Better Roads
Clean Water You Can Afford

Pics

VTrans

VERMONT
AGENCY OF NATURAL RESOURCES

2

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 Stratton

Project Name: County Rd

Road Name: County Rd TH #: 3 Structure # (if applicable): pipe arch

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):

put in New Culvert

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):

take out old culvert and put in New Culvert

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

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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:
Hydraulics & Stream permit

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

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: culvert 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.):
ANR River Management

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).
Need a Bigger Excavator

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

To put new culvert in

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

out of culvert Budget

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

Estimated Total Project Cost (including 20% local match): 23,663.80

Estimated Completion Date: 9-30-16

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)
- [ ] 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).
- [x] 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: Rod C [illegible] Title: Road Foreman

VERMONT

Vermont Department of Environmental Conservation
Watershed Management Division
St. Johnsbury Regional Office
1229 Portland Street, Suite 201
St. Johnsbury, VT 05819
www.watershedmanagement.vt.gov

Agency of Natural Resources

[phone] 802-751-0129
[fax] 802-748-6687
[cell] 802-343-0217

AUTHORIZATION TO CONDUCT STREAM ALTERATION ACTIVITIES

Pursuant to Section C.2.2 of the VT Stream Alteration General Permit (Reporting activities not requiring an application)

Project Number: SA-NE-121-2013

Applicant Name: Town of Stratton

Mailing Address: c/o Ralph Steib, Road Foreman, 9 West Jamaica Road, Stratton, VT 05360 Phone: 896-6224 Fax: 896-6999

Project Location: County Road, TH #5

The Secretary of the Vermont Agency of Natural Resources (VT ANR) has determined that:

1. This project authorizes the replacement of an existing structure with a new 77" X 52" pipe arch with full height inlet and outlet headwalls.
2. The proposed activity is eligible for coverage under the VT ANR Stream Alteration General Permit.
3. The proposed activity will meet the terms and conditions of the General Permit provided:
   a) The project will not adversely affect the public safety by increasing flood hazards.
   b) The project will not significantly damage fish life or wildlife.
   c) The project will not significantly damage the rights of riparian owners.
   d) The project will not obstruct the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction.
   e) The project is conducted in a manner which minimizes or avoids any discharge of sediment or other pollutants to surface waters in violation of the VT Water Quality Standards.
   f) The ANR River Management Engineer is notified when construction begins and when the project is complete.
   g) In-stream working dates for all GP activities are from June 1st through October 1st; any in-stream work outside these dates will require an Individual Stream Alteration Permit authorization by the River Management Engineer.
   h) This authorization has been posted for three days public comment. This authorization constitutes final approval.

If there are any changes in the project plan or deviation in construction from the plan, the Permittee must notify the River Management Engineer immediately.

If the project is constructed as you have described, as shown on the above referenced approved plans and according to the above conditions, there is no reason to expect any violation of Vermont Water Quality Standards.

Signed this 24th day of July, 2013
David K. Mears, Commissioner
Department of Environmental Conservation

by: B Cahoon

Barry Cahoon, P.E., River Management Engineer

WINDHAM
REGIONAL
COMMISSION

April 10, 2016

Ralph Staib
Road Foreman
9 West Jamaica Road
Stratton, VT 05360

Dear Ralph:
I am pleased to provide a letter of support for the Town of Stratton's application submission for a Category A and D Better Roads grant. Category A will provide an opportunity to conduct an update on the town's culvert and bridge inventory; as well as conduct the road erosion inventory. For Category D, the culvert replacement on County Road, will contribute to the improved water quality in Kidder Brook. This application conforms to the policies found in the Windham Regional Plan (September 2014):

> *1. Maintain and restore the chemical, biological, and physical quality of the region's surface water per the objective in State water regulations.*
>
> *2. Improve existing roads and design culverts and bridges to carry a 50-year flood event without damage.*

Please contact me if you have any questions.

Sincerely,

Matt Mann

Matt Mann
Senior Transportation Planner

Print | Close Window

Subject: RE: Stratton Stream Permit
From: "Menees, Todd" <Todd.Menees@vermont.gov>
Date: Tue, Jan 19, 2016 11:18 am
To: '"townclerk@townofstrattonvt.com"' <townclerk@townofstrattonvt.com>
Attach: image003.jpg

Kent and Ralph –

As per your request for an extension of Stream Alteration Permit number SA-NE-121-2013 issued on 7/24/13 for a replacement culvert on County Road TH 5, this e:mail is your authorization to extend the work period to June 1 to October 1, 2016. All other permit conditions remain in effect.

You should print off a copy of this extension to keep with the permit in your files. You should also print off a copy of this extension and the permit for your work crew to keep on-site during construction.

