

EROSION CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REHABILITATION OF THE EAST FAIRFIELD COVERED BRIDGE (BRIDGE NO. 50) OVER THE BLACK CREEK. THE PROJECT IS ON T.H. NO. 49, A PAVED, CLASS III TOWN HIGHWAY, IN THE TOWN OF FAIRFIELD. THE EXISTING COVERED BRIDGE IS CURRENTLY CLOSED AND WILL REMAIN THAT WAY DURING CONSTRUCTION. TRAFFIC WILL CONTINUE TO BE DETOURED DURING CONSTRUCTION AND THE APPROXIMATE 2,600 FT LONG, EXISTING DETOUR ALONG TOWN HIGHWAY NO. 50 WILL REMAIN IN EFFECT. THE PROJECT CONSISTS OF REPLACING THE DETERIORATED BRIDGE MEMBERS, INSTALLATION OF A NEW STANDING SEAM METAL ROOF, NEW SIDING, INSTALLATION OF LATERAL BRACING, SUBSTRUCTURE REPAIRS AND REPLACEMENT, INSTALLATION OF BRIDGE APPROACH RAILING AND PAVING OF THE BRIDGE APPROACHES. TOTAL ROADWAY APPROACH WORK, INCLUDING BOTH APPROACHES IS APPROXIMATELY 105 FT. THE LIMITS OF CONSTRUCTION ON THE EAST SIDE APPROACH A RESIDENTIAL HOUSE BUT DO NOT ENCRACH ON ITS PROPERTY. NO THREATENED AND ENDANGERED SPECIES, WETLANDS, STORMWATER, FLOOD PLAINS HAZARDOUS WASTE SITE, GREEN MOUNTAIN NATIONAL FOREST LAND, 4F PROPERTY, 6F PROPERTY HAVE BEEN IDENTIFIED IN THE PROJECT AREA. A HISTORIC RESOURCE (FAIRFIELD COVERED BRIDGE) HAS BEEN IDENTIFIED IN THE PROJECT AREA AND IS BEING REHABILITATED AS PART OF THIS PROJECT. AN ARCHAEOLOGICAL RESOURCE (FORMER GRIST MILL) HAS BEEN IDENTIFIED IN THE PROJECT AREA AND WILL BE PROTECTED AND AVOIDED. THE SITE IS LOCATED, BASED UPON NAD 83/(CON) AT 835145.87 N, 1543642.07 E (HVCTRL #1 - SEE TIE SHEET).

IN ADDITION THE EXISTING NORTHEAST WINGWALL NO.3 WILL BE REPLACED WITH A NEW STONE MASONRY WINGWALL AND A PORTION OF THE SOUTHEAST WINGWALL NO.4 WILL BE RECONSTRUCTED. THE NEW NORTHEAST WINGWALL NO.3 WILL BE 47 FT LONG AND SERVE TO REDUCE THE LIMITS OF IMPACT AND TO PREVENT FURTHER EMBANKMENT EROSION.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE (1) CONSTRUCTION SEASON.

TOTAL AREA OF DISTURBANCE INCLUDING LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, INCLUDING ANY WASTE, STAGING AND BORROW AREAS WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS IS APPROXIMATELY 0.30 ACRES.

1.2 SITE INVENTORY

1.2.1 OFF SITE DRAINAGE CHARACTERISTICS (UP AND DOWN-GRADIENT)

THE PROPERTY SURROUNDING THE PROJECT SITE CONSISTS OF WELL ESTABLISHED VEGETATION, MODERATE TO STEEPLY SLOPING, MIXED SOFTWOOD AND HARDWOOD TREES WITH WELL 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 THAT WHICH FOLLOWS T.H. NO. 49 ALONG THE 5% EAST APPROACH GRADE AND THE 7.5% GRADE AT THE WEST APPROACH OF THE PROJECT LIMITS. THE CURRENT ROADWAY DITCHES ARE FAIRLY WELL DEFINED AND CONSIST OF GRAVEL AND GRASS BUT ARE NOT LINED WITH STONE.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

BLACK CREEK IS LOCATED ON THE PROJECT AREA. THERE ARE NO OTHER WATER BODIES WITHIN THE PROJECT AREA. THE STREAMBED OF THE BLACK CREEK IS MAINLY COMPOSED OF SAND, GRAVEL AND LEDGE. THE BLACK CREEK IS CLASSIFIED AS HILLY AND MEANDERING, FORESTED SURROUNDINGS. THE CONTRIBUTING DRAINAGE AREA AT THE BRIDGE CROSSING IS 36.4 SQUARE MILES.

