

PROJECT DESCRIPTION

THIS PROJECT "READING BRS 0148(6)S" WILL REPLACE BRIDGE NO. 1 ON VT 44 OVER THE MILL BROOK IN THE TOWN OF READING ON A NEW ALIGNMENT. THE NEW ALIGNMENT WILL SHIFT THE BRIDGE APPROXIMATELY 50 FEET DOWNSTREAM. THE NEW BRIDGE WILL BE A TWO LANE, SINGLE SPAN, STEEL BEAM WITH CONCRETE DECK BRIDGE. THE PROJECT WILL MAINTAIN TRAFFIC ON THE EXISTING BRIDGE DURING CONSTRUCTION. THE EXISTING BRIDGE AND APPROACHES WILL BE REMOVED UPON COMPLETION OF THE NEW STRUCTURE.

THE PROJECT BEGINS ON VT 44 AT THE INTERSECTION OF VT 106 AND CONTINUES EASTERLY ALONG VT 44 FOR 0.112 MILES. THE LOCATION OF THE CROSSING IS N43°28' 13", W72° 31' 55".

THE TOTAL DISTURBED AREA (EXCLUDING WASTE, BORROW AND STAGING AREAS) IS APPROXIMATELY 2.3 ACRES.

SITE INVENTORY & ANALYSIS

OFF SITE DRAINAGE CHARACTERISTICS.

THE LAND SURROUNDING THE PROJECT AREA IS MOUNTAINOUS, ROLLING HILLS AND OPEN FIELDS WITH LAWNS. A FEW AREAS ARE GROWING IN WITH BRUSH AND SOFTWOOD AND HARDWOOD TREES IN THE IMMEDIATE PROJECT VICINITY. OFF SITE DRAINAGE IS PRIMARILY CONVEYED ALONG ROADWAY DITCHES.

DRAINAGE, WATERWAYS, BODIES OF WATER.

THIS BRIDGE CROSSES MILL BROOK. THE BROOK IS PERENNIAL, SINUOUS AND UNBRAIDED. THE WATERWAY OF FULL OPENING AT THE EXISTING BRIDGE IS 680 SQUARE FEET. THE WATERSHED AREA IS 10,112 ACRES.

TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES.

THE PROJECT SITE IS RELATIVELY FLAT BUT CHANGES TO HILLY AND MOUNTAINOUS OUTSIDE OF THE PROJECT LIMITS. VT 44 IS A PAVED ROUTE. THERE IS A TWO STORY BRICK HOME NEAR THE PROJECT. POWER AND UTILITY POLES RUN ALONG THE SOUTHERN SIDE OF ROUTE 44 BUT WILL BE RELOCATED BY CENTRAL VERMONT PUBLIC SERVICE CORP. TO ELIMINATE INTERFERENCE WITH THE CONSTRUCTION SITE.

VEGETATION.

THERE ARE STRIPS OF TREES ON EITHER SIDE OF THE BROOK, AS WELL AS SOME OVERGROWN BRUSH. THERE ARE MAINTAINED LAWNS ON EITHER SIDE OF ROUTE 44, AS WELL AS SOME FIELD AREAS. STONE FILL STEEPER THAN 1V:3H WILL BE CAPPED WITH GRUBBING MATERIAL. ROADWAY SLOPES GREATER THAN 1V:3H WILL BE SEEDED AND EROSION MATTING PLACED AS SHOWN ON SHEET 33. SLOPES FLATTER THAN 1V:3H WILL BE SEEDED AND MULCHED.

SOILS.

THE SOIL CONSERVATION SERVICE "SOIL SURVEY OF WINDSOR COUNTY" IDENTIFIES THE PRIMARY SOIL TYPE IN THE PROJECT SITE AS PODUNK FINE SANDY LOAM. THESE SOILS FORMED IN LOAMY ALLUVIUM UNDERLAIN BY SANDY ALLUVIUM. SLOPE RANGES FROM 0 TO 3 PERCENT. WITH OCCASIONAL FLOODING. THE LISTED SOIL ERODIBILITY COEFFICIENT (K-FACTOR) IS 0.24, WHICH IS CLASSIFIED AS NOT HIGHLY ERODIBLE.

SENSITIVE RESOURCE AREAS.

