



FY17 Vermont Better Roads Grant Application

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

Town/Organization: Franklin Watershed Committee, Inc. Contact Person(s): Jessica Draper

Address: P.O. Box 82/5167 Main Street Franklin, 05457

Street Address *Town* *Zip*
Email: franklinwatershed@gmail.com Phone: (802) 393 - 775

DUNS #: 21077262 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, VTTrans 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



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: Franklin Watershed Committee Inc.

Project Name: Swamp Road Erosion and Stormwater Control Measures

Road Name: Swamp Road TH #: 5 Structure # (if applicable): _____

Road Type: Paved Uncurbed

Class 2

Watershed: Missisquoi

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

Franklin has a stormwater master plan that identified 27 stormwater and erosion problem areas throughout town. Four of those areas are on Swamp Road. Three culverts, and one uncontrolled stormwater discharge.

MQ2: Culvert is submerged and filled with sediment. The culvert is not aligned with the stream and scour pools have developed at the +

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):

MQ2: We will be removing the sediment from the culvert, constructing a check dam upstream, and rock lining and planting around the culvert inlet and outlet for stabilization and erosion control.

MQ3: This will be similar to MQ2, but with the addition of a plunge pool and without a check dam upstream. +

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

The expected effects on water quality are a reduction in sediment transport and erosion that is being caused by inadequate stormwater control and culverts. This will be done by planting plants with stable and far reaching root structures as well as hard scaping with stone. The plants will help to consume some of the Phosphorous contained in the runoff.



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

Progress to Date:

Stormwater Master Plan Identified 27 areas of concern, we have addressed 9 of those areas.

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

No

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: Franklin Stormwater Master Plan and listed in Tactical Basin Plan Implementation Table

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.):

We have been in contact with Stone Environmental Engineers, as well as the Basin Planner, Karen Bates. Our coordinator is also an engineer.

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).

No, the volunteers of FWC and AmeriCorps will complete this work. The town is our partner, however, and does provide us with financial support yearly, and provided a letter of support for this project. We will have the minimal assistance and oversight of a local excavation contractor, but they will not be performing the work.



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

The budget for this grant is going to be mostly stone, planting, and personnel costs.

Rain Garden: \$4/sf x 1400sf=\$5600.00

Geotextile: \$2.53/sy x 75sy=\$189.75

Time 4 Stone: \$10.50/ly x 80sy=\$840.00

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

We have local undesignated funds appropriated to us by the town, camper's association, Ben & Jerry's, and local donors. Our match will be \$2500.00

Requested Grant Amount (\$20,000 max Category B, \$40,000 max Categories C & D): \$ 11,000.00

Estimated Total Project Cost (including 20% local match): \$ 13,750.00

Estimated Completion Date: 11/30/2017

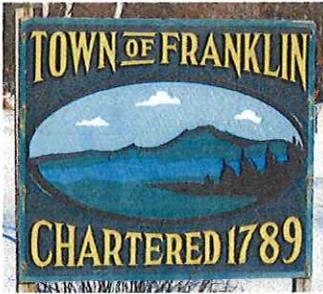
REQUIRED ATTACHMENTS:

- 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)

Digitally signed by Jessica E. Draper
 Name: Jessica E. Draper Date: 2016.04.14 15:27:40 -04'00' Title: Coordinator



TOWN OF FRANKLIN
P O Box 82
5167 Main Street
Franklin, VT 05457
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(802) 285-2101

Selectboard

Peter Magnant, Chair
Yvon Dandurand, V. Chair
Andrew Godin, Road Comm.
Brooks Sturtevant
Edmund Rainville

Lisa Larivee, Town Clerk/Treasurer
Sara Rainville, Assistant Clerk/Treasurer
Robert Irish, Zoning Administrator

April 12, 2016

RE: Better Roads Grant Application

To whom it may concern,

The Franklin Selectboard is pleased to support the efforts of the Franklin Watershed Committee, Inc. The FWC is our ally in the struggle to improve water quality in Lake Carmi. The ability to utilize Better Roads funds to help them improve areas of concern identified in our stormwater assessment is imperative to their, and our, success in water quality endeavors.