1.2.3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

THE TOPOGRAPHY OF THE PROJECT SITE IS HILLY WITH WOODED AREAS ALONG WITH RESIDENTIAL LAWNS. VERMONT ROUTE 36 RUNS PARALLEL ALONG THE EAST SIDE OF BLACK CREEK WHILE T.H. NO. 49 RUNS PARALLEL ALONG THE WEST SIDE. THE WEST AND EAST BANKS OF BLACK CREEK ARE RELATIVELY STEEP WITHIN THE PROJECT VICINITY. DEVELOPMENT ALONG T.H. NO. 49 CONSISTS OF PERMANENT RESIDENCES, TWO OF WHICH EXIST NEAR THE PROJECT LIMITS. OVERHEAD UTILITY SERVICE FOLLOWS ALONG T.H. NO. 49 AND TO ONE OF THE RESIDENCES AT STA. 102+90. ANOTHER OVERHEAD UTILITY LINE CROSSES BLACK CREEK DOWNSTREAM AND NORTHERLY OF THE BRIDGE. THE LINES ARE LOCATED A SUFFICIENT DISTANCE FROM THE BRIDGE THAT IT IS NOT ANTICIPATED THAT THERE WILL BE ANY IMPACTS TO THEM FROM THE PROJECT. THERE ARE NO UNDERGROUND UTILITIES WITHIN THE PROJECT AREA.

1.2.4 VEGETATION

THE LAND ON AND ADJACENT TO THE PROJECT SITE IS RURAL AND CONSISTS OF A MIX OF HARDWOOD AND SOFTWOOD TREES OF ALL SIZES ALONG T.H. 49 AND RESIDENTIAL PROPERTY. THE TWO RESIDENCES NEAR THE BRIDGE SITE HAVE SMALL AREAS OF LAWN AND LANDSCAPE PLANTINGS. NO FIELDS OR OTHER AGRICULTURAL CROPS EXIST NEAR THE PROJECT. IMPACTS TO VEGETATION WILL BE LIMITED TO THAT WHICH ARE EFFECTED BY THE CONSTRUCTION OF THE NEW NORTHEAST WINGWALL INSIDE THE EXISTING TOWN'S RIGHT-OF-WAY (R.O.W). SOME MEDIUM 12" - 20" TREES, BOTH SOFTWOOD AND HARDWOOD, WILL BE REMOVED, HOWEVER A NEW 47 FT WINGWALL ALONG THE EASTERN APPROACH TO THE BRIDGE WILL REDUCE THE SLOPE IMPACTS ALONG THE ERODED STREAM BANK. THERE IS LEDGE ALONG THE NORTHEASTERN RIVER BANK. FOLLOWING CONSTRUCTION OF THE REHABILITATED COVERED BRIDGE, THE EXISTING ROADWAY APPROACHES WILL BE RECONSTRUCTED AND PAVED. DISTURBED SLOPES WILL BE STABILIZED WITH STONE FILL AS SPECIFIED ON THE PLANS AND VEGETATION REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.5 SOILS

ACCORDING TO THE NATURAL RESOURCES CONSERVATION SERVICE (NRCS) THERE ARE THREE SOIL TYPES PRESENT ON THIS PROJECT SITE. BUXTON SILT LOAM (K=0.32) IS LOCATED BETWEEN STA. 102+25 AND VT ROUTE 36. DUE TO RELATIVE STEEPNESS OF THE LAND, THIS REGION HAS THE POTENTIAL FOR BEING MODERATE TO HIGHLY ERODABLE. DEERFIELD LOAMY FINE SAND (K=0.17) IS FOUND FROM STA. 102+25 AND 102+75 RT. THIS AREA HAS A POTENTIAL FOR BEING LOW ERODABLE DUE TO RELATIVE FLAT LAND IN THIS REGION. PODUNK VARIANT SILT LOAM (K=0.32) IS FOUND ON THE WEST SIDE OF THE RIVER AND IS CONSIDERED MODERATE TO HIGHLY ERODABLE. SLOPES WITH THE VICINITY OF THE PROJECT RANGE FROM 0-50%. NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING: 0.0-0.23 = LOW EROSION POTENTIAL; 0.24-0.36 = MODERATE EROSION POTENTIAL; 0.37 AND HIGHER = HIGH EROSION POTENTIAL.