Thanks -

Please note that my e:mail address has changed below:

Todd Menees, P.E., P.H., River Management Engineer
Watershed Management Division, Rivers Program
Vermont Department of Environmental Conservation
100 Mineral Street, State Office Suite 303
Springfield, VT 05156
802-345-3510 / todd.menees@vermont.gov
On the Web @ www.watershedmanagement.vermont.gov/rivers.htm

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION

From: townclerk@townofstrattonvt.com [mailto:townclerk@townofstrattonvt.com]
Sent: Tuesday, January 19, 2016 10:54 AM
To: Menees, Todd <Todd.Menees@vermont.gov>
Subject: Stratton Stream Permit

Dear Mr. Menees,
As previously discussed, attached is paperwork concerning the stream permit for replacement of a culvert on County Rd.. Please consider renewing this permit.
Thank you!
Kent Young for Ralph Staib, Stratton Road Foreman

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VT AGENCY OF TRANSPORTATION **PROGRAM DEVELOPMENT DIVISION**

HYDRAULICS UNIT

TO: Marge Skinner, District Technician, District 1

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

DATE: 31 October 2012

SUBJECT: Stratton TH 5 – 0.1 mi. south of TH 2
County Road

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

Hydrology

This site has a hilly to mountainous drainage basin. It is mostly forested. The total contributing drainage area is about 0.3 sq. mi. There is an overall length of 6192 feet from the divide to the site, with a 720 foot drop in elevation, giving an average overall channel slope of 11.6 %. The stream slope at the site was estimated to be about 5%. Using several hydrologic methods, we came up with the following design flow rates:

Recurrence Interval in Years	Flow Rate in Cubic Feet per Second (CFS)
Q2.33	40
Q10	75
Q25	95 - Town Highway Design Flow
Q50	110
Q100	130 - Check flow

Existing Conditions

The existing structure is a pipe arch with a clear span length of 95", with a clear height of about 65", providing a waterway opening of about 36 sq. ft. The inlet and outlet headwalls are laid-up stone. The up and downstream sections of the pipe are pulling away from the pipe. The invert is rusted. There is bank erosion upstream of the structure.

Our calculations show the existing structure is adequate hydraulically. Headwater to depth ratios are within the allowable values and all flows up to Q100 pass through the structure with no roadway overtopping. This structure results in a headwater depth of 3.2' at Q25 and 3.8' at Q100. **The 3' by 2' stone box under a field drive and the 57" by 38" pipe arch under TH 2 that are downstream are both hydraulically inadequate. The pipe arch under TH 2 is more than half plugged with sediment.**

Recommendations

In sizing a new structure we attempt to select structures that meet the hydraulic standards, fit the natural channel width, the roadway grade and other site conditions. We measured a channel width of 8' to 10' during our site visit. The Agency of Natural Resources VT Regional Hydraulic Geometry Curve gives a bank full width of 8' for this size drainage area. Those curves are only based on drainage area and do not consider other factors, such as, slope and storage. They may not be valid for this small drainage area. Based on our calculations and the information available, we recommend any of the following structures as a replacement at this site:

1. A concrete box with a 6' wide by 4' high inside opening, with 3" high baffles in the bottom to reduce velocities. That will result in a 6' wide by 3.75' high waterway opening above streambed, providing 22.5-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. This structure will result in a headwater depth at Q25 = 3.4' and at Q100 = 4.2', with no roadway overtopping at Q100.

2. A 77" by 52" corrugated metal pipe arch, with 21.9 sq. ft. of waterway area. This structure will result in a headwater depth at Q25 = 3.6' and at Q100 = 4.5'.

3. Any similar structure with a minimum clear span of 6' and at least 22 sq. ft. of waterway area, that fits the site conditions, could be considered.

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.

If the pipe arch option is installed, concrete headwalls should be constructed at the inlet and outlet. The headwalls may be either half height or full height. The headwalls should extend at least four feet below the channel bottom or to ledge, to prevent undermining of the structure. We recommend a minimum cover of 3' over all pipe structures. Obtaining the minimum cover of 3' should be no problem at this site. Pipe manufactures can provide specific recommendations for minimum and maximum fill heights and required pipe thickness.

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.

Stone Fill, Type III 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.