Franklin's stormwater assessment was done by Stone Environmental, Inc., and identified twenty seven areas of concern. A majority of these areas fall within the Pike-Carmi Watershed. This grant would cover four areas of concern on the Swamp Road. This is an area that directly affects Lake Carmi, and we fully support Franklin Watershed's desire to improve these areas.

Sincerely,

A handwritten signature in blue ink that reads "Peter Magnant". The signature is written in a cursive style and is positioned above a horizontal blue line.

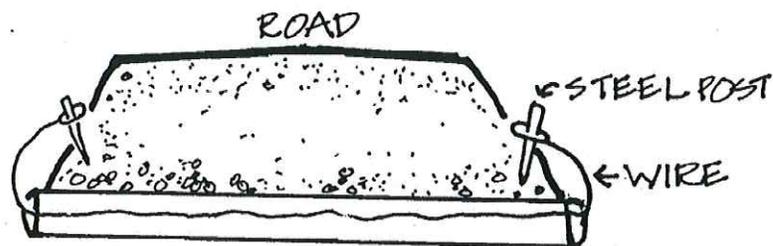
Peter Magnant
Franklin Selectboard

Cleaning and Maintenance:

Avoid clogging, collapsing, washouts, and settlement by practicing preventative maintenance.

- Inspect culverts as often as possible, but at least in the spring, fall and after major storms.
- Mark or inventory culverts so they do not get missed during inspections.
- Inspect underdrains and keep outlets of underdrains clear.
- Check culverts during freezing weather and take action if the culverts start to freeze.
- Use a high pressure hose to flush most plugged culverts (with water).
- Flush culverts from the outlet end.
- Clean the outlet ditch after flushing.
- Thaw frozen culverts by using steam, high-pressure water, ice augers, calcium chloride and/or the "John's Welder" method below.
- Check culvert inlet for erosion and to ensure water is flowing in the pipe and not around it; if some water goes around the culvert it can undermine the bedding and the culvert will fail (e.g. "piping").
- Replace culverts with the same size pipe if it is handling the flow adequately.
- Increase culvert size as development along a road increases or if the culvert is more than half full during high flows.

The "John's Welder" method for removing ice build up, extracted from a Maine drainage manual, is detailed below. This method is typically reserved for culverts that experience recurring ice blockage. Suspend a 1/4 inch diameter wire through the pipes that freeze most often. When ice blocks the pipe, hook up a portable welder to the wire and melt the ice around it enough to start the water flowing again. The moving water continues to increase the flow opening. The ends of the wire are attached to steel posts in the embankment at each end of the culvert. The wire remains suspended in the pipe permanently until a freeze-up calls for removing the wire from the posts and hooking up the welder again.



OUTLET STRUCTURES

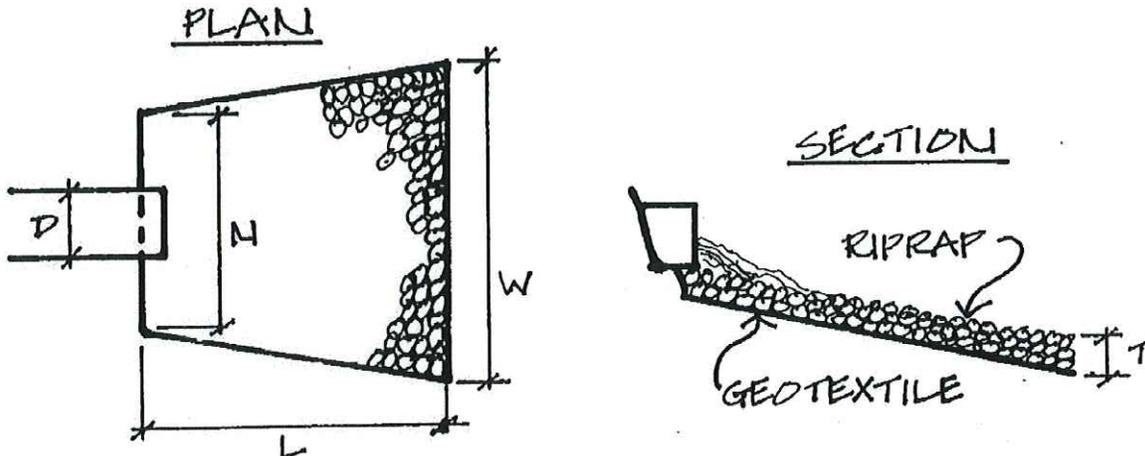
Rock Apron:

An area lined with riprap used to discharge water from culverts to existing ground.