1.2.6 SENSITIVE RESOURCE AREAS

NO THREATENED & ENDANGERED SPECIES HAVE BEEN IDENTIFIED WITHIN THE PROJECT LIMITS AND THERE WILL BE NO ADVERSE EFFECT TO HISTORIC FEATURES. ARCHEOLOGICAL FEATURES HAVE BEEN IDENTIFIED WITHIN THE PROJECT LIMITS AND WILL BE PROTECTED AND AVOIDED. BLACK CREEK IS THE ONLY WATER RESOURCE WITHIN THE PROJECT SITE. PRIME AND STATEWIDE AGRICULTURAL LAND IS IDENTIFIED WITHIN THE VICINITY OF THE PROJECT. THERE WILL BE MINIMAL IMPACTS TO THESE TYPES OF LAND IN THE AREA OF THE SOUTHEAST WINGWALL RECONSTRUCTION.

DISTURBANCE OF SOILS NEAR NATURAL OR MAN-MADE WATERWAYS CONSISTS OF THAT WHICH IS NECESSARY TO CONSTRUCT THE NEW NORTHEAST WINGWALL AND RECONSTRUCT THE SOUTHEAST WINGWALL AS WELL AS APPLICABLE ROADWAY APPROACHES. STABILIZATION OF DISTURBANCES TO STREAM BANKS WILL BE ACCOMPLISHED WITH STONE FILL, TYPE III.

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF CONSTRUCTION GENERAL PERMIT 3-9020 BASED ON THE PROJECT IMPACT AREA. SHOULD CHANGES PRIOR TO, OR DURING CONSTRUCTION, RESULT IN ONE (1) 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 THE VERMONT AGENCY OF NATURAL RESOURCES VIA FILING OF THE APPROPRIATE "NOTICE OF INTENT" UNDER THE GENERAL CONSTRUCTION PERMIT PROCESS.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

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 MINIMIZING SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION CONTROLS.

PREVENTING INITIAL SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. 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.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

PROJECT DEMARCATION FENCING, DENOTED -PDF- ON THE PLANS, IS USED TO DELINEATE THE LIMITS THE CONTRACTOR CAN ACCESS WITH CONSTRUCTION EQUIPMENT. THIS MEASURE LIMITS THE AREA THAT CAN BE DISTURBED AND EXPOSED TO EROSION.

1.4.2 LIMIT DISTURBANCE AREA

EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES (PHASING) AS CONSTRUCTION PROCEEDS. ADDITIONAL MEASURES MAY BE NEEDED DUE TO THE PHASING OF THE PROJECT AND AS DIRECTED BY THE ENGINEER.

1.4.3 STABILIZE CONSTRUCTION EXIT

STABILIZED CONSTRUCTION ENTRANCE AND EXIT ARE NOT USED IN THIS PROJECT.

1.4.4 INSTALL SILT FENCE

SILT FENCE SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK AS SHOWN ON THE PLANS OR AS NECESSARY.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK DAMS SHALL BE UTILIZED AS SHOWN ON THE PLANS OR AS NECESSARY.

1.4.7 CONSTRUCT PERMANENT CONTROLS

THERE WILL BE A NEW STONE FILL TYPE III SLOPE SURROUNDING THE NORTHEAST WINGWALL NO. 3 AS SHOWN ON THE PLANS. ROADWAY SLOPE ABOVE THE SOUTHWEST WINGWALL NO.2 WILL HAVE STONE FILL TYPE II AND WILL BE APPROXIMATELY 1:1.5 SLOPE.

1.4.8 STABILIZE EXPOSED SOILS

SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING, OR AN EQUIVALENT PRODUCT, WILL BE UTILIZED ON ALL SLOPES STEEPER THAN 3:1 THAT ARE NOT LINED WITH STONE FILL. SEE ROADWAY SECTIONS FOR SIDESLOPE GRADES. 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.

1.4.9 WINTER STABILIZATION

IF CONSTRUCTION ACTIVITIES INVOLVING EARTH DISTURBANCE CONTINUE PAST OCTOBER 15 OR BEGIN BEFORE APRIL 15, THE FOLLOWING REQUIREMENTS MUST BE ADHERED TO:

1. ENLARGED ACCESS POINTS STABILIZED TO PROVIDE FOR SNOW STOCKPILING.
2. A MINIMUM 25 FOOT BUFFER SHALL BE MAINTAINED FROM PERIMETER CONTROLS SUCH AS SILT FENCE.
3. IN AREAS OF DISTURBANCE THAT DRAIN TO A WATER BODY WITHIN 100 FEET, TWO ROWS OF SILT FENCE MUST BE INSTALLED ALONG THE CONTOUR.
4. SILT FENCE AND OTHER PRACTICES REQUIRING EARTH DISTURBANCE MUST BE INSTALLED AHEAD OF FROZEN GROUND.
5. MULCH USED FOR TEMPORARY STABILIZATION MUST BE APPLIED AT DOUBLE THE STANDARD RATE, OR A MINIMUM OF 3 INCHES WITH AN 80-90% COVER.
6. TO ENSURE COVER OF DISTURBED SOIL IN ADVANCE OF A MELT EVENT, AREAS OF DISTURBED SOIL MUST BE STABILIZED AT THE END OF EACH WORK DAY, WITH THE FOLLOWING EXCEPTIONS:
 - IF NO PRECIPITATION WITHIN 24 HOURS IS FORECAST AND WORK WILL RESUME IN THE SAME DISTURBED AREA WITHIN 24 HOURS, DAILY STABILIZATION IS NOT NECESSARY.
 - DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF, SUCH AS HOUSE FOUNDATIONS OR OPEN UTILITY TRENCHES.
7. PRIOR TO STABILIZATION, SNOW OR ICE MUST BE REMOVED TO LESS THAN 1 INCH THICKNESS.
8. USE STONE TO STABILIZE AREAS WHERE CONSTRUCTION VEHICLE TRAFFIC IS ANTICIPATED. STONE PATHS SHOULD BE 10-20 FEET WIDE TO ACCOMMODATE VEHICULAR TRAFFIC.

1.4.10 STABILIZE SOIL AT FINAL GRADE

SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

1.4.11 DE-WATERING ACTIVITIES

SEDIMENT BASINS FOR SUBSTRUCTURE WORK SHALL BE USED AS NECESSARY.

SEDIMENT SETTLING BASIN SIZING CRITERIA TABLE:

PUMP FLOW RATE		REQUIRED SURFACE AREA		LENGTH / WIDTH = 2:1			
Q (gpm)	Q (m ³ /s)	(ft ²)	(m ²)	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

1.4.12 INSPECT YOUR SITE

INSPECT SITE BASED ON PERMIT AUTHORIZATION OR SPECIAL PROVISION REQUIREMENTS.

1.4.13 SECTION 106 STIPULATIONS

ALL IDENTIFIED RESOURCES WITHIN THE PROJECT LIMITS ARE TO BE PROTECTED AND AVOIDED AS IT HAS BEEN DETERMINED THAT THIS PROJECT WILL **NOT**:

REQUIRE A TEMPORARY DETOUR OUTSIDE EXISTING RIGHT-OF-WAY, OR A TEMPORARY WETLAND OR STREAM CROSSING WHICH WILL REQUIRE NON-ROUTINE MITIGATION, OR A RAMP CLOSURE, UNLESS THE FOLLOWING CONDITIONS ARE MET

- (1) PROVISIONS ARE MADE FOR ACCESS BY LOCAL TRAFFIC AND THE FACILITY IS POSTED ACCORDINGLY,
- (2) BUSINESSES DEPENDENT UPON THROUGH TRAFFIC WILL NOT BE UNDULY AFFECTED,
- (3) THE TEMPORARY DETOUR OR RAMP CLOSURE WILL NOT INTERFERE WITH LOCAL SPECIAL EVENTS,
- (4) THE TEMPORARY DETOUR, RAMP CLOSURE, WETLAND OR STREAM CROSSING WILL NOT SUBSTANTIALLY INCREASE THE ENVIRONMENTAL CONSEQUENCES OF THE ACTION (PROJECT).

INVOLVE CONSTRUCTION IN WETLANDS AND/OR STREAMS (BELOW ORDINARY HIGH WATER) TOTALING MORE THAN 5,000 SQUARE FEET, REQUIRING THE ARMY CORP OF ENGINEERS TO COORDINATE WITH RESOURCE AGENCIES PER GENERAL PERMIT #NAE-2007-24.

REQUIRE A RISK ANALYSIS FOR AN INCREASE IN 100-YEAR FLOOD WATER SURFACE ELEVATIONS, PER EO 11988.

PROJECT NAME: FAIRFIELD
PROJECT NUMBER: BHO I448(32)

FILE NAME: Z04J44ecno+esl.dgn PLOT DATE: 4/25/2008
PROJECT LEADER: J.H.WEAVER DRAWN BY: J.B.McQUAID
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EPSC EROSION CONTROL NARRATIVE SHEET II OF 36

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