A 50' RIPARIAN BUFFER HAS BEEN DEMARCATED ON THE PLANS ALONG MILL BROOK AND TWO AREAS OF WETLANDS IMMEDIATELY ALONG THE BROOK HAVE BEEN IDENTIFIED. IMPACTS TO THE WETLANDS WILL BE LIMITED TO PERMANENT STONE FILL AND ABUTMENTS. NO STAGING OR STOCK PILING OF MATERIALS IS TO EFFECT THE WETLANDS. NO "THREATENED & ENDANGERED" SPECIES, HISTORIC OR ARCHEOLOGICAL RESOURCES HAVE BEEN IDENTIFIED WITHIN THE PROJECT LIMITS.

TEMPORARY EROSION PREVENTION & SEDIMENT CONTROL

PROJECT DEMARCATION FENCING DELINEATES THE CONSTRUCTION AREA FOR 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 BE UTILIZED ON A REGULAR BASIS TO STABILIZE SLOPES THAT WILL BE EXPOSED FOR SEVERAL DAYS OR THAT MAY BE SUBJECT TO FORECASTED RAIN EVENTS.

FOLLOWING FINAL GRADING, SEEDING & MULCHING STABILIZES SLOPES UP TO 1V:3H. USE BIODEGRADABLE "EROSION CONTROL MATTING" (OR EQUIVALENT) AS DETAILED ON SHEET 33 IN PLACE OF MULCH ON STEEPER SLOPES.

STONE CHECK DAMS PLACED IN DITCHES REDUCE FLOW VELOCITIES AND HELP 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 OR VIGOROUS VEGETATION HAS BEEN ESTABLISHED AND THE SURROUNDING AREA STABILIZED. SEE SHEET 30 FOR DETAILS AND ADDITIONAL NOTES REGARDING STONE CHECK DAMS.

SILT FENCE PLACED LEVEL ON SLOPES CONTROL SHEET FLOW SEDIMENT TRANSPORT. PLACE SILT FENCE BEFORE BEGINNING UPSLOPE EARTHWORK. PLACE SILT FENCE 5 TO 10 FEET 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 100 FEET. SEE SHEET 29 FOR DETAILS AND ADDITIONAL NOTES REGARDING SILT FENCE.

INLET CONTROL MEASURES AROUND CULVERTS AND DROP INLETS CONTROL CONCENTRATED FLOW SEDIMENT TRANSPORT. GRAVEL BAGS CREATE A TEMPORARY PUDDLE FOR PARTICLES TO SETTLE OUT AS WATER DRAINS THROUGH THE BARRIER. INSTALL INLET PROTECTION BEFORE WATER FLOWS THROUGH THE STRUCTURE. LIMIT THE HEIGHT OF THE BARRIER SO AS NOT TO CREATE A HAZARD WITH THE CONTROL ITSELF OR THE PONDING OF WATER. GET THE ENGINEER'S APPROVAL BEFORE USING ALTERNATIVE INLET CONTROL MEASURES. SEE SHEET 31 FOR DETAILS AND ADDITIONAL NOTES REGARDING INLET PROTECTION.

STABILIZED CONSTRUCTION ENTRANCES CONTROL TRACKING OF SEDIMENT ONTO PUBLIC ROADS. A STABILIZED ENTRANCE SHALL BE UTILIZED WHERE APPLICABLE INCLUDING THE PROJECT SITE, STAGING AREAS, AS WELL AS BORROW AND WASTE SITES. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARDS A CONSTRUCTION ENTRANCE UNDER THE STONE. SEE SHEET 32 FOR DETAILS AND ADDITIONAL NOTES REGARDING STABILIZED CONSTRUCTION ENTRANCES.

TEMPORARY SEDIMENT SETTLING BASINS CONTROL CONCENTRATED FLOW SEDIMENT TRANSPORT FROM DEWATERING OF COFFERDAMS. THE CONTRACTOR SHALL SIZE THE BASIN ACCORDING TO THE SIZE OF THE SEDIMENT PARTICLES BEING SETTLED AND THEIR ANTICIPATED PUMPING RATE.

COFFERDAMS WILL BE UTILIZED TO HELP PREVENT SEDIMENT TRANSPORT DURING THE ABUTMENT EXCAVATION.

CHECK 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.

CHECK ALL SEEDING AND GRUBBING AREAS FOR ADEQUATE MULCHING AND SEEDING ETC.