- Provide culvert outlet protection by reducing water velocity and promoting sheet flow.
- Use only where there is an adequate vegetative filter strip.
- Discharging of a culvert to a fill slope will require a conveyance channel before the water reaches the rock apron.
- Size and placement of riprap in the apron is dependent upon the diameter of the culvert as well as on expected water flow through it.

Rock Apron Specifications					
Culvert Diameter (D)	Riprap Size	T (in.)	N (ft.)	W (ft.)	L (ft.)
18 inches	(3-12 inch)	18	4.5	14.5	10.0
24 inches	(3-12 inch)	18	6.0	20.0	14.0

D= diameter of culvert
 T= depth of stone in apron
 N= width of apron near culvert
 W= width at downhill end of apron
 L= length of apron

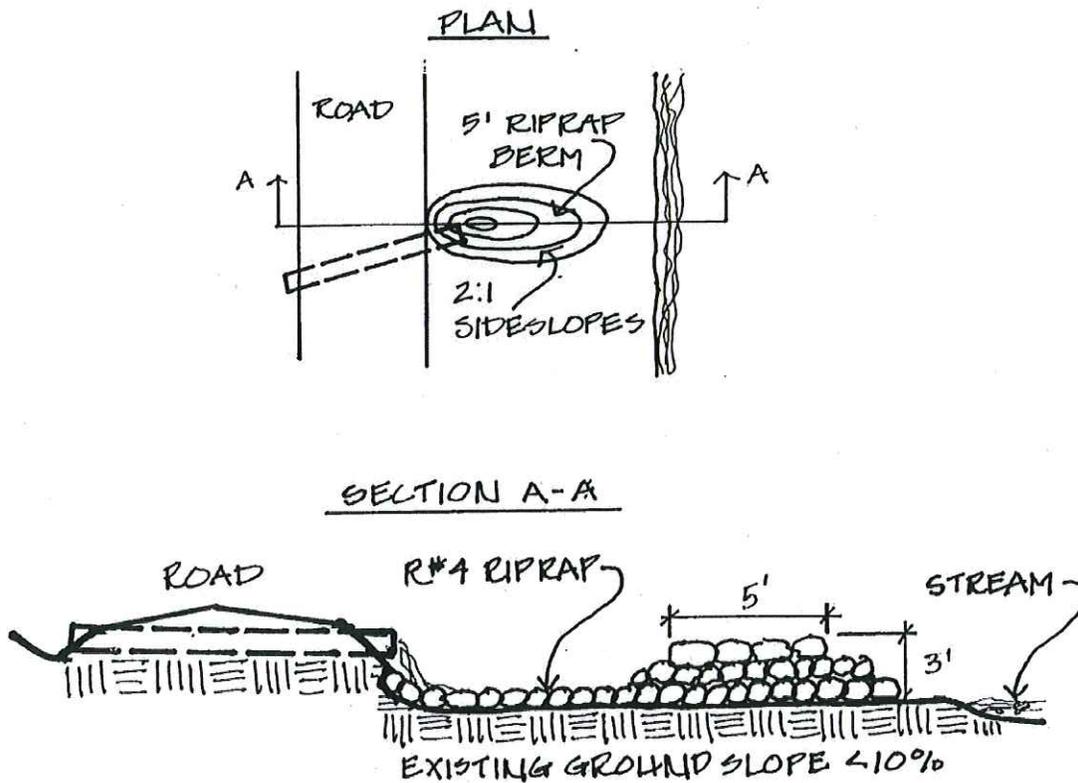


ROCK APRON

Splash/Plunge Pools:

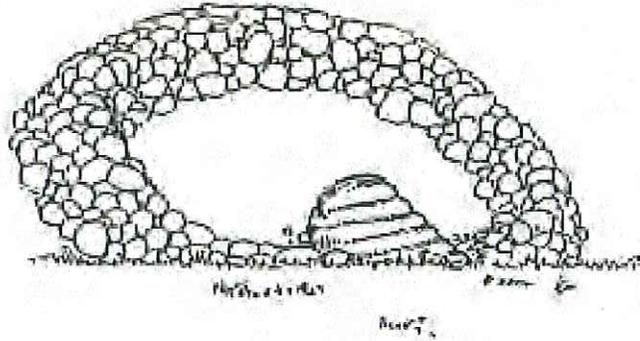
Riprap basin located at outlet of a culvert pipe.

