town.

PROPOSAL REVIEW, EVALUATION, AND SELECTION PROCESS
Proposals will be reviewed by the Town to determine which Consultant(s) will be selected to participate in an interview with the Town.

It is the intent of the Town to select a Consultant in accordance with the following schedule:

October 02, 2023: Request for Proposals Distributed
October 19, 2023: Proposals Due
October 23-27, 2023: Interviews Scheduled with Selected Consultants
October 30- November 3, 2023: Selected Consultant Notified

The Town will select a Consultant based upon the written response, oral interviews, contact with references, and any other pertinent information deemed necessary by the Town including, but not limited to, the following criteria:

- Submission Responsiveness
- Community Outreach and Engagement Approach
- Consultant Qualifications and Experience
- Staff Qualifications and Experience
- Work Program and Timeline
- Cost and Fees
- Consultant Oral Presentation and Interview (if applicable)

In response to the proposals, the Town may select one or more Consultants for interviews and an oral presentation. The submission of a response shall not guarantee an opportunity to an interview.

The Town will then negotiate a contract, specific scope of services, and fee with the selected Consultant. Contract shall not exceed $52,000.00 unless otherwise modified by the Town.

The Town reserves the right to request substitution of any provider identified by the Consultant as part of its team. If an agreement cannot be reached with the selected Consultant, the Town retains the right to terminate negotiations with that Consultant without notice and open negotiations with the next ranked Consultant.

The compensation discussed with one interested Consultant will not be disclosed or discussed with another Consultant.

No work shall begin until the Consultant and the Town have executed a contract. The contract with the Town is binding all terms, conditions, and provisions of the proposal, and other terms, conditions and provisions negotiated prior to award of the contract.

Any contract resulting from this RFP must be approved by the Board of Selectmen if applicable, and is subject to funding.

Acceptance or Rejection of Responses
The contract may be awarded to the Consultant that most closely satisfies the needs of the Town and is deemed to be the most advantageous to the Town. The Town reserves the right to accept or reject any item or group of items in a response.

The Town also reserves the right to waive any informality or irregularity in any response.

The Town also reserves the right to reject any and all responses, or portions thereof, received in response to the RFP, to negotiate separately with any source whatsoever, in any manner necessary, to serve the best interest of the Town.

Additionally, the Town may, for any reason, decide not to award an agreement as a result of this RFP.

Non-acceptance of any response shall not imply that the proposal was deficient.

Examination of Proposed Materials
The submission of a response shall be deemed a representation and warranty by the Consultant that it has investigated all aspects of the RFP, that it is aware of the applicable facts pertaining to the RFP process and its procedures and requirements, and that it has read and understands the RFP.

No requests for modification in the provisions of the response shall be considered after its submission on the grounds that the Consultant was not fully informed as to any fact or condition.

Town's Use of Material
All material submitted shall become the property of the Town, unless it is clearly marked as proprietary information. The Town reserves the right to use any ideas presented in the submission, without compensation paid to the Consultant.

Insurance Requirements
The selected Consultant shall procure and maintain, for the duration of the contract, insurance against claims which may arise from or in connection with the performance of the work by the Consultant, its agents, representatives, or employees. Proof and coverage amounts of such insurance, in the form of a Certificate of Insurance, which names the Town of Wolfeboro as an Additional Insured, shall be received and approved by the Town prior to execution of the contract.

Hold Harmless
The selected Consultant shall indemnify and hold harmless the Town and its officers, officials, employees and agents from and against all claims, damages, losses and expenses including attorney's fees arising out of performance of the scope of services included herein, caused in whole or in part by any negligent act or omission of the Consultant, their officers, employees, agents, representatives or subcontractors, except where caused by the active negligence, sole negligence, or willful misconduct on the part of the Town of Wolfeboro.

R2023 WATERSHED ASSISTANCE GRANTS
FULL PROPOSAL
Watershed Management Bureau/Watershed Assistance Section

RSA/Rule: Voluntary

Submittal Deadline - January 13, 2023 at 4:00 pm

Please contact your NHDES project coordinator for assistance with any part of this application

1. PROJECT TITLE

Rust Pond – North Inlet Subwatershed Implementation (Phase 2) and Dredging Feasibility Study

2. APPLICANT INFORMATION

A. Organization Name: Town of Wolfeboro

B. Project Manager

Project manager's name:	Tavis Austin
Title:	Director of Planning and Development
Affiliation:	Town of Wolfeboro, Planning and Development Department
Street address:	84 South Main Street
City, State, ZIP:	Wolfeboro, NH 03894
Day phone: (603) 569-5970 x-121	Fax: ( ) Email: planningdirector@wolfeboronh.us

C. Legal Contact (Officer legally authorized to sign agreements)

Legal Contact's name:	James Pineo
Title:	Town Manager
Affiliation:	Town of Wolfeboro
Street address:	P.O. Box 629
City, State, ZIP:	Wolfeboro, NH 03894
Day phone: 603-569-8161	Fax: (603)569-8178 Email: townmanager@wolfeboro.us

Signature of Legal Contact: _____ **Date:** 1/9/2023

If an applicant does not have an UEI-SAM number, they must obtain one. UEI-SAM registration can be completed at: https://sam.gov/content/entity-registration.

D. Unique Entity Identifier (UEI-SAM) Number: **ZTASD8H1ULK7**

When applicable, the applicant must provide their Executive Compensation Data, including: The names and total compensation of the five most highly compensated officers if the entity in the preceding fiscal year received 80 percent or more of its annual gross revenues in Federal awards; and $25,000,000 or more in annual gross revenues from Federal awards; and the public does not have access to this information about the compensation of the senior executives of the entity through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. §§ 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. See FFATA § 2(b)(1).

Note: Total compensation is the cash and non-cash dollar value earned by an executive during the preceding fiscal year and includes the following: salary and bonus; awards of stock; earnings for services under non-equity incentive plans; change in pension value; and, above-market earnings on deferred compensation which is not tax-qualified.

E. Please check the applicable box:

☒ By signing this full proposal, I certify that the Executive Compensation Data requirements of the FFATA do **not** apply to the Applicant organization.

☐ By signing this full proposal, I certify that the Executive Compensation Data requirements of the FFATA apply to the Applicant organization and the Applicant agrees to provide information to NHDES as required by the FFATA.

F. Please check the applicable box:

☒ The applicant organization will maintain statutory worker's compensation and employee's liability insurance for all employees engaged in the performance of the Project, and comprehensive public liability insurance against all claims of bodily injuries, death or property damage, in amounts not less than $1,000,000 per occurrence and $2,000,000 aggregate for bodily injury or death any one incident, and $500,000 for property damage in any one incident.

☐ The applicant organization maintains insurance coverage which differs from either of the above alternatives, and the Project Manager or Legal Contact has contacted the NHDES Watershed Assistance Section to discuss alternative arrangements.

3. PROJECT LOCATION

A. City/Town(s): **Wolfeboro**

Does project involve other states? **Yes** ☐ **No** ☒

B. What water body does it affect? **Rust Pond (NHLAK700020101-07-01)**
North Inlet to Rust Pond (NHRIV700020101-22)

12-digit hydrologic unit code (HUC): Wolfeboro Bay: 010700020101

C. Attach a project location map showing the watershed and relevant project site locations (required).

See attached Figures 1 and 2 (adapted from Figure 2 of the attached Rust Pond North Inlet Hydrology Evaluation (CEI, 2021)

D. Small Municipal Separate Storm Sewer System (MS4) Certification:

☒ By signing this full proposal, I certify that the proposed project is not located within a regulated MS4 area.

☐ By signing this full proposal, I acknowledge that the project location is within a regulated MS4 and certify that the actions undertaken through the project do **not** implement requirements of a MS4 Permit, the Multi-Sector General permit, or Construction General Permit. Additionally, the municipality will not claim work completed through this project for credit toward implementation of MS4 requirements.

If at any time, the work being funded pursuant to this grant agreement is required to be implemented by a MS4 permit or is determined to be required to be implemented pursuant to a MS4 permit, the work from that time forward will no longer be eligible for funding under this grant agreement.

