



Vermont Better Roads Grant Program Application

Please complete one application per category and/or project you are applying for. You may make copies of the application for multiple applications per category and/or multiple categories.

Please check the Category you are applying for:

- B. Correction of a Road Related Erosion Problem and/or Stormwater Mitigation Retrofit for both gravel and paved roads
- C. Correction of a Stream Bank or Slope Related Problem
- D. Structure/culvert upgrades

Town/Organization: _____

Project Name: _____

Road Name: _____ TH #: _____ Structure # (if applicable): _____

Road Type: Paved or Unpaved (circle one) Curbed or Uncurbed (circle one)

Class 1 Class 2 Class 3 Class 4 (circle one)

Watershed: _____

Please provide a thorough description of the problem (ex. Roadway has steep slope with no ditch which is causing roadway erosion):

Description of Project and how you plan to complete the work (ex. Stone line 500' of ditch by reshaping ditch and stone lining, working from the top of the project down to the bottom):

Expected Effects (+ & -) on water quality (ex. Erosion will be eliminated by placing the stone ditch):



Distance from end of project to nearest water (stream, lake, or stormwater system that outlets directly to water). Please circle one: 0-50' 50-250' 250'+

Progress to Date:

Is there an emergency reason this project must be completed quickly? If yes, please explain:

Has this project been identified through a municipal road inventory, capital budget plan, tactical basin plan, culvert inventory, or other management plan? If yes, please list which.

Yes: _____

No

Please list any professionals you may have contacted for assistance with this project (ANR River Management Engineer, Army Corps of Engineers, VTrans District Technical staff, Basin Planner etc.):

Is the project located in the town "Right of Way?" Yes, No, Both (if "Both" please explain further).

Will the town road crew complete this work? Yes, No, Some (if "some" please explain further).



Describe how the grant funds will be spent and/or attach a project budget:

How do you plan to meet the required 20% match on this grant?:

Requested Grant Amount (\$20,000 max Category B, \$40,000 max Categories C & D): _____

Estimated Total Project Cost (including 20% local match): _____

Estimated Completion Date: _____

REQUIRED ATTACHMENTS:

- Itemized Cost Estimate (labor, equipment, materials)
(For assistance, call Better Backroads at 802-828-4585)
- Project Location Map
(Please show location of affected water; 1:12,000 USGS map, if possible)
- Sketch of proposed erosion control measures, including:
 - Distances (ft.)
 - Estimate of waste & borrow quantities
 - Approx. location of town/other right-of-way and/or property lines
- Photo(s) of the project area.
- Agreement for Entry and/or Deed of Easement (if project is outside Town ROW).
- If project involves stream or river/road conflict, include documentation of consultation with a River Management Engineer.
- Other appropriate supporting documents.

By signing this application I certify that all the information provided is accurate to the best of my knowledge. We will comply with all the requirements of the grant including making our books available for audit if required.

SIGNATURE OF APPLICANT: (Must be Town Administrator/Manager or Select Board Chair)

Name: _____ Title: _____

Project Budget/Estimate:

Phase II Culvert:

Cost Estimate for Equipment, Materials, and Labor:

| <u>EQUIPMENT/LABOR</u> | <u>RATE PER HOUR</u> | <u>TOTAL HOURS</u> | <u>COST</u> |
|------------------------|----------------------|--------------------|--|
| Excavator | 115.00 | 24 hours | \$ 2,760.00 |
| Tandem Truck | 85.00 | 18 hours | 1,530.00 |
| Loader | 90.00 | 3 hours | 270.00 |
| Labor | 16.00 | 14 hours | <u>224.00</u> |
| | | | Equipment and Labor Total= \$ 4,784.00 |

| <u>MATERIAL</u> | <u>UNIT COST</u> | <u>TOTAL UNITS</u> | <u>COST</u> |
|--|-------------------------------|--------------------|------------------------------|
| 48 inch CMPA culvert | 95.00 per ft. | 45-FEET | \$ 4,275.00 |
| Concrete Headwall... (Labor, Material, and Equipment Quote Received) | | | 4,570.00 |
| Rip-Rap | 12.00 per yd. | 36 yards | 432.00 |
| Road gravel replacement | 12.00 per yd. | 14 yards | 168.00 |
| Silt Fence w/stakes | 30.00 per roll | 1 roll | 30.00 |
| Seed-mulch-matting | | | 300.00 |
| Miscellaneous | | | <u>100.00</u> |
| | | | Materials Total= \$ 9,875.00 |
| Culvert # 1 | Total Estimated Culvert Cost= | | \$ 14,659.00 |

