FY17 Vermont Better Roads Grant Application

Please complete this page ONCE and return with your Grant Category Application(s)

Town/Organization: Town of Westmore Contact Person(s): Steve Davenport

Address: 54 Hinton Hill Rd Orleans, VT 05860

Street Address *Town* *Zip*

Email: westmorehighway@gmail.com Phone: (802) 525 - 4708

DUNS #: 35529718 Fiscal Year End Month (MM): 12

Accounting System: ☒ Automated ☐ Manual ☐ Combination

Please use the suggested documentation checklist below to ensure that all of the relevant items regarding your application have been included.

- ☑ Grant application cover sheet (Only submit one)
- ☑ Grant application form (One per category/project)
- ☑ Itemized Cost estimate for labor, equipment, and materials (see enclosed Cost Estimate Worksheet). If applicable, please break down funding by source (i.e. different grant sources)
- ☑ Project Location Map (please show location of affected water)
- ☑ Sketch of proposed erosion control measures or other management practices, including distances in feet
  - Also show approximate location of town/other right-of-way and/or property lines
- ☑ Photo(s) of the project area
- ☑ Letters of Support (RPC, VTrans District Technical Staff, ANR Rivers and Streams Engineers, etc.)
- ☑ If Category C River/Road Conflict or Category D River/Stream Structure or Culvert, you must attach ANR/ACOE consultation

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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
- [x] D. Structure/culvert upgrades

Town/Organization: Town of Westmore

Project Name: Job's Pond Culvert Replacement

Road Name: Job's Pond Camp Road TH #: 10 Structure # (if applicable): _____

Road Type: Paved Uncurbed

Class 3

Watershed: .46 Sq Mile 13% Storage

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

The existing 30" culvert is undersized and provides 7.1 sq ft of waterway opening. This does not meet state stream standards and constricts the channel resulting in scour at the inlet and outlet. The undersized culvert has caused pooling at the inlet and has changed the way the stream flows into the pipe. During high water events, water flows over the roadway causing sediment to be carried downstream.

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):

We would begin by removing the existing 30" pipe, digging the stream bed down 12" and installing a 81" X 59" polymer coated steel squash pipe. We will stone line the inlet and outlet of the new pipe. We will haul in 3/4" crushed gravel to back fill around the new pipe and to raise the road to accommodate the larger pipe. All disturbed areas will be seeded and mulched.

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

By increasing the capacity from 7.1 sq ft to 21.4 sq ft it will eliminate scouring and water topping the roadway that causes sediment to flow down stream. This will significantly increase water quality.

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

Progress to Date:
None

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

During heavy rains the road has washed out because of the restrictive flow the existing pipe provides. It would become an emergency situation if emergency personal needed to respond to the residents and could not get through because the road was washed out.

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: Municipal Road Inventory ( ) 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.):

Dave Antone / Municipal Road Inventory
AOT District 9
Patrick Ross / ANR Stream Engineer
Alan May / Vermont Better Roads

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

Yes

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

Some. The town road crew will supply and haul all gravel to site and will use our road grader to achieve the proper crown on the roadway. Contractor will supply the pipe and ledge and install both. Contractor will seed and mulch when project is complete.

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

See Attached

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

In kind services as well as budgeted funds for grant match.

Requested Grant Amount ($20,000 max Category B, $40,000 max Categories C & D): $14,104.00

Estimated Total Project Cost (including 20% local match): $14,104.00

Estimated Completion Date: 10/01/2016

REQUIRED ATTACHMENTS:

- [x] Itemized Cost Estimate (labor, equipment, materials)
  (For assistance, call Better Backroads at 802-828-4585)
- [x] Project Location Map
  (Please show location of affected water; 1:12,000 USGS map, if possible)
- [x] 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
- [x] Photo(s) of the project area.
- [ ] Agreement for Entry and/or Deed of Easement (if project is outside Town ROW).
- [x] If project involves stream or river/road conflict, include documentation of consultation with a River Management Engineer.
- [x] 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: Selectboard Chair

