

# Site Plans

Issued for: **Permitting**

Date Issued: December 13, 2013

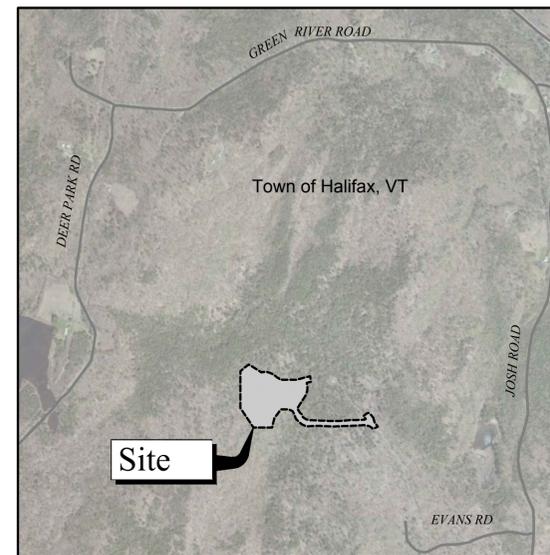
Latest Issue: February 06, 2015

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# Halifax Quarry

## Halifax, VT



Site Location Map

## Property Owners

Owner/Applicant  
**C.A. Denison Lumber Co., Inc.**  
5076 Stage Road  
Halifax, VT 05358  
Phone · Fax



