Memorandum

To: Jay Peak Resort Athletic Fields Project File

Date: November 6, 2017
Revised: January 30, 2018
Project #: 57958.00

From: Robert Wildey, CPESC

Re: Construction and Operational Phase Sediment Offset Calculations

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This memorandum describes the sediment loading and offset calculations that have been performed in accordance with the Settlement Agreement dated February 12, 2015 between Jay Peak Resort ("Jay Peak" or "Resort"), the Vermont Natural Resources Council ("VNRC"), and the Vermont Department of Environmental Conservation ("DEC"). These calculations demonstrate that sufficient credits are available between the existing offset bank and the treatment of existing untreated impervious areas to offset the construction and operational phase sediment loads associated with the Project. This memorandum and supporting documentation is being submitted for review and comment, with the expectation that these materials will be incorporated as an update to the Jay Peak Water Quality Remediation Plan ("WQRP").

Introduction

The Settlement Agreement outlines steps that Jay Peak will follow in advance of new development activities at the Resort that are within watersheds of impaired streams, namely Jay Branch and South Mountain Branch. The Settlement Agreement requires that sediment loading calculations be performed to estimate the additional sediment loads that would result from construction activities and operational stormwater management practices. These loads must be accounted for and be offset by an equivalent volume of sediment reduction through sediment offset projects constructed prior to or concurrent with the proposed development activities. The Settlement Agreement lays out the specific methodologies to be followed for performing these loading and offset calculations and specifies that offset credits or debits be incorporated into a WQRP amendment through the DEC's public notification and comment process.

As described during the 2016 Annual WQRP meeting, Jay Peak has acquired the former Inglenook Lodge property in Jay and is proposing the development of an athletic field facility on the site ("Project"). The proposed facility would consist of two synthetic turf fields, a gravel access drive and parking lot, improvements to the existing Inglenook Lodge structure, and the construction of operational stormwater treatment practices in compliance with the 2017 Vermont Stormwater Management Manual. Permit applications seeking coverage for the Project under the Vermont Construction General Permit and Operational Stormwater Permit have been prepared and submitted to DEC for review. The following sections of this memorandum describe how the Project complies with the sediment offset requirements of the Settlement Agreement.

Construction Planning and Sequencing

The Project is proposed to be constructed under a Design-Build contract with NMP Golf Construction ("NMP"), a construction contractor experienced with the design and construction of athletic fields and related facilities. NMP has prepared a detailed construction schedule for the Project (see Attachment 1). Once all necessary permit authorizations

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have been obtained, the Project would initiate tree clearing during winter (frozen ground) conditions to avoid earth disturbance associated with those activities. Mobilization to the site and installation of erosion prevention and sediment control ("EPSC") measures would begin at the end of April, with major earthwork scheduled for May and June. An EPSC plan has been prepared by VHB which includes appropriate measures such as Project demarcation fence, silt fence, erosion control mix berms, stabilized construction entrances, swales with check dams and sediment traps, and the temporary sediment basin described above. The EPSC plan and details are included in Attachment 2 and were submitted to DEC for review in conjunction with application for coverage under the Construction General Permit.

Construction Phase Sediment Loading Calculations

Construction phase sediment loading calculations were conducted using the RUSLE method, as outlined in the Settlement Agreement. The dates and areas presented in NMP's schedule have been used to estimate the construction-related sediment loading that are presented in these calculations, which were performed separately for Field 1 (Upper Field), Field 2 (Lower Field), and for the Access Road / Parking area. The basis for the selection of specific variables used in the RUSLE method analysis are described below.

Erosivity Factor (R)*:* Based on the Isoerodent Map produced by the EPA (EPA 2012) and as specified in the Settlement Agreement, a value of 71 is assumed for Jay, Vermont.

Erosion Factor Rating (K): In addition to the Natural Resources Conservation Service ("NRCS") soils map, site-specific data was also used to complete the construction phase sediment loading calculations. In particular, the NRCS mapping (see Attachment 3) shows that most of the site consists of Colton-Duxbury complex, 8 to 15 percent slopes, with smaller areas of Cabot silt loam to the east. As noted on the NRCS map, soil mapping may not be valid at a site-specific scale due to the generalized nature of the original soil survey. To supplement this information and evaluate depth to groundwater and infiltration capacity, five test pits were dug within the Project area. The results from these test pits indicate that soils on the site are predominantly loamy sandy or sandy loam with stones (see Attachment 4), which are consistent with the Colton-Duxbury complex soil classification. These materials are expected to have a high infiltration capacity and are more representative of the erosion factor rating "K" value of 0.24 that is associated with the Colton-Duxbury complex. For this reason, this K value was used in the sediment loading calculations.

Slope Length Factor (LS): The slope length factor is characterized as the ratio of soil loss to slope, calculated from the distance of origin of overland flow to a location of concentrated flow. These values are calculated from Table 1, *Values for Topographic Factor LS* that was included in the Settlement Agreement.

Crop Management Factor (C): The contractor proposes to use Filterra HP-FGM as an erosion prevention material for temporary and permanent stabilization. This engineered erosion control product consists of a wood fiber matrix blended with grass seed and non-toxic compounds that can be spray-applied (so-called "hydro-seeded") throughout all phases of the Project as an erosion prevention technique. According to the manufacturer's data sheet, this product provides a cover management factor "C" value of less than 0.01 (see Attachment 5). As a conservative measure, a "C" value of 0.02 was used in the sediment loading calculations, which is equivalent to mulching disturbed areas with hay at a rate of 2.0 tons/acre.

Sediment Delivery Ratio (SDR): A temporary sediment basin designed in accordance with the Vermont Standards & Specifications for Erosion Prevention & Sediment Control (DEC 2006) is an integral part of the EPSC plan. This basin is

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proposed to be installed at the start of construction and will remain in place until earth disturbing activities are completed. The proposed basin would be located at the eastern and downgradient end of the site in order to maximize its effectiveness and control runoff from the site. The basin is expected to result in 85 percent sediment removal, resulting in a Sediment Delivery Ratio of 15 percent. A memorandum explaining the design criteria and providing supporting documentation is included in Attachment 6.

The separation of the different areas allowed for a better understanding of the construction sequencing, the loading associated with different phases and areas of construction, and to account for the construction duration factor "M" that applies to the calculation for each period. The completed RUSLE calculations are provided in Attachment 7 and indicate that offsets equivalent to 3,402 pounds are required to construct the Project.

Operational Phase Sediment Loading Calculations

Under existing conditions, stormwater runoff is not treated from approximately 0.8 acres of impervious surface associated with the Inglenook Lodge and gravel parking area, as the existing facility predates the requirement for operational phase stormwater management. The Project would result in runoff from these areas being directed to an infiltration pond, which would provide treatment and control resulting in a net reduction of sediment loading within the watershed. In accordance with the guidance provided in the Simple Method Pollutant Loading Calculation Worksheet, the load reduction from treatment in an infiltration pond is assumed to be 98 percent. Accounting for the remaining 2 percent of sediment load (87 pounds) that would not be treated under proposed conditions, the amount of sediment offset provided by the Project will be 1,066 pounds per year (see Attachment 8). Because this sediment load reduction would occur as soon as site work upgradient from the infiltration pond was completed and the pond could be brought online, this offset is proposed to be used as a component of the required construction phase sediment offset. Although the sediment loading associated with the construction phase is temporary, the Settlement Agreement requires that a permanent sediment offset be developed to offset discharges to impaired waters. As described above, the remainder of the operational phase sediment load associated with new impervious area (2 percent, in this case), must also be offset and thus reduces the offset available for construction phase discharges by that amount.

Offset Calculations

As described above, sediment loading associated with construction activities requires 3,402 pounds of sediment to be offset. As described above, providing treatment and control of runoff from the existing Inglenook site would provide 1,066 pounds of sediment offset. The offset bank established by the WQRP includes 2,613 pounds of sediment offset within the Tributary 9 / Jay Branch watershed that was generated by the North Village Road offset project completed in 2015. Copies of the WQRP sediment offset worksheets are included in Attachment 9. Thus, the total sediment offset quantity available in the overall Jay Branch watershed is 3,679 pounds per year, which exceeds the required offset for the Project. The remaining 277 pounds of sediment offset would remain in the offset bank for the Tributary 9 subwatershed.

Table 1 provides a summary of credits in the existing Jay Branch offset bank, the additional credits associated with the redevelopment of the Inglenook Lodge facility, and the debits associated with construction phase sediment loads. The

Memorandum

Inglenook sediment offset includes a reduction of 87 pounds to offset the remainder of the load associated with the operational phase stormwater system.

Table 1. Jay Peak Athletic Fields Sediment Load and Offset Bank Summary

Project Component	Annual Sediment Load
Tributary 9 / Jay Branch Offset Bank (North Village Road Offset Project)	2,613 lbs.
Inglenook Lodge Offset Project	1,066 lbs.
Athletic Fields - Construction Load	(3,402 lbs.)
Remaining Sediment Load Credit (Tributary 9 Offset Bank)	**277 lbs.**

Conclusion

The proposed Project has been designed to minimize sediment loading to Jay Branch during and following the completion of construction. The contractor has been actively involved in the design of the best management practices to be employed during construction to maximize the effectiveness of erosion prevention and sediment control. Their experience with this type of work and the schedule that has been proposed will minimize the amount of exposed soils at any given time during construction. The Project will take advantage of the sandy soils on site to infiltrate runoff to the extent practicable and will use a temporary sedimentation basin that meets the requirements of the Vermont Standards & Specifications to achieve significant reduction of sediment discharge during the construction phase of the Project. Because the Project involves pervious playing fields incorporating subbase materials that encourages infiltration into sandy soils, operational phase sediment loads from the site are expected to be minimal, and have been offset in accordance with the requirements of the Settlement Agreement. An offset project is included in the redevelopment of the site and will direct existing untreated stormwater to a forebay and infiltration pond. These efforts will provide an additional source of credits to offset the construction phase load and will lower the operational phase sediment load from the site. Between the offset bank and the on-site project, sufficient credits are available to offset sediment loads in accordance with the terms of the Settlement Agreement.

References:

EPA 2012. Stormwater Phase II Final Rule Construction Rainfall Erosivity Waiver, EPA 833-F-00-014. Revised March 2012, Fact Sheet 3.1.

Vermont Department of Environmental Conservation 2006. The Vermont Standards & Specifications for Erosion Prevention & Sediment Control. Last revised February 20, 2008.

ATTACHMENT 1

Jay Peak Resort
Synthetic Soccer field complex
Project Schedule
9/19/2017

	2017				
Description	Oct.				
	2	9	16	23	30
Permit application					

	2018																					
	April	May				June				July					August				Sept			
	30	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	3	10	17	25
CONSTRUCTION Field 2 (Lower)																						
Clearing (JPR - winter prior)																						
Mobilization																						
Erosion and sediment control																						
Grubbing																						
Topsoil management																						
Earthworks																						
Temporary stabilization																						
Drainage																						
Concrete curb																						
Aggregate installation																						
Finishing work																						
Paving																						
Turf installation																						
Grassing																						
Area impacted (AC)	0	2.9	5.8	5.8	5.8	2.9	2.9	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0

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	2018																					
	April	May				June				July					August				Sept			
	30	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	3	10	17	25
CONSTRUCTION Field 1 (Higher)																						
Clearing (JPR - winter prior)																						
Mobilization																						
Erosion and sediment control																						
Grubbing																						
Topsoil management																						
Earthworks																						
Temporary stabilization																						
Drainage																						
Concrete curb																						
Aggregate installation																						
Finishing work																						
Paving																						
Turf installation																						
Grassing																						
Area impacted (AC)	0	1.9	3.7	3.7	3.7	3.7	3.7	2.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0

Jay Peak Resort
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	2018																					
	April	May				June				July					August				Sept			
	30	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	3	10	17	25
CONSTRUCTION Access Road																						
Clearing (JPR - winter prior)																						
Mobilization																						
Erosion and sediment control																						
Grubbing																						
Topsoil management																						
Earthworks																						
Aggregate installation																						
Grassing																						
Area impacted (AC)	0	1.6	3.2	3.2	3.2	3.2	3.2	1.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total Area impacted (AC)	0	6.4	12.7	12.7	12.7	9.8	9.8	5.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0

ATTACHMENT 2

EPSC NARRATIVE

Introduction

ON BEHALF OF THE APPLICANTS, JAY PEAK, INC. AND SVEIN KRUSE, THIS EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) PLAN NARRATIVE AND THE ENCLOSED MATERIALS PREPARED BY VHB COMPRISE AN APPLICATION TO OBTAIN COVERAGE FROM THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION (VT DEC) UNDER AN INDIVIDUAL CONSTRUCTION STORMWATER DISCHARGE PERMIT (INDC) FOR THE PLANNED CONSTRUCTION OF THE JAY PEAK RESORT ATHLETIC FIELDS PROJECT (PROJECT) LOCATED IN THE TOWN OF JAY, VERMONT (SEE SITE LOCATION MAP IN ATTACHMENT 2). COMPLETION OF THE APPENDIX A RISK EVALUATION FOR THIS PROJECT DETERMINED THAT THE PROJECT IS ELIGIBLE FOR GP 3-9020 AS A MODERATE RISK PROJECT, HOWEVER GIVEN THE FACT THAT JAY PEAK, INC. IS ALREADY OPERATING UNDER AN INDC THIS APPLICATION HAS BEEN PREPARED AS AN AMENDMENT TO THAT PERMIT.

Project Description:

THE EPSC PLAN NARRATIVE HAS BEEN PREPARED USING PART 4.1 (C) AND APPENDIX B OF GENERAL PERMIT 3-9020, AS GUIDANCE. THE FOLLOWING SECTIONS (A) THROUGH (M) OF THIS NARRATIVE ADDRESS REQUIRED EPSC PLAN NARRATIVE ELEMENTS IN THE ORDER THAT THEY ARE PRESENTED IN APPENDIX B OF GENERAL PERMIT 3-9020. THIS EPSC PLAN NARRATIVE AND THE ASSOCIATED EPSC PLAN HAVE BEEN PREPARED IN CONFORMANCE WITH THE MOST RECENT EDITION OF THE VERMONT STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL (2006, AMENDED 2008).

a. PROJECT TYPE AND DESCRIPTION: THE PROJECT WILL INVOLVE THE INSTALLATION OF TWO SYNTHETIC TURF ATHLETIC FIELDS, PARKING AREA AND ACCESS DRIVE, PATHWAYS, UTILITIES, AND STORMWATER TREATMENT PRACTICES. THE PROJECT WILL UTILIZE EXISTING ACCESS DRIVES FOR THE FORMER INGLENOOK LODGE AND AN EXISTING RESIDENTIAL DRIVE/WOODS TRAIL.

b. MAJOR PROJECT COMPONENTS: MAJOR PROJECT COMPONENTS INCLUDE THE CLEARING OF APPROXIMATELY 11 ACRES OF WOODED AREA, LARGE SCALE SITE GRADING TO LEVEL THE PLAYING FIELD AREAS, THE INSTALLATION OF THE FIELD SURFACES AND PARKING LOT, AND THE INSTALLATION OF STORMWATER DRAINAGE AND TREATMENT FEATURES, AND ELECTRICAL SERVICE INSTALLATION TO THE FIELDS. THE PROJECT ALSO INCLUDES THE INSTALLATION OF A TEMPORARY SEDIMENT BASIN AT THE LOW POINT OF THE SITE FOR CONSTRUCTION STORMWATER TREATMENT.

c. TOTAL EARTH DISTURBANCE: THE TOTAL EARTH DISTURBANCE ASSOCIATED WITH THIS PROJECT IS ESTIMATED TO BE 14.50 ACRES WITH A MAXIMUM CONCURRENT DISTURBANCE OF 12.70 ACRES. THE RELATIVELY LARGE CONCURRENT DISTURBANCE IS REQUIRED FOR THE CONSTRUCTABILITY OF THE PLAY FIELDS WHICH REQUIRE A LARGE CUT/FILL.

d. SEQUENCE OF MAJOR PROJECT COMPONENTS: THE OVERALL SEQUENCE OF CONSTRUCTION WILL GENERALLY OCCUR AS DESCRIBED IN THIS SECTION OF THE NARRATIVE WITH REFERENCE TO SPECIFIC PROJECT COMPONENTS HEREIN. EPSC MEASURES WILL BE INSPECTED AND MAINTAINED DURING CONSTRUCTION AND THEN REMOVED ONCE THE PROJECT IS COMPLETE AND THE DISTURBED AREAS ARE STABILIZED. THE PROJECT GENERAL CONSTRUCTION SEQUENCE IS AS FOLLOWS:

1.0 INSTALLATION OF PROJECT DEMARCATION FLAGGING AROUND PERIMETER OF WORK AREA
2.0 TREE CLEARING IN LATE WINTER/EARLY SPRING
3.0 INSTALLATION OF EPSC MEASURERS (E.G. SILT FENCE) TO PREPARE FOR EARTH DISTURBANCE
3.0 INSTALLATION OF TEMPORARY SEDIMENT BASIN AND PERIMETER SWALES TO DIRECT RUNOFF TO BASIN
4.0 STUMPING/GRUBBING AND INSTALLATION OF MULCH BERM
5.0 CUT/FILL OPERATIONS FOR PLAY FIELDS AND INSTALLATION OF FIELD SURFACES
6.0 INSTALLATION OF PARKING LOT AND UTILITIES
7.0 INSTALLATION OF PERMANENT STORMWATER TREATMENT PRACTICES
8.0 ON-GOING INSTALLATION AND MAINTENANCE (E.G. REPAIR AND REPLACEMENT) OF EPSC MEASURERS AS CONSTRUCTION ACTIVITIES PROGRESS.
9.0 INSTALLATION OF PERIMETER FENCE
10.0 STABILIZATION, EPSC MEASURE REMOVAL, AND SITE CLEANUP

e. MAXIMUM CONCURRENT EARTH DISTURBANCE: THE TOTAL MAXIMUM CONCURRENT EARTH DISTURBANCE FOR THIS PROJECT WILL BE 12.70 ACRES. CONCURRENT DISTURBANCE HAS BEEN LIMITED TO THE EXTENT POSSIBLE BY PHASING THE INSTALLATION OF THE PARKING AREA AND ADJACENT AREAS. THE TOTAL MAXIMUM CONCURRENT DISTURBANCE FOR THE JAY PEAK RESORT DEVELOPMENT, OF WHICH THIS PROJECT IS A PART OF, IS APPROXIMATELY 17 ACRES. THIS TOTAL CONCURRENT DISTURBANCE ALLOWS FOR 2 ACRES OF DISTURBANCE AT EACH OF THE COTTAGES AND RECREATION CENTER PROJECTS, WHICH IS CONSISTENT WITH THE PREVIOUSLY PERMITTED CONCURRENT DISTURBANCE LIMITS FOR THOSE PROJECTS.

f. VEGETATED BUFFERS: THE PROJECT WILL MAINTAIN A 50 FOOT VEGETATED BUFFER TO THE RECEIVING WATERS AT A MINIMUM.

g. DURATION OF EXPOSED SOILS: THE TOTAL DURATION OF EXPOSED SOILS FOR THE PROJECT WILL BE SEVEN DAYS FROM THE INITIAL DISTURBANCE, WHILE IMPLEMENTING THE PERMITTED EPSC PLAN TO TEMPORARILY OR PERMANENTLY STABILIZE AREAS AS SOON AS PRACTICABLE. THE RISK EVALUATION HAS BEEN SCORED ACCORDINGLY.

h. RECEIVING WATERS: THE RECEIVING WATERS FOR THIS PROJECT ARE THE JAY BRANCH BROOK AND AN UNNAMED WETLAND TRIBUTARY TO THE JAY BRANCH BROOK.

i. DRAINAGE AREAS AND SOIL TYPES: THERE ARE TWO DRAINAGE AREAS ASSOCIATED WITH THE PROJECT SITE, A 12.7 ACRE AREA DRAINING TO THE SEDIMENT BASIN AND A SMALLER 1.8 ACRE DRAINAGE AREA. SOILS IN THE PROJECT AREA ARE PRIMARILY COLTON-DUXBURY COMPLEX, 8-15% SLOPES AND CABOT SILT LOAM, 0-8% SLOPES, VERY STONY. THESE SOILS HAVE AN ERODIBILITY FACTOR OF 0.24 AND 0.55 RESPECTIVELY.

j. STREAM CROSSINGS: THERE ARE NO STREAM CROSSINGS PROPOSED AS PART OF THIS PROJECT.

k. WETLAND IMPACTS: THE PROJECT HAS BEEN DESIGNED TO AVOID IMPACTS TO THE ADJACENT WETLANDS AND 50-FOOT BUFFERS. THE DISCHARGE PIPING FOR THE OPERATIONAL STORMWATER TREATMENT WILL BE INSTALLED IN THE EXISTING EASTERLY ACCESS TO THE SITE THEREBY AVOIDING ADDITIONAL BUFFER IMPACTS. THE PROJECT WILL NOT IMPACT ANY CLASS II WETLANDS AND/OR BUFFERS AND THEREFORE WILL NOT REQUIRE A VT DEC WETLAND PERMIT.

l. OFF-SITE WASTE AND BORROW AREAS: CONSTRUCTION OF THE PROJECT IS NOT EXPECTED TO GENERATE ANY ADDITIONAL WASTE TO BE DISPOSED OF OFF-SITE AND SOIL WASTE STOCKPILE AREAS WILL BE LOCATED WITHIN THE PROJECT LIMIT OF DISTURBANCE. BORROW MATERIAL WILL BE REQUIRED FOR THE PROPOSED GRAVEL DRIVE ASSOCIATED WITH THE PROJECT. DEC WILL BE NOTIFIED PRIOR TO USE ONCE THE BORROW LOCATION(S) GRAVEL DRIVE HAS BEEN DETERMINED.

