



# 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: Town of Danville

Project Name: TH 78 Culvert Replacement

Road Name: TH78 TH #: 78 Structure # (if applicable): \_\_\_\_\_

Road Type: Unpaved Uncurbed  
Class 4

Watershed: Water Andric in Passumpsic Watershed

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

The 15' culvert currently in place on TH78 on the Water Andric River is undersized, has little gravel material cover, is not passing fish and has washed out in two storm events. The structure is about half the size of the stream width. There is a large pool at the outlet of the structure and debris and sediment upstream.

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):

A design has been prepared by an engineer and reviewed by the ANR Stream Alteration Engineer to replace this structure with a one-lane bridge. Caledonia County Conservation District is raising additional funds for the project. The new bridge will have steel stringers and a hemlock deck, include a grade control weir, and provide a 50' span.

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

This project will eliminate any further washouts and associated sediment runoff into the river. Fish passage will be restored and reconnect four additional miles of stream to free flowing conditions. Downstream erosion will be reduced as well.



Distance from end of project to nearest water (stream, lake, or stormwater system that outlets directly to water). Please Select

Progress to Date:

Engineered design completed. \$80,000 secured for construction.

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: Lower Passumpsic Tributaries Corridor Plan and Culvert Inventory

No

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

Caledonia County NRCD  
VT DEC Basin Planner, River Scientist  
ANR Stream Alteration Engineer

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

Yes, the project is in the town Right of Way

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

A contractor will be hired for this project. The town will provide equipment and crew time to support the project during construction.



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

The engineer for the project has prepared a preliminary budget, attached with the application which is projected at \$175,000 for materials, labor and engineering oversight. Funding from Better Roads will augment the \$80,000 currently raised.

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

\$80,000 has been raised so far for the project, and will provide the required match.

Requested Grant Amount (\$20,000 max Category B, \$40,000 max Categories C & D): \$ 40,000.00

Estimated Total Project Cost (including 20% local match): \$ 175,000.00

Estimated Completion Date: 10/01/2017

**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.

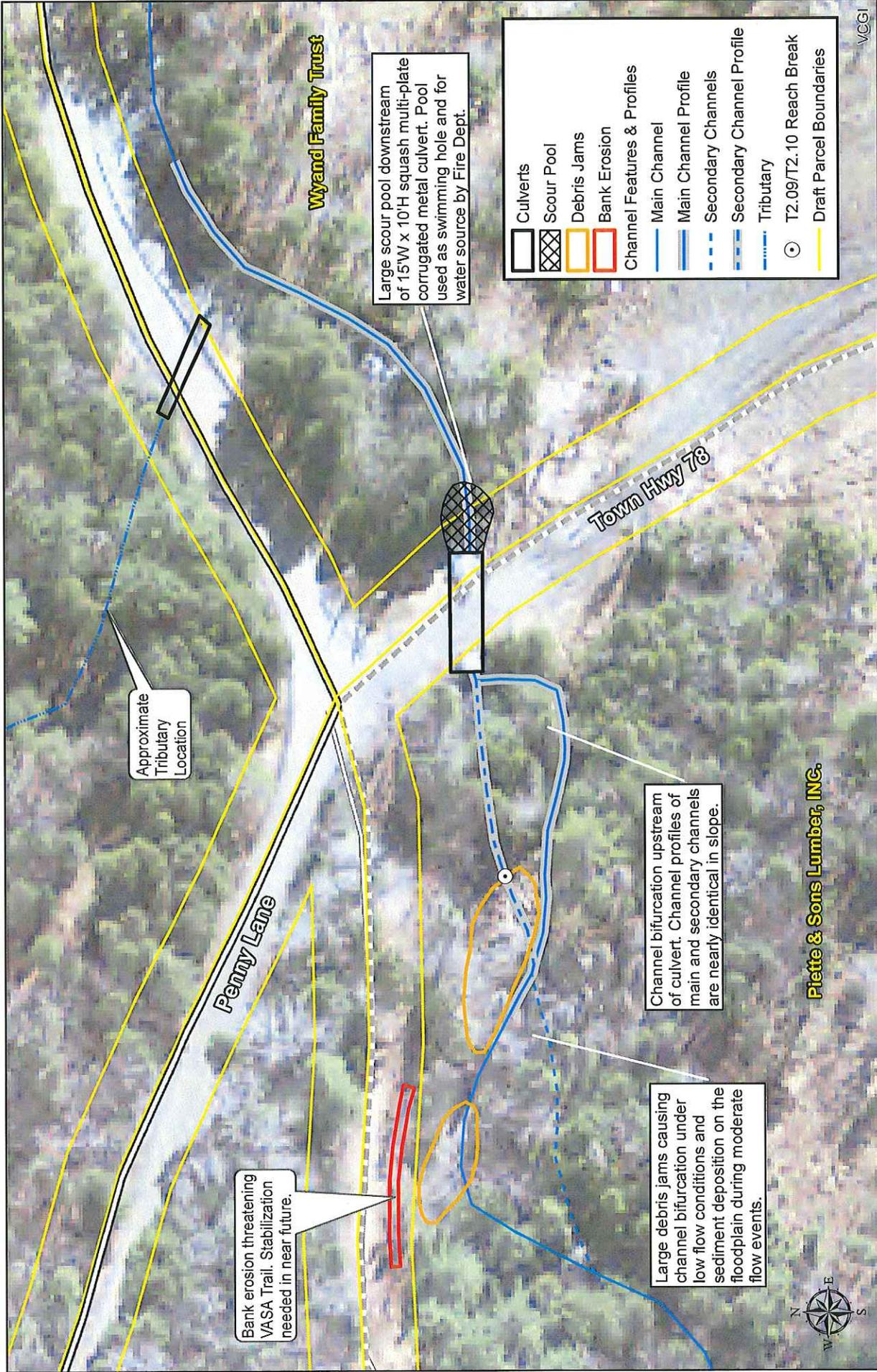
By signing this application I certify that all the information provided is accurate to the best of my knowledge. We will comply with all the requirements of the grant including making our books available for audit if required.

