

EROSION CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

THE PROJECT IS LOCATED AT THE INTERSECTION OF US ROUTE 2 AND VT ROUTE 14 IN THE TOWN OF EAST MONTPELIER. WORK TO BE PERFORMED INCLUDES THE REALIGNMENT AND RECONSTRUCTION OF THE US ROUTE 2 AND VT ROUTE 14 INTERSECTION, INSTALLATION OF A NEW TRAFFIC CONTROL SIGNAL SYSTEM, NEW DRAINAGE FEATURES, SUBBASE, PAVEMENT, PAVEMENT MARKINGS, CONSTRUCTION OF A NEW PARKING AREA, AND MISCELLANEOUS ROADWAY ITEMS.

NOTE: AREA OF DISTURBANCE SHALL INCLUDE LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, INCLUDING ANY WASTE, STAGING AND BORROW AREAS WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS.

TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 1.63 HECTARES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST TWO CONSTRUCTION SEASONS.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE PROJECT AREA CAN BE DESCRIBED AS RURAL RESIDENTIAL. THERE ARE NUMEROUS RESIDENTIAL AND COMMERCIAL BUILDINGS LOCATED ALONG THE PROJECT LENGTH. THE LAND COVER ASSOCIATED WITH THESE LOTS INCLUDE IMPERVIOUS AREA, WELL ESTABLISHED LAWNS, AS WELL AS LIGHT WOODS/BRUSH. ADJACENT TO THESE LOTS THERE ARE LARGER, UNDEVELOPED, WELL ESTABLISHED FIELDS. THE PROJECT AREA CAN BE DESCRIBED AS ROLLING TERRAIN, WITH PRIMARY DRAINAGE OCCURRING IN THE WEST TO EAST DIRECTION. DIRECTLY WEST AND NORTH OF THE PROJECT AREA, THE TOPOGRAPHY CONSISTS OF STEEP TERRAIN, DRAINING TOWARDS THE PROJECT. THE AREA SOUTH AND EAST OF THE PROJECT DRAINS AWAY FROM THE PROJECT AREA. ALL RUNOFF FROM THESE OFF-SITE AREAS HAVE BEEN CONSIDERED IN DRAINAGE DESIGN CALCULATIONS.

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

THERE ARE TWO WATER BODIES IN THE PROJECT VICINITY. THE WINOOSKI RIVER RUNS PARALLEL TO US ROUTE 2 ALONG THE PROJECT LENGTH. A SMALL PORTION OF THE PROJECT (APPROXIMATELY 0.44 ACRES) DRAINS TO THE WINOOSKI RIVER VIA OVERLAND FLOW OVER WELL ESTABLISHED FIELDS. THIS RECEIVING WATER HAS A WATERSHED AREA OF 466.20 SQUARE KILOMETERS AT THE DISCHARGE POINT. THE REMAINDER OF THE PROJECT DRAINS, VIA CLOSED DRAINAGE FEATURES AND GRASS CHANNELS, TO THE SODOM BROOK. THE SODOM BROOK INTERSECTS WITH US ROUTE 2 APPROXIMATELY 125 METERS EAST OF THE END PROJECT STATION. THIS RECEIVING WATER HAS A WATERSHED AREA OF APPROXIMATELY 26.16 SQUARE KILOMETERS AT THE DISCHARGE POINT.

1.2.3 VEGETATION

THE LAND COVER IN THE PROJECT AREA CONSISTS OF ESTABLISHED LAWNS, LIGHT WOODS/BRUSH, AND IMPERVIOUS AREA ASSOCIATED WITH THE ROADWAY AND RESIDENTIAL/COMMERCIAL DEVELOPMENT. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY THE ROADWAY CONSTRUCTION ACTIVITIES. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES. MULTIPLE LANDSCAPE FEATURES WILL BE INSTALLED AS PART OF THE PROJECT.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF WASHINGTON, VERMONT. SOILS ON THE PROJECT SITE INCLUDE; ADAMS LOAMY FINE SAND, 3% TO 8% SLOPES, "K FACTOR" = 0.17, LOW EROSION POTENTIAL, DUMMERSTON FINE SANDY LOAM, 15% TO 25% SLOPES, "K FACTOR" = 0.32, MODERATE EROSION POTENTIAL, CABOT SILT LOAM, 0% TO 3% SLOPES, "K FACTOR" = 0.32, MODERATE EROSION POTENTIAL, AND SALMON VERY FINE SANDY LOAM, 8% TO 15% SLOPES, "K FACTOR" = 0.49, HIGH EROSION POTENTIAL.
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.

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: YES (MULTIPLE HISTORIC STRUCTURES, PROJECT WILL HAVE NO ADVERSE EFFECT)
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO

WATER RESOURCE: RECEIVING WATERS (WINOOSKI RIVER, SODOM BROOK)
WETLANDS: NO

1.3 RISK EVALUATION

THIS PROJECT FALLS UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES FOR LOW RISK PROJECTS. ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

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

1.4.1 MARK SITE BOUNDARIES

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020 BARRIER FENCE SHALL BE USED INSTEAD OF PROJECT DEMARCATION FENCE WITHIN 100 FEET OF A WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC).

SINCE THIS PROJECT IS LOCATED PRIMARILY IN A RESIDENTIAL AREA THE RESIDENT ENGINEER SHALL DETERMINE LOCATIONS WHERE IT WOULD BE APPLICABLE TO DELINEATE SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS. DEMARCATION FENCE SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

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.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES, OR AS DIRECTED BY THE ENGINEER.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

STONE DROP INLET PROTECTION WILL BE USED ON ALL PROPOSED DRAINAGE STRUCTURES AS PROPOSED ON THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

1.4.5 DIVERT UPLAND RUNOFF
DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

STONE CHECK DAMS SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

TYPE II STONE FOR SLOPE LINING AND CHANNEL PROTECTION
SEED AND MULCH
DRAINAGE INLETS AND PIPING

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

DE-WATERING ACTIVITIES ARE NOT ANTICIPATED ON THIS PROJECT.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTIONS 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

1.5.3 UPDATES

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