

PROJECT DESCRIPTION

This project involves the replacement of a culvert serving an un-named stream. The project is on VT 11, a paved state highway, in the Town of Springfield. The existing 114" corrugated metal culvert will be removed. A new 55' span buried prestressed box beam bridge with concrete stemwalls and footings will be constructed on the existing culvert alignment. Traffic will be maintained during construction via different traffic phases. Total roadway approach work including both approaches, is approximately 600 feet. The limits of construction do not approach any buildings or other structures. Natural resources within the project area have been clearly identified and shown in the existing conditions site plan.

This project will be completed in one construction season.

The project is located at: 43 17' 34" N 72 31' 13" W

Total disturbed area (excluding waste and borrow areas): 0.96 acres
Should conditions change and result in 1 or more acres of earth disturbance within the project limits, or should the project become part of a common plan of development, then the contractor will be responsible for additional permitting with the Agency of Natural Resources.

SITE INVENTORY & ANALYSIS

OFF SITE DRAINAGE CHARACTERISTICS:

The property surrounding the project site consists of mostly rolling wooded terrain. Both upstream and downstream slopes average roughly 6 percent grade with well defined drainage ways.

DRAINAGE, WATERWAYS, BODIES OF WATER:

The stream is described as a flashy and steep cold water stream. The stream bed is made up of cobbles and gravel with some boulders. The banks along both sides of the river both upstream and downstream are high and steep with mature vegetation consisting of a mix of softwoods with a few hardwood species. The contributing drainage area at the highway crossing is approximately 2.82 sq. mi.

TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:

The topography surrounding the site is mostly rolling hills. There is a residence upstream of the project and overhead utility lines following parallel to VT 11 on the downstream side of the road with relocation required. Buried utilities along VT 11 on the upstream side of the road will also require relocation or temporary support.

VEGETATION:

The vegetation along VT 11 is a mix of roadside grasses & small shrubs to the extent of the project limits. Construction activities should not have any effect on other vegetation.

Following construction, the roadside slopes will be stabilized with stone fill and/or grassy vegetation with standard seed and mulch practices.

SOILS:

The soils identified within the project area have been classified as Berkshire & Monadnock fine sandy loam, very stony, on 15 - 35 percent slopes. However, during the construction of VT 11, the grade was raised approximately 10' through this section of roadway and as such, the natural soils throughout the site have been disturbed and filled over. It is expected that coarse granular fill will be the primary soil type encountered during excavation of the existing roadway.

The soils shall be treated as highly erodible.

SENSITIVE RESOURCE AREAS:

No sensitive resource areas other than the stream and riparian area have been identified for this site. Protection of the stream from siltation and erosion will be accomplished to the extent practicable by providing temporary pipes or a lined channel while the footings and stem walls are placed.

There have been no Threatened and Endangered Species identified within the project limits.

PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES:

The disturbance of soils will be necessary to remove the existing culvert. A temporary means of conveying the stream through the site will be utilized while the new footings and stem walls are constructed. This will prevent the stream from mixing with disturbed soils until the new stream bed through the bridge has been finished.

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.

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. Slopes shall be stabilized within 48 hours of forecasted rain.

Seeding, mulching and biodegradable erosion control matting, or an equivalent, shall be used to stabilize all slopes greater than 1:3. These slopes shall be stabilized within 48 hours of reaching final grade or during intermittent phases of construction.

Silt fence will be installed a distance of 5'-10' from the toe of fill slopes to prevent sediment transport to down gradient areas. Each line of silt fence will be placed along the contour with the lower edge buried 6" to prevent underflow and ends turned slightly up grade 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 shall be 100'. Silt fence shall be installed prior to any upslope earthwork.

Measures such as temporary stone check dams and silt fence shall be regularly maintained and shall be checked for sediment build-up. Sediment build-up shall be removed when the level of sediment reaches one-half the height of the control measure. Sediment shall be disposed of at an approved site such that it 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 inch diameter shall be used. See typical detail on sheet 24 for materials and construction method to be utilized when constructing a stabilized entrance.

PERMANENT EROSION CONTROL MEASURES

Several permanent erosion control measures will be utilized:

Stone lining of the stream banks with Stone Fill, Type III and around the wingwalls and on the disturbed roadway slopes with Stone Fill, Type I will be utilized. The stone lining will stabilize the slopes during storm events.

Stream bank vegetation will be introduced in the grubbing material that is to be placed over the stream bank rip rap.

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 2001.

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 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 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 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 the 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.

EROSION PREVENTION & SEDIMENT CONTROL NARRATIVE

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: ST CULV(5)

FILE NAME: /04C178/str/s04c178ecbdr.dgn PLOT DATE: 22-MAY-2007
PROJECT LEADER: R. WHITCOMB DRAWN BY: M. HALE
DESIGNED BY: D. BONNEAU CHECKED BY: C. CARLSON
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