

# Vermont Better Roads Grant Program



## CATEGORY B/C/D

Please complete one application per project you are applying for.

Please check the Category you are applying for:

- B. Correction of a Road Related Erosion Problem and/or Stormwater Mitigation
- C. Correction of a Stream Bank, Lake Shore or Slope Related Problem
- D. Structure/culvert 36" diameter or greater

Municipality: Reading

Road Name: Twenty Mile Stream      TH #: 3      Structure # (if applicable): \_\_\_\_\_

Road Type: Unpaved      Road Class: 2

Please provide a thorough description of the erosion/water quality problem;

Twenty Mile Stream, TH #3, is a Class 2 gravel Town highway and has one fairly steep section approximately 1/2 mile long that has washed out in places 3 times this year, once on July 10<sup>th</sup> again on July 21<sup>st</sup> and some minor washouts on December 18<sup>th</sup>. The entire section is about 2600' long and should be stone lined, with check dams installed with settling areas located at the outlet of the culverts. It is our plan to by cleaning the inlets and outlets of the culverts and adding one additional culvert. In addition, we will realign one culvert as it has a 90 degree turn to get water into it. New headers will be added to two existing culverts. It is our intent to get the culvert work done by Town Employees before we contract the ditch work to a contractor. We will start at the top of the hill at the end of segment 189136 and stone line and add check dams as far as money will allow. Depending on budgets this may end up being a multi-year project. See Cost Estimate Worksheet.

Has the town completed an MRGP compliant road erosion inventory?

- Yes
- No
- In progress

Project Length;

Number of structures/culverts replaced/repared: 2 culverts to be re-aligned and 1 culvert to be added.

Average slope of roadway:       0-5%       5-10%       >10%

Provide a VERY detailed map of project location showing start and end points:

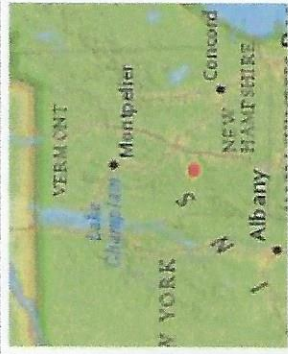
Provide a sketch of project location showing distances and project details:





# Reading Twenty Mile Stream Rd - Better Roads

vermont.gov



**LEGEND**

**MRGP Hydrologically connected road segment**

- Hydrologically connected road segment
- Town highway road segment not connected

**Roads**

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

**Town Boundary**

**NOTES**

Map created using ANR's Natural Resources Atlas

1: 12,597  
December 27, 2023

640.0 320.00 640.0 Meters

1" = 1050 FT 1cm = 126 Meters

WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

© Vermont Agency of Natural Resources

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

**THIS MAP IS NOT TO BE USED FOR NAVIGATION**



# Vermont Better Roads Grant Program



\*In order to “Fully Meet” the standards the road segment must have proper crown, removal of shoulder berms, proper ditching, proper conveyance and no erosion present at culvert inlets and outlets.

**Environmental Concerns:**

All projects require a review of potential impacts by our environmental team. To expedite the review process, please check the boxes below that describe existing structures/conditions to be replaced/maintained (if any) and the project description that applies (if any).

Existing Structures:	
<input checked="" type="checkbox"/> Steel/Plastic Culvert	<input type="checkbox"/> Concrete Box Culvert
<input type="checkbox"/> Stone Culvert – Take pictures	<input type="checkbox"/> Concrete Bridge
<input checked="" type="checkbox"/> Ditch	<input type="checkbox"/> Rolled Beam/Plate Girder Bridge
<input type="checkbox"/> Foundation remains, mill ruins, stone walls, other – Take pictures	<input type="checkbox"/> Stone abutments or piers – Take pictures
<input type="checkbox"/> Buildings within 300 feet of work - Take pictures	
Project Description:	
<input type="checkbox"/> New ditches will be established	<input checked="" type="checkbox"/> All work will be completed from the existing road or shoulder
<input checked="" type="checkbox"/> Reestablishing existing ditches only	<input type="checkbox"/> There will be excavation within 300 feet or a river or stream – Take pictures
<input type="checkbox"/> The structure is being replaced on existing location/alignment	<input type="checkbox"/> Road reclaiming, reconstruction, or widening
<input type="checkbox"/> Excavation within a floodplain – Take pictures	<input type="checkbox"/> Temporary off-road access is required
<input type="checkbox"/> Tree cutting/clearing – Take pictures	<input type="checkbox"/> The roadway will be realigned