- Used to remove sediments (by absorbing energy from flowing water and allowing sediments to settle out) from areas with concentrated flows and areas without adequate vegetative filter strips.
- Limited to areas with less than 10% slope.
- Consolidates sediment for easier removal.
- Reduces energy and velocity of flows by providing storage of runoff.
- Can allow for ground water recharge.
- Clean when pool area is one third filled with sediment.
- Locate the pool so that mechanized cleaning is possible.
- See pool capacity requirements chart on next page for sizing.



SPLASH/PLUNGE POOL

OUTLET STRUCTURES



Splash/Plunge Pool Capacity Requirements		
Distance Between Culverts (ft.)	Pool Capacity (cu. ft.)	
	Crowned road	Banked road
500	230	460
400	180	360
350	160	320
300	140	280
250	120	240
200	100	200

BANK STABILIZATION

Vegetation – Shrubs and Trees:

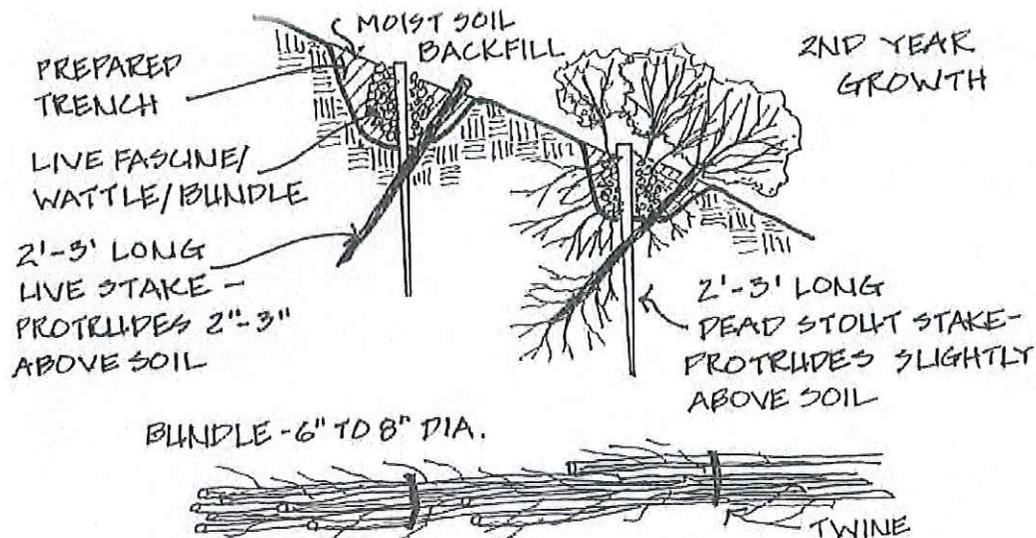
Shrubs and trees can be used to stabilize steep slopes and stream banks, and create a good vegetative filter strip.

- Deeply rooted woody species provide greater protection against bank erosion problems.
- Identify other plants in the area to determine the most suitable plants to use for stabilization.
- Commonly used stabilization plants include: willows, alders, and dogwoods.
- Techniques for stabilizing banks with **woody plants** include live fascines/wattles/bundles, live stakes, brushlayering, and sprigs/plugs.