SEDIMENT SETTLING BASIN SIZING CRITERIA

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

PERMANENT EROSION CONTROL MEASURES

SEEDING & MULCHING WILL ESTABLISH VEGETATION IN DISTURBED AREAS INCLUDING SLOPES UP TO 1V:3H. SUBSTITUTE BIODEGRADABLE "EROSION CONTROL MATTING" (OR EQUIVALENT) FOR MULCHING ON STEEPER SLOPES.

ESTABLISHING VEGETATION IN THE ROADWAY DITCHES WILL HELP PREVENT EROSION AND CONTROL SEDIMENT TRANSPORT. SEE 'EROSION CONTROL DETAILS' SHEET 33 FOR TYPICAL DITCH SECTION.

STONE FILL, TYPE I AT CULVERT OUTLETS WILL DISSIPATE WATER VELOCITIES AND HELP PREVENT EROSION.

STONE FILL, TYPE I WILL BE PLACED AROUND THE ENDS OF THE WINGWALLS TO HELP PREVENT EROSION FROM ROADWAY RUNOFF.

STONE FILL, TYPE III IN THE DISTURBED AREAS ALONG THE STREAM BANKS CREATED DURING THE ABUTMENT EXCAVATIONS WILL HELP PREVENT EROSION. STONE FILL WILL BE CAPPED WITH GRUBBING MATERIAL ABOVE ORDINARY HIGH WATER WHICH WILL STABILIZE SLOPES STEEPER THAN 1V:3H.

GEOTEXTILE UNDER THE STONE FILL WILL ALSO BE USED AS A PERMANENT EROSION CONTROL MEASURE TO HELP PREVENT EROSION.

GENERAL EROSION & SEDIMENT CONTROL GUIDELINES

THE EROSION CONTROL PLANS ARE GUIDELINES FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT THROUGHOUT THE LIFE OF THE PROJECT. THE PURPOSE OF THE PLAN IS TO MINIMIZE SOIL LOSS AND THE POLLUTION AND SEDIMENTATION OF RECEIVING WATERS.

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. USE ADDITIONAL EROSION CONTROL MEASURES AS NECESSARY DURING THE SEQUENCE OF CONSTRUCTION AND AS DIRECTED BY THE ENGINEER OR ON-SITE COORDINATOR. SEE SECTION 105.23 OF THE VERMONT AOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2001.

MAINTAIN EXISTING AND PLANTED VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS WHEREVER POSSIBLE.

COLLECT AND ROUTE CLEAN OFFSITE RUNOFF AROUND OR THROUGH THE PROJECT SITE USING DIVERSION BERMS, DIVERSION CHANNELS, CULVERTS AND/OR TEMPORARY PIPES. CONTROL ONLY SEDIMENT-LADEN RUNOFF FROM THE PROJECT SITE.

INSTALL EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN IN THE EROSION CONTROL PLAN OR AS DIRECTED BY THE ENGINEER OR ON-SITE COORDINATOR. DO NOT MODIFY THE TYPE, SIZE OR LOCATION OF ANY CONTROL OR PRACTICE WITHOUT APPROVAL OF THE ENGINEER. NOTE ANY CHANGES ON THE PLANS, IN THE WEEKLY INSPECTION REPORT, AND REPORT THEM 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. ESTABLISH TEMPORARY VEGETATION IF THE DISTURBED AREA IS TO BE WITHOUT CONSTRUCTION ACTIVITY FOR A PERIOD OF 14 DAYS. INSTALL PERIMETER CONTROL MEASURES FOLLOWING CLEARING AND BEFORE THE START OF ANY GRUBBING OR GRADING ACTIVITY. INSTALL OTHER TEMPORARY CONTROLS IN INCREMENTAL STAGES AS CONSTRUCTION PROCEEDS.

OPERATE CONSTRUCTION EQUIPMENT ONLY WITHIN PERIMETER CONTROL MEASURES.

SHEET NAME:	EROSION CONTROL NARRATIVE		
PROJECT NAME:	READING	HIGHWAY NO.:	VT 44
PROJECT NUMBER:	BRS 0148(6)S	BRIDGE NO.:	1
		OVER:	THE MILL BROOK
FILE NAME:	PW/85e034/Structures/se034ecbdr.dgn	PLOT DATE:	17-FEB-2006
PROJECT MANAGER:	R. WHITCOMB	DRAWN BY:	M. HALE
DESIGNED BY:	C. CARLSON	IPARM NAME:	se034ecbn.l
BRIDGE SHEET NUMBER:		SHEET 22	OF 83