**Vanasse Hangen Brustlin, Inc.**  
Transportation  
Land Development  
Environmental Services

7056 U.S. Route 7, P.O. Box 120  
North Ferrisburgh, Vermont 05473  
802.497.6100 • FAX 802.425.7799





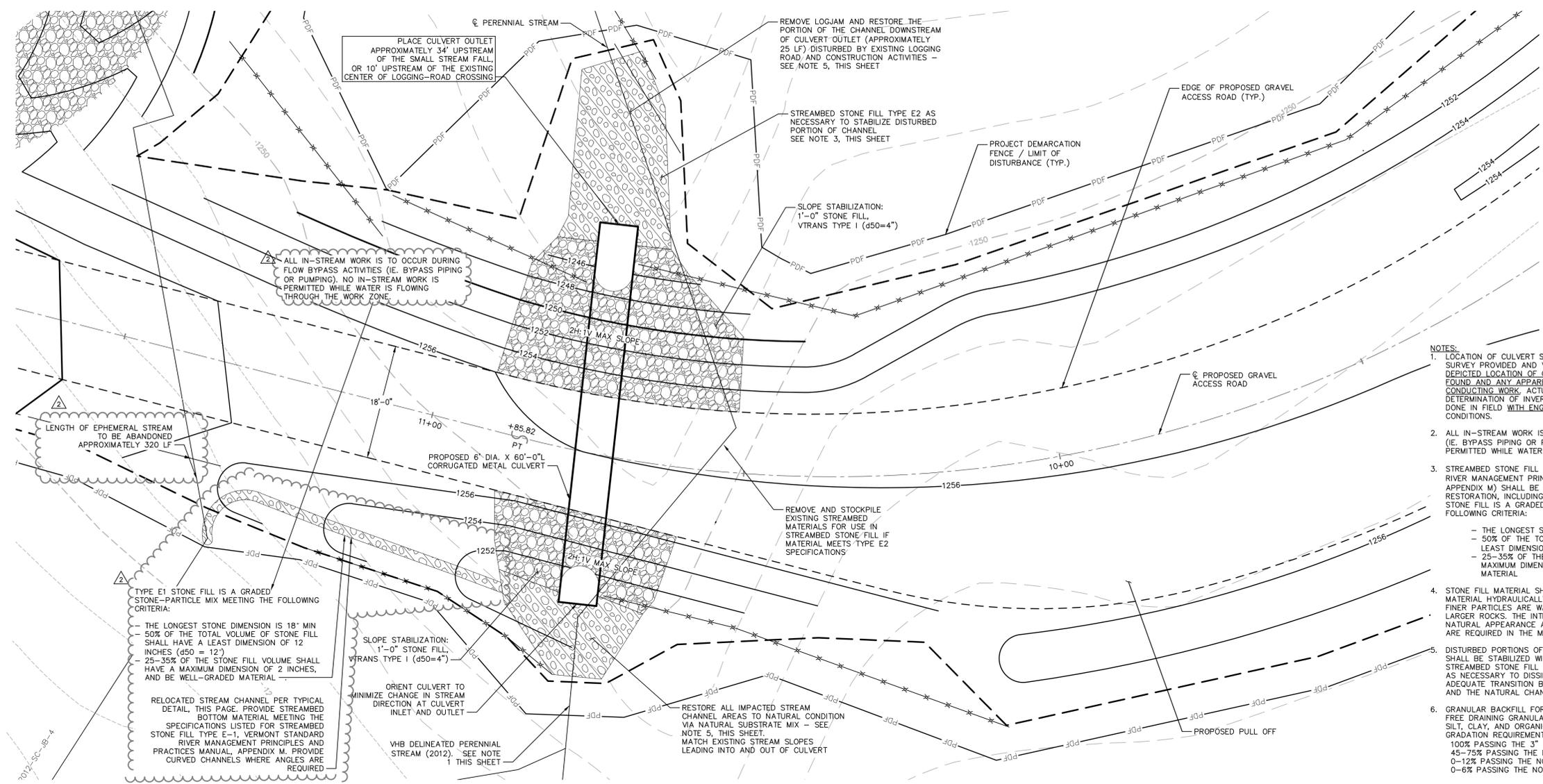
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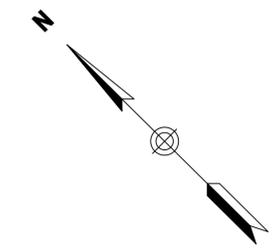
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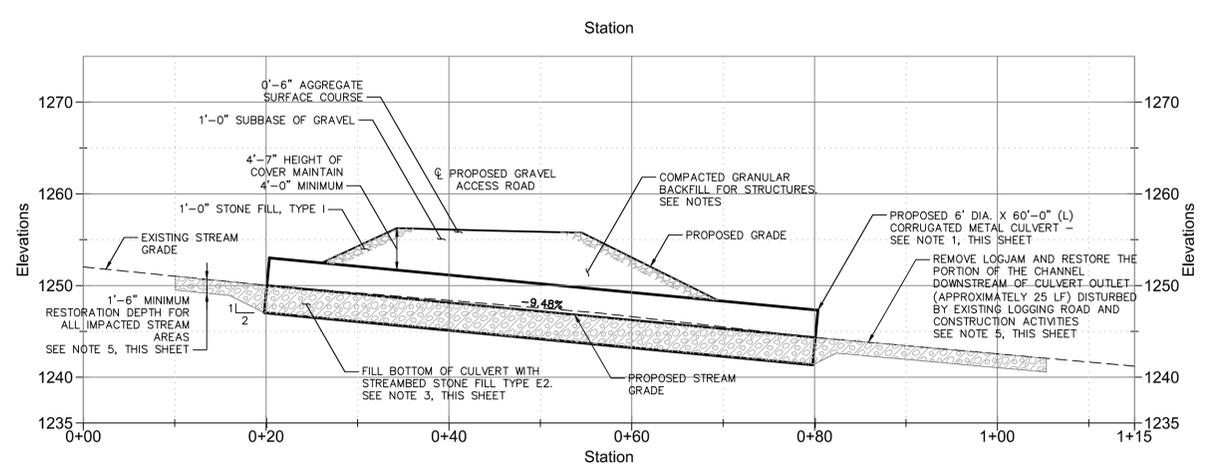
7056 U.S. Route 7, P.O. Box 120  
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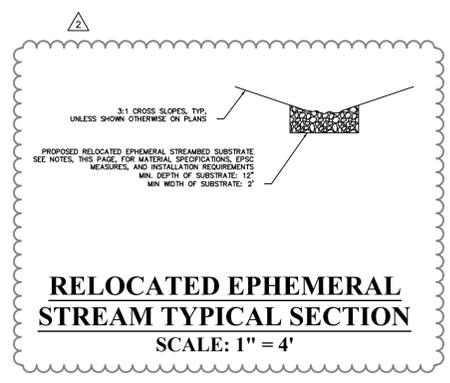
- NOTES:**
- LOCATION OF CULVERT SHOWN ON PLANS IS BASED ON AERIAL SURVEY PROVIDED AND VHB DELINEATED STREAM LOCATION. VERIFY DEPICTED LOCATION OF CULVERT IN FIELD; REPORT CONDITIONS FOUND AND ANY APPARENT DISCREPANCIES TO ENGINEER PRIOR TO CONDUCTING WORK. ACTUAL PLACEMENT OF CULVERT AND DETERMINATION OF INVERT ELEVATIONS AND CULVERT SLOPE TO BE DONE IN FIELD WITH ENGINEER INPUT TO REFLECT TRUE STREAM CONDITIONS.
  - ALL IN-STREAM WORK IS TO OCCUR DURING FLOW BYPASS ACTIVITIES (IE. BYPASS PIPING OR PUMPING). NO IN-STREAM WORK IS PERMITTED WHILE WATER IS FLOWING THROUGH THE WORK ZONE.
  - STREAMBED STONE FILL TYPE E2 (PER THE VERMONT STANDARD RIVER MANAGEMENT PRINCIPLES AND PRACTICES (SRMP) MANUAL, APPENDIX M) SHALL BE APPLIED IN ALL IN-STREAM AREAS OF RESTORATION, INCLUDING WITHIN THE CULVERT INVERT. TYPE E2 STONE FILL IS A GRADED STONE-PARTICLE MIX MEETING THE FOLLOWING CRITERIA:
    - THE LONGEST STONE DIMENSION IS 24" MIN
    - 50% OF THE TOTAL VOLUME OF STONE FILL SHALL HAVE A LEAST DIMENSION OF 18 INCHES (d50 = 18")
    - 25-35% OF THE STONE FILL VOLUME SHALL HAVE A MAXIMUM DIMENSION OF 2 INCHES, AND BE WELL-GRADED MATERIAL
  - STONE FILL MATERIAL SHALL BE PLACED IN 1.5 FOOT LIFTS AND THE MATERIAL HYDRAULICALLY FLUSHED BETWEEN LIFTS TO ENSURE THAT FINER PARTICLES ARE WASHED INTO THE VOIDS SURROUNDING LARGER ROCKS. THE INTENT IS TO CREATE A STREAM CHANNEL OF NATURAL APPEARANCE AND FUNCTION. ADEQUATE GRANULAR FINES ARE REQUIRED IN THE MIX TO PREVENT SUBSURFACE STREAM FLOW.
  - DISTURBED PORTIONS OF CHANNEL AT EACH END OF THE CULVERT SHALL BE STABILIZED WITH A MINIMUM THICKNESS OF 1.5 FEET OF STREAMBED STONE FILL TYPE E2. THIS MATERIAL SHALL BE PLACED AS NECESSARY TO DISSIPATE ENERGY AND TO PROVIDE AN ADEQUATE TRANSITION BETWEEN THE EMBEDDED CULVERT MATERIALS AND THE NATURAL CHANNEL SUBSTRATE.
  - GRANULAR BACKFILL FOR STRUCTURES SHALL BE A WELL GRADED FREE DRAINING GRANULAR MATERIAL, REASONABLY FREE FROM LOAM, SILT, CLAY, AND ORGANIC MATERIAL, AND MEET THE FOLLOWING GRADATION REQUIREMENTS:
    - 100% PASSING THE 3" SIEVE
    - 45-75% PASSING THE NO. 4 SIEVE
    - 0-12% PASSING THE NO. 100 SIEVE
    - 0-6% PASSING THE NO. 200 SIEVE
  - GRANULAR BACKFILL FOR STRUCTURES SHALL BE COMPACTED IN 6" MAX. LIFTS.
  - ALL GROUND DEWATERING FLOWS SHALL BE DIRECTED THROUGH A DEWATERING BAG/BASIN PRIOR TO DISCHARGE.