4. PROJECT TYPE

A. Include impairment information, if applicable:

Does the project area include impaired waters? **Yes** ☒ **No** ☐

Does the project address the identified water quality impairment(s)? **Yes** ☒ **No** ☐

Designated Use(s) impaired: Secondary Contact Recreation (Rust Pond)

Specific cause(s) of impairment: Sedimentation/Siltation (5-M)

Designated Use impairments and causes of impairments are identified on the *2020, 303(d) List.* If the waterbody is not listed as impaired, describe and attach documentation of the impairment. Assessment documents can be found here: NHDES 2020/2022 Surface Water Quality Assessment Viewer | NHDES Surface Water Quality Assessment Site (arcgis.com)

B. Check the applicable project type(s):

a. Watershed-based plan implementation ☒ Rust Pond North Inlet and Route 28 Boat Launch Subwatershed Assessment (2012, Geosyntec Consultants)

b. Implementation of an accepted alternative plan ☒ Rust Pond North Inlet Hydrology Evaluation (CEI, 2021)

5. PROJECT NARRATIVE

A. Project Period

Note the general time frame for projects funded in 2023 is August 1, 2023 through September 30, 2026. The duration can vary, and actual start date will be dictated by the U.S. Environmental Protection Agency (EPA), and the New Hampshire Governor and Council approval date.

Anticipated Start Date: *September 2023* Projected End Date: *November 2024*

B. Executive Summary

*In **200 words or less**, provide a general description of the proposed project which would be suitable for a press release. This section should summarize the water quality concerns, stakeholder involvement and how the project will help achieve the desired environmental outcome(s).*

The proposed project will continue to implement the recommendations of the 2012 *Rust Pond North Inlet and Route 28 Boat Launch Subwatershed Assessment* and *2021 Rust Pond North Inlet Hydrology Evaluation,* and will be an important next step towards ultimately eliminating water quality impairment in the tributary and Rust Pond related to sediment loading, hydromodification, and channel erosion. This project will have the following three main elements:

1. Construction of additional **structural Best Management Practices** (BMPs) to reduce sediment loading in the North Inlet subwatershed. These BMPs will include drainage channel improvements, sediment traps, and beaver dam flow-through pipes recommended in the 2021 *Rust Pond North Inlet Hydrology Evaluation* referenced above.
2. The Town will develop a **public education/outreach program** to inform property owners about the benefits of vegetated stream buffers and suggested plantings for improved stream buffers.
3. A **dredging feasibility study** to determine the costs and feasibility of dredging to restore conditions in the North Tributary Inlet area of Rust Pond that have been impaired by sediment deposition. These investigations are a necessary next step to inform permitting, engineering/design, and logistical considerations before a potential future dredging project can be implemented to restore Rust Pond.

C. Anticipated Environmental Outcome

Provide a concise statement of the measureable environmental result, outcome, or end-state that this project strives to achieve. (Examples: Watershed phosphorus loading will be reduced by 28 lbs./yr. resulting in lake phosphorus levels below 7.2 µg/l; the impaired river segment is in a state of equilibrium based on stream morphology principles; or, ambient fecal coliform bacteria levels will be reduced to enable reopening of a closed shellfish harvest area (18 acres). If the environmental outcome is not expected to be achieved until after the project period, explain how this project will make progress toward the outcome. Goal-setting and results-planning can help water resource managers develop more deliberate project designs and achieve optimal project outcomes.

The proposed project will focus on the following environmental outcomes:

GOAL 1: Further reduce sediment loading to Rust Pond from the North Inlet Tributary through construction of additional recommended BMPs and continued public education/outreach. The BMPs are intended to further assure that the North Inlet Tributary subwatershed meets the goal of having channel erosion, upstream hydromodifications, and streambank modifications that are "*in line with typical*

sediment loading" for watersheds with similar land uses, topography, and soils, as specified in the NHDES impairment designation memorandum.

GOAL 2: Conduct field investigations and related analyses to determine the **costs and feasibility of dredging** to restore conditions in the North Tributary Inlet area of Rust Pond that have been impaired historic sediment deposition. These investigations are a necessary next step to inform permitting, engineering/design, and logistical considerations before a potential future dredging project can be implemented to restore Rust Pond.

D. Watershed-Based Plan Implementation

Describe below how this project will implement the a – i elements of a watershed-based plan. If the project will not address a specific element of your plan, please explain briefly in the relevant section.

☐ a. Identify pollution causes and sources: Pollution causes and sources previously identified in the watershed studies cited above.

☐ b. Estimate pollution reductions needed: Pollution reductions needed previously identified in the watershed studies cited above.

☒ c. Actions needed to reduce pollution: The project will continue to implement BMPs identified in prior watershed studies to reduce sediment loading to Rust Pond from the North Inlet subwatershed. The BMPs will further assure that the North Inlet Tributary subwatershed meets the goal of having channel erosion, upstream hydromodifications, and streambank modifications that are "in line with typical sediment loading" for watersheds with similar land uses, topography, and soils, as specified in the NHDES impairment designation memorandum for Rust Pond.

☒ d. Costs and authority: The dredging feasibility evaluation for the northern tip of Rust Pond will provide necessary detail to determine costs, permitting requirements, and other logistical considerations before a potential future dredging project can be implemented to restore Rust Pond. Costs associated with the proposed BMPs and public outreach tasks were previously identified in the 2021 watershed hydrology evaluation study cited above.

☒ e. Outreach and education: The Town will develop a public education/outreach program to inform property owners about the benefits of vegetated stream buffers and suggested plantings for improved stream buffers.

☒ f. Schedule: The project will have an anticipated 14-month schedule, from September 2023 to November 2024 (*start date based on anticipated date of funding availability*).

☒ g. Milestones: Major milestones associated with proposed project tasks include:

- **Construction of Structural BMPs:**
  - Complete final designs, specifications, and O&M plan for proposed BMPs, including drainage channel improvements, sediment traps, and beaver dam flow-through pipes.
  - Prepare and submit wetland permit application to NHDES
  - BMP construction
- **Public Education/Outreach Program:**
  - Develop draft outreach material to inform property owners about the benefits of vegetated stream buffers and suggested plantings to improve buffers. This outreach material will be primarily intended for electronic distribution and website/social media posting, but will also be formatted to be printer-friendly if users prefer to have a hard copy for reference.
  - Finalize outreach material

- Distribute outreach materials via email to Rust Pond Association (RPA) members, etc., via Town and RPA website and associated social media accounts.

Dredging Feasibility Study:

- Prepare SSPP for field data collection associated with dredging feasibility study and submit for approval
- Obtain approval and signatures for SSPP
- Conduct field investigations to (1) update sediment depths and recommended dredge volumes; (2) assess logistical considerations for dredging (i.e., equipment access options, dewatering area options, trucking routes for sediment disposal; and (3) conduct preliminary assessment of sediment re-use/ disposal options and associated cost estimates.
- Prepare draft and final dredging feasibility report

☒ Success indicators and evaluation: Success indicators will include the following:

- **Completed design and construction** of the following structural BMPs:
  - Sediment traps at three locations (in Areas 2 and 3 of the 2021 hydrology evaluation cited above).
  - Drainage channel improvements (in Areas 1 and 2 of the 2021 hydrology evaluation cited above).
  - Beaver dam flow-through pipes (Areas 7 and 8 of the 2021 hydrology evaluation cited above)
- **Completed development and distribution of public outreach materials on stream buffers** as described above, with distribution via email, websites, and social media as described above.
- **Completed dredging feasibility study** as described above, including all field investigations and associated report including recommendations on dredge volume, logistics, estimated costs, etc.

☐ Monitoring plan: Post-project monitoring is not proposed as part of this implementation project. However, updated data will be collected to determine sediment depths and recommended removal volume as part of the proposed dredging feasibility portion of the project.