Phase III Culvert:

Cost Estimate for Equipment, Materials, and Labor:

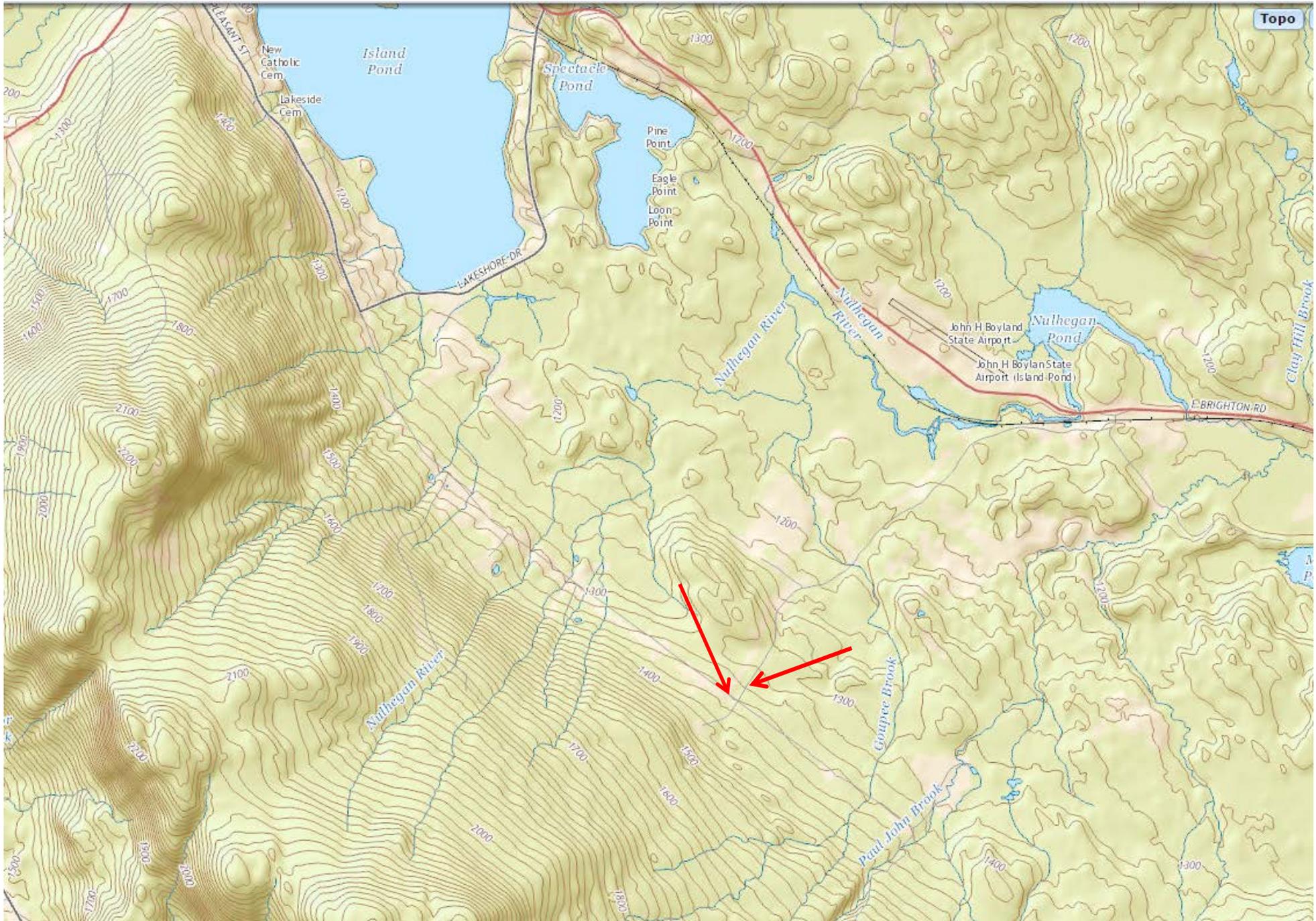
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| | | | Materials Total= \$ 9,875.00 |
| Total Estimated Culvert Cost= | | | \$ 14,659.00 |