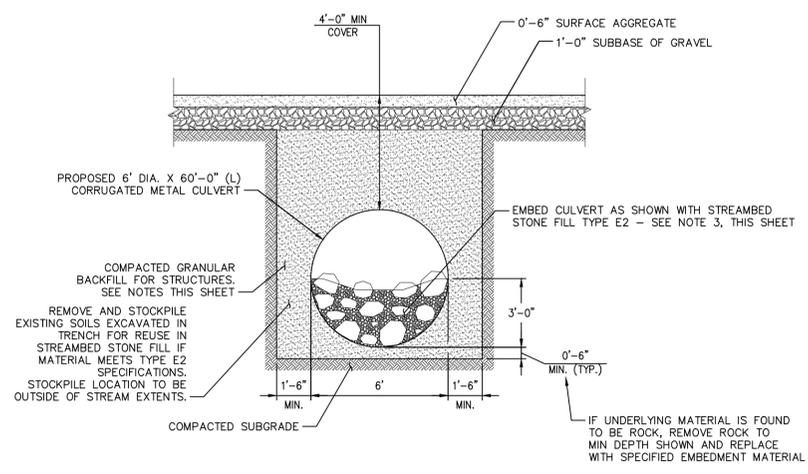
**SITE PLAN**  
SCALE: 1" = 10'



