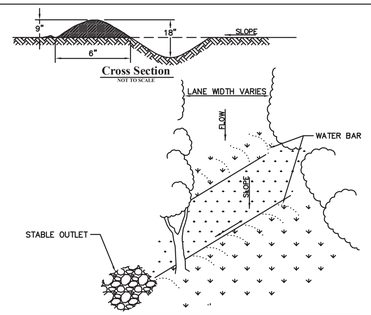
Exhibit VGS-AG-033



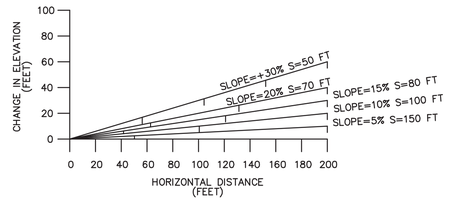
Construction Specifications

1. INSTALL THE WATER BAR AS SOON AS THE RIGHT OF WAY IS CLEARED AND GRADED.
2. DISK OR STRIP THE SOD FROM THE BASE FOR THE CONSTRUCTED RIDGE BEFORE PLACING FILL.
3. TRACK THE RIDGE TO COMPACT IT TO THE DESIGN CROSS SECTION.
4. THE OUTLET SHALL BE LOCATED ON AN UNDISTURBED AREA. FIELD SPACING WILL BE ADJUSTED TO USE THE MOST STABLE OUTLET AREAS. OUTLET PROTECTION WILL BE PROVIDED WHEN NATURAL AREAS ARE NOT ADEQUATE.
5. FOR PERMANENT WATER BARS, VEHICLE CROSSING SHALL BE STABILIZED WITH GRAVEL. EXPOSED AREAS SHALL BE SEEDED AND MULCHED. FOR TEMPORARY WATER BARS, VEHICLE CROSSING SHALL BE COMPACTED AND MAINTAINED PER THESE SPECIFICATIONS. FOLLOWING THEIR USE, WATER BARS SHALL BE REGRADED TO MATCH PRE-CONSTRUCITON CONDITIONS. TOPSOIL SHALL BE RE-APPLIED THEN ALL AREAS OF EXPOSED SOIL SHALL BE FULLY STABILIZED PER THE EPSC PLAN.
6. INSPECT WATER BARS FOR EROSION DAMAGE AND SEDIMENT. CHECK OUTLET AREAS AND MAKE REPAIRS AS NEEDED TO RESTORE OPERATION.
7. SPACING:

SLOPE (%)	SPACING (FT)
<5	125
5–10	100
10–20	75
20–35	50
>35	25

1 Water Bars

N.T.S. Source: Vermont Standards and Specs for EPSC 2006 10/13 LD_



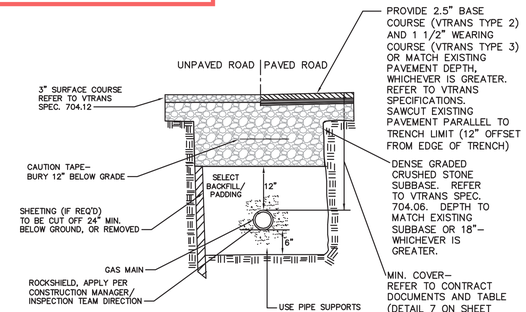
NOTE: S = TRENCH BREAKER SPACING

NOTES:

1. PERMANENT TRENCH BREAKER SANDBAGS SHALL NOT BE FILLED WITH TOPSOIL.
2. SPACINGS SHOWN ARE RECOMMENDED MINIMUM GUIDELINES. OSPC REPRESENTATIVE MAY ADJUST SPACING IN THE FIELD WITH PRIOR WRITTEN APPROVAL OF OWNER.
3. ONE TRENCH BREAKER IS REQUIRED AT ALL STREAM BANKS AND AT WETLAND BOUNDARIES.