Total Grant project cost Estimate= 14,659.00 + 14,659.00 = 29,318.00

Grant Request= \$ 20,000.00

Match Amount= \$ 5,000.00



Vermont County and Town Boundaries



ISLAND POND VILLAGE

The Vermont Center for Geographic Information
 58 South Main Street, Suite 2
 Waterbury, VT 05676
 802-882-3002
<http://www.vcgi.org>



Category-B Better Roads Grant Project-**Application**

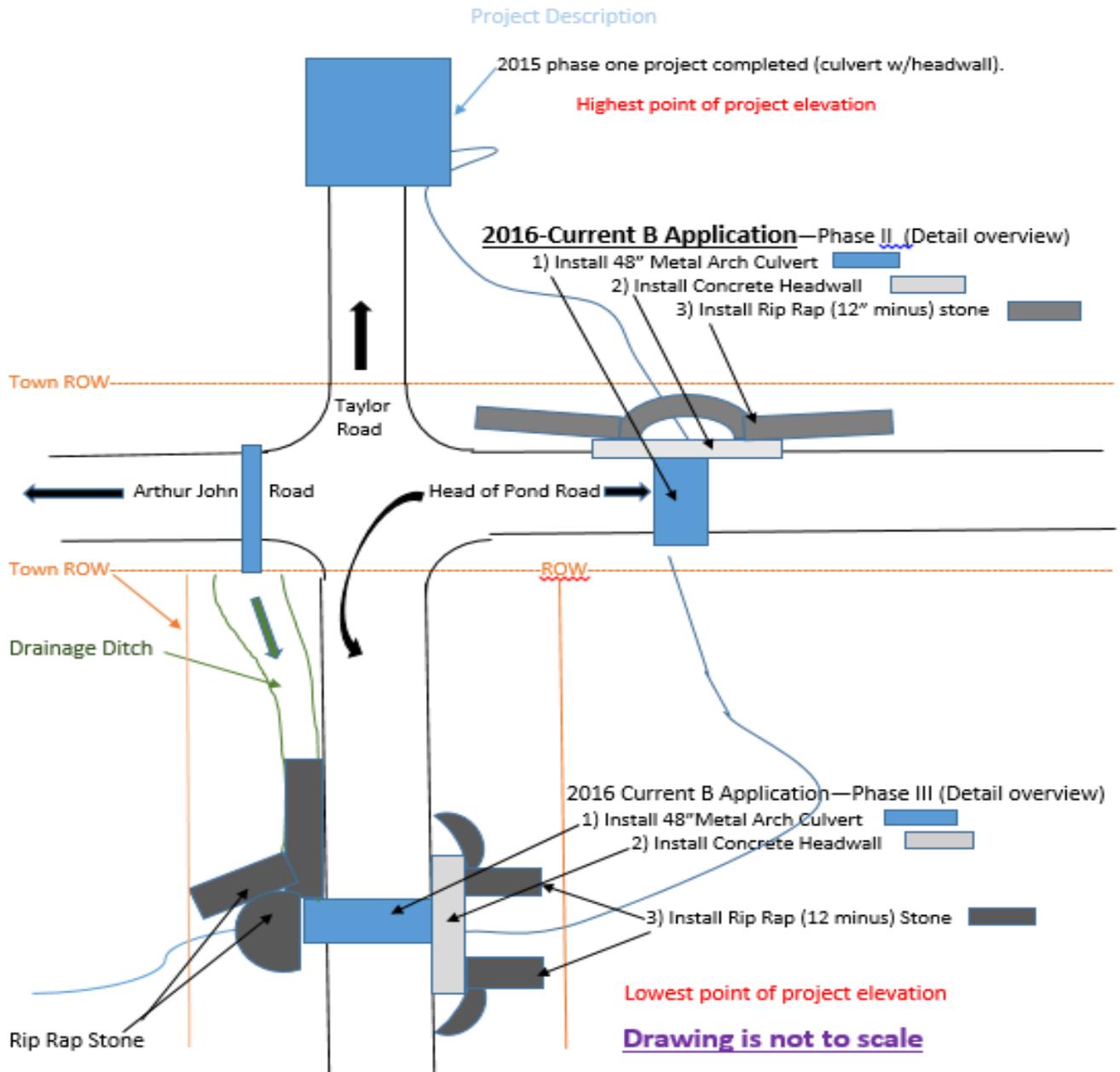
PROJECT TITLE:

Head of Pond Road-Culverts Replacement.....Priority-1

Project overview Drawing

Background:

This **Priority #1** project was submitted in 2015 as a priority #2 project. In 2015, a Better Backroads Grant was approved to replace & upsize an uphill culvert on Taylor Road that is accommodating flow into the same stream served by this culvert. The drawing below shows the overall project area's original phasing plan:



Above Drawing:

Phase-I, bracketed in red, was completed in 2015. In this 2016 application, Brighton is seeking to complete **Phase-II**, bracketed in green, and **Phase-III** in purple brackets.

Description of Problem:

The original Taylor Road Culvert was 24 inches in diameter and fed downhill to a 24 inch culvert. When high flows occurred, water topped the road and created an overflow pathway down Taylor Road. It is now expected recent improvements will greatly increase flow to downhill culverts. The new Taylor Road Culvert, Headwall, and Stream alignment (completed 2015) is going to keep all flow concentrated in the stream that flows to downhill culverts. The new 48 inch Arch Culvert on Taylor is now larger than both of the downhill culverts cited for replacement in this project. Hydraulics below need to be increased to prevent erosion events on Head of Pond Road. This project involves replacing the two in-stream downhill culverts.

Below is the Taylor RD Culvert location as seen in the grant application for that 2015 project. The 24 inch diameter HDPE Plastic Culvert (no headwall) at this location was replaced with a 48 inch Metal Arch Culvert w/Headwall (57"X 38").



Phase II Culvert:

In the photo below, water is topping the road at the Head of Pond RD Culvert which is part of this grant request. The water over topping the road is produced by a smaller flow than might now be expected with a much larger upstream culvert in place and all flow being kept in the channel.



The area above, circled in red, shows where the culvert is located. Below are some site photos of the existing culvert:

Invert side of culvert



The inlet of this culvert is approximately 6 feet below the top of road. This creates an unprotected dam for water coming to it. In past events (as show in previous photo), water does top the road at this location. The increased flow from large uphill culvert is expected to worsen the problem in future high-Run-off Events and could cause the road to fail.

The photo below shows the outflow side of the culvert.



The culvert outflows to the stream flowing downgrade to the next culvert.

The above photos pertain to the first of the two culverts that will be replaced in this project grant. This is the first culvert downgrade from the new culvert on Taylor Road and is shown as Phase II on the overview drawing.

Phase III Culvert:

As shown in the overview drawing on page-1, the next culvert in line is also crossing the Head Pond Road. Since both uphill Culverts will be substantially increased in size, it will be necessary to increase this culvert as well to accommodate the flow increases that occur within a short distance of one another (600 to 800 feet). There has already been some problems with scour causing some significant loss of road embankment on both invert & outflow ends of culvert # 2. The town of Brighton has contacted the state to have this culvert hydraulically sized for the new conditions. The current culvert is smaller than the two 48 Inch Arch culverts that will precede it. Previous informal information acquired indicated that this may also be a 48 Inch Arch Culvert. The Town of Brighton will forward all communications/documents to the Better Backroads coordinator as they are acquired from the State of Vermont. This application is assuming a 48 inch culvert with headwall will be installed at this location.

In addition to correcting Hydraulics at this location, there is a definite need to improve erosion protective measures on both the invert and outflow side of this culvert. The photo on the next page shows the conditions that exist currently at the culvert #2 location.