**CULVERT LONGITUDINAL SECTION**  
SCALE: 1" = 10'



**RELOCATED EPHEMERAL STREAM TYPICAL SECTION**  
SCALE: 1" = 4'



**CULVERT TYPICAL SECTION**  
SCALE: 1" = 4'

No.	Revision	Date	Appr.
1	Revised Streambed Stone Fill Notes	2/2/2014	RW
2	ANR Comments	2/6/2015	TMG

Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_  
CAD checked by \_\_\_\_\_ Approved by \_\_\_\_\_  
Scale: As Shown Date: December 13, 2013  
Project Title: \_\_\_\_\_

**Halifax Quarry**  
**C.A. Denison Lumber Co., Inc.**

Halifax, Vermont  
Issued for  
**Permitting**

Not Approved for Construction  
Drawing Title

**Stream Crossing Plan**

Drawing Number

**C-3**

Sheet of 11  
3

Project Number  
57595.00





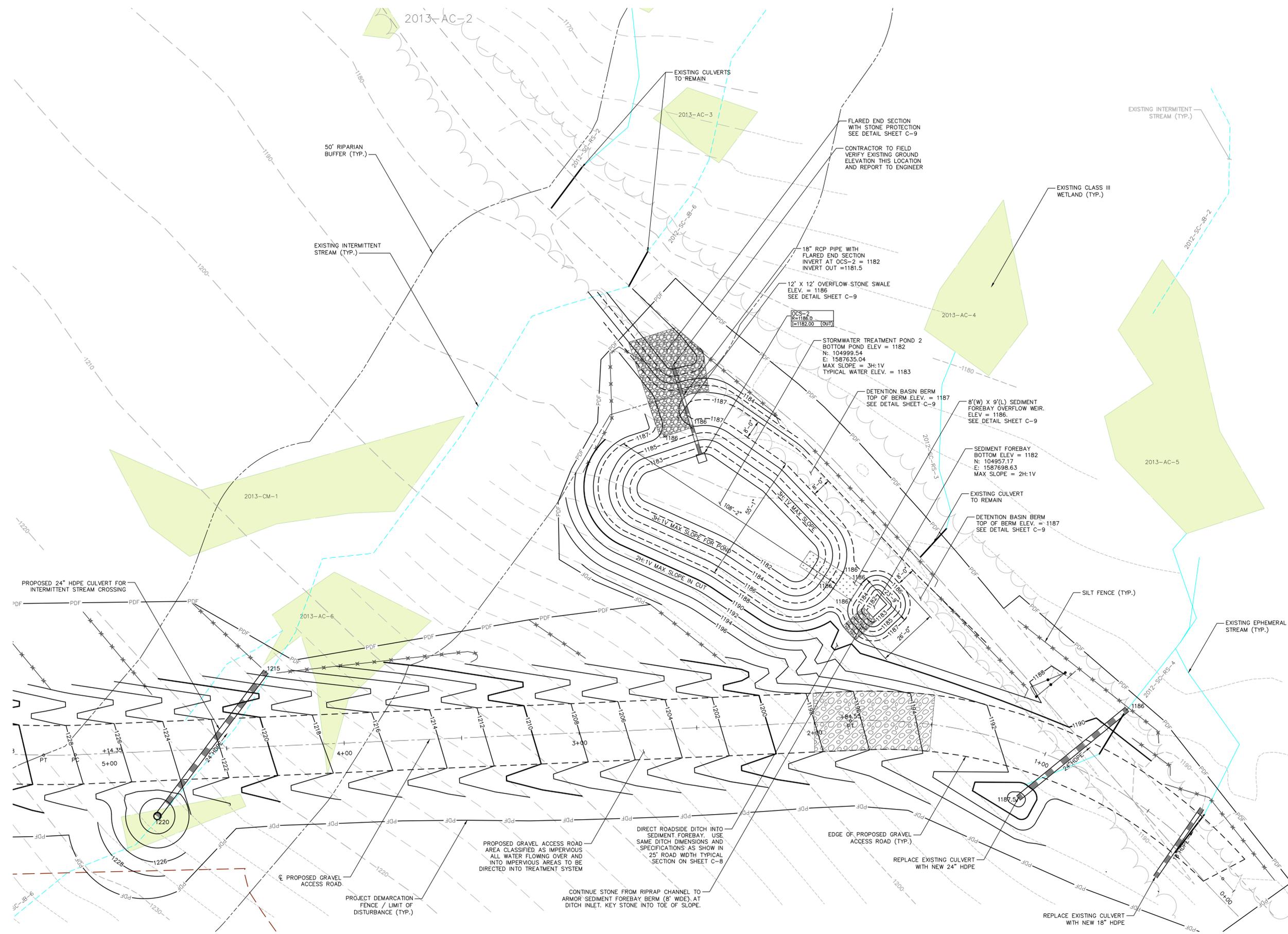
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North Ferrisburgh, Vermont 05473  
802.497.6100 • FAX 802.425.7799