Erosion Prevention and Sediment Control Plan:

THE EPSC PLAN PROVIDES THE CONTRACTOR WITH SPECIFIC INSTRUCTIONS FOR CONSTRUCTION AND STABILIZATION ACTIVITIES DURING BOTH THE REGULAR AND WINTER CONSTRUCTION SEASONS. THE EPSC PLAN ALSO PROVIDES THE CONTRACTOR WITH INFORMATION SPECIFIC TO EPSC MEASURES TO BE INSTALLED IF CONSTRUCTION ACTIVITIES ARE OCCURRING WITHIN 50-FEET OF WATER RESOURCE AREAS (E.G. STREAMS AND WETLANDS). LASTLY, THE EPSC PLAN PROVIDES THE CONTRACTOR WITH INSTRUCTIONS TO BE FOLLOWED IN ANTICIPATION OF RAINFALL AND/OR THAW EVENTS IN ORDER TO MINIMIZED THE POTENTIAL FOR EROSION AND, IN TURN, MAINTAIN SEDIMENT ON-SITE TO THE EXTENT PRACTICABLE.

SEQUENCE OF EARTHWORK

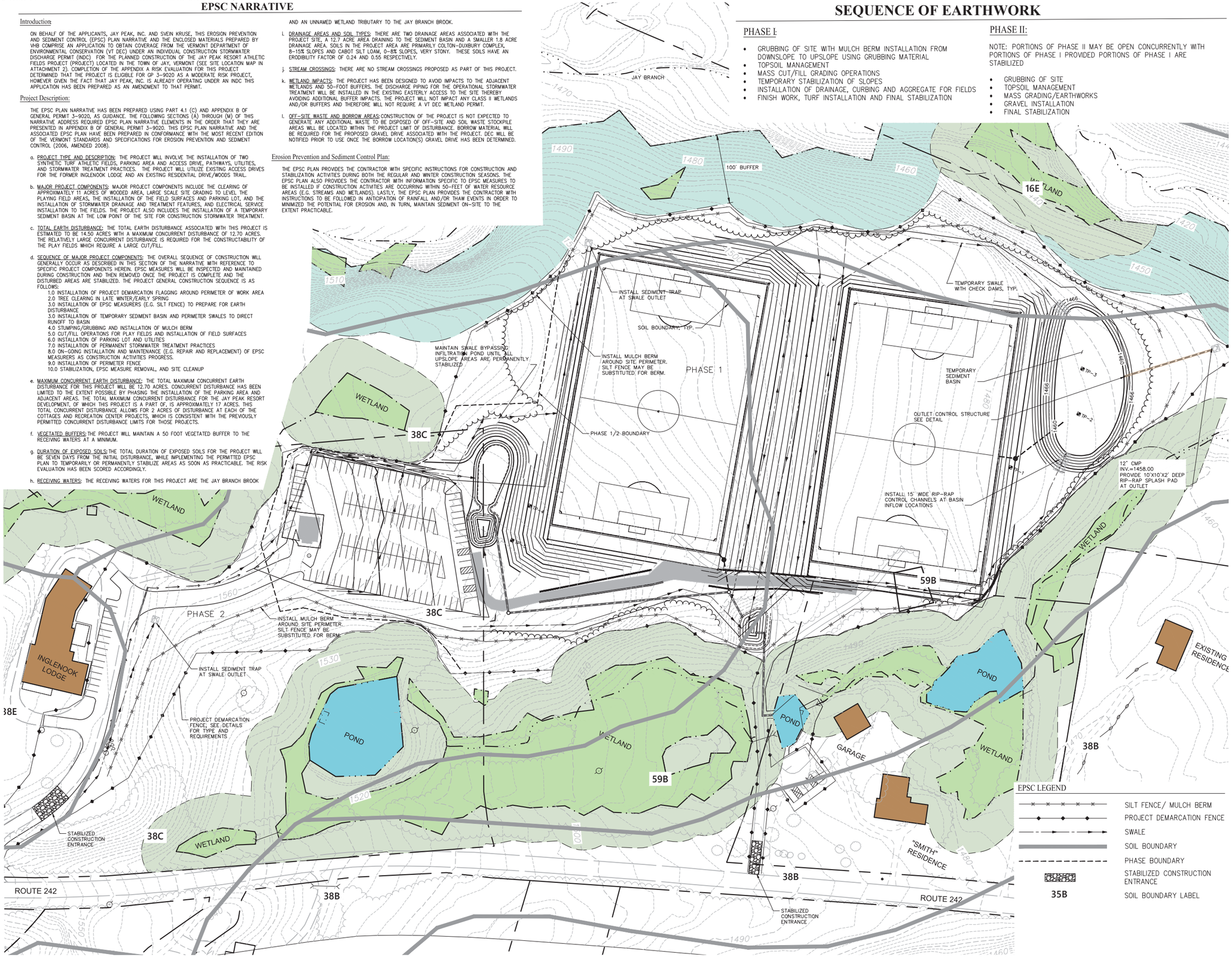
PHASE I:

- GRUBBING OF SITE WITH MULCH BERM INSTALLATION FROM DOWNSLOPE TO UPSLOPE USING GRUBBING MATERIAL
- TOPSOIL MANAGEMENT
- MASS CUT/FILL GRADING OPERATIONS
- TEMPORARY STABILIZATION OF SLOPES
- INSTALLATION OF DRAINAGE, CURBING AND AGGREGATE FOR FIELDS
- FINISH WORK, TURF INSTALLATION AND FINAL STABILIZATION

PHASE II:

NOTE: PORTIONS OF PHASE II MAY BE OPEN CONCURRENTLY WITH PORTIONS OF PHASE I PROVIDED PORTIONS OF PHASE I ARE STABILIZED

- GRUBBING OF SITE
- TOPSOIL MANAGEMENT
- MASS GRADING/EARTHWORKS
- GRAVEL INSTALLATION
- FINAL STABILIZATION



EPSC LEGEND

- SILT FENCE/ MULCH BERM
- PROJECT DEMARCATION FENCE
- SWALE
- SOIL BOUNDARY
- PHASE BOUNDARY
- STABILIZED CONSTRUCTION ENTRANCE
- 35B — SOIL BOUNDARY LABEL

0 30 60 120 Feet

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Jay Peak Resort Athletic Fields
830 Jay Road
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No.	Revision	Date	Appvd.
1	DEC COMMENTS	12/19/2017	AGM

Designed by: TAS
Checked by: AGM
Issued for: Stormwater Permitting
Date: Oct. 25, 2017

Not Approved for Construction

Drawing Title: **Erosion Control Plan**

Drawing Number: **ERO-1**

Sheet 1 of 5

Project Number: 57958.00

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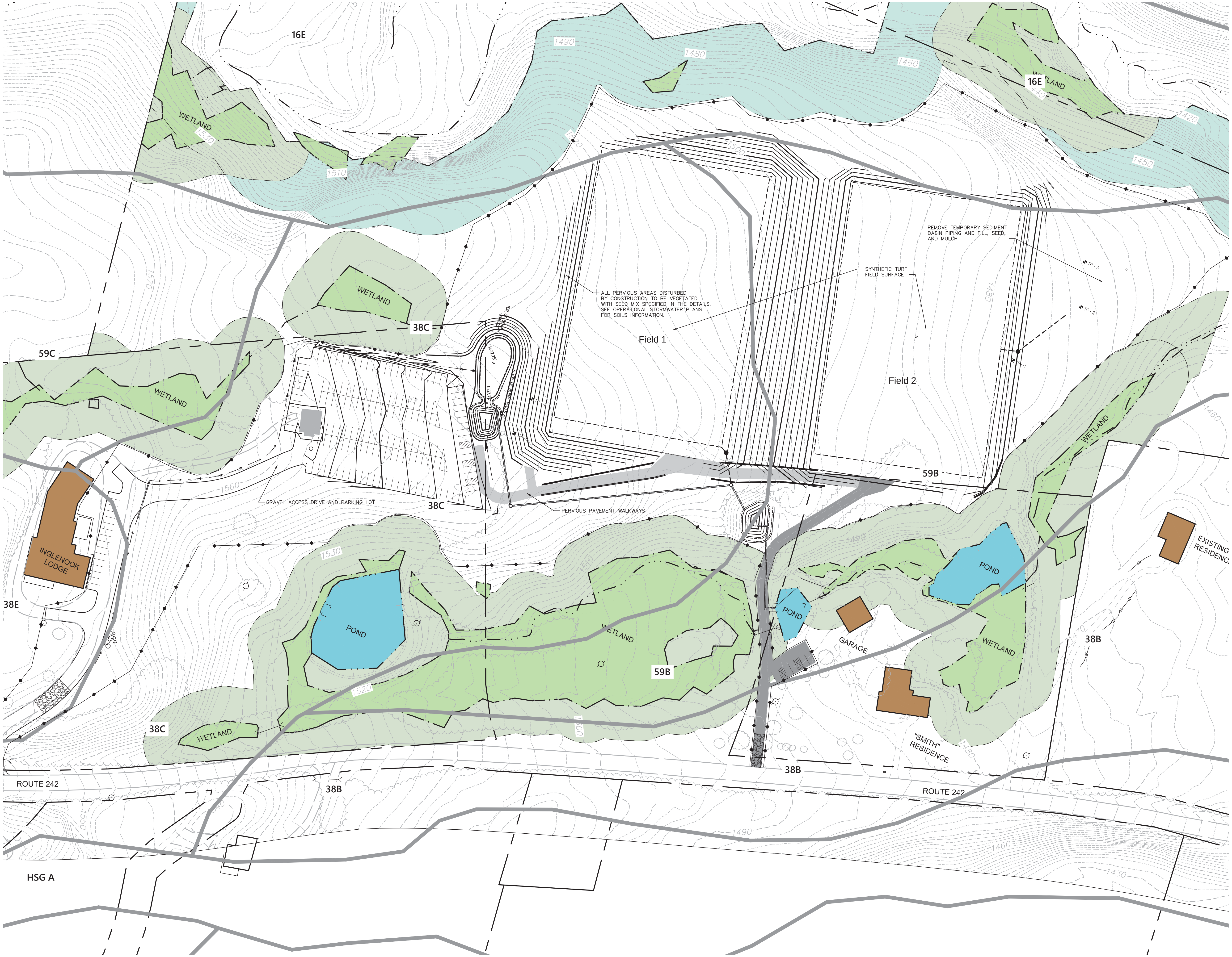

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Jay Peak Resort Athletic Fields

830 Jay Road
Jay, Vermont 05859

No.	Revision	Date	Appvd.

Designed by TAS
Checked by AGM

Issued for Stormwater Permitting
Date Oct. 25, 2017

Not Approved for Construction

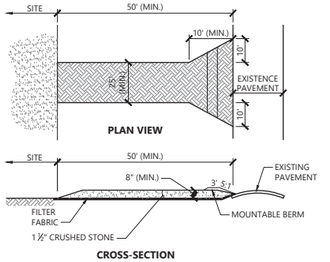
Drawing Title
Final Stabilization Plan

Drawing Number
ERO-2

Sheet 1 of 5

Project Number
57958.00

Saved Thursday, October 26, 2017 10:00:30 AM AMILLS Plotted Thursday, October 26, 2017 11:05:14 AM Mills, Andrew



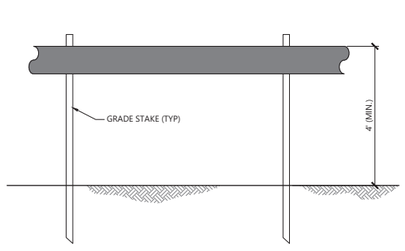
NOTES

1. AGGREGATE SIZE: USE A MATRIX OF 1 TO 4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH: NOT LESS THAN 50 FEET (EXCEPT ON SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH APPLIES)
3. THICKNESS: NOT LESS THAN EIGHT (8) INCHES
4. WIDTH: TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT MINIMUM IF THERE IS ONLY ONE ACCESS TO THE SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE
6. ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION EXITS SHALL BE PIPED BENEATH THE EXIT. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

Stabilized Construction Exit

1/16

N.T.S. Source: VHB LD_682-VT



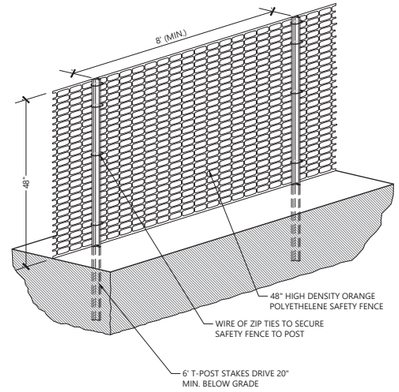
NOTES

1. BARRIER MESH TAPE OR ROPE SHALL BE INSTALLED ALONG THE PERIMETER OF THE PROJECT AREA TO DEMARCATE THE LIMIT OF DISTURBANCE. NO EARTHWORK OR STORAGE OF MATERIALS SHALL BE CONDUCTED BEYOND THIS LIMIT WITHOUT PRIOR APPROVAL FROM THE OSPC.
2. USE 3" ORANGE BARRIER MESH TAPE OR 1/2" YELLOW POLYPROPYLENE ROPE.
3. WITHIN 50' OF WATER RESOURCE AREAS, USE 2-3 ROWS OF TAPE OR ROPE. BEYOND 50' OF WATER RESOURCE AREAS USE 1 ROW OF TAPE OR ROPE.
4. TAPE OR ROPE MAY BE FASTENED TO STAKES, TREES, OR OTHER APPROPRIATE FIXED OBJECTS.
5. PROJECT DEMARCATION SHALL NOT CROSS ACTIVE ACCESS ROUTES (E.G. ROADS). PROJECT DEMARCATION MAY CROSS RESOURCES AREAS WITH EXCEPTION OF LARGER WATER BODIES WHERE IT IS NOT FEASIBLE OR ADVISABLE.
6. PROJECT DEMARCATION SHALL REMAIN IN PLACE AND BE MAINTAINED/REPLACED AS NEEDED UNTIL FINAL STABILIZATION IN THE AREA HAS BEEN ACHIEVED.

Barrier Mesh Tape or Rope

08/16

N.T.S. Source: VHB LD_VT



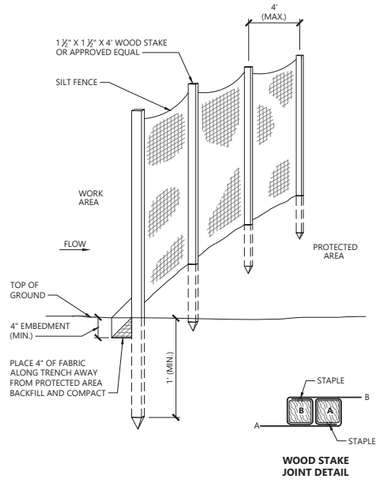
NOTES

1. **CONSTRUCTION/SNOW FENCE SHALL BE INSTALLED WITHIN 50' OF A WATER RESOURCE, (STREAM, BROOK, LAKE, POND, ETC.) UNLESS THE AREA IS DENSELY WOODED, IN WHICH CASE 2 TO 3 ROWS OF ORANGE BARRIER MESH TAPE OR ROPE MAY BE USED.**
2. **CONSTRUCTION/SNOW FENCE SHALL NOT CROSS ACTIVE ACCESS ROUTES (E.G. ROADS). CONSTRUCTION/SNOW FENCE MAY CROSS RESOURCE AREAS WITH THE EXCEPTION OF LARGER WATER BODIES WHERE IT IS NOT FEASIBLE OR ADVISABLE.**
3. **CONSTRUCTION/SNOW FENCE SHALL REMAIN IN PLACE AND BE MAINTAINED/REPLACED AS NEEDED UNTIL FINAL STABILIZATION IN THE AREA HAS BEEN ACHIEVED.**

Construction/Snow Fence

08/16

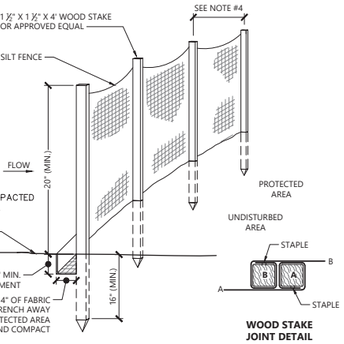
N.T.S. Source: VHB LD_651-VT



Silt Fence Barrier

1/16

N.T.S. Source: VHB LD_650



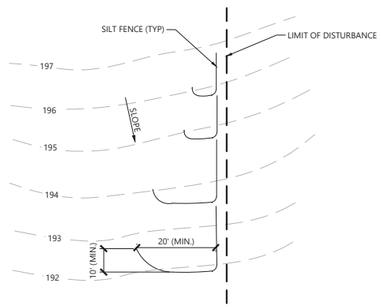
NOTES

1. **WOVEN WIRE FENCE REINFORCEMENT IS REQUIRED WITHIN 50 FT UPSLOPE OF RECEIVING WATERS.**
2. **WHERE REQUIRED FENCE SHALL BE WOVEN WIRE, MIN. 14 GAUGE WITH A 6" MESH OPENING SHALL BE USED.**
3. **FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUIVALENT.**
4. **POST SPACING FOR WIRE BACKED FENCE SHALL BE 10 FT. MAX. FOR FILTER CLOTH FENCE WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4 FT. FOR FILTER CLOTH FENCE WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6 FT.**
5. **WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6 INCHES AND FOLDED.**
6. **PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE OR APPROVED EQUIVALENT.**
7. **MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.**
8. **SILT FENCE SHALL NOT BE USED TO DEMARCATE LIMITS OF DISTURBANCE.**

Silt Fence/ Reinforced Silt Fence Barrier

08/16

N.T.S. Source: VHB LD_650-VT



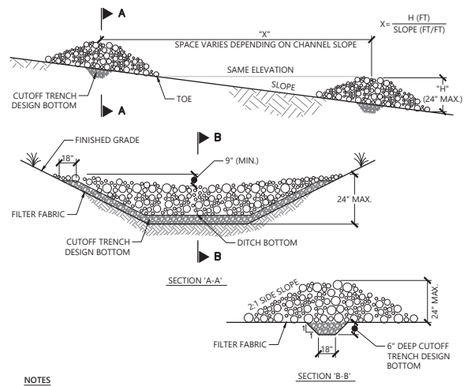
NOTES

1. SILT FENCE SHALL BE INSTALLED IN SHORTER RUNS WITH "J-HOOKS" TO AVOID CONCENTRATION OF FLOWS AT ONE LOCATION BY TRAPPING RUNOFF AT MULTIPLE POINTS ALONG A SLOPE.
2. MINIMUM WIDTH OF J-HOOK RECOMMENDED AT 20 FT WITH A DEPTH OF 10 FT. WHERE SPACE IS LIMITED (E.G., ALONG NARROW RIGHTS OF WAY), NARROWER HOOKS CAN BE USED WITH A HIGHER SPACING FREQUENCY.
3. START DOWN-GRADIENT SILT FENCE LINE AS CLOSE AS POSSIBLE TO UP-GRADIENT J-HOOK.