Live Fascines/Wattles/Bundles:

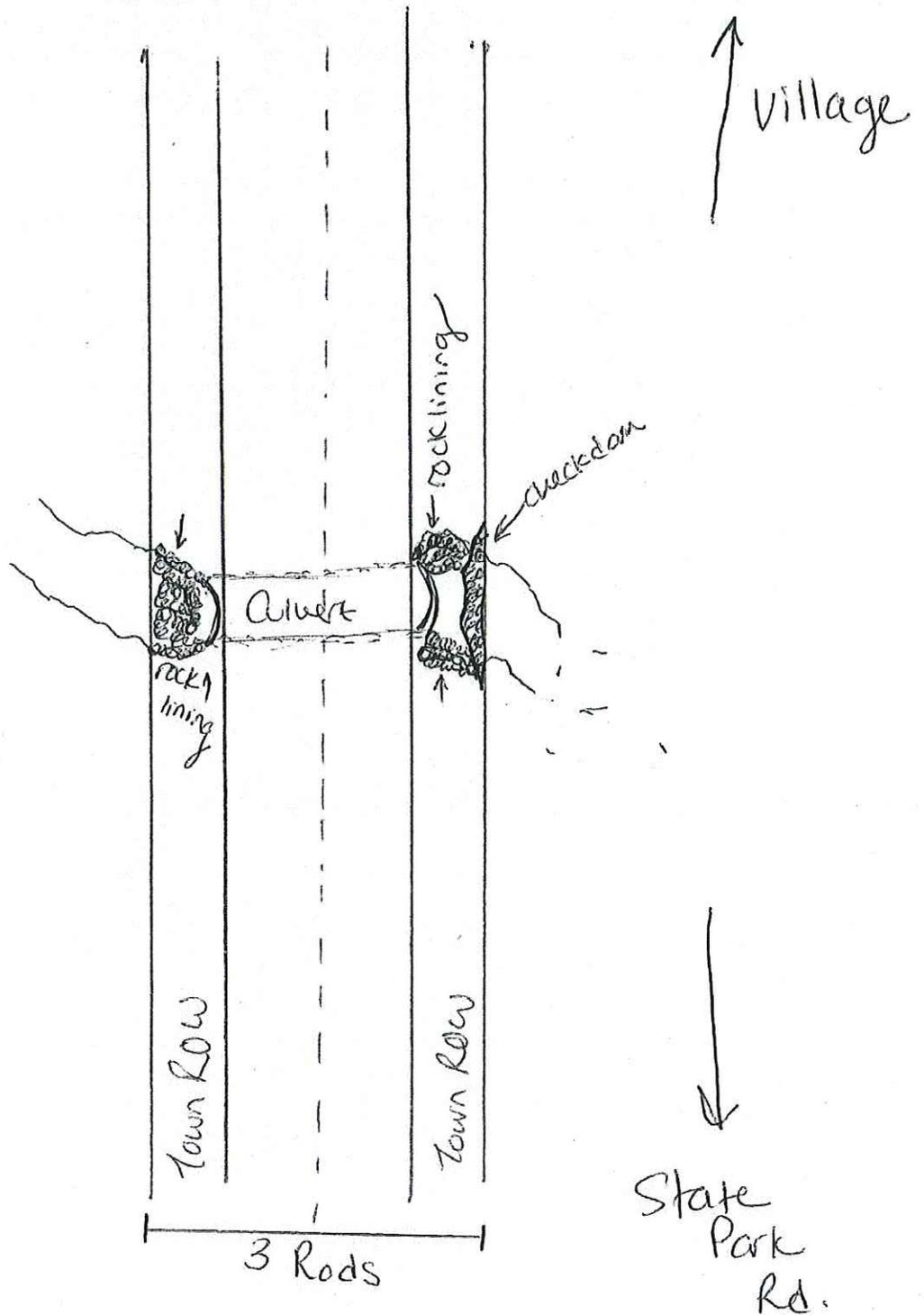
Long bundles, 5 to 30 feet in length and 6 to 8 inches in diameter, of live branches tied together with growing tips oriented the same direction and tops evenly distributed through length of bundle.

- Place in 12 to 18 inch deep trench dug along the contour of the slope, working from the base of the slope upwards.
- Secure with live stakes and dead stout stakes.
- Install bundles the same day as cut during dormant periods (spring, winter or fall).
- Can be used on steep slopes (1:1) and to protect slopes from shallow slides.