No.	Revision	Date	Appr.

Designed by	Drawn by	Checked by	
CAD checked by	Approved by		
Scale 1"=20'	Date December 13, 2013		

Project Title  
**Halifax Quarry  
C.A. Denison Lumber  
Co., Inc.**

Halifax, Vermont  
Issued for  
**Permitting**

Not Approved for Construction  
Drawing Title

**Stormwater Treatment  
Pond 2 Plan**

Drawing Number  
**C-6**  
Sheet of 6  
Project Number  
57595.00





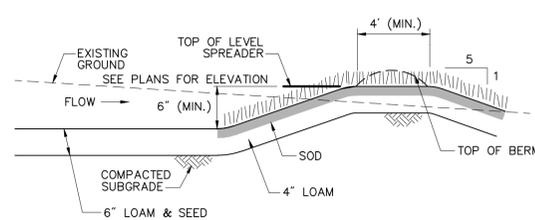
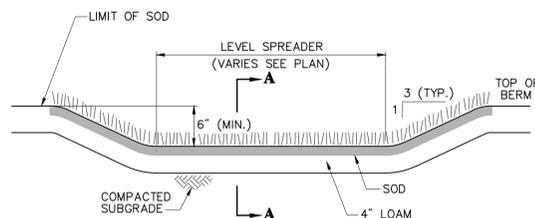




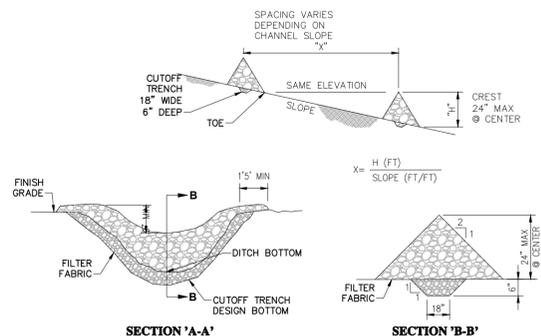
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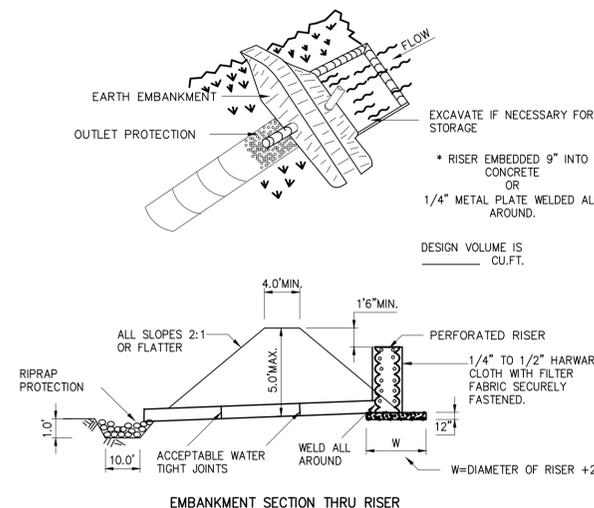


Section A-A



**Notes:**

- 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.
- 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.
- EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
- PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
- ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
- MAXIMUM DRAINAGE AREA ABOVE CHECK DAM SHALL NOT EXCEED 2 AC.