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

Name: Michael K. Walsh

Title: Selectboard Chair





Approximate Tributary Location

Penny Lane

Wyand Family Trust

Town Hwy 78

Piette & Sons Lumber, INC.

Large scour pool downstream of 15'W x 10'H squash multi-plate corrugated metal culvert. Pool used as swimming hole and for water source by Fire Dept.

Bank erosion threatening VASA Trail. Stabilization needed in near future.

Channel bifurcation upstream of culvert. Channel profiles of main and secondary channels are nearly identical in slope.

Large debris jams causing channel bifurcation under low flow conditions and sediment deposition on the floodplain during moderate flow events.

**Legend**

- Culverts
- Scour Pool
- Debris Jams
- Bank Erosion

**Channel Features & Profiles**

- Main Channel
- Main Channel Profile
- Secondary Channels
- Secondary Channel Profile
- Tributary

- T2.09/T2.10 Reach Break
- Draft Parcel Boundaries



**Notes:**

- Channel profile data and GPS mapping completed by FEA in October, 2015
- Background imagery is from 2014
- Parcel boundaries are a draft version from the Town of Danville

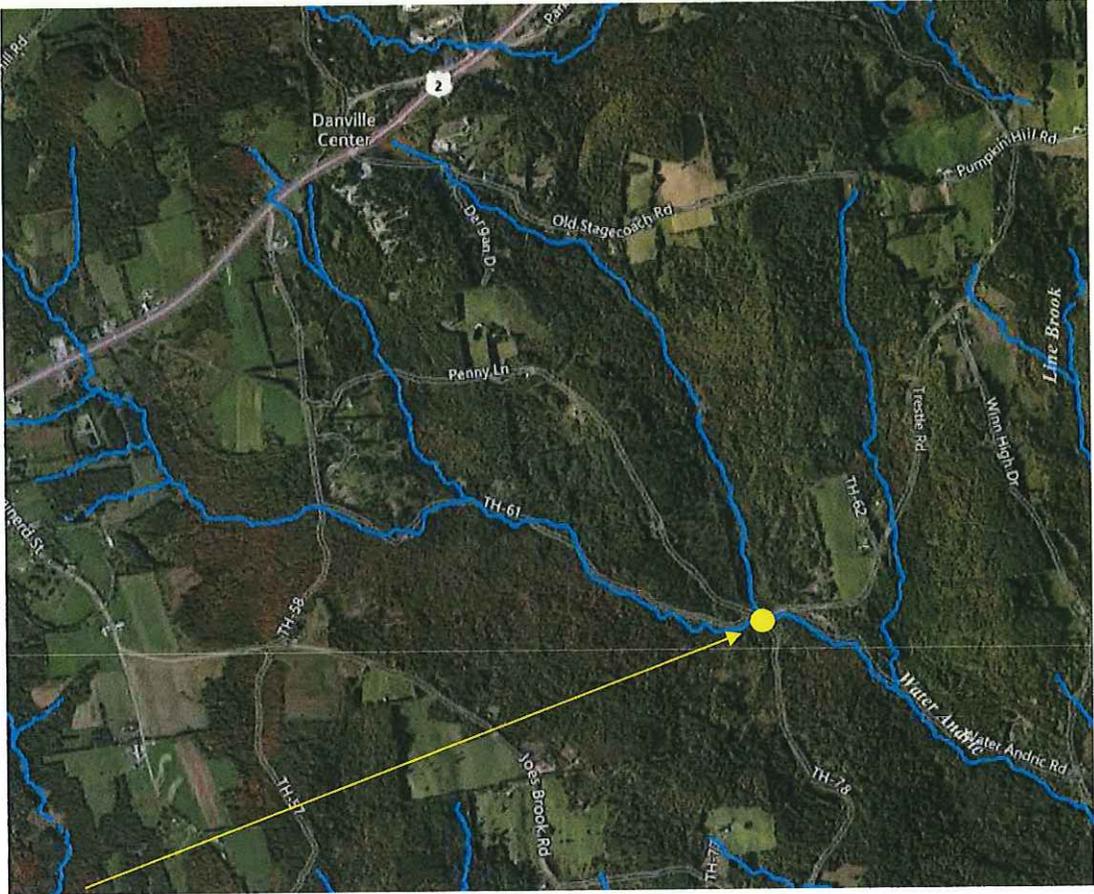
0 30 60 Feet  
1 inch = 60 ft

Date: November 25, 2015  
Drawn: EPF

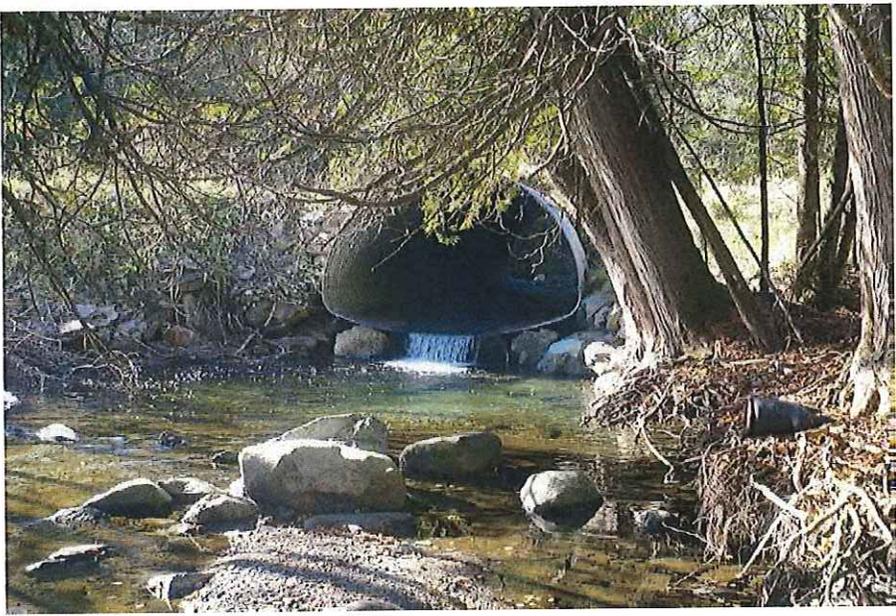
**CCNRCD ERP Projects**  
**Water Andric - Danville, VT**  
Map 3: Town Highway 78 Culvert  
Survey Location and Notes

**Fitzgerald Environmental Associates, LLC**  
18 Severance Green, Suite 203  
Colchester, VT 05446  
Telephone: 802.876.7778  
[www.fitzgeraldenvironmental.com](http://www.fitzgeraldenvironmental.com)