6. STAKEHOLDER COORDINATION, ROLES, AND RESPONSIBILITIES

Describe participation and commitments expected from stakeholders, land owners, other agencies, organizations and municipalities, and identify proposed sources of non-federal, matching funds. Match can be in the form of cash or in-kind contributions (time, labor, easements, materials, equipment, etc.) from your organization and/or project partners. Provide letters of support and commitment from project partners and any non-federal match providers. Letters of commitment from property owners of proposed BMP installation sites are required.

- The Town has already appropriated a **44.2% cash match** (non-federal dollars) for the project (**$23,000 cash match**). *Please see the attached match commitment letter from the Town.*

  The additional cash match provided by the Town **($2,200 cash match in excess of the 40% required match**) has been committed to ensure that the dredging feasibility assessment can be completed with available funding, in addition to the proposed BMP implementation and public outreach.
- Additional in-kind match will be provided through Town DPW labor and equipment, which will provide regular maintenance of existing and proposed BMPs in the North Inlet watershed.
- All proposed BMPs will be installed in Town rights-of-way and do not require any additional property owner permissions.

7. PROJECT COST

A. Total Project Costs

Identify the amount of EPA Section 319 Grant funds requested and the non-federal match that will be provided (minimum of 40% of total project cost).

[Grant funds requested] × 0.667 = Required non-federal match amount

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[Grant funds requested] + [match] = Total project cost

Funding		Percentage	Amount
Federal EPA 319 Grant funds requested (≤60%)		55.8%	$29,000
Required non-federal match amount (≥40%)	cash	44.2%	$23,000
	in-kind		
Total project cost		**100%**	**$52,000**

B. Costs by Budget Category

*In the provided Excel Workbook, complete **"Sheet A – Project Costs by Category"** which lists your EPA Section 319 Grant project costs, including match, for each budget category. Please contact your NHDES project coordinator for assistance.* ***Attach the completed spreadsheet to this full proposal.***

Spreadsheet A completed and attached ☒

C. Costs by Task

*In the provided Excel Workbook, **review the instructions tab and then complete "Sheet B – Deliverables & Tasks."** Tasks should be organized by an objective, measure of success, and deliverable. Objectives need to be "**SMART**". That is **S**pecific, **M**easurable, **A**chievable, **R**elevant to the overall project outcome, and **T**ime-specific. Please contact your NHDES project coordinator for assistance.* ***Attach the completed spreadsheet to this full proposal.***

Spreadsheet B completed and attached ☒

8. QUALITY ASSURANCE

All projects must follow the New Hampshire Section 319 Nonpoint Source Grant Program Quality Assurance Project Plan (QAPP). Projects that include collection, analysis, or manipulation of environmental data, including pollutant load reduction estimates, require an individual QAPP if such data collection and analysis deviates from the NPS Grant Program QAPP. Please consult with NHDES Watershed Assistance Section personnel to clarify your quality assurance requirements.

1. Please check the applicable box:

☒ This project includes collection and analysis of environmental monitoring data.

☐ This project includes modeling or other analysis or manipulation of environmental data.

☐ This project does not include either of the above (skip to Section 9).

2. This project conforms to the *New Hampshire Section 319 Nonpoint Source Grant Program QAPP.*

☒ **Yes** (development of a Site Specific Project Plan [SSPP] is included as a task in this full proposal.)

☐ **No** (development of an individual project QAPP is included as a task in this full proposal.)

9. OPERATION AND MAINTENANCE

All projects that implement BMPs must develop an operation and maintenance (O&M) plan for each BMP, signed by the grantee or designated BMP owner indicating that they understand the maintenance required and that they intend to provide maintenance for that BMP.

If your project involves BMP construction, what long-term operation and/or maintenance will be required, who is responsible, and how will future operation and maintenance be sustained?

- Anticipated Long-term O&M Requirements for Proposed BMPs:
  - **Drainage Channel Improvements**:
    - Inspect semi-annually for structural integrity and erosion issues; repair as needed
    - Remove accumulated sediment if over 25% of channel depth is reached
  - **Sediment Traps:**
    - Inspect semi-annually for structural integrity and storage capacity/sediment level
    - Remove accumulated sediment if over 25% of storage capacity is reached
  - **Beaver Flow-through Pipes**
    - Inspect quarterly to ensure that flow-through pipes are functioning as intended and that streamflow in area is not altered by further beaver activity
    - Repair/replace damaged or non-functioning pipes as needed
- The Town DPW will provide all labor and equipment (as in-kind match) to conduct ongoing O&M of the proposed BMPs. This activity will be funded through the Town's annual DPW operating budget.

10. SUBMITTAL REQUIREMENTS

Submit the Watershed Assistance Grants Full Proposal and all attachments, via email in Microsoft Word or PDF file formats to: andrea.l.bejtlich@des.nh.gov

If you have difficulty e-mailing attachments, such as maps and photos, please contact Andrea Bejtlich to make alternate arrangements.

SUBMITTAL DEADLINE

January 13, 2023
4:00 pm

Full Proposal Checklist - Your Full Proposal package should include:

☒ The completed Full Proposal, please be sure to use spell check and proofread your preapplication.

☒ The completed Costs by Category Budget (spreadsheet A) and Project Budget by Objective, Deliverable, and Task (spreadsheet B), all budgets should be checked that they add up correctly and are accurate.

☒ A site map.

☒ Letters of approval from BMP construction site owners (if applicable).

Note: *All proposed BMPs will be installed in Town rights-of-way and do not require any additional property owner permissions. Please see the attached project support letter from the Town.*

☒ Letters of commitment from match providers.

☒ Optional: additional letters of support; photos; water quality data.

Note: *Please see the attached 2021 Rust Pond North Inlet Hydrology Evaluation (CEI), which provides site photos, maps, and additional detail with regard to specific proposed BMPs and their locations.*

Appendix 1:

Budget Spreadsheets

A. Project Costs by Category
B. Objectives, Deliverables, and Tasks

A. Project Costs by Category (Section 7B of the application)

Budget Category	Requested Federal EPA 319 Grant amount	Non-federal cash match	Non-federal in-kind match	Total cost of category
1. Salary and Fringe: Include salaries and fringe benefits paid for work performed on the project. "Salary" should reflect the rate per hour, by position. "Fringe benefits" are employment benefits given in addition to one's wages or salary.				

Name	Title	Salary Hourly rate	Approx. # of hours	Salary Charged to Project	Fringe				
						0	0	0	
					Subtotals				$0

2. Indirect Costs: Indicate the indirect costs. Typical indirect costs are associated with but not limited to office space, telephones, personnel administration, accounting, and room equipment rental and useage, i.e., the cost of doing business. Indirect costs must not exceed 10% of the project cost (See Section VI of the information packet).				
	$0	$0		$0
3. Supplies: Includes field and lab supplies; data processing materials; equipment costing less than $1,000; clothing; books, paper, and other office supplies				
				$0
4. Equipment: List any items of equipment costing more than $1,000 in total. Equipment costing less than $1,000 should be listed in supplies (#3).				
				$0
5. Travel and Training: Includes project related charges for travel and charges as the result of use of an auto. Vehicle costs should be shown as the number of miles multiplied by the mileage rate. Mileage rates cannot exceed the Standard Mileage Rate provided by the Internal Revenue Service.				
				$0
6. Contractual: Includes expenditures made to sub-grantees/sub-contractors (excluding construction), hired speakers, legal services, cost of engineering and design, etc. The rate of pay per hours, number of hours and type of service provided should be included. Any procured services not provided by the Grantee should be listed here.				
The Town will procure a contractor to perform all tasks associated with BMP engineering/design, permitting, development of public outreach materials, and the dredging feasibility study.	$17,000	$15,000		$32,000
7. Construction: Costs (construction contracts, cost share agreements, etc.) associated with construction. Permit fees can be included.				
Construction services will be procured by the Town for BMP construction.	$12,000	$8,000		$20,000
8. Other (specify): Includes postage, printing, license fees, equipment maintenance and repair, computer software, non-staff insurance. Any item greater than $1,000 must be itemized below.				
				$0
Total cost for all Categories	**$29,000**	**$23,000**		**$52,000**

B. Objectives, Deliverables, and Tasks (Section 7C of the Application)

Objective 1: By November 2024, complete construction of BMPs to reduce sediment loading to Rust Pond, including sediment traps at three locations in Areas 2 and 3, drainage channel improvements in Areas 1 and 2, and beaver dam flow-through pipes in Areas 7 and 8. BMP locations refer to the 2021 *Rust Pond North Inlet Hydrology Evaluation.*

Measures of Success: Completed design and construction by November 2024.