Installation of "J-Hooks" on Slopes

08/16

N.T.S. Source: VHB LD_VT



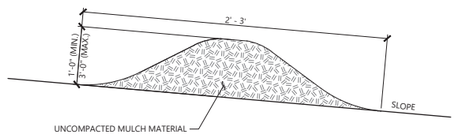
NOTES

1. **STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN USING A WELL GRADED STONE MATRIX 2 TO 9 INCHES IN SIZE.**
2. **SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.**
3. **EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.**
4. **PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.**
5. **ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.**
6. **MAXIMUM DRAINAGE AREA ABOVE CHECK DAM SHALL NOT EXCEED 2 AC.**

Stone Check Dam

08/16

N.T.S. Source: VHB LD_VT



NOTES

1. **THE TEMPORARY MULCH BERM SHALL BE PLACED UNCOMPACTED IN A WINDROW AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER**
2. **WINDROWS SHALL RUN PARALLEL TO THE BASE OF THE SLOPE, OR AROUND THE PERIMETER OF AFFECTED AREAS. ALONG TALL AND/OR STEEP SLOPES MULTIPLE WINDROWS MAY BE REQUIRED TO MAINTAIN SLOPE STABILITY.**
3. **MULCH BERMS SHALL NOT BE USED IN ANY RUNOFF CHANNELS OR AREAS OF CONCENTRATED FLOW.**
4. **WOOD MULCH SHALL CONSIST OF TREE AND SHRUB DEBRIS RESULTING FROM CLEARING AND GRUBBING AND SHALL BE GROUND BY MECHANICAL MEANS SUCH AS A CHIPPER, HAMMERMILL, TUB GRINDER OR OTHER METHOD APPROVED BY THE ENGINEER. MULCH SIZING VARIES BUT SHALL NOT EXCEED A WIDTH OF 2" OR LENGTH OF 10".**

Temporary Mulch Berm

11/15

N.T.S. Source: VHB LD_

vhb.com
40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100

Jay Peak Resort Athletic Fields

830 Jay Road
Jay, Vermont 05859

No.	Revision	Date	Apprvd.

Designed by TAS Checked by AGM

Issued for Date

Stormwater Permitting Oct. 25, 2017

Not Approved for Construction

Drawing Title

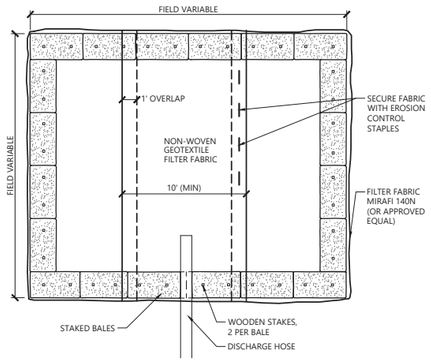
Erosion Control Details 1

Drawing Number

ERO-3

Sheet 3 of 5

Project Number 57958.00



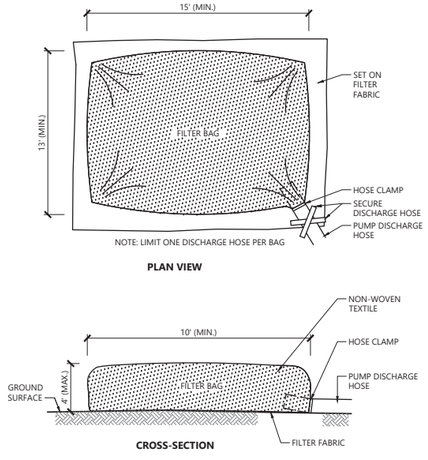
NOTES

1. NUMBER OF BALES MAY VARY DEPENDING ON SITE CONDITIONS.
2. THE BASIN TO BE SIZED TO PREVENT DISCHARGE WATER FROM OVERTOPPING BASIN.

Dewatering Straw Bale Basin

1/16

N.T.S. Source: VHB LD_690



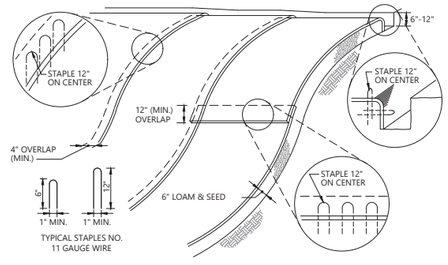
NOTES

1. BAG TO BE USED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

Dewatering Filter Bag

1/16

N.T.S. Source: VHB LD_691



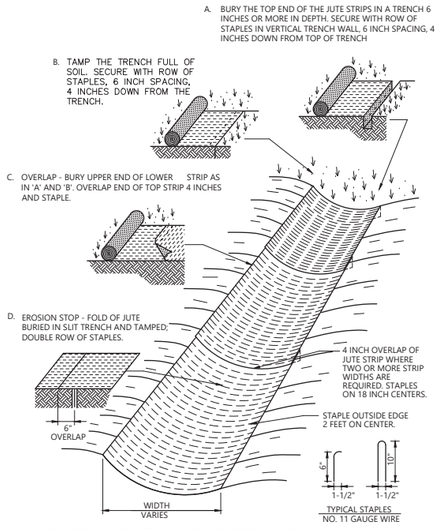
NOTES

1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. METHOD OF INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS.
3. APPLY TOP SOIL, FERTILIZER, LIME AND SEED PRIOR TO PLACING MATTING.
4. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'x225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'x150' ROLL OF MATERIAL.
5. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION PREVENTION AND SEDIMENT CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE, DO NOT STRETCH AND ENSURE CLOSE CONTACT WITH THE GROUND SURFACE..
6. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.
7. BEGIN AT THE TOP OF BLANKET INSTALLATION AREA BY ANCHORING BLANKET IN A 6" TO 12" DEEP TRENCH BACKFILL AND COMPACT TRENCH AFTER STAPLING.
8. ROLL THE BLANKET DOWN IN THE DIRECTION OF THE WATER FLOW.
9. THE EDGES OF BLANKETS MUST BE STAPLED WITH APPROX. 4" OVERLAP WHERE 2 OR MORE STRIP WIDTHS ARE REQUIRED.
10. WHEN BLANKETS MUST BE SPLICED, PLACE UPPER BLANKET END OVER LOWER END WITH 12" (MIN.) OVERLAP AND STAPLE BOTH TOGETHER.

Erosion Control Blanket Swale Installation (Slope)

08/16

N.T.S. Source: VHB LD_703-VT



* INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS

Erosion Control Blanket Swale Installation

08/16

N.T.S. Source: VHB LD_681-VT

MULCH MATERIAL AND APPLICATION

MULCH MATERIAL	QUALITY STANDARDS	PER 1,000 SQ-FT	PER ACRE	DEPTH OF APPLICATION
WOOD CHIPS OR SHAVINGS	AIR DRIED, FREE OF OBJECTIONABLE MATERIAL	500 – 900 LBS	10 – 20 TONS	2" – 7"
WOOD FIBER CELLULOSE (PARTIALLY DIGESTED WOOD FIBERS)	MADE FROM NATURAL WOOD USUALLY WITH GREEN DYE AND DISPERSING AGENT	50 LBS	2,000 LBS	N/A
GRAVEL, CRUSHED STONE OR SLAG	WASHED; SIZE 2B OR 3A – 1 1/2"	9 CY	405 CY	3"
HAY OR STRAW	AIR-DRIED; FREE OF UNDESIRABLE SEEDS AND COARSE MATERIALS	90 – 100 LBS, 2-3 BALES	2 TONS (100-120 BALES)	COVER ABOUT 90% SURFACE
COMPOST	UP TO 3" PIECES, MODERATELY TO HIGHLY STABLE	3 – 9 CY	3 – 9 CY	1-3"
Erosion Control Mix	WELL-GRADED MIXTURE OF PARTICLE SIZES. ORGANIC CONTENT BETWEEN 80-100% DRY WEIGHT. PARTICLE SIZE SHALL PASS 6" SCREEN (100%)	*Slopes 3(Hz.):1(Vert.) = 2 inch depth plus additional 1/2 inch depth per 20 ft. of slope up to 100 ft. **Slopes between 3(Hz.):1(Vert.) and 2(Hz.):1(Vert.) = 4 inch depth plus additional 1/2 inch per 20 ft. of slope up to 100 ft. ***Slopes steeper than 2(Hz.):1(Vert.) applicability to specific site and mulch depth to be reviewed and approved prior to use by OPSC or EPSC Specialist		
Flexterra Erosion Control Product	FLEXTERRA HP-FGM SPECIFICATIONS	TO BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS		

1. APPLY TACKIFIER AS NEEDED TO MINIMIZE POTENTIAL FOR MULCH TO BLOW AWAY.
2. MULCH MUST NOT CONTAIN INVASIVE PLANT SPECIES. (SEEDS OR SEEDLINGS)
3. TACKIFIER MAY BE WATER, NETTING, OR SIMILAR.
4. OTHER THAN EROSION CONTROL MIX, MULCH IS NOT TO BE INSTALLED ON SLOPES > 3:1.

Mulching Notes and Specifications

08/16

N.T.S. Source: VHB LD_VT

TEMPORARY SEEDING

1. AREA TO BE SEEDED MUST BE ROUGH GRADED AND SLOPES PHYSICALLY STABLE.
2. SEEDING METHOD TO RESULT IN GOOD SOIL TO SEED CONTACT.
3. AFTER SEEDING, MULCH THE AREA WITH HAY OR STRAW AT 2 TONS/AC (APPROX 90 LBS/1,000 SF OR 2 BALES/1,000 SF); SEE MULCH DETAIL AND SPECIFICATIONS.
4. MULCH ANCHORING MAY BE NEEDED WHERE WIND OR AREAS OF CONCENTRATED WATER ARE POSSIBLE.
5. WOOD FIBER HYDROMULCH OR OTHER SPRAYABLE PRODUCTS APPROVED FOR EROSION CONTROL MAY BE USED IF APPLIED ACCORDING TO MANUFACTURERS' SPECIFICATIONS.

PERMANENT SEEDING

1. SEE SEEDDING SPECIFICATIONS FOR RECOMMENDED SEED MIXES. USE RIPARIAN AND WETLAND SEEDING MIX WITHIN 50 FEET OF STREAM CROSSINGS AND IN DISTURBED WETLAND AREAS. USE UPLAND NATURAL COMMUNITY MIX WITHIN AREAS IDENTIFIED AS SIGNIFICANT NATURAL COMMUNITIES. USE PERMANENT SEEDING MIX FOR ALL OTHER DISTURBED.UPLAND AREAS. SEE VERMONT STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL FOR ADDITIONAL SEED MIXTURES.
2. AREA TO BE SEEDED MUST BE ROUGH GRADED AND SLOPES PHYSICALLY STABLE; CHISELING OR DISKING MAY BE NEEDED IF SOIL IS COMPACTED.
3. SEEDING METHOD TO RESULT IN GOOD SOIL TO SEED CONTACT.
4. PERMANENT SEEDING TO OCCUR PRIOR TO SEPTEMBER 15TH UNLESS WEATHER PERMITS SEEDING BEYOND SEPTEMBER 15TH.
5. AFTER SEEDING, MULCH THE AREA WITH HAY OR STRAW AT 2 TONS/AC (APPROX 90 LBS/1,000 SF OR 2 BALES/1,000 SF); SEE MULCH DETAIL AND SPECIFICATIONS.
6. MULCH ANCHORING MAY BE NEEDED WHERE WIND OR AREAS OF CONCENTRATED WATER ARE POSSIBLE.
7. WOOD FIBER HYDROMULCH OR OTHER SPRAYABLE PRODUCTS APPROVED FOR EROSION CONTROL MAY BE USED IF APPLIED ACCORDING TO MANUFACTURERS' SPECIFICATIONS.
8. IRRIGATION MAY BE NEEDED TO FACILITATE GRASS GROWTH AND ESTABLISH ADEQUATE GRASS COVER.

TEMPORARY SEEDING MIX

TYPE	SEASON	RATE (LBS/ACRE)
RYEGRASS (ANNUAL OR PERENNIAL)	APRIL 15 – SEPTEMBER 15	20
"AROOSTOOK" WINTER RYE	SEPTEMBER 15 – APRIL 15	90

PERMANENT SEEDING MIX*

TYPE	SEASON	RATE (LBS/ACRE)
BIRDSFOOT TREFOIL(1)**	APRIL 15 – SEPTEMBER 15	5
COMMON WHITE CLOVER (1)**	APRIL 15 – SEPTEMBER 15	8
TALL FESCUE (2)	APRIL 15 – SEPTEMBER 15	10
REDTOP (3)	APRIL 15 – SEPTEMBER 15	2
RYEGRASS (PERENNIAL) (3)	APRIL 15 – SEPTEMBER 15	5

*PERMANENT SEEDING MIX IS A COMBINATION OF BIRDSFOOT TREFOIL OR COMMON WHITE CLOVER PLUS TALL FESCUE PLUS REDTOP OR RYEGRASS (PERENNIAL). I.E. PERMANENT SEEDING MIX = (1) + (2) + (3). (SEE PAGE 4.27 OF THE VERMONT STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL.) ** ADD INOCULANT IMMEDIATELY PRIOR TO SEEDING

RIPARIAN AND WETLAND SEEDING MIX

TYPE	SEASON	RATE (LBS/ACRE)
"WET MEADOW AND DETENTION BASIN"* OR APPROVED EQUAL	APRIL 15 –SEPTEMBER 15	35

*SEED SPECIFIED IS FROM VERMONT WETLAND PLANT SUPPLY AND COMPOSED OF THE FOLLOWING SPECIES: PANICUM VIRGATUM, ELYMUS VIRGINICUS, FESTUCA RUBRA, CAREX VULPINOIDEA, CAREX SCOPARA, SCIRPUS CYPERINUS, SCIRPUS ATROVIRENS, BIDENS CERNUA, EUPATORIUM PERFOLIATUM, EUPATORIADELPHUS MACULATUS, JUNCUS EFFUSUS, ONOCLEA SENSIBILIS, VERBENA HASTATA, SYMPHYOTRICHUM NOVAE-ANGLIAE

UPLAND NATURAL COMMUNITY MIX

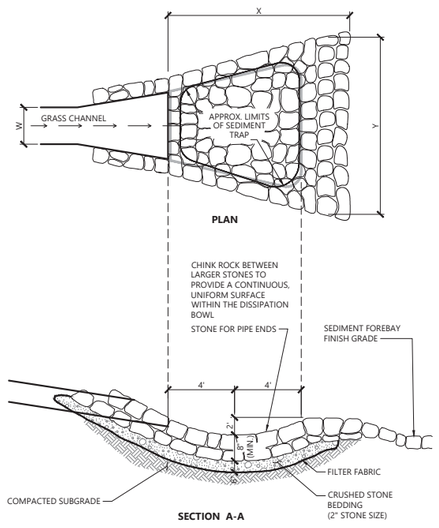
TYPE	SEASON	RATE (LBS/ACRE)
"VERMONT CONSERVATION AND WILDLIFE"* OR APPROVED EQUIVALENT	APRIL 15 –SEPTEMBER 15	25

*SEED SPECIFIED IS, IN PART, FROM VERMONT WETLAND PLANT SUPPLY AND COMPOSED OF THE FOLLOWING SPECIES: ELYMUS VIRGINICUS, FESTUCA RUBRA, SCHIZACHYRIUM SCOPARIUM, ANDROPOGON GERARDI, PANICUM CLANDESTINUM, SORGHASTRUM NUTANS, ASCLEPIA SYRIACA, VERBENA HASTATA, EUPATORIUM FISTULOSUM, EUTHAMIA GRAMINIFOLIA, SOLIDAGO JUNCEA, SYMPHYOTRICHUM NOVAE-ANGLIAE
NOTE: SEE MIX SHOULD EXCLUDE BOTH CHAMAECRISTA FASCICULATA AND HELIOPSIS HELIANTHOIDES, WHICH ARE BOTH COMMONLY INCLUDED IN THIS COMMERCIAL MIX.

Seeding Notes and Specifications

08/16

N.T.S. Source: VHB LD_VT



Sediment Trap

10/17

N.T.S. Source: VHB REV LD

vhb.com
40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100

Jay Peak Resort Athletic Fields

830 Jay Road
Jay, Vermont 05859

No.	Revision	Date	Apprvd.

Designed by TAS Checked by AGM

Issued for Date

Stormwater Permitting Oct. 25, 2017

Not Approved for Construction

Drawing Title

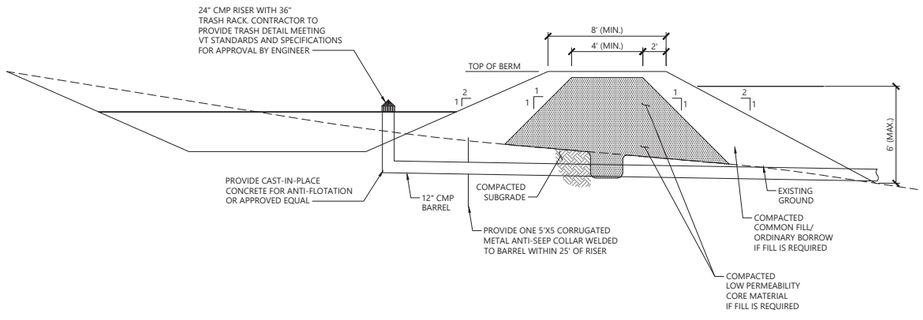
Erosion Control Details 2

Drawing Number

ERO-4

Sheet 4 of 5

Project Number 57958.00



Temporary Sediment Basin Details

10/17

N.T.S. Source: VHB LD_VT

SEDIMENT BASIN DATA

	BASIN #1	UNITS	NOTES
SITE DATA:			
AREA DRAINING TO BASIN	10.6	ACRE	
1-YEAR DESIGN FLOW	7.56	C.F.S.	
10-YEAR DESIGN FLOW	27.64	C.F.S.	
BASIN DATA:			
MIN. SEDIMENT STORAGE VOLUME	1420.400000	CU.YDS.	134 CU.YDS. PER ACRE DRAINING TO BASIN.
PROVIDED SEDIMENT STORAGE VOLUME	2070	CU.YDS.	CALCULATED AS VOLUME BELOW THE TOP OF THE RISER.
TOTAL AVAILABLE STORAGE VOLUME	4513	CU.YDS.	CALCULATED AS VOLUME BELOW THE TOP OF THE BASIN BERM.
CLEANOUT AT 50% MIN. VOLUME	710	CU.YDS.	SEDIMENT IS REQUIRED TO BE REMOVED ONCE IT'S ACCUMULATED TO 50% OF THE MIN. SEDIMENT STORAGE VOLUME.
ELEVATION OF BOTTOM OF BASIN	1460	FT.	
ELEVATION CORRESPONDING TO SEDIMENT CLEANOUT	1462	FT.	ELEVATION AT WHICH 50% OF MIN. SEDIMENT STORAGE VOLUME IS MET.
ELEVATION OF TOP OF RISER	1463	FT.	
ELEVATION OF EMERGENCY SPILLWAY	1466	FT.	
ELEVATION OF TOP OF BASIN	1466	FT.	
DISTANCE BELOW RISER FOR SEDIMENT CLEANOUT	1	FT.	
DIAMETER OF RISER	24	IN.	
WIDTH OF EMERGENCY SPILLWAY	N/A	FT.	
BREATH OF EMERGENCY SPILLWAY	N/A	FT.	
DEPTH OF EMERGENCY SPILLWAY	N/A	FT.	
SURFACE AREA OF BOTTOM OF BASIN	17032	SQ.FT.	
SURFACE AREA OF NORMAL POOL	20265	SQ.FT.	