Please describe the project and how it will create a positive water quality benefit: We intend to reshape and stone line the ditches on both sides of the road in nearly every segment from the top of the hill to the large culvert at the bottom of the project. There are a couple areas in a couple segments where sheeting can be done, however most of the project will involve stone lining with check dams. All culverts and the additional culvert will discharge into a wooded area allowing the water to disperse rather than flow down the ditch and into the Twenty Mile Stream which ultimately ends up in the Black River.

Please list any professionals or partners that assisted with planning this project;

Mount Ascutney Regional Commission (MARC)

Is the project located in the town “Right of Way? (select one)  Yes  No  Both

Please be aware, Municipalities are required to have an Agreement for Entry & Liability Release for any impacted properties (prior to the start of construction.)



# Vermont Better Roads Grant Program



## Budget:

Please attach a project budget and confirm below that is attached:

Project budget IS attached

Are you applying to other grant programs to help fund this project? If so, what programs? Please note that Better Roads requires a 20% local match and Better Roads funding may not be used as match for other state or federally funded programs.

<b>Requested Grant Amount:</b>	<b>\$20,000.00</b>
+	
<b>Local Match:</b>	<b>\$ 5,000.00</b>
=	
<b>Total Project Cost:</b>	<b>\$ 25,000.00</b>

Requested Grant Amount Max:  
 \$20,000 Category B  
 \$40,000 Category C  
 \$60,000 Category D

See page 6 for more information on calculating match

Estimated Completion Date: Sept 30, 2024

### REQUIRED ATTACHMENTS:

Please use the documentation checklist below to ensure that all of the relevant items regarding your application have been included. It is preferred that your application is a single PDF file.

- Grant application cover sheet
- Grant application form, including chart with RSID and MRGP compliance before and after project completion
- 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).
- Detailed Project Location Map
- Sketch of proposed project and 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 and limits of work
- Photos must be color and clear to see.
  - Please make sure there are enough photos to get a good idea of the project area
- 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:

Name: Robert K. Allen Title: Selectman

**MUST BE TOWN ADMINISTRATOR/MANAGER OR SELECT BOARD CHAIR**



# Vermont Better Roads Grant Program



## Vermont Better Roads Category B/C/D Grant Proposal Scoring Criteria

All applications will be scored on a sliding scale elected by the Better Roads Grant Selection Committee. Road BMP upgrades are considered the highest priority for grant funding when road segments are “hydrologically-connected,” currently “not meeting” MRGP standards, and road slopes are greater than 10%

- 1. Is the project using Best Management Practices (BMPs) that are proven and likely to maximize long term success, such as practices contained within the new VTrans Better Roads Manual and/or VT DEC MRGP Standards?? [maximum 20 points]**
  - The proposed project utilizes appropriate BMPs and has maximized the likelihood of long-term success (16-20 points)
  - The proposed project utilizes some appropriate BMPs but more could be done to increase the likelihood of success (11-15 points)
  - The proposed project does not utilize appropriate BMPs, or it is unclear whether the BMPs will be used appropriately and the likelihood of success is uncertain (0-10 points)
  
- 2. What are the expected Water Quality Benefits within the watershed? [maximum 25 points]**
  - Project will lead to significant improvements to water quality (21-25 points)
  - Project will lead to moderate improvements to water quality (16-20 points)
  - Project will lead to small improvements to water quality (1-15 points)
  - Project will lead to no obvious improvements to water quality (0 points)
  
- 3. Is the project in or does stormwater runoff from the project area drain into a hydrologically connected segment? [maximum 20 points]**
  - Yes; the entire project is in connected segment(s) (20 points)
  - Partially; part(s) of the project are in connected segments (5-19 points)
  - No; this project is not in a connected segment (0-5 points)
  
