

1. NARRATIVE

1.1. Project Description.

1.1.1. Guilford BRO 1442(24)S will replace Bridge 56 on Town Highway 13 over the Broad Brook in the Town of Guilford on new alignment. The new alignment will shift the bridge 60 m upstream. It will shift the nearby intersection with TH 1 south 75 m. The new bridge will be a two lane, single span, concrete slab bridge. The project will maintain traffic on the existing bridge during construction. Finally it will remove the existing bridge and approaches. Part of the existing western approach will become a driveway.

1.1.2. The total length of roadway work is 73 m.

1.1.3. The total disturbed area (excluding waste, borrow and staging areas) is approx. 0.34 ha (0.85 ac.).

1.1.4. This project will involve part of two construction seasons.

1.2. SITE INVENTORY & ANALYSIS

1.2.1. Off Site Drainage Characteristics (Up And Down Gradient). The land in the project area is rolling former farmland. It consists of old fields and pasture growing in with brush, softwood and hardwood trees. The soil is "very deep, gently to very steep and excessively drained. The soils formed in gravelly, sandy, and loamy glacial deposits on stream terraces."

1.2.2. Drainage, Waterways, Bodies of Water. The bridges cross Broad Brook. The brook is mostly straight, semi-alluvial, probably incised, and unbraided. The brook at the new bridge is 5 m wide at the bottom and 18 m wide at the top and 2 m deep from top to bottom. The watershed area is 1200 ha.

1.2.2.1. Ditch from TH 13 6+012 to 6+040 left and Culvert at Drive #1 Sta. 6+040.

1.2.2.2. Culvert at ML 40+140 left

1.2.3. Topography, Existing Roads, Buildings, Utilities.

1.2.3.1. Topography. The project site is a rolling country road through a mixture of stone walls, maple trees, old fields and new woods.

1.2.3.2. Existing Roads TH 13 is a Class III dirt town highway.

1.2.3.3. Buildings. Two homes are near the project. One is within 35 m of the existing bridge.

1.2.3.4. Utilities. Power and Utility poles run along the mainline from 40+020 to 40+050 right and 40+050 to 40+140 left. A waterline runs under the mainline at 40+075 and drive at 6+035.

1.2.4. Vegetation. The vegetation is old fields growing into brush, hardwoods and softwood. Construction will replace some brush and trees. Stone Fill capped with grubbing material will stabilize slopes steeper than 66%. Seed & Mulch will stabilize slopes flatter than 66%.

1.2.5. Soils. The Soil Conservation Service "Soil Survey of Windham County" identifies three soil types in the project site.

1.2.5.1. 3B Quonset/Warwick 2 to 8% slope. This soil is in the area of the new bridge. It is a combination of Quonset and Warwick Soils, which are similar in use and management. The soil profile is typically: 175 mm fine sandy loam over; 325 mm channery (fragments of sandstone, shale, slate, limestone, or schist), or gravelly loamy sand; over 1000 mm channery sand. Its erodibility rating is low (kw = 0.20). The slope suggests low erodibility.

1.2.5.2. 3C Quonset/Warwick 8 to 15% slope. This soil is in the west approach to the new bridge. The soil profile is the same as 3B. Its erodibility rating is low (kw = 0.20). The slope suggests medium erodibility. Sensitive Resource Areas.

1.2.5.3. 5B Windsor Loamy Fine Sand 2 to 8% slope. This soil is in the area of the old bridge. The soil profile is typically: 75 mm loamy fine sandy over; 275 mm loamy sand; over 1150 mm sand. Its erodibility rating is low (kw = 0.17). The slope suggests low erodibility.

1.2.6. Sensitive Resource Areas.

1.2.6.1. Riparian Buffer. A 50' Riparian Buffer borders the Brook. Minimize impacts within the Buffer. Restore disturbed areas to their previous conditions.

1.2.6.2. Wetlands. Class III Wetlands are on the east side of the Brook between the new and old bridges.

1.2.6.3. Critical Habitat. Trout are in the Broad Brook. Grubbing Material on the stream banks of the old and new bridge will propagate stream side trees and shrubs and restore fish habitat.

1.2.6.4. Archaeological Sites. Open Area beside TH 13 at ML 39+990 to 40+050 Left. Woods northeast of the Existing Bridge at the existing intersection of TH 1 & TH 13. These areas are outside of the project limits and protected by the Barrier Fence.

1.2.6.5. Non-Sensitive Resources

1.2.6.5.1. Threatened & Endangered Species.

1.2.6.5.2. Historic Features

1.2.6.5.3. Prime Agricultural Land

1.3. RISK EVALUATION

1.3.1. The project area is less than 1 acre. Therefore the project does not fall under the jurisdiction of Construction General Permit 3-9020.

1.3.2. Should changes prior to or during construction result in one or more acres of earth disturbance or should the project become part of a larger plan of development then the selected contractor will be responsible for additional permitting with VANR via filing of the appropriate Notice Of Intent under the Construction General Permit process.

1.4. EROSION PREVENTION & SEDIMENT CONTROL

1.4.1. Mark Site Boundaries

1.4.1.1. PROJECT DEMARCATION FENCING will delineate the construction area for construction equipment. This measure limits the area that can be disturbed and exposed to erosion.