NOTES

1. FILL MATERIAL SHALL BE CLEAN MINERAL SOIL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, OR OTHER OBJECTIONABLE MATERIAL.
2. RELATIVELY PERVIOUS MATERIALS SUCH AS SAND OR GRAVEL (CLASSIFIED BY U.C.S. AS GW, GP, SW, & SP) SHALL NOT BE PLACED IN THE EMBANKMENT.
3. UNDERLYING SOILS SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL.
4. FILL SHALL BE PLACED AND COMPACTED IN CONTINUOUS LIFTS WITH A THICKNESS NOT GREATER THAN 8 INCHES.
5. DURING CONSTRUCTION OF THE CUTOFF TRENCH THE TRENCH SHALL BE DEWATERED DURING PLACEMENT OF FILL.
6. THE EMBANKMENT SHALL BE STABILIZED IMMEDIATELY FOLLOWING THE CONSTRUCTION AND IN NO CASE SHALL THE EMBANKMENT REMAIN UNSTABILIZED FOR MORE THEN SEVEN (7) DAYS.
7. SEDIMENT SHALL BE REMOVED FROM THE BASIN WHEN IT REACHES THE SPECIFIED HEIGHT BELOW THE RISER AND BE DISPOSED OF IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN.
8. ONCE THE CONTRIBUTING DRAINAGE AREA TO THE SEDIMENT BASIN HAS BEEN PROPERLY STABILIZED, THE EMBANKMENT AND RESULTING SEDIMENT DEPOSITS ARE TO BE LEVELED OR OTHERWISE DISPOSED OF IN ACCORDANCE WITH THE SEDIMENT CONTROL PLAN.
9. CHECK TEMPORARY SEDIMENT BASINS AFTER PERIODS OF SIGNIFICANT RUNOFF, AND INSPECT EMBANKMENT FOR PIPING AND SETTLEMENT.

Temporary Sediment Basin

11/15

N.T.S. Source: VHB LD

General Erosion Control Notes

1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. EPSC MEASURES SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES WITH THE EXCEPTION OF LAND DISTURBANCE THAT MAY RESULT FROM ACCESSING THE AREA(S) WITH EQUIPMENT IN ORDER TO INSTALL THOSE EPSC MEASURES. TEMPORARY EPSC MEASURES INTENDED TO TRAP SEDIMENT SHALL BE INSTALLED AS A FIRST STEP IN LAND DISTURBING ACTIVITIES AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE, WITH THE EXCEPTION OF THOSE LAND DISTURBING ACTIVITIES THAT ARE NECESSARY TO INSTALL MEASURES.
3. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES ON A WEEKLY BASIS (MINIMUM) OR AS REQUIRED PER THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP). THE CONTRACTOR SHALL ADDRESS DEFICIENCIES AND MAINTENANCE ITEMS WITHIN TWENTY-FOUR HOURS OF INSPECTION. CONTRACTOR SHALL PROPERLY DISPOSE OF SEDIMENT SUCH THAT IT DOES NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
4. PROPOSED CHANGES TO THE EPSC PLAN SHALL BE APPROVED BY THE PERMITTEE OR HIS/HER DESIGNEE PRIOR TO IMPLEMENTATION.
5. PERMISSION MUST BE GRANTED BY VT DEC PRIOR TO USE OF ANY SUPPORT ACTIVITIES OCCURRING OUTSIDE OF THE APPROVED PROJECT BOUNDARIES. THIS INCLUDES USE OF OFF-SITE WASTE AND BORROW AREAS.
6. ALL PARTIES ASSOCIATED WITH CONSTRUCTION ACTIVITIES WHO MEET EITHER OF THE FOLLOWING TWO CRITERIA OF "PRINCIPAL OPERATOR"' MUST OBTAIN COVERAGE UNDER THE CONSTRUCTION STORMWATER DISCHARGE PERMIT FOR THE PROJECT PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES BY THAT OPERATOR:
   a. THE PARTY HAS OPERATIONAL CONTROL OVER CONSTRUCTION PLANS AND SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO THE ABILITY TO MAKE MODIFICATIONS TO THOSE PLANS AND SPECIFICATIONS; OR
   b. THE PARTY HAS CONTINUOUS DAY-TO-DAY OPERATIONAL CONTROL OF THOSE ACTIVITIES AT THE PROJECT THAT ARE NECESSARY TO ENSURE COMPLIANCE WITH AN EPSC PLAN FOR THE SITE OR OTHER PERMIT CONDITIONS (E.G., THEY ARE AUTHORIZED TO DIRECT WORKERS AT A SITE TO CARRY OUT ACTIVITIES REQUIRED BY THE EPSC PLAN OR COMPLY WITH OTHER PERMIT CONDITIONS).
7. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
8. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR NO MORE THAN 7 CONSECUTIVE CALENDAR DAYS PRIOR TO BEING STABILIZED. IN ACCORDANCE WITH THE MODERATE RISK GP-9020.
9. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.
10. EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED TO THE EXTENT PRACTICABLE.
11. A VEGETATED BUFFER SHALL BE MAINTAINED FOR WATER RESOURCES (E.G., WETLANDS AND STREAMS) TO THE EXTENT PRACTICABLE.
12. TO THE EXTENT PRACTICABLE, SURFACE FLOW SHALL BE DIVERTED AWAY FROM EXPOSED SOILS AND WATER RESOURCES. CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO OFF SITE AREAS, AND SHALL BE RESPONSIBLE TO REPAIR RESULTING DAMAGES, IF ANY, AT NO COST TO OWNER.
13. RESOURCE AREAS (E.G. STREAMS) WITHIN THE PROJECT AREA SHALL BE FLAGGED PRIOR TO ANY CONSTRUCTION RELATED ACTIVITIES OCCURRING WITHIN CLOSE PROXIMITY TO THOSE AREAS.
14. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH A SEDIMENT TRAPPING DEVICE AND DISCHARGED IN A MANNER THAT DOES NOT RESULT IN IMPACTS TO WATER QUALITY OR CONTRIBUTE TO EROSION. SEE DETAILS FOR MORE INFORMATION.
15. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO THE OTHER APPLICABLE CRITERIA:
   a. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
   b. EXCAVATED MATERIAL SHALL BE PLACED IN UPLAND AREAS ON THE UPHILL SIDE OF THE TRENCHES, WHERE FEASIBLE.
7. SEDIMENT REMOVED FROM SEDIMENT CONTROL PRACTICES SHALL BE DISPOSED OF IN AN UPLAND AREA WITH STABILIZATION FOLLOWING DISPOSAL OF MATERIAL.
8. IN ADVANCE OF FORECASTED RAINFALL OR SNOWMELT, EPSC MEASURES THAT ARE LOCATED IN AREAS OF ACTIVE EARTH DISTURBANCE SHALL BE INSPECTED AND REPAIRED, AS NEEDED.
9. CONTRACTOR SHALL PREVENT DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE AND SHALL BE RESPONSIBLE FOR CLEANUP, REPAIRS AND CORRECTIVE ACTION IF SUCH OCCURS. DUST CONTROL SHALL BE HANDLED VIA WATER OR CALCIUM CHLORIDE APPLICATION TO ROADWAYS AND OTHER AREAS WHERE DUST MAY BE GENERATED.
10. STABILIZED CONSTRUCTION ENTRANCES SHALL BE REGULARLY MAINTAINED TO CONTROL EQUIPMENT AND VEHICLES FROM TRACKING MATERIAL OFF SITE.
11. PERIMETER CONTROLS (E.G., SILT FENCE) SHALL BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS WHERE THERE IS POTENTIAL FOR SOIL EROSION AND/OR SEDIMENT RUNOFF. IN SOME AREAS WHERE THE GROUND SURFACE IS LEVEL AND THERE ARE NO PATHWAYS (E.G., DITCHES OR RUTS) THAT COULD TRANSPORT RUNOFF FROM THE PROJECT AREA, INSTALLATION OF PERIMETER CONTROLS MAY NOT BE NECESSARY PER APPROVAL BY THE ON-SITE PLAN COORDINATOR (OSPC).
12. PRIOR TO STUMPING AND GRUBBING, LOGGING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH ACCEPTABLE MANAGEMENT PRACTICES FOR MAINTAINING WATER QUALITY ON LOGGING JOBS IN VERMONT (AMPS, 2011). CONSTRUCTION MATS AND MAT BRIDGES SHALL BE IN PLACE IN WETLANDS AND STREAM CROSSINGS PRIOR TO ACCESS BY ANY TREE CLEARING EQUIPMENT.
13. STUMPING AND GRUBBING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH THE PROJECTS CONSTRUCTION STORMWATER DISCHARGE PERMIT AND EPSC PLAN.
14. CONSTRUCTION DEMARCATION AND PERIMETER CONTROLS SHALL COMPLY WITH THE FOLLOWING:

    CONSTRUCTION DEMARCATION:
    a. CONSTRUCTION DEMARCATION TO BE INSTALLED ALONG PERIMETER OF LIMITS OF DISTURBANCE PER THE EPSC PLANS
    b. WITHIN 50 FEET OF RESOURCE AREA, DEMARCATION MUST INCLUDE:
       - 2 TO 3 ROWS OF STAKED (OR STAPLED) 3-INCH (MIN.) ORANGE BARRIER MESH TAPE OR,
       - ORANGE CONSTRUCTION FENCE, OR
       - ORANGE SNOW FENCE
    c. WHEN GREATER THAN 50 FEET FROM A WATER RESOURCE AREA, DEMARCATION MAY INCLUDE:
       - ONE ROW OF STAKED (OR STAPLED)3-INCH (MIN.) ORANGE BARRIER MESH TAPE OR,
       - ORANGE CONSTRUCTION FENCE, OR
       - ORANGE SNOW FENCE

    PERIMETER CONTROLS:
    a. PERIMETER CONTROLS ARE TO BE INSTALLED ON THE DOWNSLOPE SIDE OF AREAS OF DISTURBANCE WHERE THERE IS POTENTIAL FOR SEDIMENT RUNOFF AND/OR SOIL EROSION.
    b. PERIMETER CONTROLS ARE NOT TO CROSS ACTIVE ACCESS ROUTES OR PERENNIAL FLOW PATHS (E.G. A STREAM).
    c. PARTICULAR CARE IS TO BE TAKEN WHEN INSTALLING PERIMETER CONTROLS IN A WETLAND.
    d. WITHIN 50 FEET OF A WATER RESOURCE AREA, PERIMETER CONTROLS MUST INCLUDE:
       - REINFORCED SILT FENCE - TO BE REINFORCED WITH WIRE MESH, STAKED HAYBALES, OR STAKED FIBER ROLLS.
    e. WHEN GREATER THAN 50 FEET FROM A WATER RESOURCE AREA, PERIMETER CONTROLS MAY INCLUDE:
       - SILT FENCE (NON-REINFORCED), OR
       - STAKED FIBER ROLLS.
15. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
16. PROJECT DEMARCATION OF AN AREA SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES WITHIN THAT ARE. AN EXCEPTION IS LAND DISTURBANCE THAT MAY BE NEEDED TO ACCESS THE AREA WITH EQUIPMENT IN OR TO INSTALL THE EPSC MEASURES.
17. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH A SEDIMENT TRAPPING DEVICE AND DISCHARGED IN A MANNER THAT DOES NOT RESULT IN IMPACTS TO WATER QUALITY OR CONTRIBUTE TO EROSION.

Pre-construction and Permitting Notes:

1. THE NAME AND DAYTIME PHONE NUMBER OF THE OSPC SHALL BE PROVIDED IN WRITING TO VT DEC PRIOR TO THE START OF CONSTRUCTION.
2. THE NOTICE OF AUTHORIZATION (NOA) ISSUED BY VT DEC SHALL BE POSTED IN A LOCATION THAT IS VISIBLE TO THE PUBLIC (E.G., NEAR THE CONSTRUCTION ENTRANCE).
3. A COPY OF THE EPSC PLAN SHALL BE MAINTAINED ON-SITE DURING NORMAL WORKING HOURS FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE OF FINAL STABILIZATION. THE EPSC PLAN SHALL BE MADE AVAILABLE TO VT DEC UPON REQUEST.

Winter Construction Notes:

1. WINTER CONSTRUCTION SEASON IS DEFINED BY VT DEC AS OCTOBER 15 TO APRIL 15.
2. THE FOLLOWING WINTER CONSTRUCTION CONDITIONS APPLY TO THOSE CONSTRUCTION ACTIVITIES INVOLVING EARTH DISTURBANCE BETWEEN OCTOBER 15 AND APRIL 15:
   a. FOR AREAS STABILIZED BY VEGETATION, SEED SHALL BE APPLIED NO LATER THAN SEPTEMBER 15.
   b. MULCH SHALL BE APPLIED AT DOUBLE THE REGULAR CONSTRUCTION SEASON RATE OR ROUGHLY 2 INCHES OF MULCH WITH 80 TO 90% COVER (SEE MULCH DETAIL). MULCH SHALL BE TRACKED IN OR STABILIZED WITH NETTING.
   c. ENLARGE ACCESS POINTS AS PERMITTABLE TO PROVIDE SPACE FOR SNOW STOCKPILING..
   d. LIMITS OF DISTURBANCE SHALL BE MOVED OR REPLACED TO REFLECT BOUNDARY OF WINTER WORK, AS NEEDED.
   e. CLEARED SNOW SHALL BE PLACED DOWN GRADIENT OF ALL AREAS OF DISTURBANCE WHERE FEASIBLE.
   f. SNOW SHALL NOT BE PLACED IN STORMWATER TREATMENT STRUCTURES. (E.G. BASINS)
   g. TO THE EXTENT PRACTICABLE, A MINIMUM 25-FOOT BUFFER FROM PERIMETER CONTROLS (E.G., SILT FENCE) SHALL BE MAINTAINED TO ALLOW FOR SNOW CLEARING AND MAINTENANCE.
   h. FOR AREAS OF DISTURBANCE WITHIN 100 FEET OF A RECEIVING WATER, SILT FENCE SHALL BE REINFORCED OR ELSE REPLACED WITH PERIMETER DIKES, SWALES, OR OTHER PRACTICES RESISTANT TO THE FORCES OF SNOW LOADS.
   i. DRAINAGE STRUCTURES ARE TO BE KEPT OPEN AND FREE OF SNOW AND ICE DAMS AS DETERMINED BY THE ON SITE PROJECT COORDINATOR.
   j. EPSC MEASURES THAT REQUIRE SOIL DISTURBANCE TO INSTALL (E.G., SILT FENCE) SHALL BE INSTALLED PRIOR TO GROUND FREEZING.
   k. SNOW AND ICE SHALL BE REMOVED TO LESS THAN 1 INCH THICKNESS PRIOR TO STABILIZATION.
   l. A 10 TO 20-FOOT WIDE STONE PAD SHALL BE USED IN AREAS WHERE CONSTRUCTION VEHICLE TRAFFIC IS ANTICIPATED (E.G., AROUND THE PERIMETER OF A BUILDING, WHERE APPLICABLE.
   m. TO ENSURE COVER OF DISTURBED SOIL IN ADVANCE OF A SNOWMELT EVENT, AREAS OF DISTURBED SOIL SHALL BE STABILIZED AT THE END OF EACH WORKDAY, UNLESS
      i. WORK IS TO CONTINUE WITHIN THE AREA WITHIN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST OF THE NEXT 24 HOURS OR
      ii. WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION (I.E., NO OUTLET) WITH A DEPTH OF 2 FEET OR GREATER (E.G., UTILITY TRENCHES).

Temporary and Final Stabilization Notes:

1. DURING REGULAR CONSTRUCTION SEASON, ALL AREAS OF EARTH DISTURBANCE MUST BE STABILIZED WITHIN 14 DAYS OF INITIAL DISTURBANCE. AFTER THIS INITIAL 14-DAY PERIOD, ALL EARTH DISTURBANCE AREAS MUST BE STABILIZED ON A DAILY BASIS, WITH THE FOLLOWING EXCEPTIONS:
   a. STABILIZATION IS NOT REQUIRED IF WORK IS TO CONTINUE WITHIN THE AREA WITHIN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST FOR THE NEXT 24 HOURS.
   b. STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION (I.E., NO OUTLET FOR STORMWATER) WITH A DEPTH OF 2 FEET OR GREATER (E.G., UNDERGROUND UTILITY INSTALLATION).
2. DURING "WINTER CONSTRUCTION," (OCTOBER 15 TO APRIL 15) DISTURBED SOIL MUST BE STABILIZED AT THE END OF EACH DAY, WITH THE FOLLOWING EXCEPTIONS:
   a. 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.
   b. STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION (I.E., NO OUTLET FOR STORMWATER) WITH A DEPTH OF 2 FEET OR GREATER (E.G., UNDERGROUND UTILITY INSTALLATION).
3. DISTURBANCE ACTIVITIES MUST BE COORDINATED TO ENSURE THAT THE ALLOWABLE CONCURRENT EARTH DISTURBANCE IS NOT EXCEEDED. THE MAXIMUM AREA OF EARTH DISTURBANCE THAT IS ALLOWED AT ANY ONE TIME IS 5.0 ACRES.
4. WORK IS TO PROCEED INCREMENTALLY, WITH STABILIZATION OCCURRING IMMEDIATELY FOLLOWING COMPLETION OF AN INDIVIDUAL AREA (E.G. ONE BUILDING PAD OR PARKING AREA)
   TEMPORARY SOIL STABILIZATION SHALL BE ACHIEVED BY MULCH, SEED AND MULCH, HYDROSEEDING WITH MULCH TACKIFIER, SOD, STONE, AND/OR ROLLED EROSION CONTROL PRODUCTS (E.G., EROSION CONTROL BLANKET). MULCH SHALL BE COMPRISED OF STRAW, HAY, COMPOST, WOOD CHIPS, WOOD STUMP GRINDINGS, AND/OR EROSION CONTROL MIX.
5. PERMANENT STABILIZATION SHALL BE ACHIEVED BY 70% VEGETATION COVER, STONE, ASPHALT, BEDROCK, OR OTHER PERMANENT MATERIAL THAT PROVIDES COMPLETE COVER OF EXPOSED SOILS.
6. AREAS THAT HAVE REACHED TEMPORARY OR FINAL STABILIZATION SHALL NOT BE CONSIDERED PART OF TOTAL AREA OF EARTH DISTURBANCE.
7. APPROPRIATE SEED MIX SHALL BE APPLIED TO DESIGNATED AREAS PER THE SEED DETAIL SPECIFICATIONS. FOR AN AREA TO BE STABILIZED FOR WINTER BY VEGETATED COVER, SEEDING MUST BE COMPLETED BY SEPTEMBER 15.
8. AREAS TO BE STABILIZED FOR WINTER THAT DO NOT HAVE ESTABLISHED VEGETATION BY OCTOBER 15 SHALL BE STABILIZED BY ANCHORED MULCH AT THE WINTER APPLICATION RATE, OR OTHER APPROVED STABILIZATION MEASURES (E.G., ROLLED EROSION CONTROL PRODUCT); DORMANT SEEDING WITH WINTER RYE IS RECOMMENDED.
9. ALL FINAL GRADE SLOPES STEEPER THAN 3H:1V SHALL BE STABILIZED WITH BIODEGRADABLE EROSION CONTROL MATTING, UNLESS SHOWN OTHERWISE ON THE SITE STABILIZATION PLAN.
10. ALL TEMPORARY EPSC MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY EPSC MEASURES ARE NO LONGER NEEDED.