Deliverable 1: Documentation of constructed BMPs as described above.

Task No.	Task Name	EPA Mandated Element (a - i)	Proposed Dates	Federal 319 Grant Funds	Cash Match	In-kind Match	Source of Matching Funds
1	**BMP Design**	C	by Jan. 2024	$5,400	$3,600		Town
Task Detail:	Complete final designs, specifications, and O&M plan for proposed BMPs, including drainage channel improvements, sediment traps, and beaver dam flow-through pipes.						
2	**Permitting**		by April 2024	$3,300	$2,200		Town
Task Detail:	Prepare and submit wetland permit application to NHDES						
3	**BMP Construction**		by Nov. 2024	$12,000	$8,000		Town
Task Detail:	Complete construction of BMPs listed under Task 1.						
			Subtotal	$20,700	$13,800	$0	**$34,500**

Objective 2: By June 2024, complete field investigations, analyses and related reporting to determine the costs and feasibility of dredging to restore impaired conditions in the North Tributary Inlet area of Rust Pond.

Measures of Success: Completed field investigations and dredging feasibility study report by June 2024.

Deliverable 2: Dredging Feasibility Study report for Rust Pond North Inlet Area

Task No.	Task Name	EPA Mandated Element (a - i)	Proposed Dates	Federal 319 Grant Funds	Cash Match	In-kind Match	Source of Matching Funds
4	**SSPP**	C		$2,000	$0		Town
Task Detail:	Prepare SSPP for field data collection associated with dredging feasibility study; submit for approval and signatures.						
5	**Dredging Feasibility Study**	C	by Nov. 2023	$4,800	$8,200		Town
Task Detail:	Conduct field investigations, analyses and reporting to determine costs and feasibility of dredging for the North Tributary Inlet area of Rust Pond. Includes (1) update sediment depths and recommended dredge volumes; (2) assess logistical considerations for dredging (i.e., equipment access options, dewatering area options, trucking routes for sediment disposal.						
			Subtotal	$6,800	$8,200	$0	**$15,000**

Objective 3: By June 2023, develop/disseminate public outreach materials on vegetated stream buffers and related plantings.

Measures of Success: Outreach materials disseminated to the public via email, websites, and social media.

Deliverable 3: Completed outreach materials on vegetated stream buffers and recommended buffer plantings, disseminated to the public via email, websites, and social media.

Task No.	Task Name	EPA Mandated Element (a - i)	Proposed Dates	Federal 319 Grant Funds	Cash Match	In-kind Match	Source of Matching Funds
11	**Public Outreach Materials**	E	by June 2023	$1,500	$1,000		Town
Task Detail:	Develop outreach material to inform property owners about the benefits of vegetated stream buffers and suggested plantings to improve buffers. This outreach material will be primarily intended for electronic distribution and website/social media posting, but will also be formatted to be printer-friendly if users prefer to have a hard copy for reference. The outreach material will be distributed via email to Rust Pond Association (RPA) members, via Town and RPA websites, and associated social media accounts.						
			Subtotal	$1,500	$1,000	$0	**$2,500**

Sum of Objective Subtotals	$29,000	$23,000	$0	**$52,000**

Appendix 2:

Project Locus Maps

Project Location Maps

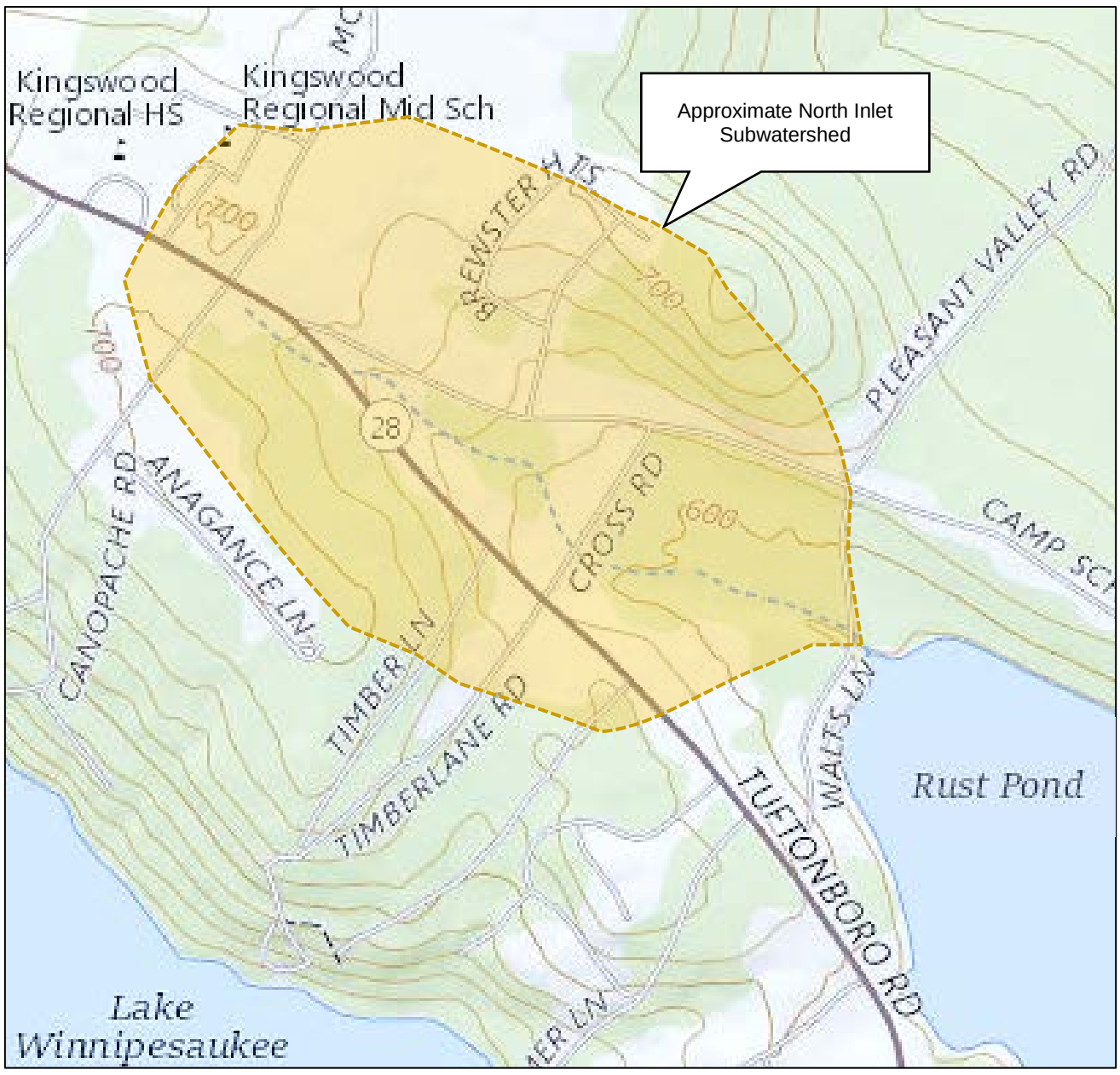

Figure 1: North Inlet Subwatershed

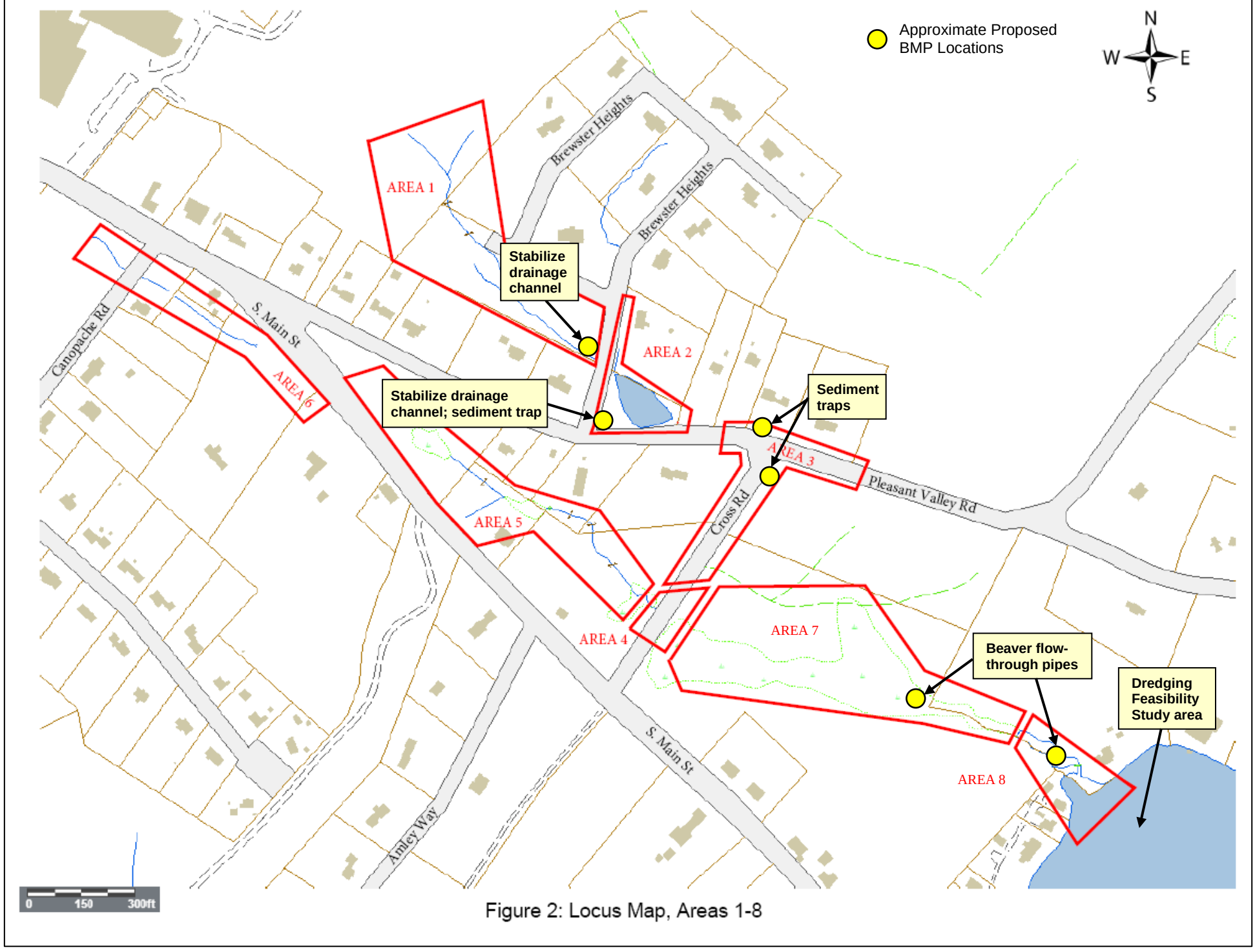

Figure 2: Locus Map, Areas 1-8

Appendix 3:

- Town Cash Match Commitment Letter

- Town DPW O&M Commitment Letter

Town of Wolfeboro

PLANNING AND DEVELOPMENT

DATE: January 9, 2023

TO: NHDES

FROM: Tavis J. Austin, AICP, Director of Planning and Development

This memo is to confirm that the Town of Wolfeboro has allocated twenty-three thousand dollars ($23,000.00) as the cash match for the proposed work to be completed at the north inlet of Rust Pond as outlined in the “Rust Pond North Inlet Tributary Hydrology Evaluation” completed by Comprehensive Environmental Inc., December 2021. Said funds were authorized by the Board of Selectmen at their December 21, 2022, regular meeting.

Thank you,

Tavis J. Austin
Director of Planning and Development

Town of Wolfeboro

DIRECTOR OF PUBLIC WORKS

DATE: January 9, 2023

TO: NHDES
Tavis J. Austin, AICP, Director of Planning and Development

FROM: Steve Randall, Director of Public Works

This memo is to memorialize my understanding of the proposed work to be completed at the north inlet of Rust Pond as outlined in the "Rust Pond North Inlet Tributary Hydrology Evaluation" completed by Comprehensive Environmental Inc., December 2021, and, further, to acknowledge that upon completion of the BMPs and related improvements, the Town of Wolfeboro Public Works Department will be responsible for all labor and equipment required for ongoing operation and maintenance of said BMPs.

Thank you,

Steve Randall
Director of Public Works

Appendix 4:

Rust Pond North Inlet Hydrology Evaluation (2021, CEI)

December 2021

Rust Pond
North Inlet Tributary Hydrology Evaluation

Prepared for:

Town of Wolfeboro
Attn: Tavis J. Austin, AICP
Director of Planning and Development
84 South Main Street, PO Box 629
Wolfeboro, NH 03894

Prepared by:

Comprehensive Environmental Inc.
41 Main Street
Bolton, MA 01740

Contents

1.0 Introduction / Project Goals 2

2.0 Field Investigation Findings 2

Area 1: Brewster Heights Area 4

Area 2: South of Brewster Heights to Pleasant Valley Road 5

Area 3: Pleasant Valley Road / North Portion of Cross Road 6

Area 4: Cross Road Culvert Area 8

Area 5: North of Cross Road / South Main Street 9

Area 6: Headwaters Section / South Main Street 10

Area 7: Downstream Section to Rust Pond 11

Area 8: Hutchinson Property / Downstream of Cross Road 11

3.0 Recommendations 13

1.0 INTRODUCTION / PROJECT GOALS

Comprehensive Environmental Inc. (CEI) was contracted by the Town of Wolfeboro (the Town) to conduct an evaluation of the stream corridor and watershed of the Rust Pond North Inlet tributary. The primary goals of this evaluation are as follows:

1. Assess key stream geomorphological and habitat features of the North Inlet tributary (e.g., bankfull width, substrate, bank stability/erosion, bank vegetation, areas of notable sediment accumulation, and barriers altering stream flow such as downed trees, beaver dams, etc.).
2. Identify areas within the North Inlet stream corridor and its watershed (**Figure 1**) where improvements could be implemented to mitigate erosion and sediment loading to Rust Pond.
3. Assess the condition, maintenance needs, and potential improvements to areas within the North Inlet stream corridor where improvements have been constructed since 2010.

2.0 FIELD INVESTIGATION FINDINGS

On November 1, 2021, CEI staff conducted a field inspection of the stream corridor of the Rust Pond North Inlet tributary from its headwaters in the vicinity of Kingswood Regional Middle School to its confluence with Rust Pond. CEI's findings and recommendations from the field investigation are focused on eight areas (Areas 1-8) as shown on **Figure 2** and described on the pages that follow. These recommendations are summarized and prioritized in **Section 3**, with additional information on estimated cost ranges and potential options for project funding.