1.4.2. Limit Disturbance Area

1.4.2.1. PROJECT DEMARCATION FENCING will delineate the construction area for construction equipment. This measure limits the area that can be disturbed and exposed to erosion.

1.4.3. Stabilize Construction Entrance

1.4.3.1. VEHICLE TRACKING PAD will control tracking of sediment transport on to public roads. The entrance is a stabilized pad of crushed stone located wherever construction vehicles leave construction areas. The sites include: the project site; staging areas; and waste and borrow areas. The minimum area is 3700 x 15 000 mm (12' x 50'). Pipe all surface water flowing to or diverted towards a construction entrance under the stone. Size pipes for their watersheds. The minimum pipe diameter is 150 mm.

1.4.4. Install Silt Fence

1.4.4.1. SILT FENCE placed level on slopes will control sheet flow sediment transport. Place level silt fence 1500 to 3000 mm (5'-10') from the toe of slopes. Turn the ends of silt fence slightly uphill to stop concentrated water from flowing around the ends. The maximum slope length between separate runs of silt fence is 30 m (100'). Place silt fence before beginning upslope earthwork.

1.4.5. Divert Upland Runoff

1.4.5.1. Not Applicable

1.4.6. Slow Down Channelized Runoff

1.4.6.1. STONE CHECK DAMS placed in ditches will reduce flow velocities and prevent erosion. Place dams in ditches so that the elevation of the top of a check dam is level with the toe of the next upslope check dam. The check dams may be removed once the stone lining of the ditches is complete and the surrounding area stabilized.

1.4.6.2. FILTER CURTAIN placed around the abutments will control sediment disturbed in the water by excavation.

1.4.7. Construct Permanent Controls

1.4.7.1. Roadway Typical Section

1.4.7.1.1. BITUMINOUS CONCRETE PAVEMENT on the road surface will prevent erosion.

1.4.7.1.2. GRAVEL OR CRUSHED STONE SUBBASE on the shoulder will allow runoff to infiltrate and prevent erosion.

1.4.7.2. Channel Typical Section

1.4.7.3. STONE FILL, TYPE I at the ends of the wing walls will prevent erosion and control sediment transport.

1.4.7.4. STONE FILL, TYPE III around the abutments on slopes greater than 66% will prevent erosion and control sediment transport.

1.4.7.5. GED TEXTILE UNDER STONE FILL will prevent erosion and control sediment transport.

1.4.8. Stabilize Exposed Soils

1.4.8.1. TRACKING & MULCHING will temporarily stabilize slopes. Use tracking for short term (two weeks) exposed slopes. Drive heavy equipment on the slopes to leave level tracks (small check dams) that will catch water flow. Stabilize slopes within 48 hours or sooner considering rain.

1.4.8.2. SEEDING & MULCHING will establish vegetation on side slopes less than 66% that will prevent erosion and control sediment transport. Add TEMPORARY EROSION MATTING (with 100% natural fibers) to slopes ranging from 33% to 66%.

1.4.8.2.1. ML 40+017 to 40+119 left and right

1.4.8.2.2. Drive 6+010 to 6+040 left and right

1.4.8.2.3. Channel 50+025 to 50+130 left and right

1.4.9. Winter Stabilization

1.4.9.1. The "Winter Construction" season occurs between October 15 and April 15, when erosion prevention and sediment control is significantly more difficult.

1.4.9.2. If Winter Construction is necessary, revise this plan according to the VANR "Low Risk Site Handbook".

1.4.10. Stabilize Soil at Final Grade

1.4.10.1. SEEDING & MULCHING will stabilize slopes ranging from 0% to 66%. Add TEMPORARY EROSION MATTING (with 100% natural fibers) to slopes ranging from 33% to 66%. Use seeding for long term exposed slopes. Grass takes 2 weeks to establish itself. Stabilize slopes within 48 hours or sooner considering rain.

1.4.10.2. STONE FILL, TYPE I in roadway ditches will prevent erosion and control sediment transport.

1.4.10.3. CULVERTS will convey concentrated flow under roads and prevent erosion.

1.4.10.4. STONE FILL, TYPE I at culvert outlets will dissipate water velocities and prevent erosion and control sediment transport.

1.4.11. Dewatering Activities

1.4.11.1.1. COFFERDAMS will prevent erosion and control sediment transport in the abutment excavation.

1.4.12. Inspect your Site

1.4.12.1. Inspect all control measures weekly and after each rainfall event. Repair measures promptly once damage is discovered.

1.4.12.2. Note any changes on the plans, in the weekly inspection report, and report them to the appropriate authority in a timely manner.

1.4.12.3. Check temporary measures (e.g. stone check dams, silt fence, and sand bags) regularly for accumulation of sediment. Remove sediment build-up when the level of sediment reaches one-half the height of the control measure. Dispose of sediments in an approved area where they will not be subject to erosion.

PROJECT NAME: GUILFORD
PROJECT NUMBER: BRO 1442 (24)

EPSC
NARRATIVE

FILE NAME: sj076e01.i PLOT DATE: 15-APR-2008
PROJECT LEADER: R. WHITCOMB DRAWN BY: T. LACKEY
DESIGNED BY: T. LACKEY CHECKED BY: J. PERRIGO
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