Cost Estimate Worksheet

Town and Road Name: Westmore / Job's Pond Camp Road

Project Name: Job's Pond Outlet

Labor	Rate	# Hours	Total (Rate x Hours)
Steve Davenport	$20.38	15	$305.70
Darcy Libby	$19.19	15	$287.85
Clayton Butler	$17.00	17	$289.00
		Labor Total	$882.55

Equipment	Rate	# Hours	Total (Rate x Hours)
Tandem axle dump truck	$44.62	15	$669.30
Tandem axle dump truck	$45.81	15	$687.15
Tandem axle dump truck	$48.00	15	$255.00
Road grader	$53.00	2	$106.00
		Equipment Total	$1717.45

Materials	Rate	Amount	Total (Rate x Amount)
3/4" Crusher run - We have this stock piled in our pit	8.00	115 cu yd	$920.00
		Materials Total	$920.00

Miscellaneous	Rate	Amount	Total (Rate x Hours)
Hired contractor to supply and install pipe,Ledge			
for inlet and outlet and seed / mulch when completet.	See attached Quote		$10,584.00
		Miscellaneous Total	
		Grand Total	$14,104.00
		Match	$2820.00

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VTrans

Gmail

Steve Davenport <westmorehighway@gmail.com>

Quote for Town of Westmore

1 message

Darrell Mathews <darrellmathewsexcavating@gmail.com> Wed, Apr 13, 2016 at 3:23 PM
To: Westmore Highway <westmorehighway@gmail.com>

This quote will include supplying & installing 30 feet of 81 x 59 cmp, 5 x 1, 12 gauge culvert with a band. Pump water bye during construction. Over excavate by 12 inches to place clean gravel under culvert for base. Backfill culvert with gravel each side and over top. Place ledge on each end of culvert to protect pipe & road. All gravel to be supplied by Town. I estimate 80 tons of ledge, which I will supply.

This does not include any ledge that interferes with culvert.

Total Quote: $9,612.00

*If you want to upgrade to polymar coated it will be an additional $972.00.

Estimated amount of gravel supplied by Town: 55 yards of gravel around pipe
60 yards of gravel to build road up

Darrell Mathews
Mathews Excavating
2043 Hale Road
Waterford, VT 05819
(802)-748-3703 phone/fax

Sent from my iPhone

vermont.gov/websites/anra/

Tools Help

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rmont Agency of Natural Resources

Quick Tools...