OSPC Inspection Requirements:

1. EPSC INSPECTION, MONITORING, AND REPORTING ARE REQUIRED PER THE CONDITIONS OF GENERAL PERMIT 3-9020 STIPULATIONS FOR MODERATE RISK SITES. THE CONTRACTOR IS RESPONSIBLE FOR INSPECTING AND MAINTAINING EROSION PREVENTION AND SEDIMENT CONTROLS THAT MINIMIZE OR ELIMINATE POLLUTANTS IN STORMWATER DISCHARGE.
2. INSPECTIONS BY THE ON-SITE PLAN COORDINATOR (OSPC) SHALL BE CONDUCTED AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS, WITH ADDITIONAL INSPECTION FREQUENCY REQUIRED FOR RAIN EVENTS, WINTER CONSTRUCTION, AND VISIBLE DISCHARGES PER THE CONDITIONS OF PART 6 OF GENERAL PERMIT 3-9020. A WRITTEN REPORT SHALL BE COMPLETED FOR EACH INSPECTION AND SIGNED BY THE OSPC, ALL REPORTS ARE TO BE MAINTAINED ON SITE AND MADE AVAILABLE TO STATE DEC REPRESENTATIVES UPON REQUEST. SEE SECTION 6.2 (G) OF GENERAL PERMIT 3-9020 FOR INSPECTION REPORT REQUIREMENTS.
3. IF VISIBLY DISCOLORED STORMWATER RUNS OFF THE CONSTRUCTION SITE OR RUNS OFF THE CONSTRUCTION SITE AND DISCHARGES TO RECEIVING WATERS, THE CONTRACTOR SHALL TAKE IMMEDIATE CORRECTIVE ACTION TO CORRECT THE DISCHARGE, INCLUDING MAINTAINING EXISTING EPSC MEASURES, AND INSTALLING SUPPLEMENTAL EPSC MEASURES.
4. THE OSPC IS RESPONSIBLE FOR MONITORING, INSPECTING, AND SAMPLING DISCHARGES FROM THE SITE TO MAINTAIN COMPLIANCE WITH GENERAL PERMIT 3-9020. THIS INCLUDES VISUAL MONITORING OF EPSC MEASURES AND DISCHARGES, DISCHARGE SAMPLING, TURBIDITY MONITORING, AND REPORTING. THE MAXIMUM TURBIDITY PERMISSIBLE FOR CONSTRUCTION SITE DISCHARGE IS 25 NTU.
5. SEE PARTS 6, 6.2, AND 6.3 OF GENERAL PERMIT 3-9020 AT HTTP://WWW.VTWATERQUALITY.ORG/STORMWATER/DOCS/CONSTRUCTION/SW_CGP_AMENDED_FINAL.PDF FOR MORE INFORMATION.

On-Site Plan Coordinator (OPSC) Notes:

1. THE OSPC DESIGNATED TO THE PROJECT (AND HIS/HER DESIGNEE) SHALL:
   a. REVIEW VT DEC'S "ON-SITE PLAN COORDINATOR MANUAL",
   b. BE ON-SITE ON A DAILY BASIS (OR HAVE A DESIGNEE THAT IS ON SITE WHEN HE/SHE CANNOT BE),
   c. BE DIRECTLY RESPONSIBLE FOR ON-SITE IMPLEMENTATION OF THE EPSC PLAN,
   d. BE KNOWLEDGEABLE IN THE PRINCIPLES AND PRACTICES OF EPSC,
   e. POSSESS THE SKILLS TO ASSESS CONDITIONS AT THE CONSTRUCTION SITE THAT COULD IMPACT STORMWATER QUALITY,
   f. POSSESS THE SKILLS TO ASSESS THE EFFECTIVENESS OF EPSC MEASURES SELECTED TO CONTROL THE QUALITY OF STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY,
   g. POSSESS THE SKILLS AND EQUIPMENT TO CONDUCT TURBIDITY MONITORING PURSUANT TO THE CONSTRUCTION STORMWATER DISCHARGE PERMIT, AND
   h. HAVE THE AUTHORITY TO STOP AND/OR MODIFY CONSTRUCTION ACTIVITIES AS NECESSARY TO COMPLY WITH THE EPSC PLAN AND THE CONSTRUCTION STORMWATER DISCHARGE PERMIT.
2. ALL PROPOSED CHANGES TO THE EPSC PLAN MUST BE APPROVED BY THE OSPC OR HIS/HER DESIGNEE. THE PLAN DESIGNER OR A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC) PRIOR TO IMPLEMENTATION, AND BE CONSIDERED MINOR AMENDMENTS AS DEFINED IN THE OSPC HANDBOOK. ALL MINOR AMENDMENTS ARE TO BE RECORDED USING THE MINOR AMENDMENT RECORD FORM AND MARKED ON THE MASTER OSPC PLAN SET. ALL MODIFICATIONS THAT FALL OUTSIDE OF THE MINOR AMENDMENT DEFINITION MUST BE APPROVED BY VT-DEC.
3. DURING THE REGULAR CONSTRUCTION SEASON (APRIL 15 TO OCT 15), THE OSPC OR HIS/HER DESIGNEE SHALL CONDUCT INSPECTIONS AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HRS FOLLOWING A STORM EVENT RESULTING IN DISCHARGE OF STORMWATER FROM THE CONSTRUCTION SITE.
4. DURING THE WINTER CONSTRUCTION SEASON (OCT 15 TO APRIL 15), THE OSPC OR HIS/HER DESIGNEE SHALL CONDUCT INSPECTIONS ON A DAILY BASIS DURING ACTIVE EARTHWORK.
5. THE OSPC AND HIS/HER DESIGNEE(S) SHALL FOLLOW TURBIDITY MONITORING PROTOCOLS OUTLINED IN VT DEC'S "MONITORING OF TURBIDITY IN STORMWATER RUNOFF FROM CONSTRUCTION ACTIVITIES" MANUAL.
6. INSPECTIONS CONDUCTED BY THE OSPC OR HIS/HER DESIGNEE SHALL COVER ALL AREAS OF THE SITE THAT ARE BEING ACTIVELY DISTURBED BY CONSTRUCTION OR CONSTRUCTION-RELATED ACTIVITIES, INCLUDING AREAS THAT HAVE BEEN TEMPORARILY STABILIZED.
7. OSPC INSPECTIONS SHALL BE DOCUMENTED USING THE VT DEC INSPECTION REPORT FORM OR A VT DEC-ACCEPTED INSPECTION REPORT FORM.
8. OSPC INSPECTION REPORTS SHALL BE MAINTAINED ON-SITE FOR THE DURATION OF THE PROJECT AND MADE AVAILABLE TO VT DEC UPON REQUEST.

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Jay Peak Resort Athletic Fields

830 Jay Road
Jay, Vermont 05859

No.	Revision	Date	Apprvd.

Designed by TAS Checked by AGM

Issued for Date

Stormwater Permitting Oct. 25, 2017

Not Approved for Construction

Drawing Title
Erosion Control Details 3

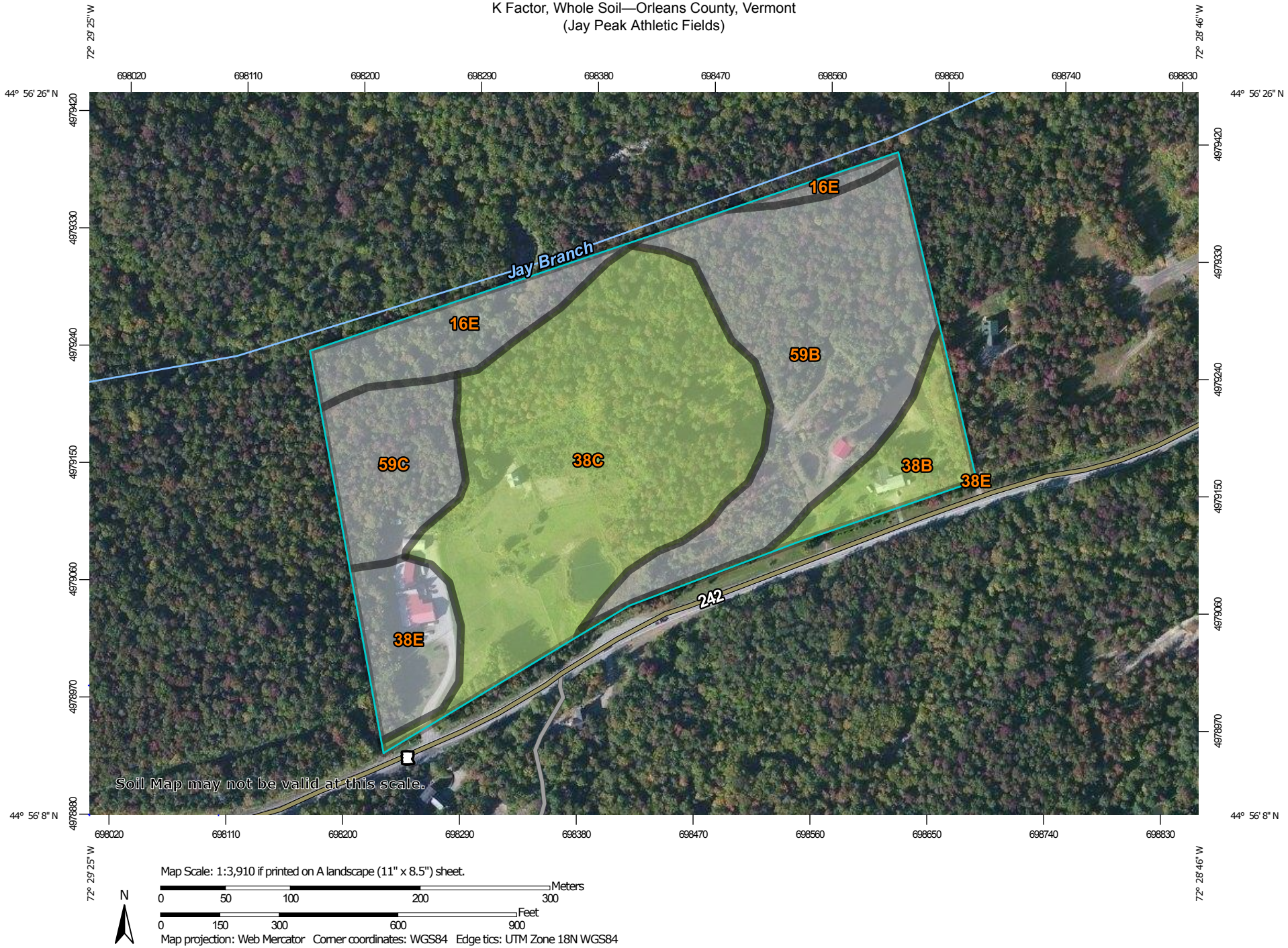
Drawing Number
ERO-5

Sheet 5 of 5

Project Number
57958.00

ATTACHMENT 3

K Factor, Whole Soil—Orleans County, Vermont
(Jay Peak Athletic Fields)



Map Scale: 1:3,910 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
Area of Interest (AOI)

Soils

Soil Rating Polygons
.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Lines
.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Points
.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Water Features
Streams and Canals

Transportation
Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background
Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Orleans County, Vermont
Survey Area Data: Version 23, Sep 15, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 28, 2012—Mar 7, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
16E	Peru fine sandy loam, 35 to 60 percent slopes, very stony		2.8	8.5%
38B	Colton-Duxbury complex, 3 to 8 percent slopes	.24	2.1	6.4%
38C	Colton-Duxbury complex, 8 to 15 percent slopes	.24	13.5	41.1%
38E	Colton-Duxbury complex, 25 to 60 percent slopes		2.1	6.5%
59B	Cabot silt loam, 0 to 8 percent slopes, very stony		9.3	28.4%
59C	Cabot silt loam, 8 to 15 percent slopes, very stony		3.0	9.1%
Totals for Area of Interest			**32.7**	**100.0%**

Description

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

ATTACHMENT 4

Field Notes

Date: 8/29/2017 **Notes Taken By:** Andrew G. Mills, P.E.

Place: Jay Peak Rec Field Site

Project No.: 57958.00 **Re:** Test Pits

Five test pits were dug, three in the area of the proposed sediment basin and two in the area of the proposed infiltration basin. In general, the soils were found to be a well graded, gravel material with small to medium stones. Groundwater was observed in two of pits at the sediment basin. Infiltration tests were performed in three of the pits using a Guelph permeameter. Soil textures were documented using the Soil Texture by Feel method. (S.J. Thien. 1979) A summary of the observations made during the test pitting follows below.

TP1

Pit dug to the south of the sediment basin, wooded area.

0-9" – Topsoil/woods duff

9-48" – brown, loamy sand, some stones, friable. No mottles observed

Groundwater observed in pit at 48", moving rapidly from west to east, down gradient. No infiltration test performed.

TP2

Pit dug in the sediment basin location, wooded area.

0-12" – Topsoil/woods duff

12-48" – light brown sandy loam, some stones, friable, blocky. Roots to 20", no mottles

48"-50" – gray loamy sand, friable, stoney. No mottles, no groundwater observed. Infiltration test performed at 50"

TP3

Pit dug in the sediment basin location, wooded area.

Soil horizons as TP2, with gray loamy sand to 84". Groundwater was observed at 84", moving rapidly from west to east, down gradient. No infiltration test peformed.

Field Notes

TP4

Pit dug in infiltration basin location, wooded area.

0-4" – Topsoil/woods duff

4-18" – reddish brown sandy loam, some stones. No mottles

18-84" – gray loamy sand, stoney. No mottles

Infiltration test performed at 40"

TP5

Pit dug in infiltration basin location, wooded area.

0-4" – Topsoil/woods duff

4"-20" – reddish brown sandy loam, some stones. No mottles

20"-96" – gray loamy sand, stoney. No Mottles

Infiltration test performed at 36"

ATTACHMENT 5

High Performance Erosion Control

Flexterra® HP-FGM™

Profile®

THE 5 Fundamentals For Sustainable Vegetation™

Profile's 5 Fundamentals are the Foundation to Sustainable Vegetation

Establishing sustainable vegetation and receiving the earliest possible Notice of Termination (NOT) are the goals of every project. Profile's 5 Fundamentals are the surest way to get you there. Picking the right cover like Flexterra® HP-HGM™ is just one of the 5 steps.

1. Assess and Create Optimal Soil Conditions

Soil testing provides essential information to determine what adjustments, if any, need to be made to assure a more favorable growing environment for faster, more complete vegetative growth and sustainable establishment.

2. Pick the Right Plant Species

It is essential to select plant species that are adapted to all project parameters.

3. Select the Correct Erosion Control Material

The right cover protects both seed and soil, and facilitates growth. Flexterra HP-FGM is unsurpassed in delivering outstanding coverage.

4. Ensure Proper Installation

Products must be installed in accordance with all mixing and application guidelines to maximize their performance.

5. Follow-up Inspections and Maintenance Practices

Continual monitoring is the only way to ensure all site compliance issues are being addressed. Maintenance may be required to mitigate unexpected challenges.

Profile provides valuable assistance for each of these Fundamentals 24/7—beginning with FREE soil testing. Visit profileps3.com.

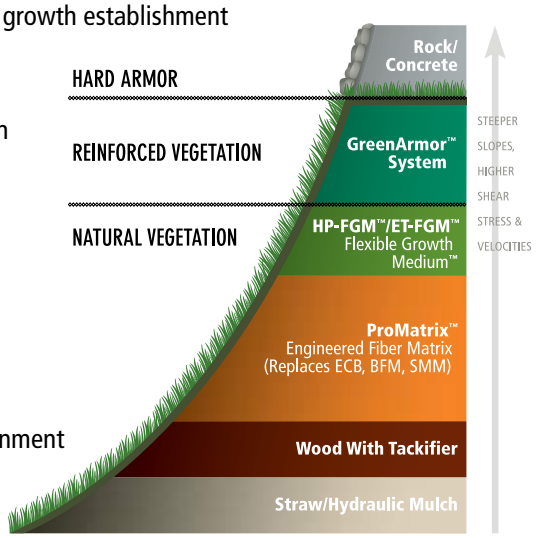
FLEXTERRA® HP-FGM™

Absolutely the Most Effective Erosion Control Medium Available

Flexterra® HP-FGM™ represents the next generation in Flexible Growth Media and is proven to surpass the original's outstanding performance. Fine grading and extensive soil preparation are unnecessary, allowing you to apply the product for immediate protection and superior performance at reduced overall costs.

Flexterra HP-FGM Delivers:

- The highest germination and growth establishment
- Greater than 99% erosion control effectiveness immediately upon application
- 100% biodegradability
- Greater safety for even the most sensitive aquatic environment because it's non-toxic
- Near-perfect erosion control and denser vegetation while protecting the natural environment



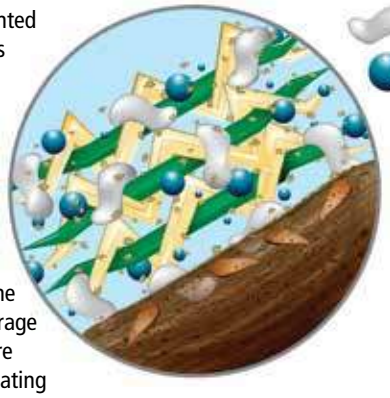
Superior erosion control across Profile's spectrum of products ensures reliable, sustainable solutions for slopes, channels, shorelines, water management projects, pipeline restorations, waste and fly ash containment sites, landfills, fine turf areas and other environmentally sensitive sites.

Patented Technologies and Greener Components Deliver Unmatched Performance

Flexterra HP-FGM combines both chemical and mechanical bonding techniques to lock the engineered medium in place and promote accelerated germination with minimal soil loss. Greener from the inside out, here's what makes it work so well:

Revolutionary patented Micro-Pore particles optimize water and nutrient retention

100% non-toxic biopolymers and water absorbents enhance erosion control resistance and growth establishment



100% recycled Thermally Refined® wood fibers produce the highest yield and coverage per unit weight, and are phyto-sanitized, eliminating weed seeds and pathogens

100% biodegradable interlocking man-made fibers increase mechanical bonding of the matrix to provide immediate performance upon installation

A Closer Look at Micro-Pore Particles and Thermally Refined® Wood Fibers

- Micro-Pore particles trap and hold moisture and nutrients, reduce soil surface evaporation and improve oxygen exchange, which all contribute to faster, more uniform vegetation establishment.
- Micro-Pore particles also increase erosion control effectiveness of the flexible growth medium, resulting in increased resistance to raindrop impact and sheet flow.

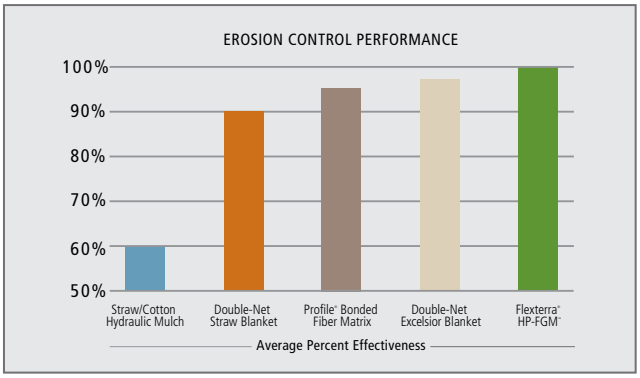
Fibers magnified 45 times by independent lab specializing in fiber analysis.

Inferior wood fibers magnified 45 times.

- 100% recycled wood chips are Thermally Refined® in a process that creates fine, long and highly absorbent fibers that deliver superior yield and coverage, and water-holding capacity.
- Competitive refining technologies develop inferior fibers. You need more bales to achieve the coverage of Profile's Thermally Refined wood fiber matrices. Additionally, claims that competitive mulches save or use less water during application just don't hold water.

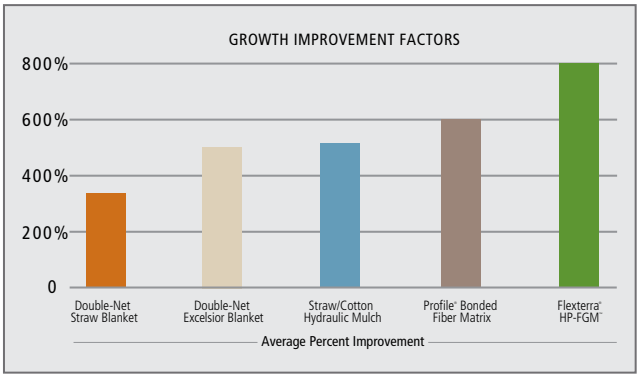
Nothing Keeps More Soil On Site

Flexterra® HP-FGM™ has demonstrated nearly perfect erosion control performance — even on slopes as severe as 0.25H:1V. In addition to minimizing soil loss, the turbidity (NTU) of runoff is greatly reduced. In large scale testing, Flexterra HP-FGM reduced effluent turbidities of sandy loam soils to less than 100 NTU.



Establishes Vegetation More Reliably

Quicker and complete establishment is the key to long-term erosion control. Compare Flexterra HP-FGM to the average values of other technologies as documented in published AASHTO-NTPEP reports and independent laboratory testing using standard test method ASTM D7322.