- 4. Will the project result in full compliance of one or more segments in accordance with the Municipal Roads General Permit (MRGP)? [maximum 25 points]**
  - All segments within the project will be in full compliance (25 points)
  - One or more segments will be in full compliance, with all other segments in partial compliance (11 – 24 points)
  - One or more segments will be a minimum of partial compliance (1- 10 points)
  - Project does not meet compliance or not applicable (does not have hydrologically connected segments) (0 points)
  
- 5. Is the project cost effective? [maximum 10 points]**
  - The cost of the project is low and the expected benefits are high (8-10 points)
  - The cost of the project is average and the expected benefits are average (5-7 points)
  - The cost of the project is high and the expected benefits are low (0-4 points)





## Bob Allen

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**From:** wade.mcallister@ferguson.com  
**Sent:** Wednesday, November 29, 2023 10:45 AM  
**To:** rkallen@myfairpoint.net  
**Subject:** Specs and pricing from Ferguson Waterworks  
**Attachments:** HP Storm Brochure 2023.pdf

Hi Bob,

For the Town:

12x20 Gray culvert	\$13.90/foot	\$278/20 foot piece
15x20 Gray culvert	\$19.81/foot	\$396.20/20 foot piece
* 18x20 Gray culvert	\$28.29/foot	\$565.80/20 foot piece
24x20 Gray culvert	\$46.82/foot	\$936.40/20 foot piece

For you:

12x20 DW (least expensive)	\$13.76/foot	\$275.13/20 foot piece
8x20 IB	\$10.36/foot	\$207.20/20 foot piece

Please see the attached for the ADS specification submittals.

Thank you

**Wade C. McAllister**  
**Sales Support Representative**  
**Ferguson Enterprises, Inc**  
40 Interchange Dr.  
W. Lebanon, NH 03784  
**O: (603) 403-5312**  
**M: (603) 298-5275**  
E: [wade.mcallister@ferguson.com](mailto:wade.mcallister@ferguson.com)



PO Box 230, Perkinsville, Vermont 05151  
waters-excavation.com (802)484-2004

Date: 12/28/23  
To: Town of Reading Select Board  
Subject: 20 Mile Stream Road ditch stone  
From: Waters Excavation, Inc.

To whom it may concern,

714 CY Type 1 ditch stone - \$14280.00  
120 HR Tri-axle Dump Truck - \$15,000.00  
60 HR Wheel Excavator - \$9,900.00  
Total \$39,180.00

Thank you.

Signed,

*Matthew Waters*

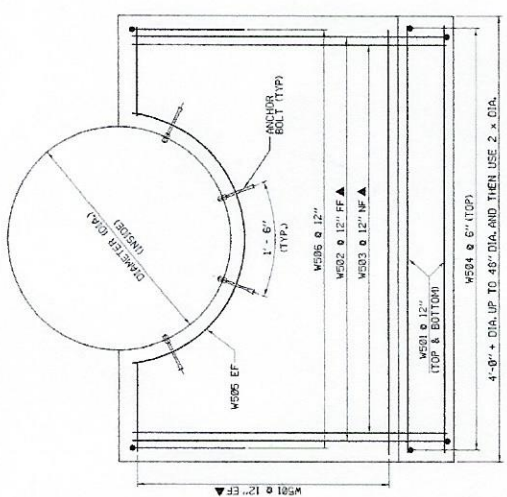
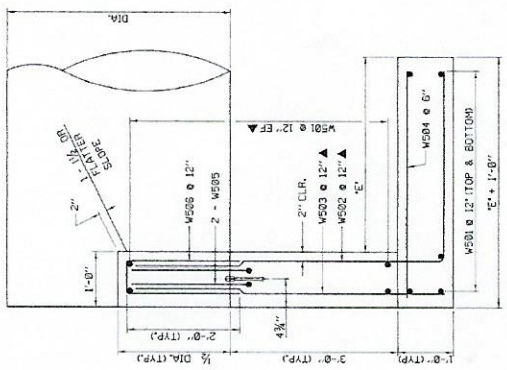
Matthew Waters  
President of Waters Excavation, Inc.