EMBANKMENT SECTION THRU RISER

**CONSTRUCTION SPECIFICATIONS**

- NOTE: THIS PRACTICE IS NOT CALLED OUT AS NEEDED ON THE PLANS, YET IS OFFERED FOR CONSIDERATION DURING CONSTRUCTION IF ADDITIONAL MEASURES BEYOND THOSE DEPICTED ARE REQUIRED.
- AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
- THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
- VOLUME OF SEDIMENT STORAGE SHALL BE 3600 CUBIC FEET PER ACRE OF CONTRIBUTORY DRAINAGE.
- SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND STABILIZED.
- THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
- CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
- THE STRUCTURE SHALL BE REMOVED AND AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
- ALL FILL SLOPES SHALL BE 2:1 OR FLATTER; CUT SLOPES 1:1 OR FLATTER.
- ALL PIPE CONNECTIONS SHALL BE WATERTIGHT.
- THE TOP 2/3 OF THE RISER SHALL BE PERFORATED WITH ONE (1) INCH DIAMETER HOLES OR SLITS SPACED SIX (6) INCHES VERTICALLY AND HORIZONTALLY AND PLACED IN THE CONCAVE PORTION OF PIPE. NO HOLES WILL BE ALLOWED WITHIN SIX (6) INCHES OF THE HORIZONTAL BARREL.
- THE RISER SHALL BE WRAPPED WITH 1/4 TO 1/2 INCH HARDWARE CLOTH WIRE THEN WRAPPED WITH FILTER CLOTH (HAVING AN EQUIVALENT SIEVE SIZE OF 40-80). THE FILTER CLOTH SHALL EXTEND SIX (6) INCHES ABOVE THE HIGHEST HOLE AND SIX (6) INCHES BELOW THE LOWEST HOLE. WHERE ENDS OF THE FILTER CLOTH COME TOGETHER, THEY SHALL BE OVER-LAPPED, FOLDED AND STAPLED TO PREVENT BYPASS.
- STRAPS OR CONNECTING BANDS SHALL BE USED TO HOLD THE FILTER CLOTH AND WIRE FABRIC IN PLACE. THEY SHALL BE PLACED AT THE TOP AND BOTTOM OF THE CLOTH.
- FILL MATERIAL AROUND THE PIPE SPILLWAY SHALL BE HAND COMPACTED IN FOUR (4) INCH LAYERS. A MINIMUM OF TWO (2) FEET OF HAND COMPACTED BACKFILL SHALL BE PLACED OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
- THE RISER SHALL BE ANCHORED WITH EITHER A CONCRETE BASE OR STEEL PLATE BASE TO PREVENT FLOTATION. FOR CONCRETE BASED THE DEPTH SHALL BE TWELVE (12) INCHES WITH THE RISER EMBEDDED NINE (9) INCHES. A 1/4 INCH MINIMUM THICKNESS STEEL PLATE SHALL BE ATTACHED TO THE RISER BY A CONTINUOUS WELD AROUND THE BOTTOM TO FORM A WATERTIGHT CONNECTION AND THEN PLACE TWO (2) FEET OF STONE, GRAVEL, OR TAMPED EARTH ON THE PLATE.