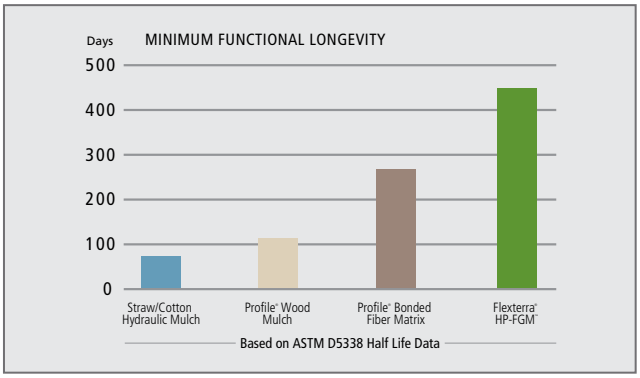


The First Erosion Control Product to Offer Documented Functional Longevity

The ASTM D5338 protocol confirms Flexterra HP-FGM's observed functional longevity of up to 18 months. As illustrated in these test results, Flexterra HP-FGM is proven to last longer than other hydraulically applied erosion control products.

Long-lasting Flexterra HP-FGM is designed to:

- **Provide protection on bare soil over periods of dormancy;** assures that when more optimal growing conditions arrive, the seed and nutrients are still in place and in an environment conducive to germination and emergence.
- **Ensure sustainability of plants;** exceptional absorptive properties nurture vegetation to better withstand environmental stress.
- **Accommodate a broad range of vegetative species;** safeguards and helps to cultivate even the slowest developing species.



Flexterra® HP-FGM™ Technical Data:

	TEST METHOD	UNITS	MINIMUM VALUE
PHYSICAL PROPERTIES*			
Mass/Unit Area	ASTM D6566[1]	g/m² (oz/yd²)	407 (12)
Thickness	ASTM D6525[1]	mm (in)	5.6 (0.22)
Erosion Control Effectiveness	ASTM D6818[1]	N/m (lb/ft)	131 (9)
Ground Cover	ASTM D6567[1]	%	99
Water-Holding Capacity	ASTM D7367	%	1700
Material Color	Observed	n/a	Green
ENVIRONMENTAL PROPERTIES*	**TEST METHOD**	**UNITS**	**TYPICAL VALUE**
Biodegradability	ASTM D5338	%	100
Functional Longevity[2]	ASTM D5338	n/a	Up to 18 months
Ecotoxicity	EPA 2021.0	%	96-hr LC50 > 100%
Effluent Turbidity	Large Scale[3]	NTU	< 100
PERFORMANCE PROPERTIES*	**TEST METHOD**	**UNITS**	**VALUE**
Cover Factor[4]	Large Scale[3]	n/a	< 0.01
Percent Effectiveness[5]	Large Scale[3]	%	> 99
Cure Time	Observed	hours	0-2
Vegetation Establishment	ASTM D7322[1]	%	> 800
PRODUCT COMPOSITION			**TYPICAL VALUE**
Thermally Processed Wood Fibers[6] (within a pressurized vessel)			80% ± 3%
Cross-Linked Biopolymers and Water Absorbents			10% ± 1%
Crimped, Man-Made Biodegradable Interlocking Fibers			5% ± 1%
Proprietary Mineral Activator			5% ± 1%

** When uniformly applied at a rate of 3500 lb/ac (3900 kg/ha) under laboratory conditions.*

1. *ASTM test methods developed for Rolled Erosion Control Products that have been modified to accommodate Hydraulic Erosion Control Products.*
2. *Functional Longevity is the estimated time period, based upon field observations, that a material can be anticipated to provide erosion control and agronomic benefits as influenced by composition, as well as site-specific conditions, including; but not limited to—temperature, moisture and light conditions, soils, biological activity, vegetative establishment and other environmental factors.*
3. *Large Scale testing conducted at Utah Water Research Laboratory. For specific testing information please contact a Profile technical service representative at 866-325-6262.*
4. *Cover Factor is calculated as soil loss ratio of treated surface versus an untreated control surface.*
5. *Percent Effectiveness = One minus Cover Factor multiplied by 100%.*
6. *Heated to a temperature greater than 193 degrees C (380 degrees F) for 5 minutes at a pressure greater than 345 kPa (50 psi) in order to be Thermally Refined®/Processed and to achieve phyto-sanitization.*

GREEN DESIGN ENGINEERING™
EARTH-FRIENDLY SOLUTIONS FOR SUSTAINABLE RESULTS™

Green Design Engineering™ is a holistic approach, combining environmentally beneficial design and ecologically sound products with agronomic and erosion control expertise, to provide the most effective, customized and cost-efficient solutions for erosion control and vegetative establishment.

PS³ PROFILE SOIL SOLUTIONS SOFTWARE

PS³, Profile's unique online project design and management software, is the best place to start applying The 5 Fundamentals™ to your next project. The process begins with a FREE soil test, and walks you through every Fundamental. It's the only program of its kind that integrates and compares a variety of manufacturers' products to your specific project parameters, and provides complete documentation including product specifications, installation guidelines, CAD details and other pertinent technical information. Get started by visiting **ProfilePS3.com**.

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ATTACHMENT 6

To: Jay Peak Athletic Fields Project Folder

Date: November 6, 2017

Project #: 57958.00

From: Tyler Shedd

Re: Construction Period Temporary Sediment Basin
Summary of Compliance with DEC Design Criteria

The purpose of this memorandum is to summarize the criteria used to design the proposed temporary sediment basin that will be constructed in conjunction with the Jay Peak Athletic Fields Project ("Project") in Jay, Vermont. During construction of the Project, a temporary sediment basin will be constructed to intercept runoff from upslope areas disturbed during construction and will provide detention time to allow sediment to settle out and be collected.

The standards and specifications from Vermont Standards & Specifications for Erosion Prevention & Sediment Control Design Criteria (DEC 2006) are applicable to this sediment basin because the basin is not be considered permanent (i.e., is not intended to function for more than 36 months), the drainage area is less than 100 acres, and the siting of the basin is such that failure of the basin is not likely to result in loss of life, damage to homes or buildings, or interruption of use or service.

Location

As shown on the plans, the temporary sediment basin will be built as a cut in the existing grade, thereby utilizing the surrounding terrain for storage, and will not require the construction of a berm. The basin will be located at the most downgradient (eastern) end of the site and will be constructed following site clearing but prior to commencement of earth-disturbing activities. The basin's location is such that it will not be impacted by construction activities and can remain in place until construction is complete. The basin is not located in a wetland or perennial stream, nor in the buffer to any of these features.

Size and Shape of the Basin

The minimum sediment storage volume (1,420 cubic yards) is called out on the detail provided, in accordance with the sizing criteria of 134 cubic yards per acre drainage area. The lowest orifice from the outlet structure will be located above the elevation associated with that storage volume so that the sediment storage provided (1,700 cubic yards) is greater than the minimum volume required.

The required minimum length-to-width ratio through the sediment basin is 2:1, measured as the length from the inlet to the principle overflow, divided by the average width along the flow path. The proposed basin will provide a minimum flow path length of approximately 130 feet from the nearest inlet. However, because the overall size and shape of the pond has been maximized to take advantage of the available area outside of wetland buffers, the pond will have a length to width ratio of 1.4:1. Although the pond therefore does not fully meet the flow path length to width criteria, it maximizes the storage volume provided in the basin and omits the need for the construction of a separate emergency spillway that would result in buffer impacts. A smaller pond could be constructed in this location that meets design criteria, but a larger pond has been proposed because of the additional storage and treatment volume that it will provide.

40 IDX Drive, Building 100
Suite 200
South Burlington, VT 05403

Memorandum

Surface Area

In accordance with the Standards & Specifications, the surface area of the basin (in acres) must be greater than one hundredth of the 10-year, 24-hour peak design flow ("Qp") or fifteen hundredths of the drainage area ("DA"). In other words, A ≥ 0.01 * Qp or A ≥ 0.015 * DA, whichever is greater. The design peak flow at the 10-year, 24-hour event is calculated to be 27.6 cubic feet per second, indicating that the surface area must be greater than 0.276 acres or 12,022 square feet. The drainage area is 10.6 acres, indicating that the surface area must be greater than 0.159 acres or 6,926 square feet. The surface area provided in the basin is 19,700 square feet, approximately 1.6 times greater than required.

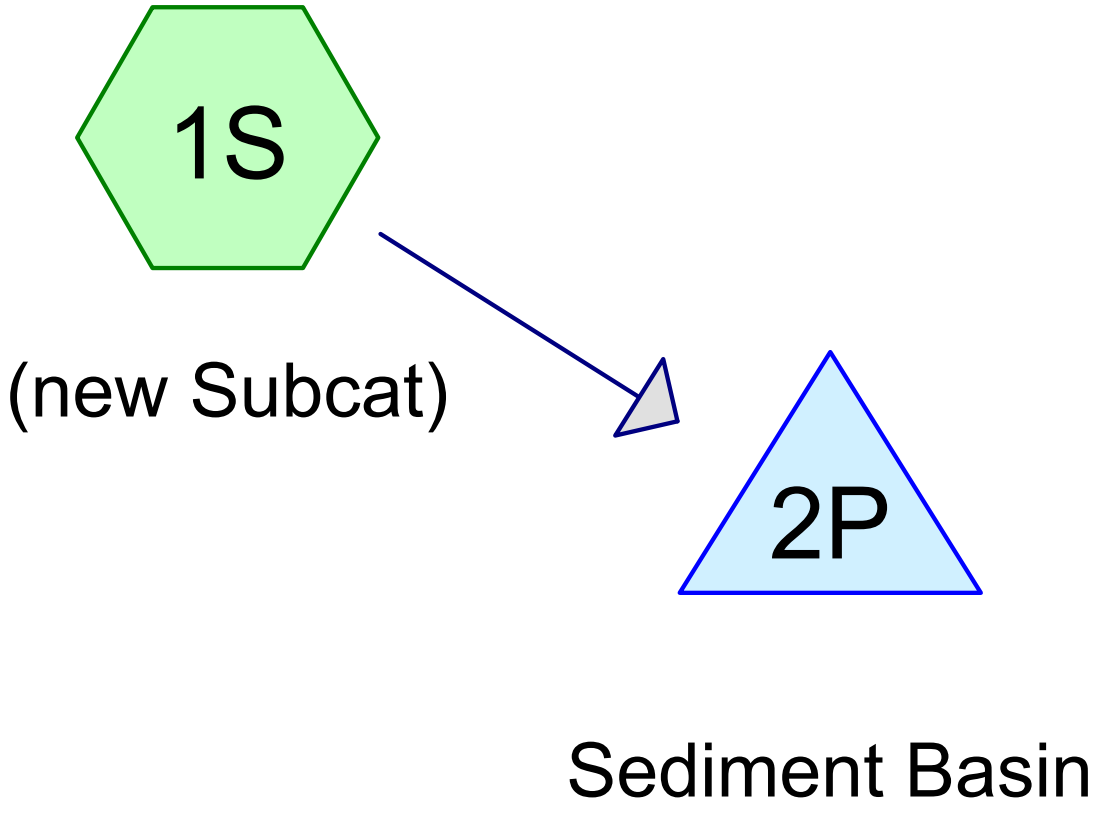
According to the Standards & Specifications, temporary sediment basins designed to meet these criteria provide 75 percent removal efficiency at sites with silt loam soils and up to 90 percent removal efficiency for sites with sandy loam soils. Based on field test pit data and on-site soils evaluations conducted in conjunction with the Project, the site area that will be impacted by construction contains a high percentage of sandy loams or coarser material that would be effectively captured in the temporary sediment basin. For these reasons, a removal efficiency of 85 percent was assumed for the sediment trapping efficiency of the basin.

Spillway Design

The principal spillway consists of a 24-inch vertical pipe with a 1.5-inch orifice, fitted with a 36-inch trash rack, and the bottom of the pipe will be covered with either sufficient concrete or earth (min 2.5 feet) to prevent flotation of the pipe. The barrel of the outlet culvert is affixed with an anti-seep collar. This is the only spillway required to safely pass the 10-year design storm. The riser and barrel assembly shall be watertight and not have any holes, leak, or perforations in the structure. The 1.5-inch orifice in the vertical pipe provides the required 10-hour drawdown time for the basin, as calculated using the equations in the Standards & Specifications. The outlet pipe discharges to an energy dissipation pool and would then sheet flow overland to Jay Branch. No separate emergency spillway is provided because the required spillway geometry would result in wetland buffer impacts or discharges onto steep slopes which would potentially result in additional erosion and sediment transport. During events larger than the 10-year design storm, flows could safely discharge over the downgradient edge of the basin onto undisturbed vegetated areas and wetland buffers over 100 feet from Jay Branch.

Construction Specifications

The notes on the temporary sediment basin detail outline the minimum construction specifications of the required elements. The location and size of the basin is shown on the Erosion Control Plan.



Subcat Reach Pond Link

Routing Diagram for 57958 EPSC
Prepared by VHB, Printed 10/31/2017

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
10.600	77	Fallow, bare soil, HSG A (1S)
10.600	**77**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
10.600	HSG A	1S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
10.600		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
10.600	0.000	0.000	0.000	0.000	10.600	Fallow, bare soil	1S
10.600	**0.000**	**0.000**	**0.000**	**0.000**	**10.600**	**TOTAL AREA**	

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: (new Subcat) Runoff Area=10.600 ac 0.00% Impervious Runoff Depth=0.62"
Flow Length=1,358' Slope=0.0800 '/' Tc=15.7 min CN=77 Runoff=7.59 cfs 0.546 af

Pond 2P: Sediment Basin Peak Elev=1,463.09' Storage=57,720 cf Inflow=7.59 cfs 0.546 af
Primary=0.63 cfs 0.437 af Secondary=0.00 cfs 0.000 af Outflow=0.63 cfs 0.437 af

Total Runoff Area = 10.600 ac Runoff Volume = 0.546 af Average Runoff Depth = 0.62"
100.00% Pervious = 10.600 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: (new Subcat)

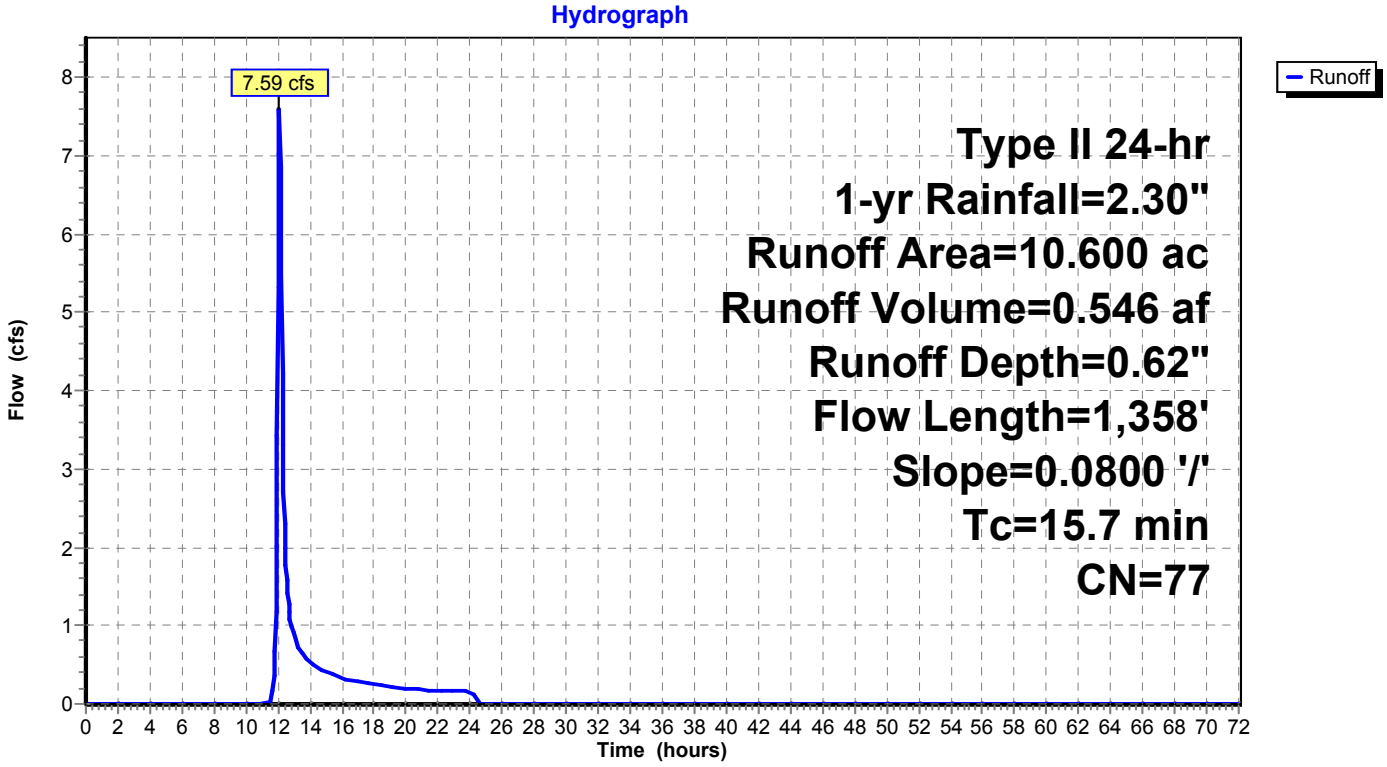
Runoff = 7.59 cfs @ 12.10 hrs, Volume= 0.546 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.30"

Area (ac)	CN	Description
10.600	77	Fallow, bare soil, HSG A
10.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	1,358	0.0800	1.44		**Lag/CN Method,**

Subcatchment 1S: (new Subcat)



Summary for Pond 2P: Sediment Basin

Inflow Area = 10.600 ac, 0.00% Impervious, Inflow Depth = 0.62" for 1-yr event
Inflow = 7.59 cfs @ 12.10 hrs, Volume= 0.546 af
Outflow = 0.63 cfs @ 13.57 hrs, Volume= 0.437 af, Atten= 92%, Lag= 88.5 min
Primary = 0.63 cfs @ 13.57 hrs, Volume= 0.437 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 1,462.50' Surf.Area= 19,714 sf Storage= 45,913 cf
Peak Elev= 1,463.09' @ 13.57 hrs Surf.Area= 20,366 sf Storage= 57,720 cf (11,807 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 661.6 min (1,540.9 - 879.3)

Volume	Invert	Avail.Storage	Storage Description
#1	1,460.00'	169,299 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,460.00	17,032	0	0
1,462.00	19,162	36,194	36,194
1,463.00	20,265	19,714	55,908
1,464.00	21,393	20,829	76,737
1,466.00	23,723	45,116	121,853
1,468.00	23,723	47,446	169,299

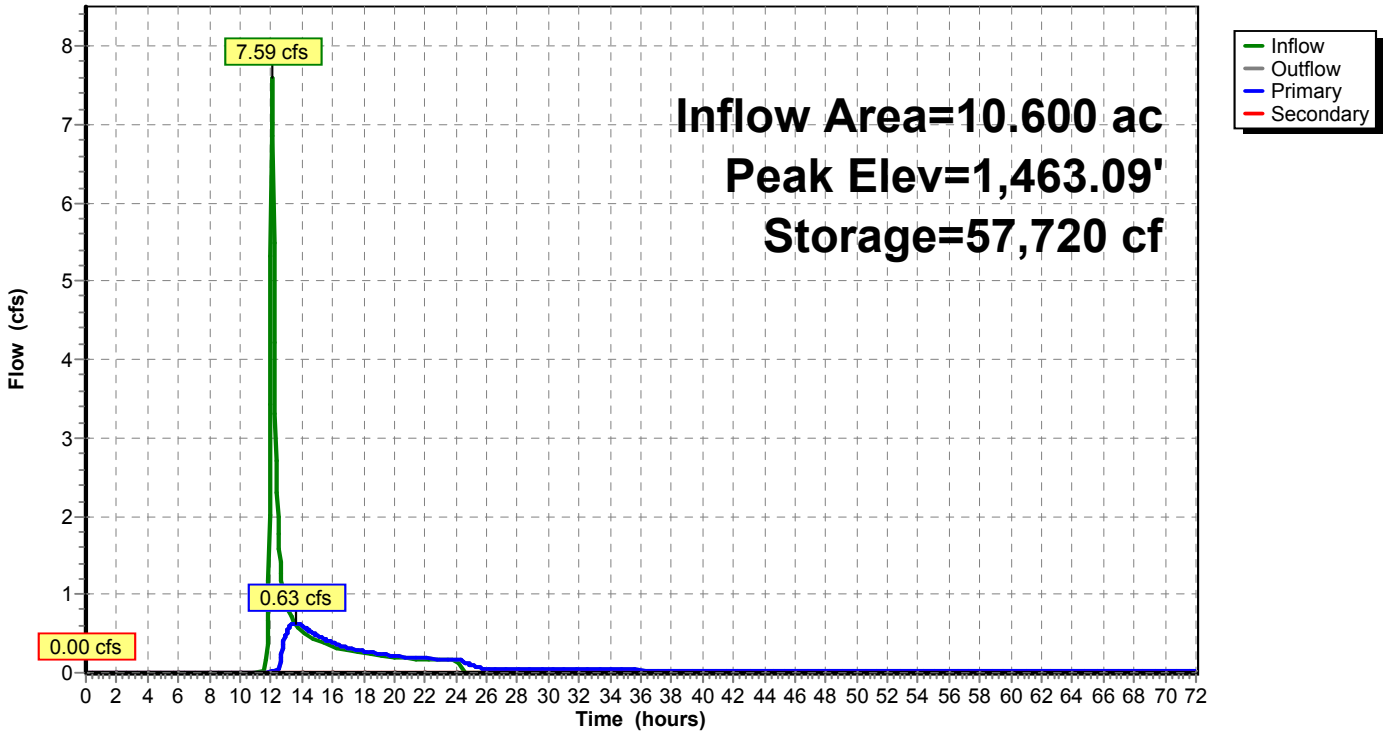
Device	Routing	Invert	Outlet Devices
#1	Primary	1,460.00'	**12.0" Round Culvert** L= 133.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,460.00' / 1,458.00' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf
#2	Device 1	1,462.50'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	1,463.00'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	1,466.00'	**12.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=0.59 cfs @ 13.57 hrs HW=1,463.09' (Free Discharge)
└**1=Culvert** (Passes 0.59 cfs of 3.10 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.04 cfs @ 3.49 fps)
└**3=Orifice/Grate** (Weir Controls 0.55 cfs @ 0.98 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,462.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: Sediment Basin