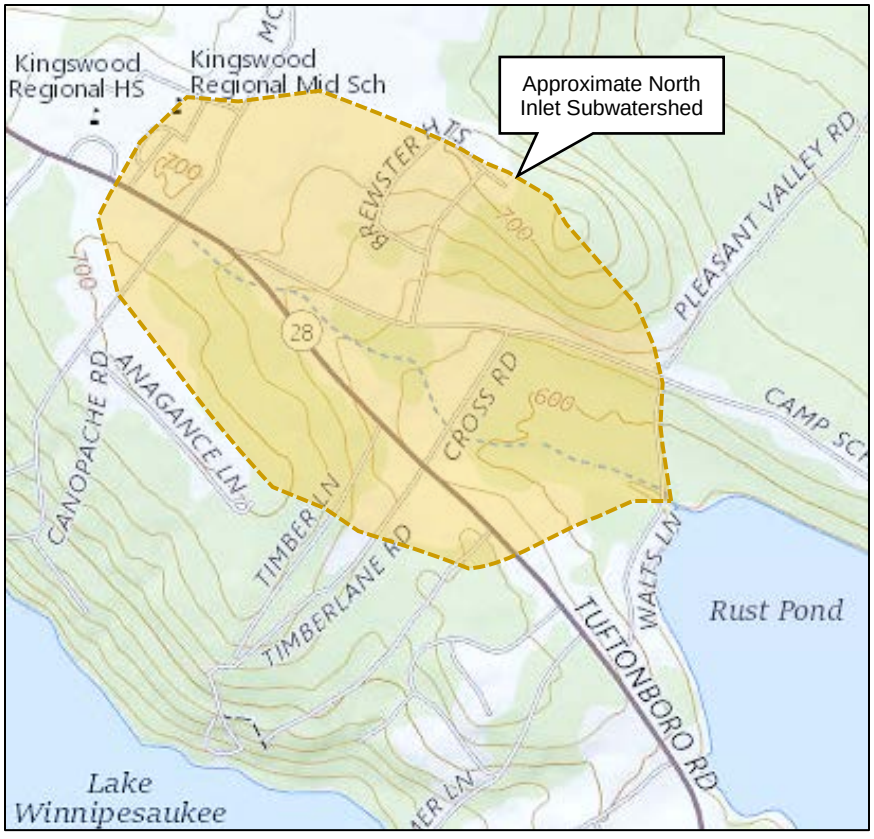

Figure 1: North Inlet Subwatershed

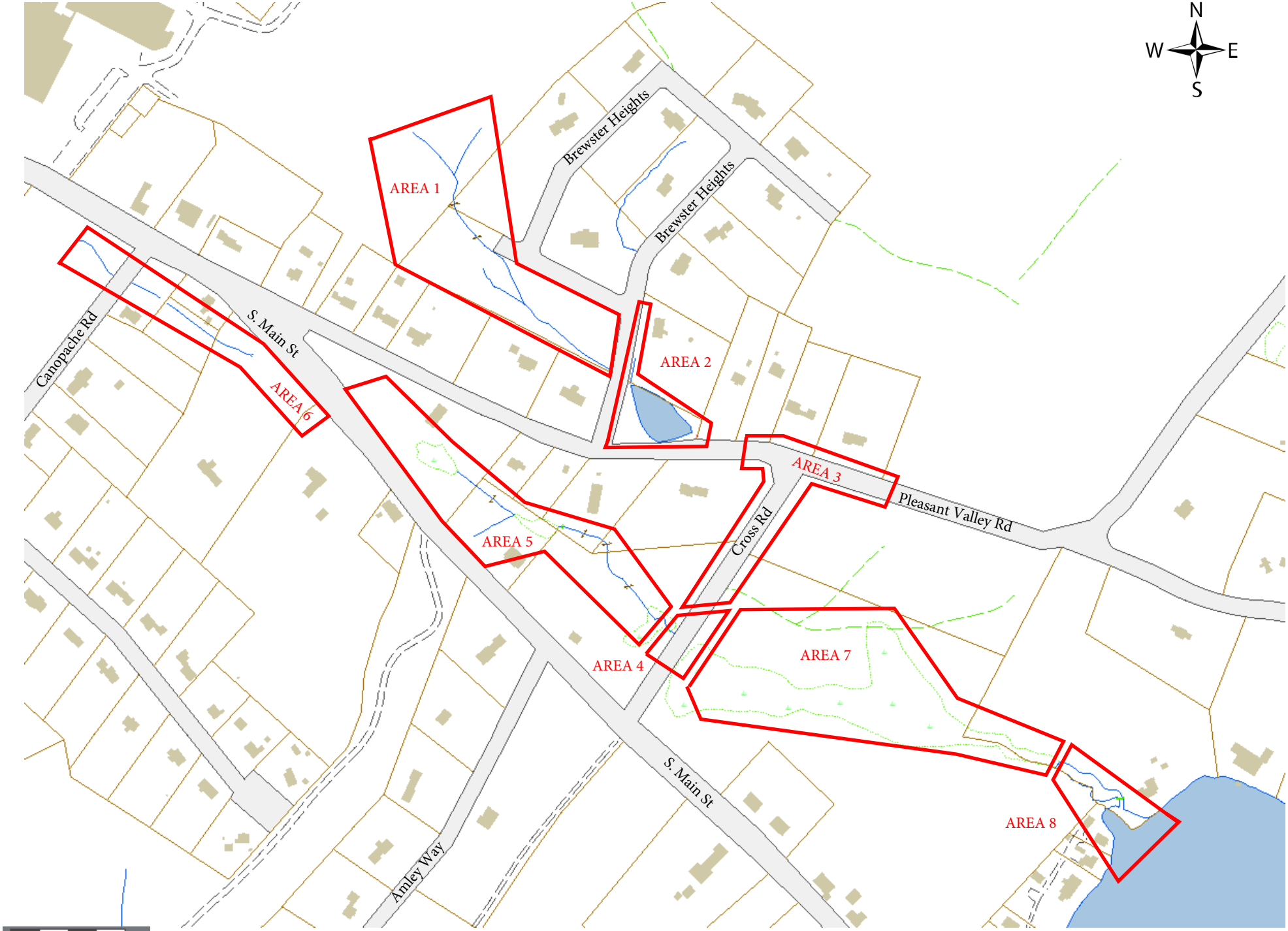

Figure 2: Locus Map, Areas 1-8

Area 1: Brewster Heights Area

Inspection Summary

- Part of the contributing subwatershed to Area 1 includes the Middle School. Stormwater controls constructed at the Middle Scholl appeared to be functioning correctly and are in good condition.
- Within Area 1, adjacent to Brewster Heights, there was evidence of overland flow through the woods on the southwest corner of the neighborhood.
- Stormwater flow paths from the most recent storm were braided through the woods to the tributary to the southwest. These woods were saturated with groundwater at time of investigation and the stream within was steadily flowing.
- Sediment deposits and other indications of high velocity flow were observed at the southern tip of Area 1, at the existing culvert. No obvious stormwater runoff plumes were observed.

Photo 1: Perpendicular flow from woods to North Inlet tributary

Photo 2: Wooded area adjacent to Brewster Heights

Photo 3: Culvert Inlet (view from road at Brewster Heights)

Recommendations

- Effect on sediment loading to Rust Pond: **Minor/Indirect**
- Potential Actions:
  - **Repair Drainage Channel**: Excavate and armor inlet to the culvert under Brewster Heights. Re-align flow path towards culvert instead of roadway.

Area 2: South of Brewster Heights to Pleasant Valley Road

Inspection Summary

South of Brewster Heights, water is channeled downhill towards Pleasant Valley Road. Flow merges with the discharge of the culvert in Area 1. Stormwater appears to be flowing off the road and discharging into a stream in front of the property at #14 Brewster Heights, causing some very minor erosion (Photo 4). Sediment transport was not occurring in the stream however.

At the junction with the culvert from Area 1, sediment deposits were observed coming from the culvert. Sediment/sand was dispersed in an approximately 35-foot plume. No accumulated sediment was observed in the wetland downstream of the plume.

Photo 4: Minor erosion observed at edge of road /top of slope to drainage channel

Photo 5: Area 1 culvert discharge plume

On the southern side of Area 2, road drainage combines with the flow from the primary tributary/wetland complex. Some sediment was observed at the outlet for the street drainage, likely from erosion of the embankment. Flow was observed to be free of sediment for the remainder of the channel.

6: Drainage pipe on Pleasant Valley Road

Recommendations

- Effect on sediment loading to Rust Pond: **Minor/Indirect**
- Potential Actions:
  - **Drainage Channel Repair:** Repair road drainage outlet on Pleasant Valley Road.
  - **Sediment Trap w/ Maintenance:**

    Create a sediment trap at outlet to the culvert under Brewster Heights and the drainage channel on Pleasant Valley Road. Maintain regularly (e.g., every 2 years plus after each large storm event).