Town of Danville  
TH78 Culvert Replacement: Project Location and Site Photo



*Project Location, on Water Andric tributary to the Passumpsic River*



*View of culvert outlet*

4580 MEMORIAL DRIVE,  
ST. JOHNSBURY, VT 05819  
P 802-748-5898  
RES@MYFAIRPOINT.NET

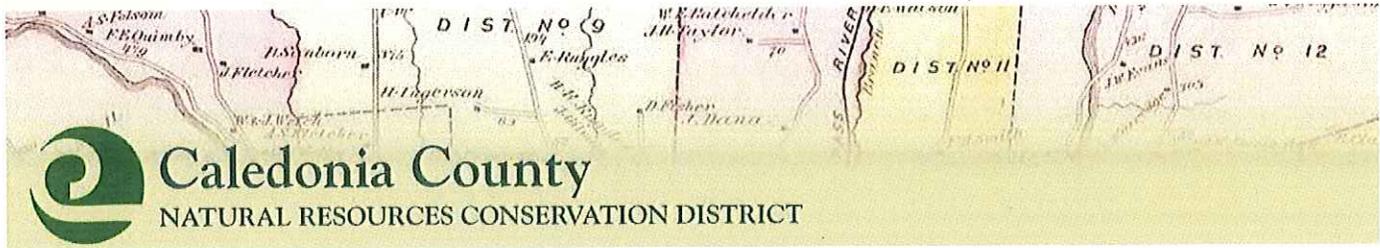


RUGGLES ENGINEERING SERVICES INC.

PRELIMINARY COST ESTIMATE (RES)  
T.H. 78 OVER WATER ANDRIC

4/13/2016

ITEM NUMBER	ITEM DESCRIPTION	UNITS	RES ESTIMATE	QUANTITY	EST. COST
203.27	UNCLASSIFIED CHANNEL EXCAVATION	CY	15.00	350	\$5,250.00
204.25	STRUCTURE EXCAVATION	CY	15.00	834	\$12,510.00
204.30	GRANULAR BACKFILL FOR STRUCTURES	CY	25.00	260	\$6,500.00
301.25	SUBBASE OF CRUSHED GRAVEL, COARSE GRADED	CY	25.00	120	\$3,000.00
301.26	SUBBASE OF CRUSHED GRAVEL, FINE GRADED	CY	25.00	35	\$875.00
529.15	REMOVAL OF STRUCTURE	EACH	2,500.00	1	\$2,500.00
501.34	CONCRETE, HIGH PERFORMANCE CLASS B	CY	325.00	56	\$18,200.00
507.11	REINFORCING STEEL, LEVEL I	LB	1.25	3925	\$4,906.00
506.50	STRUCTURAL STEEL, ROLLED BEAM	LB	2.00	26000	\$52,000.00
522.25	STRUCTURAL LUMBER AND TIMBER, TREATED	LS	17,240.00	1	\$17,240.00
613.11	STONE FILL, TYPE II	CY	35.00	50	\$1,750.00
613.13	STONE FILL, TYPE IV	CY	35.00	400	\$14,000.00
621.20	STEEL BEAM GUARDRAIL, GALVANIZED	LF	15.77	100	\$1,577.00
621.60	ANCHOR FOR STEEL BEAM RAIL	EACH	718.01	4	\$2,872.00
651.15	SEED	LB	8.46	50	\$423.00
651.18	FERTILIZER	LB	4.37	250	\$1,093.00
651.20	AGRICULTURAL LIMESTONE	TON	632.86	2	\$1,266.00
651.25	HAY MULCH	TON	713.79	2	\$1,428.00
651.40	GRUBBING MATERIAL	SY	4.88	250	\$1,220.00
	DEWATERING ALLOWANCE	LS	2,000.00	1	\$2,000.00
	DETOUR ALLOWANCE	LS	25,000.00	0	\$0.00
	ESTIMATE SUBTOTAL:				\$150,610.00
635.11	MOBILIZATION/DEMOLITION	LS		7.50%	\$11,296.00
	TOTAL ESTIMATED CONSTRUCTION COST				\$161,906.00
	OTHER COSTS:				
	CONTINGENCY	LS		5.00%	\$8,095.00
	CONSTRUCTION ENGINEERING	LS		3.00%	\$4,857.00
	TOTAL PRELIMINARY ESTIMATE AMOUNT				\$174,858.00



481 Summer Street, Suite 202 St. Johnsbury, VT 05819 802.748.3885 x110  
www.caledoniadistrict.org [kerry.obrien@vt.nacdnet.net](mailto:kerry.obrien@vt.nacdnet.net) fax: 855.794.3675

*Technical Assistance for Landowners and Municipalities*

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Vermont Better Roads Program  
Agency of Transportation  
Municipal Assistance Bureau  
1 National Life Drive  
Montpelier, VT 50633

RE: Town of Danville Category D Application

To Whom It May Concern:

I am writing to support the Town of Danville's Category D application to replace an undersized culvert on TH78 crossing the Water Andric River and upgrade the structure to a one lane bridge.