View Selected >>

Mountains

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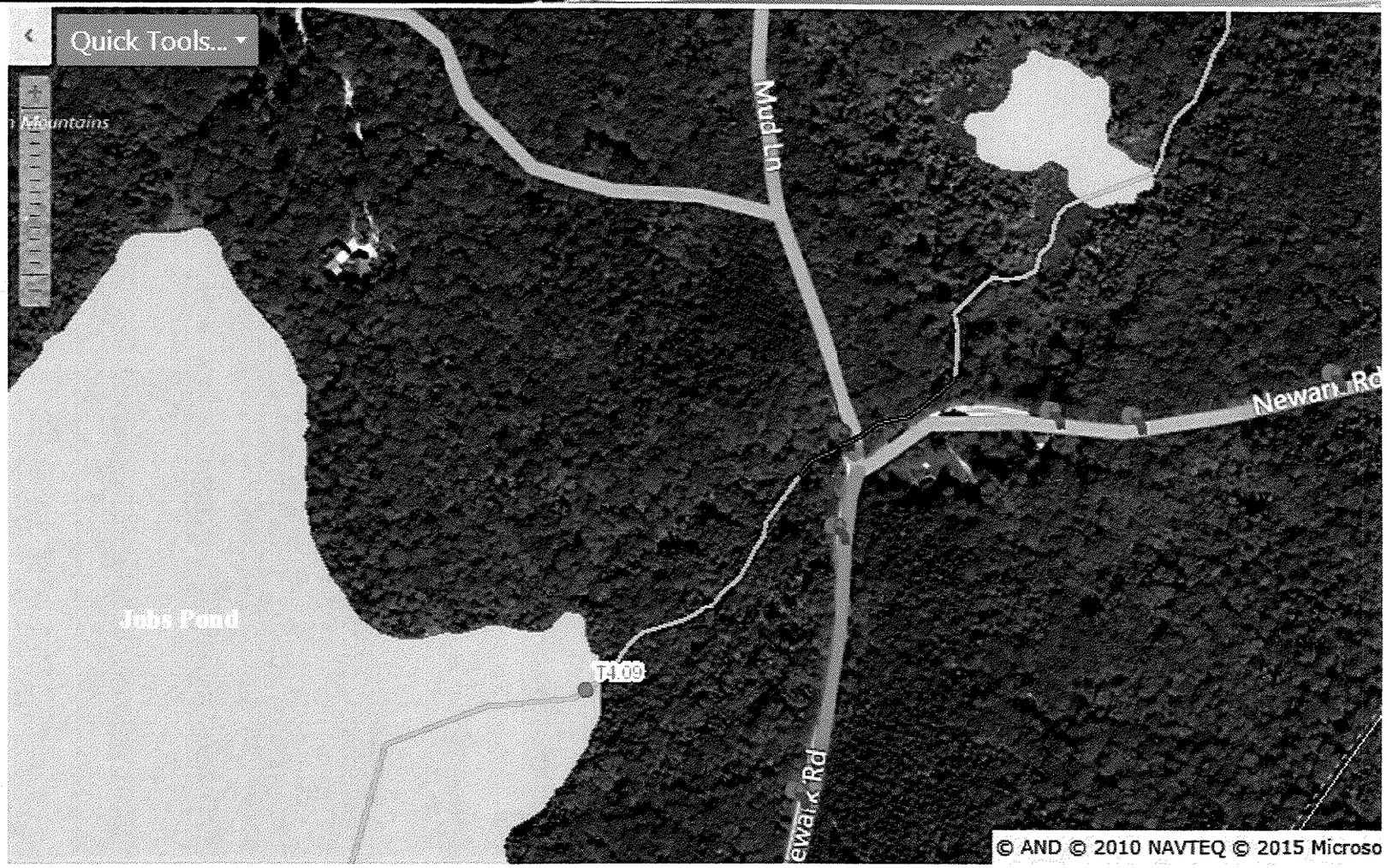