Hydrograph



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: (new Subcat) Runoff Area=10.600 ac 0.00% Impervious Runoff Depth=2.08"
Flow Length=1,358' Slope=0.0800 '/' Tc=15.7 min CN=77 Runoff=27.64 cfs 1.839 af

Pond 2P: Sediment Basin Peak Elev=1,464.28' Storage=82,809 cf Inflow=27.64 cfs 1.839 af
Primary=3.52 cfs 1.728 af Secondary=0.00 cfs 0.000 af Outflow=3.52 cfs 1.728 af

Total Runoff Area = 10.600 ac Runoff Volume = 1.839 af Average Runoff Depth = 2.08"
100.00% Pervious = 10.600 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: (new Subcat)

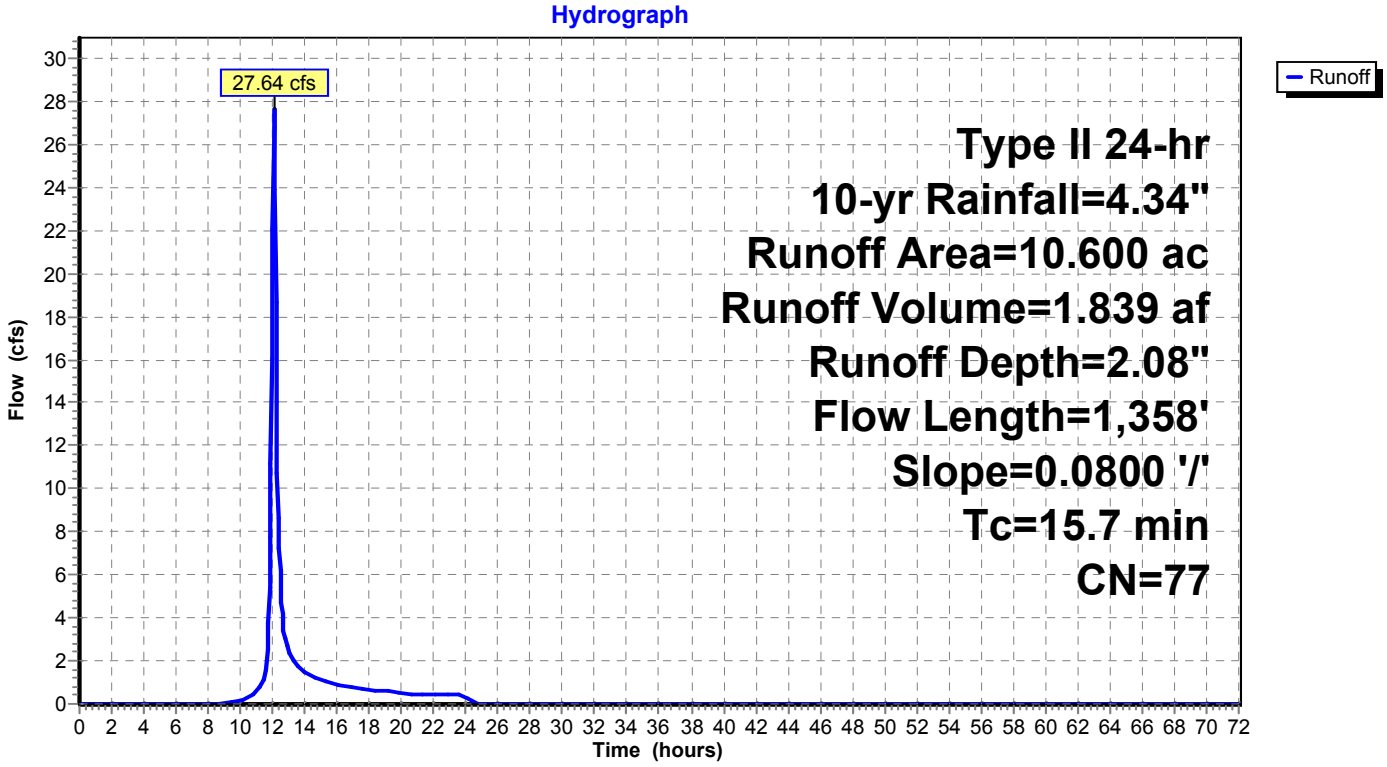
Runoff = 27.64 cfs @ 12.08 hrs, Volume= 1.839 af, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.34"

Area (ac)	CN	Description
10.600	77	Fallow, bare soil, HSG A
10.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	1,358	0.0800	1.44		**Lag/CN Method,**

Subcatchment 1S: (new Subcat)



Summary for Pond 2P: Sediment Basin

Inflow Area = 10.600 ac, 0.00% Impervious, Inflow Depth = 2.08" for 10-yr event
Inflow = 27.64 cfs @ 12.08 hrs, Volume= 1.839 af
Outflow = 3.52 cfs @ 12.69 hrs, Volume= 1.728 af, Atten= 87%, Lag= 36.3 min
Primary = 3.52 cfs @ 12.69 hrs, Volume= 1.728 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 1,462.50' Surf.Area= 19,714 sf Storage= 45,913 cf
Peak Elev= 1,464.28' @ 12.69 hrs Surf.Area= 21,721 sf Storage= 82,809 cf (36,896 cf above start)

Plug-Flow detention time= 737.1 min calculated for 0.674 af (37% of inflow)
Center-of-Mass det. time= 230.6 min (1,072.8 - 842.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,460.00'	169,299 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,460.00	17,032	0	0
1,462.00	19,162	36,194	36,194
1,463.00	20,265	19,714	55,908
1,464.00	21,393	20,829	76,737
1,466.00	23,723	45,116	121,853
1,468.00	23,723	47,446	169,299

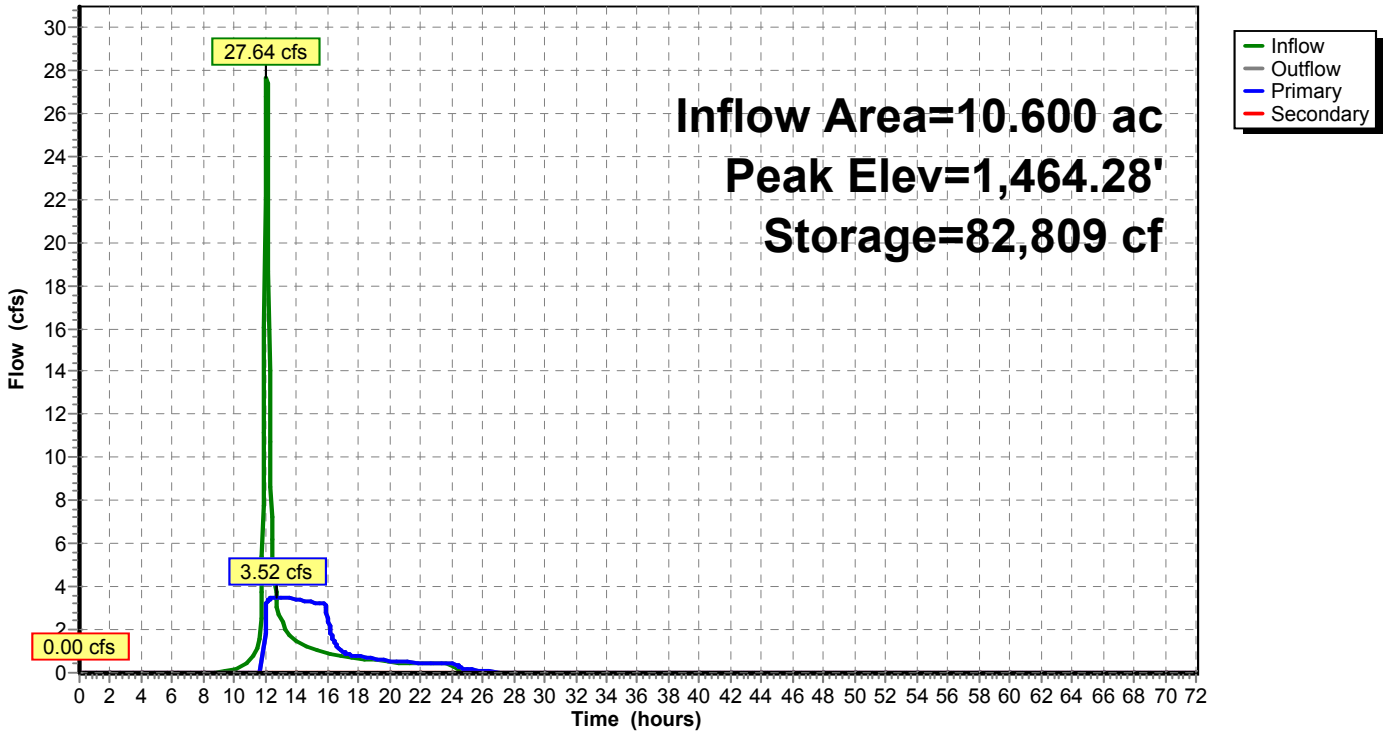
Device	Routing	Invert	Outlet Devices
#1	Primary	1,460.00'	**12.0" Round Culvert** L= 133.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,460.00' / 1,458.00' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf
#2	Device 1	1,462.50'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	1,463.00'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	1,466.00'	**12.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=3.52 cfs @ 12.69 hrs HW=1,464.28' (Free Discharge)
└**1=Culvert** (Barrel Controls 3.52 cfs @ 4.48 fps)
└**2=Orifice/Grate** (Passes < 0.08 cfs potential flow)
└**3=Orifice/Grate** (Passes < 17.12 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,462.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: Sediment Basin

Hydrograph



ATTACHMENT 7

Computations

Project:	**Jay Peak Athletic Fields**	**Project #:**	**57958.00**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	**1**
Calculated by:	**Erica Quallen**	**Date:**	**7/11/17**
Checked by:	**Andrew Mills**	**Date:**	**10/26/17**
Title:	**Construction Phase Sediment Loading Analysis (RUSLE Method)**		

Field #1 Sediment Loading Calculation

Construction Start Date:	5/7/18
Construction End Date:	5/13/18
Site Area (acres):	1.90
Slope (%):	14%
Slope Length (ft):	300
Cover and Mulching Rate:	Hay (2.0 tons/acre)
Surface Practice:	Loose with rough surface greater than 12 inches depth

Area =	1.90
Erosivity Factor, R =	71
Erodibility Factor, K =	0.24
Slope Length Factor, LS =	4.48
Cover Management Factor, C =	0.02
Practice Factor, P =	0.8
Construction Duration Factor, M =	0.23
Sediment Delivery Ratio, SDR =	15%

Total Sediment Load (Field 1)		
A =	0.081	tons/yr
A =	162.2	pounds/yr

Computations

Project:	**Jay Peak Athletic Fields**	**Project #:**	**57958.00**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	**2**
Calculated by:	**Erica Quallen**	**Date:**	**7/11/17**
Checked by:	**Andrew Mills**	**Date:**	**10/26/17**
Title:	**Construction Phase Sediment Loading Analysis (RUSLE Method)**		

Field #1 Sediment Loading Calculation

Construction Start Date:	5/14/18
Construction End Date:	6/17/18
Site Area (acres):	3.70
Slope (%):	14%
Slope Length (ft):	300
Cover and Mulching Rate:	Hay (2.0 tons/acre)
Surface Practice:	Loose with rough surface greater than 12 inches depth

Area =	3.70
Erosivity Factor, R =	71
Erodibility Factor, K =	0.24
Slope Length Factor, LS =	4.48
Cover Management Factor, C =	0.02
Practice Factor, P =	0.8
Construction Duration Factor, M =	0.36
Sediment Delivery Ratio, SDR =	15%

Total Sediment Load (Field 1)		
A =	0.242	tons/yr
A =	484.0	pounds/yr

Computations

Project:	**Jay Peak Athletic Fields**	**Project #:**	**57958.00**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	**3**
Calculated by:	**Erica Quallen**	**Date:**	**7/11/17**
Checked by:	**Andrew Mills**	**Date:**	**10/26/17**
Title:	**Construction Phase Sediment Loading Analysis (RUSLE Method)**		

Field #1 Sediment Loading Calculation

Construction Start Date:	6/18/18
Construction End Date:	6/24/18
Site Area (acres):	2.50
Slope (%):	14%
Slope Length (ft):	300
Cover and Mulching Rate:	Hay (2.0 tons/acre)
Surface Practice:	Loose with rough surface greater than 12 inches depth

Area =	2.50
Erosivity Factor, R =	71
Erodibility Factor, K =	0.24
Slope Length Factor, LS =	4.48
Cover Management Factor, C =	0.02
Practice Factor, P =	0.8
Construction Duration Factor, M =	0.49
Sediment Delivery Ratio, SDR =	15%

Total Sediment Load (Field 1)		
A =	0.224	tons/yr
A =	447.3	pounds/yr

Computations

Project:	**Jay Peak Athletic Fields**	**Project #:**	**57958.00**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	**4**
Calculated by:	**Erica Quallen**	**Date:**	**7/11/17**
Checked by:	**Andrew Mills**	**Date:**	**10/26/17**
Title:	**Construction Phase Sediment Loading Analysis (RUSLE Method)**		

Field #1 Sediment Loading Calculation

Construction Start Date:	6/25/18
Construction End Date:	9/9/18
Site Area (acres):	0.50
Slope (%):	14%
Slope Length (ft):	300
Cover and Mulching Rate:	Hay (2.0 tons/acre)
Surface Practice:	Loose with rough surface greater than 12 inches depth

Area =	0.50
Erosivity Factor, R =	71
Erodibility Factor, K =	0.24
Slope Length Factor, LS =	4.48
Cover Management Factor, C =	0.02
Practice Factor, P =	0.8
Construction Duration Factor, M =	0.57
Sediment Delivery Ratio, SDR =	15%

Total Sediment Load (Field 1)		
A =	0.053	tons/yr
A =	105.2	pounds/yr

Computations

Project:	**Jay Peak Athletic Fields**	**Project #:**	**57958.00**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	**5**
Calculated by:	**Erica Quallen**	**Date:**	**7/11/17**
Checked by:	**Andrew Mills**	**Date:**	**10/26/17**
Title:	**Construction Phase Sediment Loading Analysis (RUSLE Method)**		

Field #2 Sediment Loading Calculation

Construction Start Date:	5/7/18
Construction End Date:	5/13/18
Site Area (acres):	2.90
Slope (%):	14%
Slope Length (ft):	300
Cover and Mulching Rate:	Hay (2.0 tons/acre)
Surface Practice:	Loose with rough surface greater than 12 inches depth

Area =	2.90
Erosivity Factor, R =	71
Erodibility Factor, K =	0.24
Slope Length Factor, LS =	4.48
Cover Management Factor, C =	0.02
Practice Factor, P =	0.8
Construction Duration Factor, M =	0.23
Sediment Delivery Ratio, SDR =	15%

Total Sediment Load (Field 2)		
A =	0.124	tons/yr
A =	247.5	pounds/yr

Computations

Project:	**Jay Peak Athletic Fields**	**Project #:**	**57958.00**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	**6**
Calculated by:	**Erica Quallen**	**Date:**	**7/11/17**
Checked by:	**Andrew Mills**	**Date:**	**10/26/17**
Title:	**Construction Phase Sediment Loading Analysis (RUSLE Method)**		

Field #2 Sediment Loading Calculation

Construction Start Date:	5/14/18
Construction End Date:	6/3/18
Site Area (acres):	5.80
Slope (%):	14%
Slope Length (ft):	300
Cover and Mulching Rate:	Hay (2.0 tons/acre)
Surface Practice:	Loose with rough surface greater than 12 inches depth

Area =	5.80
Erosivity Factor, R =	71
Erodibility Factor, K =	0.24
Slope Length Factor, LS =	4.48
Cover Management Factor, C =	0.02
Practice Factor, P =	0.8
Construction Duration Factor, M =	0.27
Sediment Delivery Ratio, SDR =	15%

Total Sediment Load (Field 2)		
A =	0.286	tons/yr
A =	572.5	pounds/yr

Computations

Project:	**Jay Peak Athletic Fields**	**Project #:**	**57958.00**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	**7**
Calculated by:	**Erica Quallen**	**Date:**	**7/11/17**
Checked by:	**Andrew Mills**	**Date:**	**10/26/17**
Title:	**Construction Phase Sediment Loading Analysis (RUSLE Method)**		

Field #2 Sediment Loading Calculation

Construction Start Date:	6/4/18
Construction End Date:	6/17/18
Site Area (acres):	2.90
Slope (%):	14%
Slope Length (ft):	300
Cover and Mulching Rate:	Hay (2.0 tons/acre)
Surface Practice:	Loose with rough surface greater than 12 inches depth

Area =	2.90
Erosivity Factor, R =	71
Erodibility Factor, K =	0.24
Slope Length Factor, LS =	4.48
Cover Management Factor, C =	0.02
Practice Factor, P =	0.8
Construction Duration Factor, M =	0.49
Sediment Delivery Ratio, SDR =	15%

Total Sediment Load (Field 2)		
A =	0.259	tons/yr
A =	518.9	pounds/yr

Computations

Project:	**Jay Peak Athletic Fields**	**Project #:**	**57958.00**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	**8**
Calculated by:	**Erica Quallen**	**Date:**	**7/11/17**
Checked by:	**Andrew Mills**	**Date:**	**10/26/17**
Title:	**Construction Phase Sediment Loading Analysis (RUSLE Method)**		

Field #2 Sediment Loading Calculation

Construction Start Date:	6/18/18
Construction End Date:	6/24/18
Site Area (acres):	1.00
Slope (%):	14%
Slope Length (ft):	300
Cover and Mulching Rate:	Hay (2.0 tons/acre)
Surface Practice:	Loose with rough surface greater than 12 inches depth

Area =	1.00
Erosivity Factor, R =	71
Erodibility Factor, K =	0.24
Slope Length Factor, LS =	4.48
Cover Management Factor, C =	0.02
Practice Factor, P =	0.8
Construction Duration Factor, M =	0.49
Sediment Delivery Ratio, SDR =	15%

Total Sediment Load (Field 2)		
A =	0.089	tons/yr
A =	178.9	pounds/yr

Computations

Project:	**Jay Peak Athletic Fields**	**Project #:**	**57958.00**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	**9**
Calculated by:	**Erica Quallen**	**Date:**	**7/11/17**
Checked by:	**Andrew Mills**	**Date:**	**10/26/17**
Title:	**Construction Phase Sediment Loading Analysis (RUSLE Method)**		