Below is the photo taken during the field survey with field notes attached:



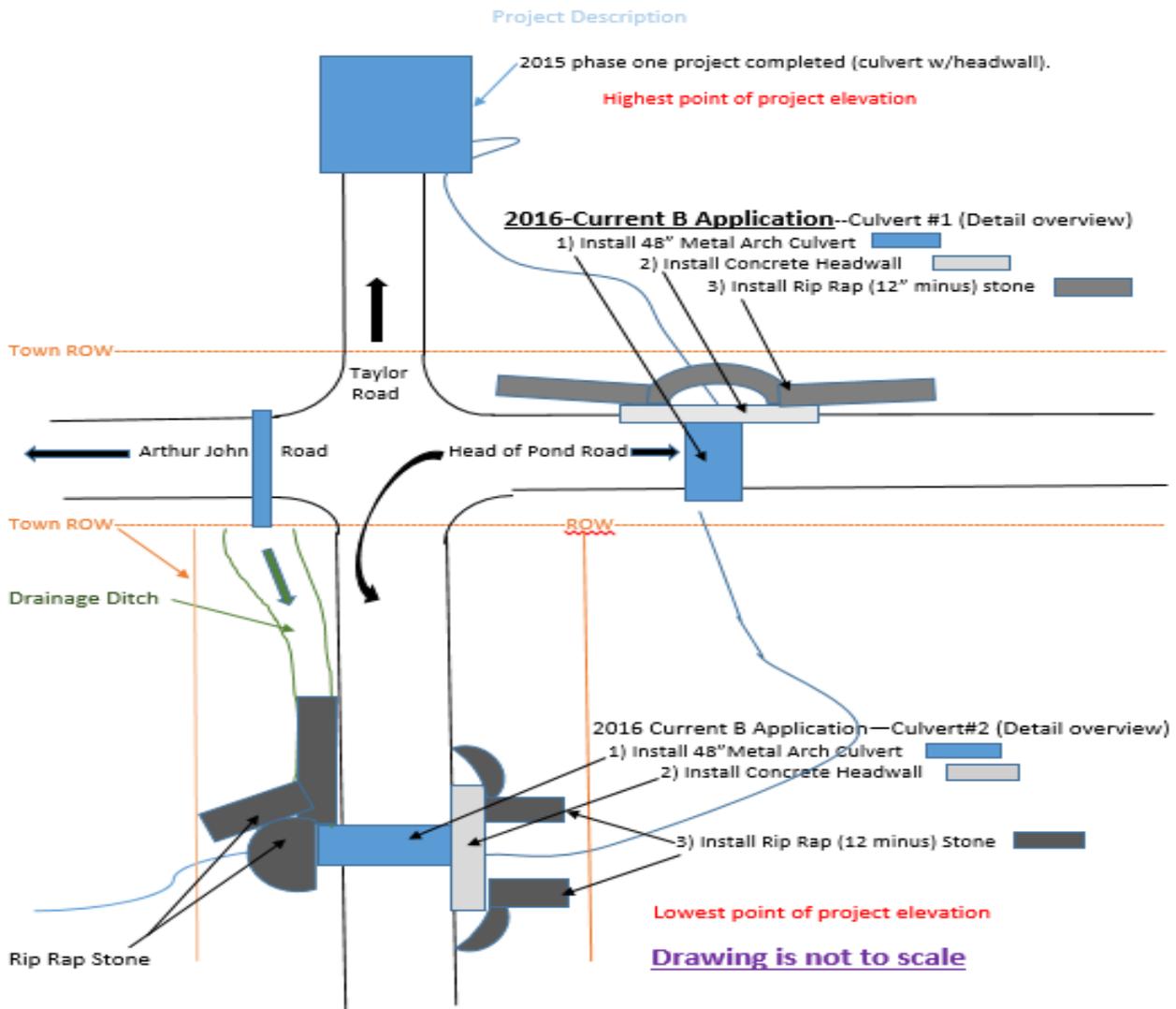
The too small to accept increased flow from new culverts above. Culvert is too short, has no head wall and needs a good deal of work on the ditch inlet and culvert outflow. A good deal of sediment is reaching the stream.

During High-Run-Off Events, the flow from upstream has already caused maintenance/repair issues at this culvert. With two new culverts above, this location will now receive a much heavier flow to the invert.