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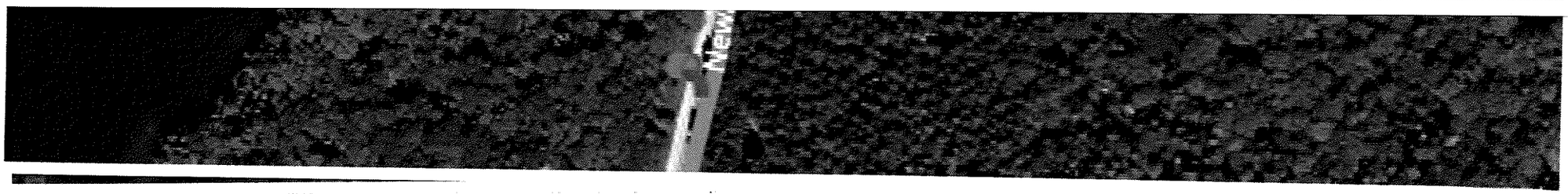
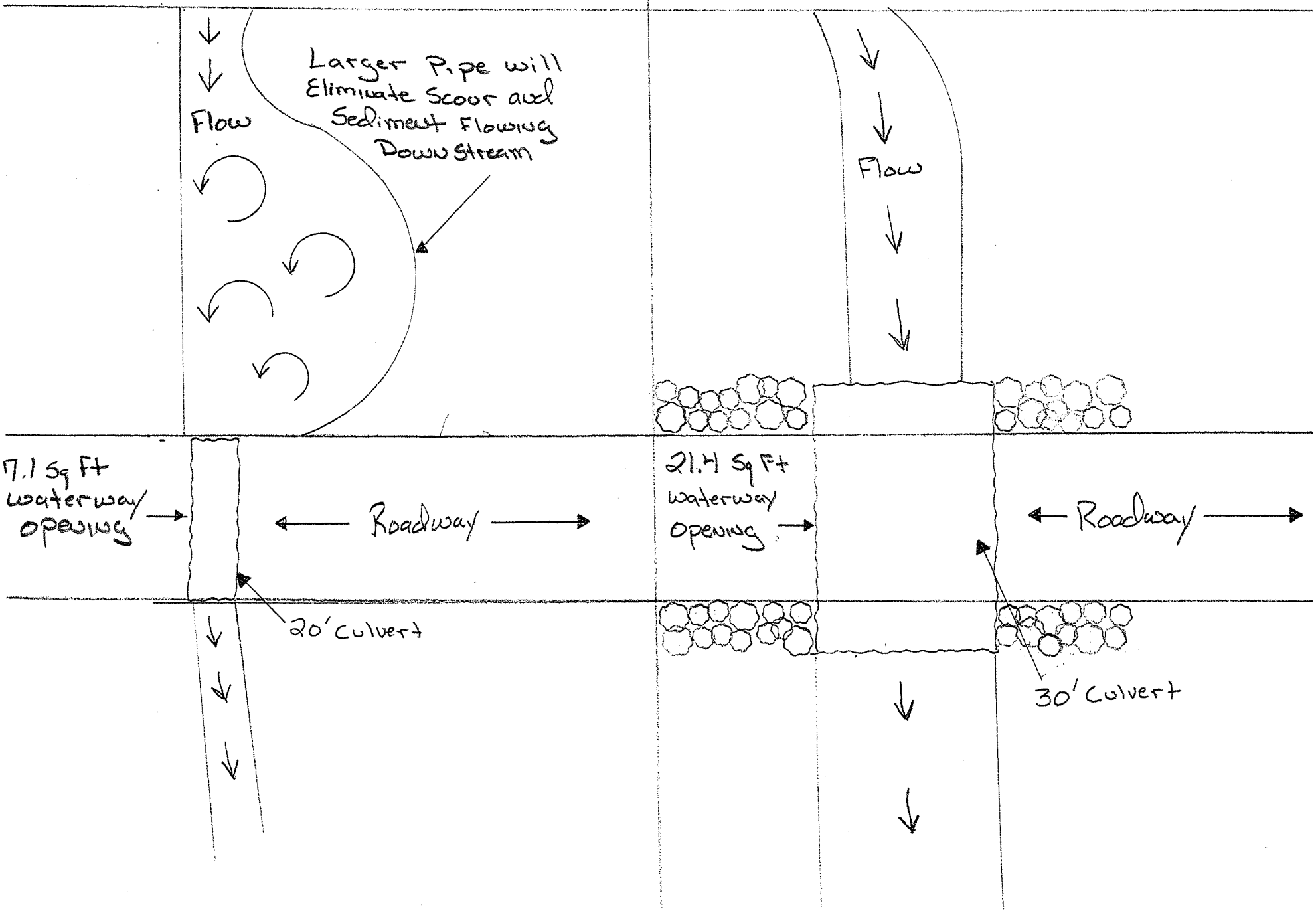


Current 36" Culvert

Proposed 81" X 59" Squashed pipe w/ stoneline Inlet & Outlet



Gmail

Steve Davenport <westmorehighway@gmail.com>

Better Roads Grant - Letter of Support - Job's Pond Camp Rd, Town of Westmore

1 message

Ross, Patrick <Patrick.Ross@vermont.gov> Sat, Mar 26, 2016 at 2:35 PM
To: Westmore Highway <westmorehighway@gmail.com>

Hello Steve,

Per our conversations, emails and site visit (last year). Please use this email to support the Job's Pond Road Better Roads grant project. It is my understanding that the town will be replacing the undersized 36" culvert with a single bankfull width pipe arch embedded 18" or similar. As mentioned previously, it is always helpful to install a headwall on the inlet.