Field #2 Sediment Loading Calculation

Construction Start Date:	6/25/18
Construction End Date:	9/9/18
Site Area (acres):	0.50
Slope (%):	14%
Slope Length (ft):	300
Cover and Mulching Rate:	Hay (2.0 tons/acre)
Surface Practice:	Loose with rough surface greater than 12 inches depth

Area =	0.50
Erosivity Factor, R =	71
Erodibility Factor, K =	0.24
Slope Length Factor, LS =	4.48
Cover Management Factor, C =	0.02
Practice Factor, P =	0.8
Construction Duration Factor, M =	0.57
Sediment Delivery Ratio, SDR =	15%

Total Sediment Load (Field 2)		
A =	0.053	tons/yr
A =	105.2	pounds/yr

Computations

Project:	**Jay Peak Athletic Fields**	**Project #:**	**57958.00**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	**10**
Calculated by:	**Erica Quallen**	**Date:**	**7/11/17**
Checked by:	**Andrew Mills**	**Date:**	**10/26/17**
Title:	**Construction Phase Sediment Loading Analysis (RUSLE Method)**		

Inglenook Access Road / Parking Lot Sediment Loading Calculation

Construction Start Date:	5/7/18
Construction End Date:	5/13/18
Site Area (acres):	1.60
Slope (%):	14%
Slope Length (ft):	200
Cover and Mulching Rate:	Hay (2.0 tons/acre)
Surface Practice:	Loose with rough surface greater than 12 inches depth

Area =	1.60
Erosivity Factor, R =	71
Erodibility Factor, K =	0.24
Slope Length Factor, LS =	3.09
Cover Management Factor, C =	0.02
Practice Factor, P =	0.8
Construction Duration Factor, M =	0.23
Sediment Delivery Ratio, SDR =	15%

Total Sediment Load (Access Parking)		
A =	0.047	tons/yr
A =	94.2	pounds/yr

Computations

Project:	**Jay Peak Athletic Fields**	**Project #:**	**57958.00**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	**11**
Calculated by:	**Erica Quallen**	**Date:**	**7/11/17**
Checked by:	**Andrew Mills**	**Date:**	**10/26/17**
Title:	**Construction Phase Sediment Loading Analysis (RUSLE Method)**		

Inglenook Access Road / Parking Lot Sediment Loading Calculation

Construction Start Date:	5/14/18
Construction End Date:	6/17/18
Site Area (acres):	3.20
Slope (%):	14%
Slope Length (ft):	200
Cover and Mulching Rate:	Hay (2.0 tons/acre)
Surface Practice:	Loose with rough surface greater than 12 inches depth

Area =	3.20
Erosivity Factor, R =	71
Erodibility Factor, K =	0.24
Slope Length Factor, LS =	3.09
Cover Management Factor, C =	0.02
Practice Factor, P =	0.8
Construction Duration Factor, M =	0.36
Sediment Delivery Ratio, SDR =	15%

Total Sediment Load (Access Parking)		
A =	0.144	tons/yr
A =	288.7	pounds/yr

Computations

Project:	**Jay Peak Athletic Fields**	**Project #:**	**57958.00**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	**12**
Calculated by:	**Erica Quallen**	**Date:**	**7/11/17**
Checked by:	**Andrew Mills**	**Date:**	**10/26/17**
Title:	**Construction Phase Sediment Loading Analysis (RUSLE Method)**		

Inglenook Access Road / Parking Lot Sediment Loading Calculation

Construction Start Date:	6/18/18
Construction End Date:	6/24/18
Site Area (acres):	1.60
Slope (%):	14%
Slope Length (ft):	200
Cover and Mulching Rate:	Hay (2.0 tons/acre)
Surface Practice:	Loose with rough surface greater than 12 inches depth

Area =	1.60
Erosivity Factor, R =	71
Erodibility Factor, K =	0.24
Slope Length Factor, LS =	3.09
Cover Management Factor, C =	0.02
Practice Factor, P =	0.8
Construction Duration Factor, M =	0.49
Sediment Delivery Ratio, SDR =	15%

Total Sediment Load (Access Parking)		
A =	0.099	tons/yr
A =	197.5	pounds/yr

Computations

Project:	**Jay Peak Athletic Fields**	**Project #:**	**57958.00**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	**13**
Calculated by:	**Erica Quallen**	**Date:**	**7/11/17**
Checked by:	**Andrew Mills**	**Date:**	**10/26/17**
Title:	**Construction Phase Sediment Loading Analysis - Summary**		

Field 1

Construction Start Date:	5/7/18	
Construction End Date:	9/9/18	
Total Sediment Load:	1,199	pounds/yr

Field 2

Construction Start Date:	5/7/18	
Construction End Date:	9/9/18	
Total Sediment Load:	1,623	pounds/yr

Inglenook Access Road / Parking

Construction Start Date:	6/18/17	
Construction End Date:	6/24/17	
Total Sediment Load:	580	pounds/yr

Total Construction Phase Sediment Load:

Total Sediment Load:	3,402	pounds/yr

ATTACHMENT 8

Simple Method Pollutant Loading Calculation Worksheet - Sediment

The Simple Method estimates pollutant loading of stormwater runoff for urban and developed areas. This worksheet includes the data and calculations to be used for computation of existing and post-development loads under the Interim Procedure for Offsets for Discharges of Phosphorus to Lake Champlain and Waters that Contribute to the Impairment of Lake Champlain. Fill in the shaded fields bas ed on the project site attributes.

L = 0.226* P * P_j * R_v *A* C Additional informaiton on the Simple Method can be found on the 'Guidance' tab

Where:

L = Annual load (lbs)

P = Yearly rainfall depth (in)

P_j = Fraction of rainfall events producing runoff (use 0.9)

A = Site area (acres)

C = Average annual pollutant concentration (mg/l), see 'Guidance'

0.226 = Unit conversion factor

And:

Rv = 0.05 + 0.009 * I_a

Where:

R_v = Runoff Coefficient

I_a= Whole number percent impervious

Offset Calculations	
Project Name:	Jay Peak Athletic Field
C-Values* from:	NHDES Appendix D
P_j	0.9
Project **P***	64.82
*http://www.ncdc.noaa.gov/cdo-web/datatools/normals	

Pre-Development	Land Cover type	Site Area (ac)	Imp. Area (ac)	I_a (%)	R_v	C (mg/L)*	Load (lbs)
Existing Conditions	Rural Open/Forest	2.02	0	0	0.05	51	68
	Lawns	0.92	0	0	0.05	80	49
	Residential Roof	0.26	0.26	100	0.95	19	62
	Drive way (Gravel Road)	0.49	0.49	100	0.95	173	1,062
	Pre-Dev. Total						**1,240**

Post-Development	Land Cover	Site Area (ac)	Imp. Area (ac)	I_a (%)	R_v	C (mg/L)	Load (lbs)
	Rural Open/Forest	0.46	0	0	0.05	51	15
	Lawns	0.92	0	0	0.05	80	49
	Residential Roof	0.37	0.37	100	0.95	19	88
	Drive way (Gravel Road)	1.94	1.94	100	0.95	173	4,204
	Post-Dev. Total						**4,356**
						Load reduction from treatment (%) (see guidance!)	98
						Post-development load after treatment is provided (lbs)	87
						Overall Amount of Sediment Reduction (lbs)	1,153
						Remainder of Operational Phase Sediment Load that requires offset (lbs)	87
Load Difference						**Net Amount of Sediment Offset (lbs)**	**1,066**

* please be sure to reference where you obtained the C-values for sediment.

If the final load says "none", no further action is needed. If the number is positive, an offset is required. There are several different options for satisfying offset requirements including the use of additional on-site treatment, the purchase of an existing offset (if available), or the development of an offsite offset project within the same impaired watershed.

ATTACHMENT 9

Computations

Project:	**Jay Peak Sediment Offset Bank**	**Project #:**	**57201.09**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	
Calculated by:	**Robert Wildey**	**Date:**	**9/17/15**
Checked by:		**Date:**	
Site:	**Hell's Crossing Waterbar Gully Stabilization**		

This worksheet was developed from the EPA Region 5 STEPL Model document in the "Pollutants Controlled Calculation and Dcoumentation for Section 319 Watersheds Training Manual" (Michigan Department of Environmental Quality, June 1999).
Gully Erosion Equation ("GEE") = (Top Width + Bottom Width) / 2 * Depth * Length * Soil Weight / Number of Years

Site Characteristics	
Project Type	Ski Trail
Latitude	44.924842
Longitude	-72.513694
Watershed	South Mountain Branch
Date Work Started	6/23/2015
Date Work Completed	6/26/2015
Follow-up Inspection Date	7/21/2015
Follow-up Inspection Notes: Large boulders installed to create grade control, 6-12 inch riprap used on surface of channel. Some flow visible	

Calculation - Gully Erosion Equation

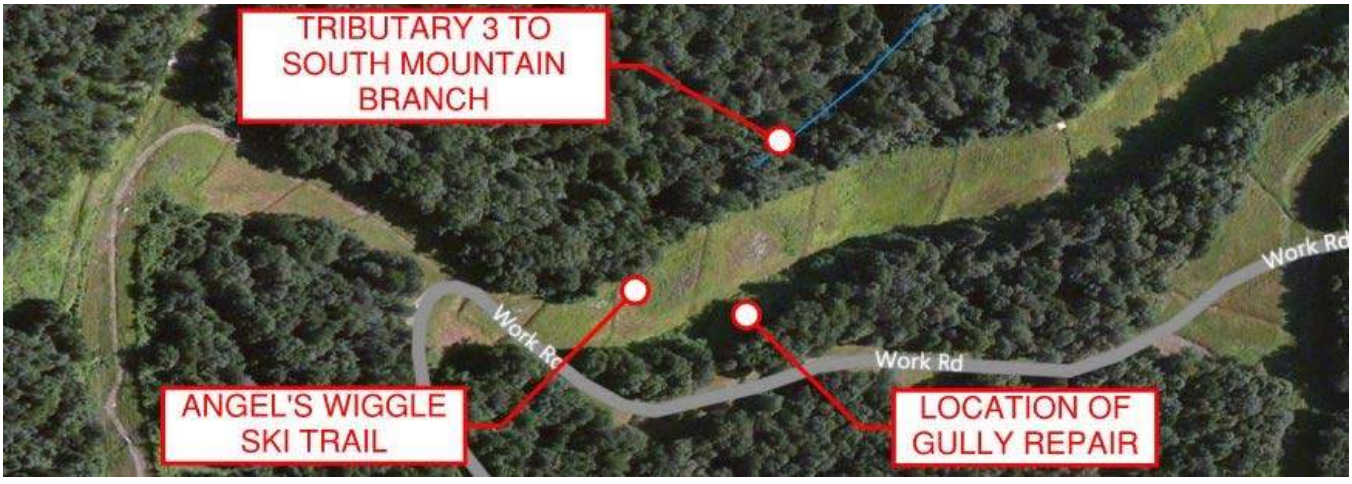
Description: Eroded channel between Hell's Crossing and Angel's Wiggle was stabilized using boulders and riprap to prevent further downcutting and widening. Bank height was measured from the average of three locations between the headcut and the culvert inlet.

Mapped Soil Unit	Tunbridge-Dixfield complex, 35 to 60 % slopes, very stony	
Soil Type (NRCS)	Loams, sandy clay loams, sandy clay	
Dry Density (tons/ft^3)	0.045	
Number of Years	20	(duration of gully development)
Length (ft)	66	(overall length of restoration)
Depth (ft)	5.3	(average of 3 measurements)
Top Width (ft)	19	(average of 3 measurements)
Bottom Width (ft)	16	(average of 3 measurements)
Sediment Reduction (pounds/yr)	**27,280**	

Pre-construction 22-Jun-15

Post-construction 21-Jul-15

Map



Computations

Project:	**Jay Peak Sediment Offset Bank**	**Project #:**	**57201.09**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	
Calculated by:	**Robert Wildey**	**Date:**	**9/17/15**
Checked by:		**Date:**	
Site:	**Angels Wiggle Waterbar Outlet Stabilization**		

This worksheet was developed from the EPA Region 5 STEPL Model document in the "Pollutants Controlled Calculation and Dcoumentation for Section 319 Watersheds Training Manual" (Michigan Department of Environmental Quality, June 1999).
Channel Erosion Equation ("CEE") = Length * Height * Lateral Recession Rate (LRR) * Soil Weight

Site Characteristics	
Project Type	Ski Trail
Latitude	44.92463
Longitude	-72.513800
Watershed	South Mountain Branch
Date Work Started	6/23/2015
Date Work Completed	6/26/2015
Follow-up Inspection Date	7/21/2015

Follow-up Inspection Notes: Rock installed within waterbar and partway down slope within wooded area to provide transition.

Calculation - Channel Erosion Equation

Description: Outlet from a waterbar on the Angel's Wiggle Ski Trail was stabilized using boulders and riprap to prevent further downcutting or widening. Trail bridge and failed culvert at downstream end of waterbar were removed.

Mapped Soil Unit	Tunbridge-Dixfield complex, 35 to 60 % slopes, very stony		
Soil Type (NRCS)	Loams, sandy clay loams, sandy clay		
Dry Density (tons/ft^3)	0.045	(per STEPL model documentation)	
Lateral Recession Rate (ft/yr)	0.13	(see LRR Rate Description Table)	
Bank 1		**Bank 2** (use only if both slopes treated)	
Length (ft)	18.5	Length (ft)	18.5
Height (ft)	1.7	Height (ft)	1.7
Load (pounds/yr)	368	Load (pounds/yr)	368
		Sediment Reduction (pounds/yr)	**736**

Pre-construction 23-Jun-15

Post-construction 21-Jul-15

Map

Computations

Project:	**Jay Peak Sediment Offset Bank**	**Project #:**	**57201.09**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	
Calculated by:	**Robert Wildey**	**Date:**	**10/12/15**
Checked by:		**Date:**	
Site:	**North Village Road Revegetation**		

Simple Method - Annual Load = P * Pj * C * A * Rv * 0.226

P = Yearly Rainfall Depth (inches); Pj = Fraction of rainfall events producing runoff; C = Flow weighted mean concentration of sediment; A = Area of contributing watershed (acres); Rv = 0.05+0.009*(site imperviousness) or accepted value; 0.226 = Simple Method Coefficient

Site Characteristics	
Project Type	Revegetation
Latitude	44.93674
Longitude	-72.50022
Watershed	Trib. 9 to Jay Branch
Date Work Started	9/14/2015
Date Work Completed	11/9/2015
Follow-up Inspection Date	TBD
Follow-up Inspection Notes:	

Calculation - Simple Method Conversion of Gravel Road to Lawn

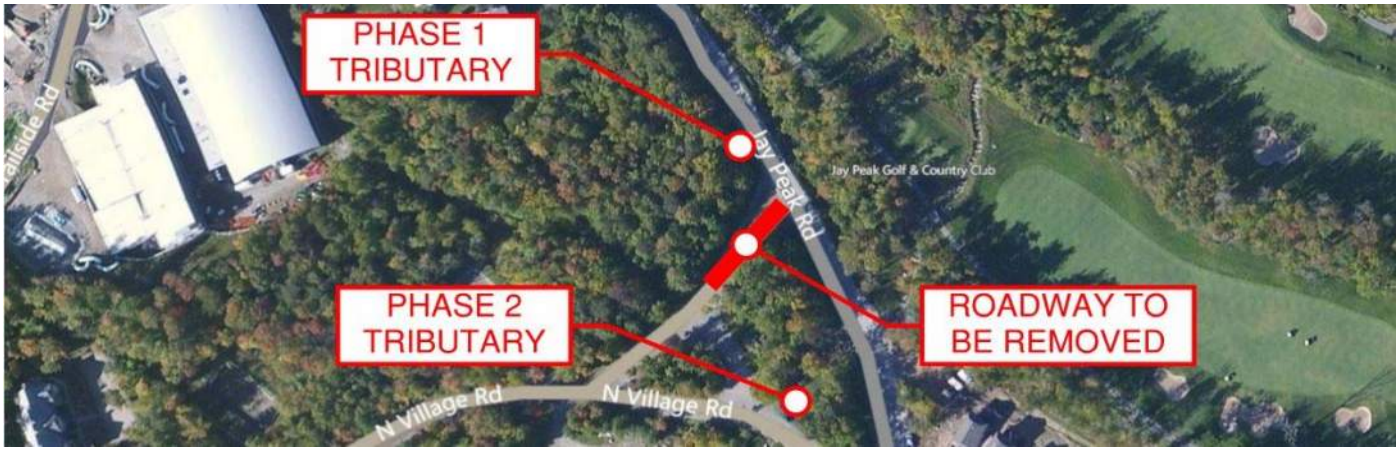
Abandon existing gravel road and convert to vegetated surface to reduce runoff and sediment load. Area to be revegated is 24 feet in width by 350 feet in length.

Conditions (Existing)			Conditions (Proposed)		
P =	64		P =	64	
Pj =	0.9		Pj =	0.9	
C =	1100	(gravel road)	C =	80	(lawn)
A =	0.193	(acres)	A =	0.193	(acres)
% Imper.=	100		% Imper.=	0	
Rv =	0.95		Rv =	0.05	
Load (EX)	2,623	(pounds/year)	Load (PR)	10	(pounds/year)
		Sediment Reduction (pounds/yr)		**2,613**	

Pre-construction 7-Aug-14

Post-construction (Date)

Map



Computations

Project:	**Jay Peak Sediment Offset Bank**	**Project #:**	**57201.11**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	**1 of 1**
Calculated by:	**Robert Wildey**	**Date:**	**30-Jan-2018**
Checked by:	**Jordan Duffy**	**Date:**	**30-Jan-2018**
Site:	**Inglenook Lodge Parking Lot Treatment**		

Simple Method - Annual Load = P * Pj * C * A * Rv * 0.226

P = Yearly Rainfall Depth (inches); Pj = Fraction of rainfall events producing runoff; C = Flow weighted mean concentration of sediment; A = Area of contributing watershed (acres); Rv = 0.05+0.009*(site imperviousness) or accepted value; 0.226 = Simple Method Coefficient

Site Characteristics	
Project Type	Untreated Impervious
Latitude	44.93734
Longitude	-72.48718
Watershed	Jay Branch Main Stem
Date Work Started	TBD
Date Work Completed	TBD
Follow-up Inspection Date	TBD
Follow-up Inspection Notes:	

Calculation - Simple Method Loading Analysis / VSMM Treatment Practice

Provide treatment for stormwater runoff from gravel parking lot to proposed infiltration basin. Existing conditions sediment load associated with this area is 1,240 lbs/year. Per VSMM, infiltration assumed to provide 98% removal of TSS (1,153 lbs). Remaining 2% of TSS load (87 lbs) also subtracted from the offset credit available, resulting in a credit of 1,066 lbs. See attached Simple Method calculation sheet for full accounting.

a) Post-Development Load (no controls)	4,356	lbs/year
b) Operational Phase Treatment	4,269	lbs/year
c) Load Remaining After Treatment	87	lbs/year
d) Existing Conditions Load	1,240	lbs/year
e) Sediment Reduction (d) - (c)	1,153	lbs/year
f) Net Offset (e) - (c)	1,066	lbs/year
Sediment Reduction (pounds/yr)	**1,066**	

Pre-construction 29-Aug-17

A

Post-construction (Date)

Computations

Project:	**Jay Peak Sediment Offset Bank**	**Project #:**	**57201.09**
Location:	**Jay Peak Resort, Jay, Vermont**	**Sheet:**	
Calculated by:	**Robert Wildey**	**Date:**	**30-Jan-2018**
Checked by:		**Date:**	
Title:	**Summary of Offset Projects**		

South Mountain Branch Watershed

Project Site Description	Sediment Reduction (pounds/year)	Date Completed
Hell's Crossing Gully	27,280	6/26/2015
Angel's Wiggle Waterbar	736	6/26/2015
Total	**28,016**	

Tributary 9 to Jay Branch Watershed

Project Site Description	Sediment Reduction (pounds/year)	Date Completed
North Village Road Revegetation	2,613	11/9/2015
Athletic Fields Construction	-2,336	TBD
Total	**277**	

Jay Branch Watershed

Project Site Description	Sediment Reduction (pounds/year)	Date Completed
Inglenook Lodge	1,066	TBD
Athletic Fields Construction	-1,066	TBD
Total	**0**	