

# EROSION CONTROL NARRATIVE

## DESCRIPTION OF PROJECT

This project involves the reconstruction of a bridge over the Lamaille River. The project is on TH#2, Railroad Street, a paved town highway, in the Town of Johnson. An existing, single span, steel truss bridge will be rehabilitated on the existing alignment while traffic is maintained on a one-way temporary bridge, downstream, during construction. The existing abutments will remain in place with repairs near the bridge seats. Following completion of the bridge work, the temporary bridge and supports will be removed. In addition, a new sidewalk will be constructed to replace the existing sidewalk on the upstream side of the bridge. Total roadway approach work, including four approaches, is approximately 700 feet.

No 'Threatened & Endangered Species,' Wetlands, or Historic Resources other than the bridge itself have been identified in the project area. An archeologically sensitive area near the southeast corner of abutment #2 has been identified.

It is anticipated that this project will last two construction seasons.

Total disturbed area (excluding waste, borrow and staging areas):  
0.62 acres

## SITE INVENTORY & ANALYSIS

### OFF SITE DRAINAGE CHARACTERISTICS:

The property surrounding the project site consists of well established vegetation, gently to steeply sloping land partially developed residentially and commercially with defined drainage ways. Due to the nature of the surrounding terrain, runoff water entering the project site will be primarily limited to that which is conveyed along roadway ditches and curbing.

### DRAINAGE, WATERWAYS, BODIES OF WATER:

The area surrounding the project site is very flat with the exception of river banks. There are no obvious natural drainage ways within the project area except for the Lamaille River. The Lamaille River bisects the project site. There are no other water bodies or wetlands within the project area. The Lamaille River is classified as incised and sinuous with hilly to mountainous surroundings and containing a streambed of mostly fine sands and silts with some boulders and gravel. The contributing drainage area at the bridge crossing is 311 sq. mi.

### TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:

The topography of the project site is hilly and wooded along the western side of the project and gently to moderately sloping to the east. Development along Railroad Street consists of a mix of commercial and residential zoning with an active wood processing plant and lumber store near the project limits. Overhead utility service as well as underground water, sewer and storm drains run parallel to Railroad Street. A single catch basin will be removed and six new catch basins will be placed within the project site. These improvements will adequately drain each of the approaching streets. All water collected will be drained onto a stone fill pad in order to dissipate water velocity and prevent any erosion.

### VEGETATION:

Vegetation within the project limits consists of brush and small trees along the river bank. One residence near the bridge has a lawn with cedar hedge landscape plantings. No fields or agricultural crops exist near the project. Impacts to vegetation will be limited to that which are effected by the construction of the temporary bridge along a new alignment. Some of the cedar hedge will be removed and replaced following construction.

### SOILS:

The Soil Conservation Service has mapped the soils throughout Lamaille County. The soil type identified for this project site is ADB (Adam-loamy fine sand). This soil type is described as '...deep, well drained to excessively drained soils on terraces in valleys. The soils formed in deposits on outwash plains and beaches and deltas. The surface layer consists of dark/reddish brown fine sandy loam about 13 inches thick. The subsoil is friable, yellowish/olive brown fine sand 12 inches thick. The depth from 26-60 inches consists of olive-yellow fine and medium sand; single grain and loose.

The listed Soil Erodibility Coefficient (K-value) for this soil type is 0.17. Generally, K-values indicate the following: 0.0 - 0.23 = low erodibility; 0.24 - 0.36 = moderate erodibility; 0.37 and higher = higher erodibility.

### SENSITIVE RESOURCE AREAS:

No 'Threatened & Endangered Species' have been identified within the project limits and there will be no adverse effect to Historic features. An archaeological area has been identified near WW #4. This area will be protected with fencing during construction, so as not to disturb the area. There are no wetlands within the vicinity of the project.

### PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES:

The bridge crosses the Lamaille River. No adverse effects are expected to the river during construction and rehabilitation of the bridge.

## TEMPORARY EROSION PREVENTION & SEDIMENT CONTROL

### Temporary erosion prevention measures to be utilized include:

Project Demarcation Fencing, denoted -PDF- on the plans, to delineate the limits the contractor can access with construction equipment. This measure limits the area that can be disturbed and exposed to erosion.