This structure was initially flagged as a priority in a culvert inventory as having no aquatic organism passage. The structure was later flagged during the Stream Geomorphic Assessment and was further assessed by a consultant. The structure is 50% the bankfull width of the stream and the town has indicated the structure has washed out during two flood events. There was support from the Town of Danville, VT Fish and Wildlife, VT DEC and US Fish and Wildlife to address the structure and work to replace the structure to restore fish passage, minimize erosion and restore free flowing conditions. Funds were secured to prepare the engineered design for the structure, and currently we are assisting the town to raise funds to replace the structure to the designed one-lane bridge.

The project, once completed, will have significant benefits to water quality, flood resiliency and aquatic habitat. The contribution to the project from the Better Roads Program will leverage additional funds to raise the amount needed to go to construction in 2017. We hope you will consider this application for funding.

Thank you,

Kerry O'Brien, District Manager

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CALEDONIA COUNTY NRCD BOARD OF SUPERVISORS

MICHELLE GREEN	DAVID McMATH	CHRIS LAGGIS	ALICE ALLEN	LARRY HAMEL
Chair	Vice-Chair	Treasurer	Supervisor	Supervisor

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**Subject:** FW: Danville, T.H. 78 Bridge Project  
**From:** "OBrien, Kerry - NRCS-CD, Saint Johnsbury, VT" <kerry.obrien@vt.nacdnet.net>  
**Date:** Fri, Apr 15, 2016 7:13 am  
**To:** "highways@danvillevermont.org" <highways@danvillevermont.org>

Hi Keith,  
 Here is the documentation from Pat Ross to include with the Category D application.  
 Let me know if you have any questions  
 Kerry

\*\*\*\*\*

**Kerry O'Brien, District Manager**  
 Caledonia County Natural Resources Conservation District  
 481 Summer Street, Suite 202 St. Johnsbury, VT 05819  
 802-748-3885 x110 fax: 855-794-3675  
[www.caledoniadistrict.org](http://www.caledoniadistrict.org)

**From:** Ross, Patrick [mailto:Patrick.Ross@vermont.gov]  
**Sent:** Thursday, April 14, 2016 7:11 AM  
**To:** OBrien, Kerry - NRCS-CD, Saint Johnsbury, VT <kerry.obrien@vt.nacdnet.net>  
**Subject:** Re: Danville, T.H. 78 Bridge Project

Hi Kerry,

Per our conversations, site visit and work together on the Danville town highway culvert replacement. This project will greatly improve AOP and flood resiliency. The project will qualify for the VT Stream Alteration General Permit. Please use this short note in your Better Roads Grant as confirmation of support for funding.

Regards,

Patrick Ross, P.E.

On Apr 13, 2016, at 1:04 PM, OBrien, Kerry - NRCS-CD, Saint Johnsbury, VT <kerry.obrien@vt.nacdnet.net> wrote:

Hi Pat,  
 I'm helping the town of Danville with a Better Roads application for the Th78 structure on the Water Andric that Tim Ruggles designed, attached. We need to show documentation that you've been consulted. Could you please confirm that you've reviewed the project and I can include the email with the application?

Thanks,  
 Kerry

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**From:** Ruggles Engineering [<mailto:RES@myfairpoint.net>]  
**Sent:** Monday, April 04, 2016 2:35 PM  
**To:** 'Ron Rhodes'  
**Cc:** 'Ross, Patrick'  
**Subject:** Danville, T.H. 78 Bridge Project

Ron,  
I've attached 90% plans for you to review. I have discussed the project with Pat Ross (Stream Alteration Engineer) and will be sending him these plans as well. I am going to prepare a cost estimate based on these plans. Feel free to contact me if you have any questions or comments.

**Timothy J. Ruggles, PE**  
**Ruggles Engineering Services**  
4580 Memorial Drive  
St. Johnsbury, VT 05819  
802-748-5898  
[RES@myfairpoint.net](mailto:RES@myfairpoint.net)  
[www.rugglesengineeringservices.com](http://www.rugglesengineeringservices.com)

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<TH 78 - Design Plan PLAN & PROFILE 04-04-16.pdf>

<TH 78 - Design Plan BRIDGE DETAILS 04-04-16.pdf>

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