L O S r d r D

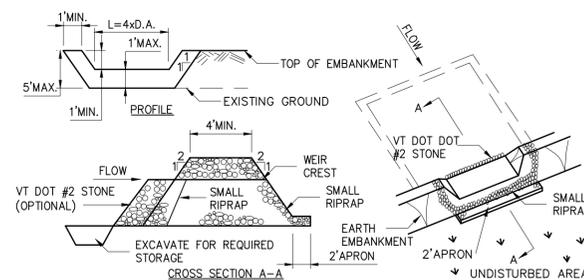
N.T.S. Source: VHB 6/08 LD\_172

S C D

N.T.S. Source: VHB / VT S+S EPSC 12/12 LD\_

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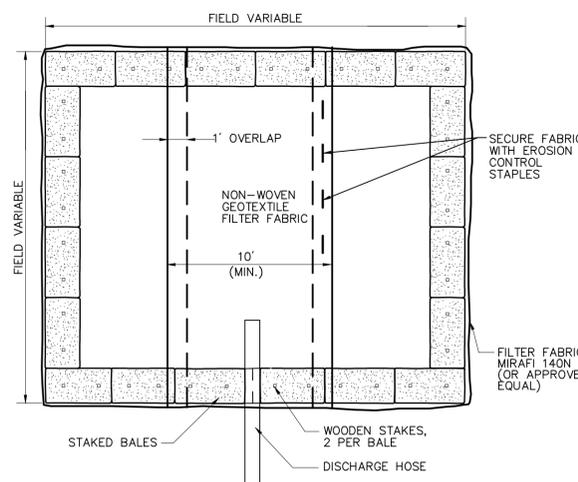


**CONSTRUCTION SPECIFICATIONS**

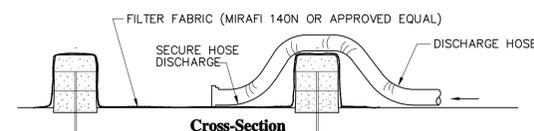
- NOTE: THIS PRACTICE IS NOT CALLED OUT AS NEEDED ON THE PLANS, YET IS OFFERED FOR CONSIDERATION DURING CONSTRUCTION IF ADDITIONAL MEASURES BEYOND THOSE DEPICTED ARE REQUIRED.
- AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
- THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
- ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
- THE STONE USED IN THE OUTLET SHALL BE SMALL RIPRAP 4"-8" ALONG WITH A 1" THICKNESS OF 2" AGGREGATE PLACED ON THE UP-GRADE SIDE ON THE SMALL RIPRAP OR EMBEDDED FILTER CLOTH IN THE RIPRAP.
- SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP.
- THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND AS REQUIRED BY THE PERMIT.
- CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
- THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
- MAXIMUM DRAINAGE AREA: 5 ACRES

S O S d r

N.T.S. Source: VHB / VT S+S EPSC 12/12 LD\_



Plan View



Cross-Section

**Notes:**

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

D r S r

N.T.S. Source: VHB 2/11 LD\_690

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 28 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		

**Notes:**

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

M T

N.T.S. Source: VHB 12/12 LD\_

TEMPORARY SEEDING MIX		
TYPE	SEASON	RATE (LBS/ACRE)
RYEGRASS (ANNUAL OR PERENNIAL)	APRIL 15 - SEPTEMBER 15	20
"AROSTOOK" WINTER RYE	SEPTEMBER 15 - APRIL 15	90
PERMANENT SEEDING MIX*		
TYPE	SEASON	RATE (LBS/ACRE)
BIRDSFOOT TREFOLI(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 TREFOLI 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 SCOPARIA, SCIRPUS CYPERINUS, SCIRPUS ATROVIRENS, BIDENS CERNUA, EUPATORIUM PERFORIOLATUM, EUPATORIUM MACULATUM, JUNCUS EFFUSUS, ONOCLEA SENSIBILIS, VERBENA HASTATA, SYMPHYOTRICHUM NOVAE-ANGLIAE  
NOTE: SEE MIX SHOULD EXCLUDE BOTH CHAMAECRISTA FASCICULATA AND HELIOPSIS HELIANTHOIDES, WHICH ARE BOTH COMMONLY INCLUDED IN THIS COMMERCIAL MIX.

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 GERARDII, 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.

S O S d r

N.T.S. Source: VHB 06/13 LD\_


1	Revision per DEC comments	1/27/14	TJM
No.	Revision	Date	Appr.
Designed by	Drawn by	Checked by	
CAD checked by	Approved by		
Scale	Date	December 13, 2013	

Project Title  
**Halifax Quarry  
C.A.Denison Lumber  
Co., Inc.**

Halifax, Vermont  
Issued for  
**Permitting**

Not Approved for Construction  
Drawing Title

**Details**

Drawing Number

**C-10**

Sheet of 10 11

Project Number  
57595.00