Area 3: Pleasant Valley Road / North Portion of Cross Road

Inspection Summary

At the property boundary of #66 and #70 Pleasant Valley Road, the drainage paths flowing from the west and the east combine and flow under Pleasant Valley Road. To the west of Cross Rd, within Area 3, there is a well-established and flowing drainage channel (~6" deep).

There was substantial flow at the culvert opening and not much accumulated sediment. However, further downstream the entire drainage channel width is filled with sediment along Cross Road. The channel flows to the south to the culverted (twin 24" diameter pipes) at Area 4.

Photo 7: Culvert under Pleasant Valley Road

Photo 8: Significant accumulation of sediment from stormwater runoff in channel

At the north/east end of Cross Road, sediment appeared to be flushing off the road and through a culvert into a drainage channel along east side of the road. Although there was evidence of heavy stormwater flows, this flow appears to be dispersed as water drains overland into the woods. After approximately 100 feet, no roadway sediment was observed. The wetland boundary was estimated at approximately 250 feet away.

Photo 9: Culvert outlet at north end of Cross Road

Photo 10: Flow path into the adjacent woods

Recommendations

- Effect on sediment loading to Rust Pond: **Indirect** *(potentially direct - relies on maintenance at culverts)*
- Potential Actions:
    - **Sediment Traps / Maintenance:** Create sediment trap at the inlet of the culvert under Pleasant Valley Road and at the north end of Cross Road (east side). Maintain regularly (every 2 years or after a large storm event).

Area 4: Cross Road Culvert Area

Inspection Summary

- Flow to the North Inlet tributary converges at the upstream side of the twin culverts crossing Cross Road, within Area 4. At this convergence, sediment appears to be migrating through the culverts under the bridge.

- On the downstream side of the culverts, CEI observed a relatively minor accumulation of sediment within an area that appeared to be maintained (i.e., accumulated sediment removed) which is designed as a sediment trap to allow for regular sediment removal. This "sediment trap" area is approximately 10' x 12' and 2' deep. Wolfeboro DPW monitors and regularly cleans this area.

Photo 11: Upstream side of bridge/ culvert

Photo12: Downstream side of bridge culvert

Photo 13: View of maintained "sediment trap" area

Recommendations

- Effect on sediment loading to Rust Pond: **Direct** (requires ongoing maintenance)
- Potential Actions:

  Continued sediment trap maintenance: Maintain the existing sediment trap by removing accumulated sediment regularly (e.g., annually or as needed when sediment reaches 50% of the sediment trap capacity; inspect after each large storm event (e.g., 10-yr, 24-hour storm event).

Area 5: North of Cross Road / South Main Street

Inspection Summary

Upstream of the densely vegetated wetland on the southwestern end of Area 5, the tributary flows through a series of meandering, man-made channels and piping beginning at the discharge from an existing culvert under South Main Street. Minimal accumulated sediment was observed in these stream areas, and no observed evidence of a chronic sediment release as observed downstream along Cross Road in Area 3.

The outlet of AOC 5 into AOC 4 had no sediment accumulation or excess turbidity observed before the convergence with flow from Areas 1-2 at the Cross Street culvert.

As a relatively minor observation in Area 5, CEI noted that a portion of the stream buffer and bank vegetation at 466 South Main Street had been cleared and disturbed with piles of what appeared to be earthen fill or yard waste. Minor bank erosion was observed in this area.

Photo 14: Unvegetated bank/buffer area at 466 S. Main Street

Photo 15: Minor bank erosion

Recommendations

- Effect on sediment loading to Rust Pond: **Minor/Indirect**
- Potential Actions:
    - **Public education** efforts could be targeted to property owners to provide information on the benefits of vegetated stream buffers and suggested plantings to improve stream buffer zones.

Area 6: Headwaters Section / South Main Street

Inspection Summary

Downstream of 427 South Main Street, the tributary headwaters are conveyed underground by piping to drainage channels on South Main Street. The water then flows parallel to the road until it reaches a drop catch basin. The drop catch basin discharges to a culvert that crosses South Main Street into Area 5. The drop catch basin was buried (Photo 18), creating an impediment to flow. No significant sedimentation or erosion was observed within Area 6.

Photo 16: Flow behind house #427 South Main Street

Photo 17: Drainage channel parallel to S Main St.

Recommendations

- Effect on sediment loading to Rust Pond: **Minor/Indirect**
- Potential Actions:
  - **Maintain drop catch basin inlet** (remove accumulated sediment that has buried the inlet) on an as-needed basis to promote improved flow and function

Photo 18: Drop catch basin location (buried)

Area 7: Hutchinson Property / Downstream of Cross Road

Inspection Summary

CEI inspected the bank stabilization area constructed on the Hutchinson property and found the area to be in stable and in good condition, with full vegetative cover. Although the woody plantings (live stakes) installed in this area did not appear to establish, the bank is densely vegetated with a variety of herbaceous and shrub vegetation.

Evidence of beaver activity was observed in Area 8, as shown in Photos 24 and 25. Accumulated fine sediment deposits were observed in the area of the beaver dam (located at the approximate center of the Area 7 tributary reach). This beaver dam elevated the water surface area by approximately four feet. Directly downstream of the Area 7 beaver dam, the tributary meanders and bank erosion was observed at the apex of the meander. This erosion is likely a result of storm flows over the upstream beaver dam.

Photos 22 and 23: The bank stabilization area had a stabilized/ vegetated slope with stone armoring at the toe of slope.

Photos 24 and 25: Area 8 beaver dam and example of recent beavers chewings observed.

Recommendations

- Effect on sediment loading to Rust Pond: **Potential direct** (*if both beaver dams breach*)
- Potential Actions: **Install a flow-through pipe** (i.e., PVC drainage pipe extending through the beaver dam to allow for passage of base flows) in the beaver dam to help prevent the dam from failing in the future and discharging sediment being accumulated behind the dam.

Area 8: Downstream Section to Rust Pond

Inspection Summary

Significant deep (exceeding several feet of depth) sediment accumulations were observed within Rust Pond and in several large drifts within the downstream reach of the tributary near its confluence with Rust Pond. The sediment accumulations were not compact, and when stepped on released air bubbles and was displaced by weight. This is a sign of deposition of upstream sediments. When particles transported in stormwater settle out, they do not compact in the same way that a bank or channel bottom does.

A beaver dam was observed approximately 100' upstream from Rust Pond. This dam elevated the upstream water surface by approximately four feet. Accumulated sediment was observed behind the dam. Signs of recent beaver activity (chewings) were noted in the vicinity of the dam and the area immediately upstream.

Photo 19: Shallow depths and fine sediment deposits observed in Rust Pond at the inlet of the North Inlet tributary.

Photo 20: View north (upstream) towards beaver dam

Recommendations

- Effect on sediment loading to Rust Pond: **Direct**
- Potential Actions:
  - **Dredging:** Remove existing sediment deposits in Rust Pond by dredging
  - **Install a flow-through pipe** for in the beaver dam to help prevent the dam from failing in the future and discharging sediment being accumulated behind the dam.