This project qualifies for a Stream Alteration General permit, should you get the grant please let me know I will work with you to permit the project in a timely manner.

Regards,

Patrick Ross, P.E.

Patrick.Ross@Vermont.Gov

1229 Portland Street

St. Johnsbury, Vermont 05819

802.279.1143

VERMONT

State of Vermont
Highway Division
Maintenance & Operations Bureau
District 9
4611 US Route 5
Newport, VT 05855
vtrans.vermont.gov

[phone] 802-334-7934
[fax] 802-334-3337
[ttd] 800-253-0191

Agency of Transportation

April 11, 2016

Letter of Recommendation

To Whom It May Concern,

The Town of Westmore has expressed concern over the condition of a culvert on Jobs Pond Rd. The Town has been in close contact with the District 9 office and we have performed multiple site visits to investigate, including one said visit with Pat Ross. Hydraulic analysis has proven the current structures to be quite undersized, it constricts channel width resulting in scouring at the outlet and an increased potential for debris blockage. The current structure is 36", the proposed structure will more than double the size to 7'.

It is of our opinion, being the District Project Manager and Tech Team, that this project is a good fit for a Better Roads Grant. We have assisted the town to determine proper hydraulic sizing as well as adequate structural support for this site, and will continue to provide support and assistance throughout the project.

Thank You.

Sincerely,
Eric Pope
District 9 Technician

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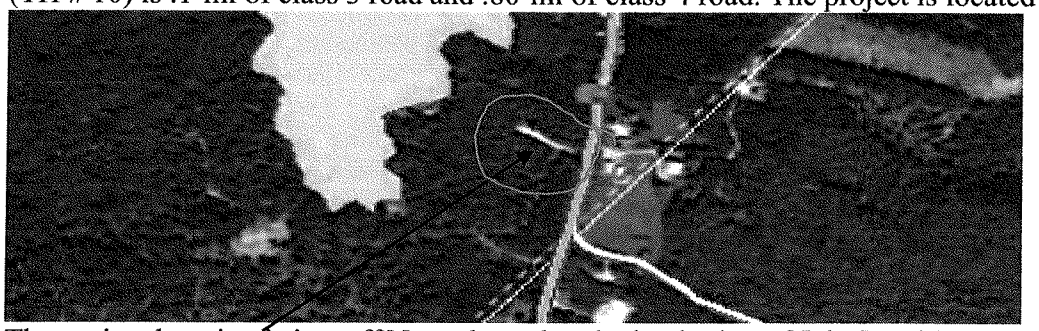
Vermont Agency of Transportation

JOBS POND CAMP LANE PROJECT-This project involves upsizing a culvert that is located within a small branch stream that crosses under this road. The stream and culvert do not show up on the ANR map. The road (TH # 10) is .1-mi of class 3 road and .80-mi of class 4 road. The project is located within the class 3 section.



The project location is just off Newark road at the beginning of Jobs Pond Lane.

During high water events, the culvert does not provide adequate flow. Water building up may flow over the road or create scouring around the culvert invert.

VT AGENCY OF TRANSPORTATION **PROGRAM DEVELOPMENT DIVISION**

HYDRAULICS UNIT

TO: Theron Matthews, District 9 Technician
Shane Morin, District 9 Technician

FROM: Leslie Russell, P.E., Hydraulics Project Supervisor

DATE: 21 January 2015

SUBJECT: Westmore TH 10 – 53' north of TH 2 – over unnamed brook
GPS coordinates: N 44.764644° W 71.949539°

We have completed our hydraulic study for the above reference site, and offer the following information for your use:

Hydrology

This site has a hilly to mountainous drainage basin. It is mostly forested with Jobs Pond in the drainage area. The total contributing drainage area is about 0.46 sq. mi. There is an overall length of 6100 feet from the divide to the site, with a 665 ft. drop in elevation, giving an average overall channel slope of 10.9%. The stream slope at the site was estimated to be about 2 - 3%. Using several hydrologic methods, we selected the following design flow rates:

Recurrence Interval in Years	Flow Rate in Cubic Feet per Second (CFS)
Q2.33	20
Q10	50
Q25	65 – Town Highway Design Flow
Q50	75
Q100	100 – Check Flow

Channel Morphology

The channel upstream is flat to moderate gradient. It is sinuous and slightly incised. The channel transitions at the site to a slightly steeper gradient channel downstream. There is little or no coarse sediment transport at the site. Field measurements of bankfull width varied from 6 - 8 feet upstream to 5' - 7 downstream; the departure likely due to the slope transition. It was difficult to get a good measurement of bankfull width due to the amount of snow on the day of the site visit. The Vermont Hydraulic Geometry Relationships anticipate a bankfull width of 9 ft. for stream channels in equilibrium at this watershed size. These relationships may not be valid for this drainage area due to the size and storage of the drainage area. No indications of active vertical or horizontal instability were observed.

Existing Conditions

The existing structure is a 36" CMP. It provides a waterway opening of about 7.1 sq. ft. There is a small bend in the channel to get into the pipe.

Our calculations, field observations and measurements indicate the existing structure does not meet the current standards of the VTrans Hydraulic Manual nor does the existing structure meet state stream equilibrium standards for bankfull width (span length). The existing structure constricts the

channel width, resulting in scour at the outlet and increased potential for debris blockage. Headwater to depth ratios exceed allowable values established in the current VTrans Hydraulics Manual and water overtops the roadway below the design Q25 discharge.

Recommendations

In sizing a new structure we attempt to select structures that meet both the current VTrans hydraulic standards, state environmental standards with regard to span length and opening height, and allow for roadway grade and other site constraints. Due to the low fill height at the site, the only recommendation for this site is for a box.

Based on the above considerations and the information available, we recommend any of the following structures as a replacement at this site:

1. A concrete box with a 7' wide by 4' high inside opening, with 6" high bed retention sills (baffles) in the bottom. The box invert should be buried 18" with material graded to match stream bed material, so the top of the sills will be buried 12" and not be visible. That will result in a 7' wide by 2.5' high waterway opening above streambed, providing 17.5-sq. ft. of waterway area. Sills should be spaced no more than 8'-0" apart throughout the structure with one sill placed at the inlet and one at the outlet. Sills should be cast in a V shape with 12" at the sides of the box and 6" high in the center. This structure will result in a headwater depth at Q25 = 2.3' and at Q100 = 3.2'.

2. Any similar structure with a minimum clear span of 7' and at least 18 sq. ft. of waterway area, that fits the site conditions, could be considered. Any structure should have bed retention sills and a buried invert as described above.

Prior to any further action toward implementation of any of the above recommendations, structure size and type must be confirmed, and may be modified, by the VT ANR River Management Engineer to ensure compliance with state environmental standards for stream crossing structures.

General Comments

If a new box is installed, we recommend it have full headwalls at the inlet and outlet. The headwalls should extend at least four feet below the channel bottom, or to ledge, to act as cutoff walls and prevent undermining.

It is always desirable for a new structure of this size to have flared wingwalls at the inlet and outlet, to smoothly transition flow through the structure, and to protect the structure and roadway approaches from erosion. The wingwalls should match into the channel banks. Any new structure should be properly aligned with the channel, and constructed on a grade that matches the channel. A new structure should span the natural channel width.

Stone Fill, Type II should be used to protect any disturbed channel banks or roadway slopes at the structure's inlet and outlet, up to a height of at least one-foot above the top of the opening. The stone fill should not constrict the channel or structure opening.

Other regulatory authorities including the US Army Corps of Engineers may have additional concerns or requirements regarding replacement of this structure.

Please note that while a site visit was made, these recommendations were made without the benefit of a survey and are based on limited information. The final decision regarding replacement of this structure must comply with state regulatory standards, and should take into consideration matching natural channel conditions, roadway grade, environmental concerns, safety, and other requirements.

Please contact us if you have any questions or if we may be of further assistance.

DCW

cc: Patrick Ross, A.N.R. River Management Engineer
Hydraulics Project File via NJW