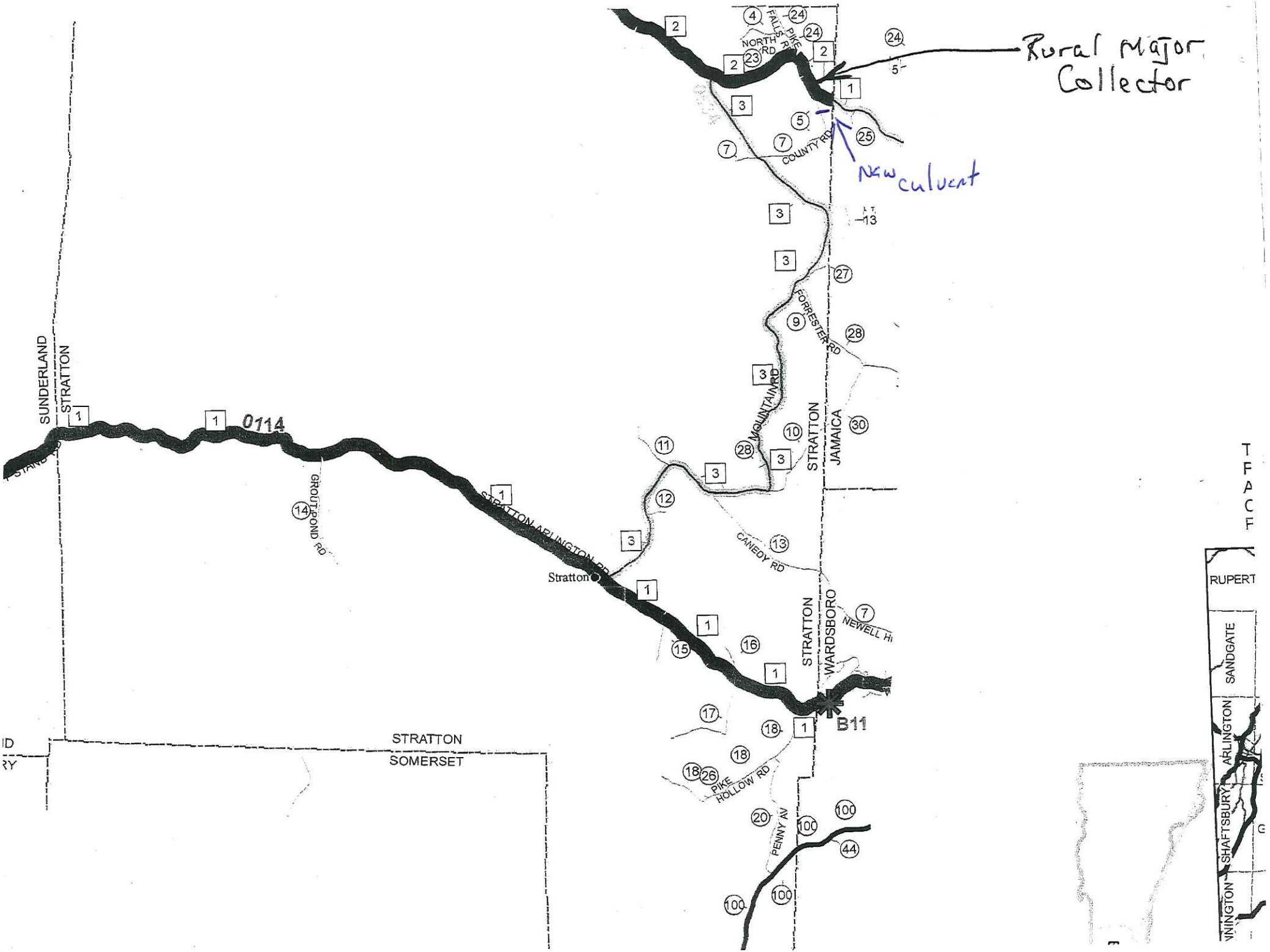
The Agency of Natural Resources (ANR), Corps of Engineers, or other permitting agency may have additional concerns regarding replacement of this structure, or any channel work. The River Management Engineer should be contacted with respect to those concerns, before a replacement structure is ordered. If ANR requires the invert of the structure to be buried to provide a natural bottom, the size of the structure will have to be larger to provide the required waterway area.

Please keep in mind 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 the replacement of this structure should take into consideration matching the natural channel conditions, the roadway grade, environmental concerns, safety, and other requirements of the site.

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

LGR

cc: Todd Menees, A.N.R. River Management Engineer
Hydraulics Project File via NJW
Hydraulics Chrono File


Rural Major Collector
New culvert
SUNDERLAND
STRATTON
0114
GROUT POND RD
STRATTON ARLINGTON RD
Stratton
NORTH RD
FALLS PIKE
COUNTY RD
FORRESTER RD
MOUNTAIN RD
STRATTON
JAMAICA
CANEDY RD
STRATTON
WARDSBORO
NEWELL HI
B11
PIKE HOLLOW RD
PENNY AV
STRATTON
SOMERSET
RUPERT
SANDGATE
ARLINGTON
SHAFTSBURY

Cost Estimate Worksheet

Town and Road Name:

Project Name:

Labor	Rate	# Hours	Total (Rate x Hours)
Labor 3 men		40 hrs	
Ralph	$43.54 per hr	$1741.60	$1741.60
Chris	$32.86	$1314.40	$1314.40
Stuart	$28.47	$1138.80	$138.80
		Labor Total	$4194.80

Equipment	Rate	# Hours	Total (Rate x Hours)
Excavator	170 per hr	40 hrs	$6800.00
		Equipment Total	$6800.00

Materials	Rate	Amount	Total (Rate x Amount)
Culvert 77X52X40 feet		$5950.00	$5950.00
3/4 Stone	17.50 18 yds	$315.00	$315.00
1 shoulder material	16.50 76 yds	$1254.00	$1254.00
1½ Crushed Gravel	16.50 100 yds	$1650.00	$1650.00
		Materials Total	$9169.00

Miscellaneous	Rate	Amount	Total (Rate x Hours)
Guardrails		$3500.00	$3500.00
		Miscellaneous Total	$3500.00

Grand Total $23,663.80

Match $4732.76

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VT Trans Agency of Transportation

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