Photo 21: View downstream of beaver dam

3.0 RECOMMENDATIONS

Table 1 provides a summary of the recommended actions presented in Section 2, including estimated costs and CEI's recommended priority for implementation (low, medium, or high). *Note: To allow for cost efficiencies associated with design, permitting, and construction, the estimated costs for several recommendations are merged (Areas 1/2 drainage channel repairs; Areas 2/3 sediment traps; Areas 7/8 beaver flow-through pipes).*

Area	Recommended Actions	Estimated Cost	Priority
1: Brewster Heights	**Repair Drainage Channel**: Excavate and armor inlet to culvert under Brewster Heights. Re-align flow path towards culvert instead.	**$12,500** (*$5,000 for construction; $7,500 for design and permitting*)	**Low**
2: Brewster Heights to Pleasant Valley Rd.	**Repair Drainage Channel**: Repair drainage outlet on Pleasant Valley Rd.		**Low**
	Sediment Trap / Maintenance: Create a sediment trap at outlet to the culvert under Brewster Heights and the drainage channel on Pleasant Valley Rd. Maintain regularly (every 2 years or after large storms).	**$15,000** (*$7,500 for construction; $7,500 for design and permitting*)	**Medium**
3: Pleasant Valley Road / Cross Rd.	**Sediment Traps / Maintenance:** Create two (2) sediment traps: at the inlet of the culvert under Pleasant Valley Road and at the north end of Cross Road (east side). Maintain regularly (every 2 years or after large storms).		**High**
4: Cross Road Culvert	**Continued sediment trap maintenance:** Maintain sediment trap by removing accumulated sediment regularly (e.g., annually or when sediment reaches 50% of the sediment trap capacity; inspect after each large storm (e.g., 10-yr, 24-hr storm)	No cost *(assumes continued Town DPW maintenance)*	**High** *(ongoing)*
5: North of Cross Rd. / S. Main St.	**Develop/distribute public education materials** on the benefits of vegetated stream buffers and suggested plantings to improve stream buffer zones.	**$2,500**	**Low**
6: Headwaters / S. Main St.	**Maintain drop catch basin inlet** (remove accumulated sediment that has buried the inlet) on an as-needed basis to promote improved flow and function	No cost *(assumes Town DPW maintenance)*	**Medium**
7: Hutchinson Property	**Install a flow-through pipe** in the beaver dam to help prevent the dam from failing in the future and discharging sediment being accumulated behind the dam.	**$7,000** (*installation at both dams, Areas 7 and 8*)	**Medium**
8: Downstream Section to Rust Pond	**Install a flow-through pipe** in the beaver dam to help prevent the dam from failing in the future and discharging sediment being accumulated behind the dam.		
	Dredging: Remove existing sediment deposits in Rust Pond by dredging. This will require additional investigations to determine feasibility and costs associated with sediment disposal/re-use. *See additional discussion below.*	*See discussion below*	**High**

The recommendations listed in Table 1 fall into the four categories discussed below: (1) structural improvements, (2) ongoing maintenance of existing stormwater management structures, (3) public education/outreach, and (4) dredging to remove accumulated sediment from Rust Pond.

1. **Structural Improvements**

   - CEI's field investigation found that best management practices (BMPs) constructed since 2010 to reduce sediment loading (i.e., Cross Road culvert replacement/sediment trap, bank stabilization on the Hutchinson property) appear to be in good condition and functioning well.
   - CEI observed no locations in the North Inlet Tributary subwatershed where sediment discharge and transport appear to be occurring at an abnormally high rate (e.g., areas of significant active erosion) as compared to other watersheds with similar topography, soils, and land uses.
   - As is typical in most watersheds, there are opportunities to further improve stormwater management and incrementally reduce watershed sources of sediment to Rust Pond. Recommended structural improvements listed in Table 1 include:

Sediment traps (3 locations in Areas 2 and 3):	$15,000
Drainage channel improvements (Areas 1 and 2):	$12,500
Beaver dam flow-through pipes (Areas 7 and 8):	$7,000
***Total Estimated Cost for Structural Improvements*:**	**$34,500**

   The structural improvements listed above could be potentially funded through a NHDES Section 319 Watershed Assistance Grant, which requires a 40% local match (cash or in-kind services) for all grant funds awarded.

2. **Stormwater BMP Maintenance**

   As noted above, existing stormwater management structures in the North Inlet Tributary subwatershed appear to be generally functioning well. Ongoing maintenance of these structures will continue to be a critical part of a long-term strategy to mitigate sediment transport to Rust Pond, including:

   - **Cross Road culvert sediment trap:** The sediment trap constructed on the downstream side of the Cross Road culvert appears to play a very important role in settling and storing sediment transported from the upper part of the subwatershed. Continued maintenance of this sediment trap by the Wolfeboro DPW will be key to its proper function. CEI notes that the three additional recommended sediment traps (Areas 2 and 3) will allow for sediment capture upgradient of the Cross Road culvert, which should reduce the sediment load that reaches this location.
   - **South Main Street drop catch basin inlet:** Regular maintenance of this catch basin inlet (i.e., (remove sediment that has buried the inlet and prevent future burial) will promote function of the catch basin and reduce the sediment load reaching the Cross Road sediment culvert trap.

   Although ongoing BMP maintenance (including but not limited to the areas listed above) is noted as "no cost" in Table 1, CEI notes that (1) this assumes ongoing maintenance by Town DPW staff and (2) our estimation of costs does not include costs associated with DPW salaries and equipment use.

3. **Public Education/Outreach:** As part of the Section 319 Watershed Assistance Grant discussed above, the Town could include a public education/outreach component to inform property owners about

the benefits of vegetated stream buffers and suggested plantings for improve stream buffers. Public education/outreach is typically a **required component** for Section 319 grants.

***Public education/outreach estimated cost*: $2,500**

4. Dredging

- Rust Pond is listed in the 2018 and draft 2020 New Hampshire 305(b)/303(d) Assessments as impaired for Secondary Contact Recreation due to sedimentation/siltation. In a 2007 memorandum which provided the original technical basis for this impairment designation[1], NHDES estimated a that the sediment delta at the mouth of the North Inlet measured "*approximately 100 feet X 100 feet and 2-3 feet in depth*" (roughly 740 - 1100 cubic yards of sand and sediment deposition in Rust Pond).

- The 2007 NHDES memorandum stated that "*To eliminate the impairment, channel erosion, upstream hydromodifications, and streambank modifications must be corrected, in line with typical sediment loading*". Measures taken by the Town to mitigate sediment loading have included (1) stabilization of significant streambank erosion on the Hutchinson property (Area 7) in 2013-2014 and 2014 construction of an improved Cross Road culvert and sediment trap.

  As noted above, CEI's investigation found that existing stormwater management practices, including those constructed in recent years following the impairment designation, appear to be functioning well and are in generally good condition. The North Inlet Tributary subwatershed appears to now meet the goal of having channel erosion, upstream hydromodifications, and streambank modifications that are "*in line with typical sediment loading"* for watersheds with similar land uses, topography, and soils. Additional BMPs recommended in this report to further reduce sediment loads are relatively small in scale and are expected to provide incremental load reductions that are typical of small-scale BMPs in watersheds throughout New Hampshire.

- Based on previous work in the North Inlet Tributary watershed to reduce sediment loading and CEI's assessment of current sediment loading conditions, it may now be appropriate to consider dredging to remove the previous sediment deposition in the North Inlet area of Rust Pond. CEI recommends that the next step would be to conduct a dredging feasibility study which would include the following:

  - Update the 2007 sediment accumulation estimates in the Rust Pond North Inlet area to allow for a more accurate estimate of dredge volumes and associated costs.

  - Sediment sampling for chemical constituents and sieve analysis to help determine sediment disposal/re-use options and associated costs.

  - Assessment of dredging logistical considerations such as locations for equipment access, dewatering areas, potential locations sediment disposal/re-use, etc.

  - Based on the results of the investigations listed above, develop an engineering cost estimate for dredging and sediment disposal.

    ***Dredging feasibility study estimated cost*: $15,000**

[1] July 3, 2007 memorandum from Andy Chapman (DES Biology Section) to Ken Edwardson (DES Water Quality Section).

CEI recommends that the structural improvements, public education/outreach, and dredging feasibility study described above could be **combined as part of a single Section 319 grant application**. Inclusion of these three project elements would strengthen the competitiveness of the grant application, showing the Town's continued commitment to reducing watershed sediment loads while simultaneously taking steps to address the Rust Pond sedimentation/siltation impairment by removing historic sediment deposition.

The proposed Section 319 grant would include the following estimated cost items:

Structural Improvements:	$34,500
Public education/outreach:	$2,500
Dredging feasibility study:	$15,000
Total Grant Project Cost:	**$52,000**

Given the 40% local match requirement for Section 319 grant projects, the grant project described above would require a **$20,800 local cash match** to leverage a **$31,200 cash grant award** (for a total project of $52,000). The required 40% match can also be provided as non-cash in-kind services.