Seeding, mulching and biodegradable erosion control matting, or an equivalent product, will be utilized on all slopes steeper than 1:3 that are not lined with stone fill. These slopes shall be stabilized within 48 hours of reaching final grade or during intermittent phases of construction activity.

### Temporary measures to control sediment transport include:

Silt fence will be installed a distance of 5' - 10' from the toe of slopes to prevent sediment transport to down gradient areas. Each line of silt fence will be placed along the contour with ends turned slightly uphill to create a ponding effect should water try to run along the fencing and around the ends. The maximum slope length between separate runs of silt fence is 100'. Silt fence shall be installed prior to any upslope earthwork.

Sand bags filled with clean, small diameter stone, or an equivalent barrier, will be utilized around the drop inlets to create a temporary ponding area for particles to settle out as water drains through the barrier. Inlet protection shall be installed as soon as there is the possibility of water flowing to the structure. The height of the barrier shall be limited such that the ponding area does not present a hazard to the traveling public. Alternative inlet control measures shall be approved by the Engineer and On-site coordinator prior to implementation.

Measures such as silt fence, and sand bags shall be checked regularly for accumulation of sediment. Sediment build-up shall be removed when the level of sediment reaches one-half the height of the control measure. Sediments shall be disposed of in an approved area such that they will not be subject to erosion.

Stabilized construction entrances to the project site, staging areas, as well as to waste and borrow areas shall be established. The minimum size of a stabilized construction entrance is 12' x 50'. All surface water flowing to or diverted towards a construction entrance shall be piped under the stone. Pipes shall be appropriately sized for the contributing area; however, no pipes smaller than 6" diameter shall be used.

## PERMANENT EROSION CONTROL MEASURES

### Several permanent erosion control measures will be utilized:

Stone lining of the stream banks with Stone Fill, Type II and IV, as specified by VTrans Hydraulics personnel, will protect from stream bank erosion during design storm events.

Stone Fill, Type I will be utilized at pipe outlets and Abutment #1 wingwalls to dissipate water velocities and reduce erosion potential.

Any area disturbed by construction including the area affected by the removal of the temporary bridge will be seeded and mulched to promote vegetation growth.

## GENERAL EROSION & SEDIMENT CONTROL GUIDELINES

The Erosion Control Plans are meant as a guideline for preventing erosion and controlling sediment transport. The work outlined in this narrative consists of applying measures throughout the life of the project to control erosion and minimize the sedimentation of receiving waters. The measures include stabilization and structural practices, stormwater controls and other pollution prevention controls.

Coordinate the installation, use, and removal of erosion and sediment control measures with construction activities to ensure economical, effective and continuous erosion and sediment control. Employ temporary stabilization practices in incremental stages as construction proceeds. The contractor will use additional erosion control measures as necessitated by the sequence of construction and as directed by the Engineer and On-site Coordinator. See section 105.23 of the Vermont AOT Standard Specifications for Construction, dated 2001.

Install all erosion and sediment control measures as shown in the Erosion Control Plan or as directed by the Engineer and On-site coordinator. Do not modify the type, size or location of any control or practice without approval of the Engineer and On-site coordinator. Any changes shall be noted on the plans, in the weekly inspection report, and reported to the appropriate authority in a timely manner. Inspect all control measures weekly and after each rainfall event. Repair measures promptly once damage is discovered.

Preventing initial soil erosion is much more effective than treating eroded sediment. Therefore, stabilize all disturbed areas promptly after construction activity has temporarily or permanently ceased. Temporary vegetation shall be established if the area is to be without construction activity for a period of 14 days. Perimeter control measures shall be installed following clearing, but prior to the start of any grubbing or grading activity, install other temporary controls in incremental stages as construction proceeds.

Maintaining vegetated buffers along stream banks, wetlands or other sensitive areas is a crucial erosion and sediment control measure that should be established wherever possible.

Control only sediment-laden runoff generated by the project site. Collect and route clean offsite runoff around or through the project site using diversion berms, diversion channels, culverts and/or temporary pipes.

Do not allow construction equipment to operate on the down slope side of perimeter control measures.

PROJECT NAME:	<b>JOHNSON</b>	PLOT DATE:	5/3/2005
PROJECT NUMBER:	<b>BHO 1448(18)</b>	DRAWN BY:	J. PERRIGO
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