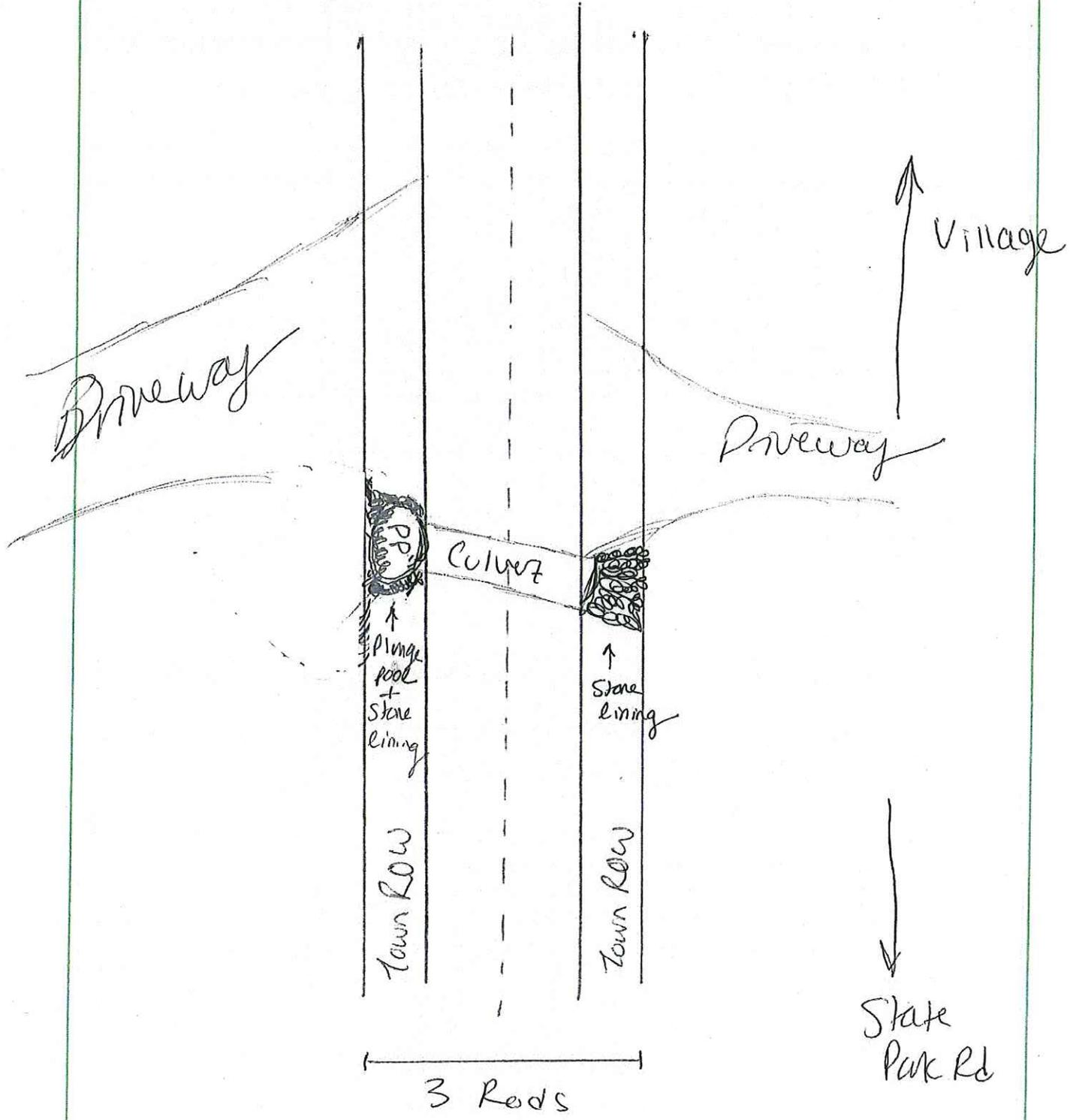


LIVE FASCINES/WATTLES/BUNDLES

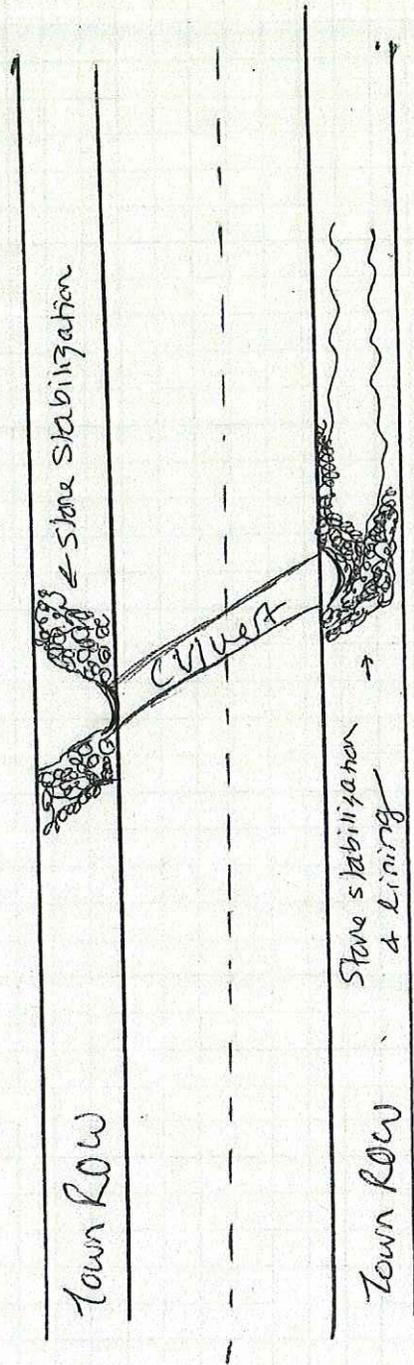
Project # MA2
Road name Swamp Rd



Project # MA 3
Road name Swamp Rd



Project # MA 5
Road name Swamp Rd



↑ Village

↓ State Park Road



Problem Area Data Sheet

Problem Area ID: MQ-02	Latitude: 44.939859°	Longitude: -72.873922°
Watershed: <u>Missisquoi River</u>		
Location: <u>Swamp Rd.</u>		
Problem Type: <u>Infrastructure</u>		
Identification Source: <u>Town Feedback</u>		
Ownership: <u>Local</u>		
Classification: <u>4</u>		

Date of Field Data Collection: 4-14-2014

Description of Observed Conditions:
 Culvert is submerged and filled with sediment. The culvert is not aligned with the stream and scour pools have developed at the inlet and outlet. Road sediment is migrating directly into the stream channel.



Photo 1. Culvert inlet is submerged Photo 2. Culvert outlet

Prioritization Ranking Factors							
Relative Impact	Frequency	Current Condition	Urgency	Impact to public infrastructure?	Realistic to fix?	Impacts beyond water resources?	Part of a larger or systemic problem?
3	2	3	2	Y	Y	Y	Y

Problem Area Data Sheet

Problem Area ID: MQ-04	Latitude: 44.940148°	Longitude: -72.880920°
Watershed: <u>Missisquoi River</u>		
Location: <u>Swamp Road, 1 mile west of State Park Rd</u>		
Problem Type: <u>Retrofit Opportunity</u>		
Identification Source: <u>SWMP Assessment</u>		
Ownership: <u>Local</u>		
Classification: <u>2</u>		

Date of Field Data Collection: 5-22-2014

Description of Observed Conditions:
 Uncontrolled stormwater runoff from Favereau's Storage runs along road shoulder and discharges to unnamed tributary to Lake Carmi. Runoff flows along fence-line; some signs of localized erosion including where reaches tributary (see MQ-03).

Field Photos



Photo 1. Uncontrolled runoff from self-storage facility



Photo 2. Runoff flows along fence to tributary

Prioritization Ranking Factors							
Relative Impact	Frequency	Current Condition	Urgency	Impact to public infrastructure?	Realistic to fix?	Impacts beyond water resources?	Part of a larger or systemic problem?
1	2	2	1	Y	Y	N	N

