

# EROSION CONTROL NARRATIVE

**DESCRIPTION OF PROJECT**

This project involves the removal and replacement of both abutments and the rehabilitation of bridge number 26. Bridge 26 is a steel thru truss bridge spanning the Otter Creek from New Haven to Weybridge for a distance of 140 feet. The bridge is a single span, single lane bridge located in a rural area on TH 7/11. Because the project is a rehabilitation it will be located on the same alignment and require only minor approach work. Traffic will be maintained by using one of the two alternate routes that make it possible to bypass the bridge while it is closed for the rehabilitation project. The only utility is an overhead phone line that is remaining in place. The limits of construction do not approach any building or structure but there is a dam located 350 feet downstream of the bridge. A temporary floating canoe dock will be built for portage around the dam during construction. There are no 'Threatened & Endangered Species', or Historic Resources on site but there are two archeologically sensitive areas located on the Weybridge side of the project area near stations 10+00 - 11+40.

It is anticipated that this project will last one construction season.

The area of disturbance is .1719 Acres = 832 square yards

**SITE INVENTORY & ANALYSIS**

**OFF SITE DRAINAGE CHARACTERISTICS:**

The property surrounding the project site consists of well established vegetation, mostly flat with slopes at the rivers edge ranging from moderate to steep. The surrounding properties are made up of fields and wooded areas. 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.

**DRAINAGE, WATERWAYS, BODIES OF WATER:**

Otter Creek is the main water source in the area and a dam downstream has created a small pond. The river is classified as sinuous, semi-alluvial, probably incised, and not braided or anabranching. The river bed is sand, gravel, cobbles, and ledge. The contributing drainage area at the bridge crossing is about 749 sq. miles.

**TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:**

The topography of the project site is moderate rolling wooded slopes with a steeply sloped wooded area in the northwest corner of the project area. Development along TH 7/11 consists of a few residents and a dam. There is also an overhead utility running along side of the bridge.

**VEGETATION:**

The vegetation in the area is open with some wooded areas and patches of brush. The impact to vegetation in the area will be limited to that which is effected by construction of the new abutments. After the project is completed the slopes will be stabilized with stone fill and vegetation will be reestablished with standard seed & mulch practices.

**SOILS:**

All soil data came from the U.S. Department of Agriculture Soil Conservation of Addison County. There are two types of soils found at the project site. On the northeast corner and the south end of the project site the soil is classified as Vergennes Clay with slopes of 12-25% and a K-value of 0.49. In the northwest part of the project area the soil is classified as Farmington soil. This is an extremely rocky silty loam with slopes ranging from 20-50% and a K-value of 0.32.

Note: 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 or Archeological features. However, Otter Creek, the dam, and two archeologically sensitive sites area all located in the general project area.

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

Disturbance of soils near natural or made-made waterways consists of that which is necessary to the removal and replacement of the abutments and minor work to the roadway approaches. Stabilization of disturbance to the stream banks will be accomplished with Stone Fill, Type III.

**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 shall be utilized on all slopes greater 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.

Tracking of all exposed slopes, combined with temporary mulching, will also be utilized on a regular basis. Any slopes to be exposed for several days prior to final grading shall be tracked and mulched. The forecast of rainfall events shall also trigger protection of exposed slopes.

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.

Measures such as temporary stone check dams, 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.

Temporary sediment settling basins may or may not be utilized on this project. If a sediment settling basin is to be used for dewatering a cofferdam, it should be sized based upon the following criteria: (See Sediment Settling Basin Sizing Criteria.)

**PERMANENT EROSION CONTROL MEASURES**

Several permanent erosion control measures will be utilized:

Stone lining of the stream banks with Stone Fill, Type III as specified by VTrans Hydraulics personnel is specified. This stone will protect from stream bank erosion during design storm events.

Stone Fill, Type I will be utilized at culvert outlets to dissipate water velocities and reduce erosion potential.

Grass or other suitable ground cover will be established outside of the roadway limits where stone lining has not been specified. Slopes greater than 1 on 3 shall be seeded and mulched promptly upon achieving final grade.

**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, storm water 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. See section 105.23 of the Vermont AOT Standard Specifications for Construction, dated 2006.

Install all erosion and sediment control measures as shown in the Erosion Control Plan or as directed by the Engineer. Do not modify the type, size or location of any control or practice without approval of the Engineer. 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 shall be taken as needed.

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.

**SEDIMENT SETTLING BASIN SIZING CRITERIA**

PUMP FLOW RATE		REQUIRED SURFACE AREA		LENGTH WIDTH = 2:1			
Q (gpm)	Q (m <sup>3</sup> /s)	(ft <sup>2</sup> )	(m <sup>2</sup> )	L (ft)	W (ft)	L (m)	W (m)
50	0.0032	595	55	35.0	17.0	10.6	5.3
100	0.0063	1200	111	49.0	24.5	15.0	7.5
150	0.0095	1776	165	59.6	29.8	18.2	9.1
200	0.0126	2368	220	68.8	34.4	21.0	10.5
250	0.0158	2970	276	77.0	38.5	23.4	11.7
300	0.0189	3560	330	84.4	42.2	25.8	12.9
350	0.0221	4155	386	91.2	45.6	27.8	13.9

PROJECT NAME:	New Haven-Weybridge		
PROJECT NUMBER:	89j081		
FILE NAME:	89j081/Str/s89j081ecnotes.dgn	PLOT DATE:	1/23/2007
PROJECT LEADER:	C.P. WILLIAMS	DRAWN BY:	H.I. SALLS
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