**DESIGN CRITERIA**

1. ASSUMED ALLOWABLE LOAD FOR SPREADER: 100 KSF - ON SOIL 4 KSF - ON LEDGE 10 KSF
2. REINFORCING STEEL GRADE: 60 KSI
3. CONCRETE CLASS: Br 3500 PSI
4. SOIL UNIT WEIGHT: 140 PSF
5. ASSUMED FOOTING FRICTION COEFFICIENT: 0.35
6. SOIL FRICTION ANGLE: 33.67°
7. DEDUCT VOLUME OF PIPE.
8. ALL EXPOSED EDGES WILL BE CHAMFERED ONE INCH.
9. ALL REBAR CLEARANCES SHALL BE 3 INCHES UNLESS OTHERWISE NOTED.
10. CONSTRUCTION JOINT SURFACE SHALL BE ROUGH.

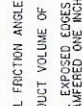
**REBAR NOTES**

- NF = NEAR FACE
- FF = FAR FACE
- CL = CENTER LINE
- ▲ = CUT TO FIT IN FIELD



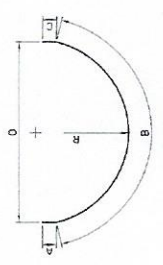
**ANCHOR BOLT NOTES**

1. ANCHOR BOLTS ARE REQUIRED ON NON-CONCRETE SURFACES TO BE INCLUDED IN THE COST OF THE PIPE.
2. ANCHOR BOLTS SHALL BE 1/2" DIA. x 8" WITH TWO HOLES FOR WELDING TO THE PIPE. THE REQUIREMENTS OF ASTM A307 SHALL APPLY. HOLES IN PIPE TO BE DRILLED OR PUNCHED PRIOR TO COATING OF PIPE OR FIELD DRILLED AND COATED WHEN REQUIRED DUE TO A FIELD CHANGE.

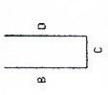


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7. DEDUCT VOLUME OF PIPE.
8. ALL EXPOSED EDGES WILL BE CHAMFERED ONE INCH.
9. ALL REBAR CLEARANCES SHALL BE 3 INCHES UNLESS OTHERWISE NOTED.
10. CONSTRUCTION JOINT SURFACE SHALL BE ROUGH.

**REBAR TYPE 1/2**



**REBAR TYPE 1/2**



STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL DIA. 54"

ITEM	REBAR SIZE	LENGTH	MARK TYPE	A	B	C	D	O	R
1	22	5	8'-6"	W501 STR.					
2	10	5	8'-9"	W502 STR.					
3	10	5	5'-9"	W503 STR.					
4	10	5	3'-6"	W504 STR.					
5	2	5	4'-7"	W505 S10					
6	11	5	4'-7"	W506 S10					

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL DIA. 60"

ITEM	REBAR SIZE	LENGTH	MARK TYPE	A	B	C	D	O	R
1	24	5	9'-6"	W501 STR.					
2	12	5	9'-9"	W502 STR.					
3	12	5	6'-9"	W503 STR.					
4	12	5	4'-9"	W504 STR.					
5	2	5	5'-10"	W505 S10					
6	11	5	4'-7"	W506 S10					

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL DIA. 66"

ITEM	REBAR SIZE	LENGTH	MARK TYPE	A	B	C	D	O	R
1	24	5	10'-6"	W501 STR.					
2	12	5	10'-9"	W502 STR.					
3	12	5	7'-9"	W503 STR.					
4	12	5	5'-9"	W504 STR.					
5	2	5	6'-10"	W505 S10					
6	11	5	4'-7"	W506 S10					

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL DIA. 72"

ITEM	REBAR SIZE	LENGTH	MARK TYPE	A	B	C	D	O	R
1	24	5	11'-6"	W501 STR.					
2	12	5	11'-9"	W502 STR.					
3	12	5	8'-9"	W503 STR.					
4	12	5	6'-9"	W504 STR.					
5	2	5	7'-10"	W505 S10					
6	11	5	4'-7"	W506 S10					