Description of the Project:

The entire project for this **Priority #1** grant application consist of **replacing the two culverts described above**. Each culvert installation will use hydraulic and technical provisions as provided by the appropriate state agencies. Documentation of the technical consultation will accompany this application. Each Culvert will be properly sized, concrete headwall protected, and armored with stone as needed at inverts and outflows. All disturbed areas will be properly landscaped and seeded to restore or add vegetation as needed.

The drawing on the next page provides an overview of the project details.



Scope of work- Phase II Culvert and Phase III Culvert

- Install 45 feet length of Metal Arch Culvert per criteria provided by State of Vermont and culvert manufacturer.
- Install concrete headwall and footing with steel reinforcement. Headwall will be 12 inches thick.
- Install 12 inch minus stone as is adequate to protect the inlet gully and basin at headwall
- Install 12 inch minus stone inlets feeding the culvert invert. Install stone to a point approximately 75 feet from the culvert invert into ditch line and further if slope is steep or erosion is evident
- Provide any additional site improvement requested by State representatives.
- Completely restore site and revegetate disturbed areas.
- Provide check dams as needed in open ditching

The two culverts have basically the same scope of work. There are some nuances of difference as shown in the project drawings.

Expected Effect on Water Quality:

This is an in-stream project and site visits along with statements from town staff indicate this stream has some flow throughout the year and every year. However, the stream does not appear to be mapped or named. The ANR mapping has only some segments showing on the maps. Site visits indicate this may be a small branch of Goupee Brook. It branches off at an elevation just above the project area and rejoins the main stream below the project area. Goupee brook eventually joins with the Nulhegan River. As seen in the photos supplied in the 2015 and 2016 BBR grant applications, the Erosion Event that occurs during high run-off is very significant and sends vast amounts of sediment into this branch stream. The problem that once originated on Taylor Road will now be transferred to the Head Pond Road. It is a high probability that increased flows to the lower culverts will result in a substantial erosion event. While erosion probability on upper Taylor Road has been properly addressed, the lower project elevations on Head of Pond will now have more substantial erosion than seen in past events. Completing this project will substantially reduce the sediment reaching the stream.

Distance from Water:

This is an in-stream project as stated frequently in this application.

Progress to Date:

This application is part of a four phase project with phase one being completed last year. The additional funding now being offered by Better Backroads has enabled the town to combine phases two and three into this 2016 (**Priority # 1**) application. The final phase (**Priority # 2**) will be needed to tie stone ditches together and replace a smaller culvert on Arthur John Road which intersects with Taylor and Head of Pond Roads. Phase four of the project has been submitted this year as the separate priority two application.

Emergency Reason for doing project now:

The completed installation of a larger culvert at the project area high point will now put additional stress on the two lower elevation culverts. Prudent engineering would suggest that all three of these culverts should have been done in one project but funding was not available. The damage that will occur on the two lower culverts has the potential of being worse than in prior events and could conceivably erode whole sections of Head of Pond Road.

Culvert and Road Inventory (BBR CAT-A GRANT):

The Town of Brighton had a CAT-A Better Backroads Road and Culvert Inventory performed in 2014. This project, due to the severity of road damage and quantity of sediment deposited in the stream, was selected as the Highest Priority among selected projects.

Project Consultation:

The Town of Brighton has utilized multiple state resources for this project including ANR-Rivers & Streams, VTrans District technical assistance, and consistently uses the Regional Planning for general advice. The town utilizes the services of Municipal Public Works Consulting to assist with Better Backroads Inventories and Projects. This consulting firm works diligently with the Better Backroads Program, Regional Planners, and ANR to maintain program criteria updates and to be knowledgeable on providing the proper technical advice.

Work In the Town Right-of-Way:

All work, as planned, will be carried out within the town Right-of-Way.

Will the town Road Crew Complete this Work:

This work will be performed primarily by a sub-contractor with some assistance from the Brighton Highway Department. The Contractor will be responsible for carrying out items described in this application but the town will be available for any extra assistance needed and to provide needed oversight.

Project Budget/Estimate:

Phase II Culvert:

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Match Amount= \$ 5,000.00

This document was prepared by David Antone, Municipal Public Works Consulting, for the Town of Brighton Vermont.

Contact Information:

David Antone

802-355-8215

roadtech005@gmail.com