MQ5



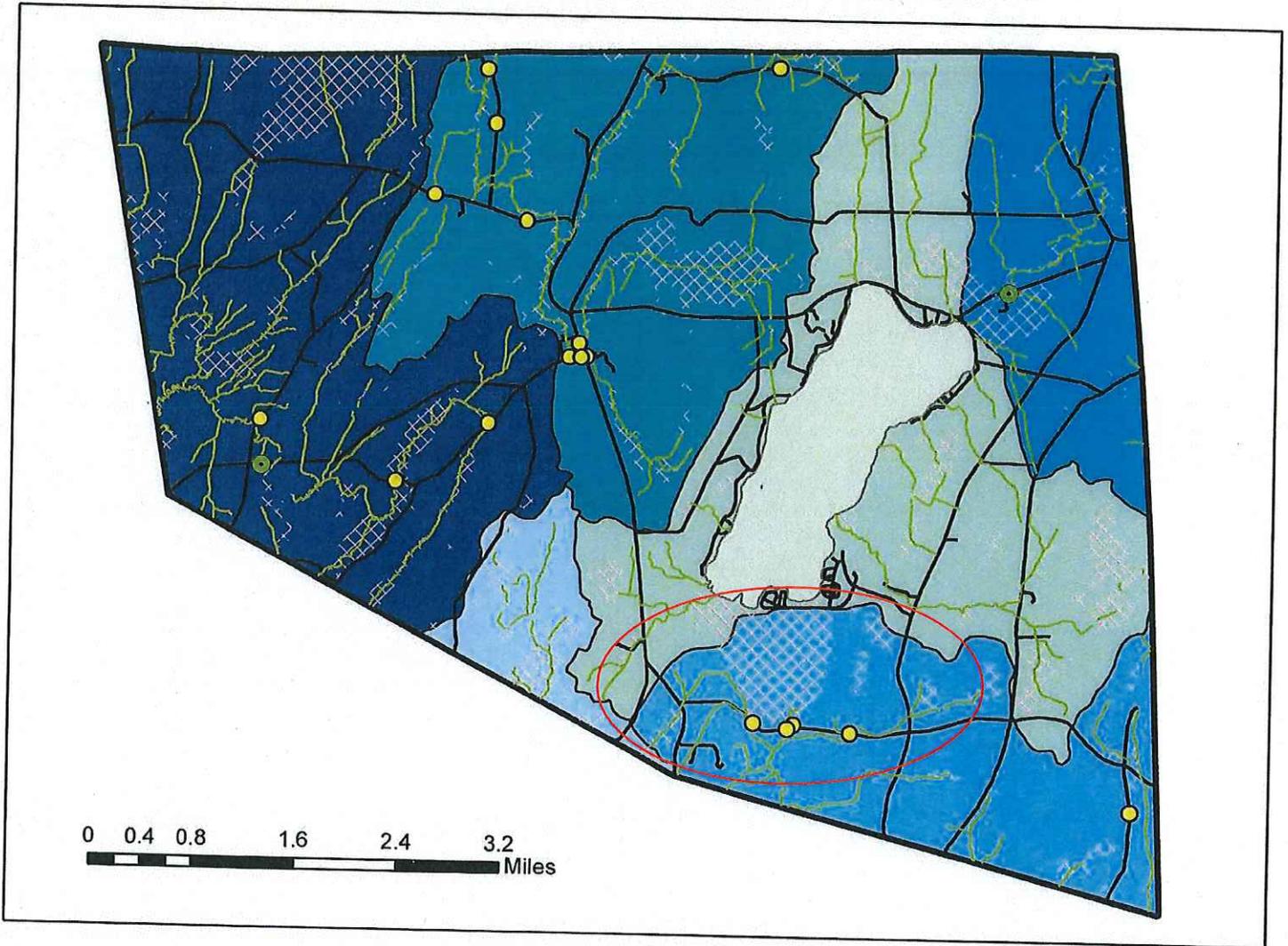
MQ3&4



MQ2



Watersheds of Franklin, VT



-  Dams
-  Road and Storm Water Projects
-  Stream/River
-  Town Roads
-  Lake Carmi
-  Wetlands of Franklin
-  Lake Carmi Watershed
-  Mississquoi River-Black Creek to Hungerford Brook
-  Mississquoi mainstem-Trout River to Black Creek
-  Pike River
-  Riviere Aux Brochets-Riviere Aux Brochets Nord to Ruiss Coslett
-  Rock River