PIPE DIAMETER	72"	66"	60"	54"	48"	42"	36"	30"	24"	18"
DIMENSION "E"	42"	42"	42"	35"	35"	35"	30"	30"	30"	30"
CONCRETE QUANTITY (CY)	4.14	3.74	3.34	2.79	2.43	2.25	1.94	1.77	1.61	1.44
LENGTH OF BARS	665'	604'	544'	455'	402'	353'	305'	271'	254'	222'
WEIGHT OF BARS (LB)	694	630	567	475	420	379	318	283	265	232
CARRIAGE BOLTS (No.)	8	7	7	6	6	5	5	4	4	3

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL DIA. 30"

ITEM	REBAR SIZE	LENGTH	MARK TYPE	A	B	C	D	O	R
1	10	5	6'-0"	W501 STR.					
2	7	5	7'-2"	W502 STR.					
3	7	5	4'-9"	W503 STR.					
4	13	5	3'-0"	W504 STR.					
5	2	5	4'-3"	W505 S10					
6	7	5	4'-7"	W506 S10					

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL DIA. 36"

ITEM	REBAR SIZE	LENGTH	MARK TYPE	A	B	C	D	O	R
1	10	5	6'-6"	W501 STR.					
2	7	5	7'-8"	W502 STR.					
3	7	5	4'-9"	W503 STR.					
4	14	5	3'-0"	W504 STR.					
5	2	5	5'-0"	W505 S10					
6	8	5	4'-7"	W506 S10					

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL DIA. 18"

ITEM	REBAR SIZE	LENGTH	MARK TYPE	A	B	C	D	O	R
1	10	5	5'-0"	W501 STR.					
2	6	5	6'-9"	W502 STR.					
3	6	5	4'-3"	W503 STR.					
4	11	5	3'-0"	W504 STR.					
5	2	5	2'-8"	W505 S10					
6	6	5	4'-7"	W506 S10					

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL DIA. 24"

ITEM	REBAR SIZE	LENGTH	MARK TYPE	A	B	C	D	O	R
1	10	5	5'-6"	W501 STR.					
2	7	5	6'-11"	W502 STR.					
3	7	5	4'-9"	W503 STR.					
4	12	5	3'-0"	W504 STR.					
5	2	5	3'-5"	W505 S10					
6	7	5	4'-7"	W506 S10					

REVISIONS AND CORRECTIONS  
MAR. 12, 2007 - ORIGINAL APPROVAL DATE

APPROVED  
*Kenneth M. Moulton*  
ROADWAY, TRAFFIC & SAFETY ENGINEER  
*Richard E. Hest*  
DIRECTOR OF PROGRAM DEVELOPMENT  
*Mark D. R. Little*  
FEDERAL HIGHWAY ADMINISTRATION

**REINFORCED CONCRETE  
CRADLE HEADWALL**



**STANDARD  
D-34**

**NOT TO SCALE**



## Vermont Better Roads Grant Program



# Questions and Technical Assistance

For questions regarding this application, general program related questions or for technical assistance please contact Alan May (802) 828-4585.

For questions related to projects affecting rivers and streams please contact the Agency of Natural Resources, River Management Engineers:

- Chris Brunelle, Northwest VT (802) 777-5328 or Chris.brunelle@vermont.gov
- Scott Jensen, Southeast VT (802) 490-6962 or Scott.jensen@vermont.gov
- Jaron Borg, Central VT & Northeast (802) 371-8342 or Jaron.borg@vermont.gov
- Josh Carvajal, Southwest VT (802)490-6163 or Joshua.carvajal@vermont.gov

For questions related to the Municipal Roads General Permit, please contact Evelyn Boardman, Municipal Roads Program Coordinator. (802) 636-7396 or Evelyn.boardman@vermont.gov

# Project Completion Requirements

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### Categories B, C, and D

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1. Submit a Municipal Invoicing Spreadsheet (available on the Better Roads website): <http://vtrans.vermont.gov/highway/better-roads>).
2. Four color photos of, during (2 photos) and after (2 photos) the project.
3. Copies of invoices/receipts and time sheets to document expenses and local match.