2 Permanent Trench Break Spacing Guideline

N.T.S. Source: CHA 12/12 LD_



NOTES:

1. UNLESS OTHERWISE NOTED OR DIRECTED, SELECT BACKFILL MATERIAL SHALL CONSIST OF NATIVE MATERIAL CONTAINING STONES NO LARGER THAN 1.5" IN THE LONGEST DIMENSION. A SHAKER BUCKET OR SCREEN MAY BE USED IF NATIVE MATERIAL IS TOO LARGE. SAND MAY BE REQUIRED FOR SELECT BACKFILL IF DIRECTED BY CONSTRUCTION MANAGER/ INSPECTION TEAM.
2. IN AREAS OF ROCK OR UNSUITABLE SOILS OR AS DETERMINED BY CONSTRUCTION MANAGER, PIPE SHALL BE BEDDED WITH COMPACTED SELECT BACKFILL. WHEN NATIVE MATERIALS ARE UNSUITABLE FOR BACKFILLING, AS DIRECTED BY CONSTRUCTION MANAGER, CONTRACTOR SHALL BACKFILL WITH COMPACTED SAND TO 12" ABOVE TOP OF PIPE. THE REMAINING TRENCH SHALL BE BACKFILLED WITH AN APPROVED MATERIAL.
3. IN RESOURCE AREAS (E.G. WETLANDS AND PAS AREAS) GENERAL BACKFILL SHALL BE NATIVE MATERIAL TO MATCH PROFILE DEPTH OF ADJACENT NATIVE, UNDISTURBED SUBSOIL/SURFACE SOIL INTERFACE. EXCESS SUBSOIL TO BE PROPERLY DISPOSED OF AND STABILIZED.
4. THE OWNER SHALL PROVIDE TESTING SERVICES TO INSURE THAT THE IN–PLACE DENSITY OF THE BACKFILL MEETS REQUIREMENTS DETERMINED IN THE SPECIFICATIONS.
5. ALL TRENCH CONSTRUCTION SHALL CONFORM TO APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
6. CONTRACTOR SHALL ENSURE BACKFILL IS PLACED/COMPACTED IN 12" (MAX) LIFTS ABOVE THE PIPE.
7. PROVIDE SUPPORTS IN ALL LOCATIONS (PIPE PILLO, STACKED SAND BAGS, OR OWNER APPROVED EQUAL). SUPPORTS SHALL BE SECURE AND STABLE AND ADEQUATE TO SUPPORT PIPE DURING LOWERING AND BACKFILL OPERATIONS.

3 Typical Trench Detail-Roadways and Driveways

N.T.S. Source: CHA 11/14 LD_

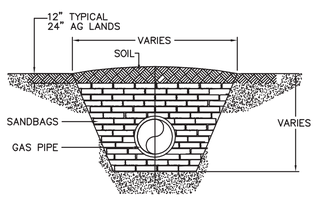
CHA PLAN SHEET #	TOWN	PROJECT COMPONENT	PLANT ID CODE	STATE RANK	MATTING LOCATIONS (STATION)
ANGP–EPSC–014	WILLISTON	TRANSMISSION (ACCESS ROAD)	2012–RTE–CT–03 1	S2/S3	366+50 TO 368+75 AND ON ACCESS ROAD
ANGP–EPSC–022	WILLISTON	TRANSMISSION	2012–RTE–CT–08 4	S2/S3	562+50 TO 563+75
ANGP–EPSC–039	HINESBURG	TRANSMISSION	2012–RTE–CT–08 0	S2/S3	992+80 TO 993+50
ANGP–EPSC–039	HINESBURG	TRANSMISSION	2012–RTE–CT–08 1	S2/S3	1001+20 TO 1002+20
ANGP–EPSC–039	HINESBURG	TRANSMISSION	2012–RTE–CT–08 2	S2/S3	1003+50 TO 1005+80
ANGP–EPSC–040	HINESBURG	TRANSMISSION	2012–RTE–CT–04 1	S2/S3	1021+20 TO 1023+00
ANGP–EPSC–051	MONKTON	TRANSMISSION	2012–RTE–ACT–0 83	S2/S3	1302+10 TO 1307+90
ANGP–EPSC–066	NEW HAVEN	TRANSMISSION	2012–RTE–CT–05 1	S2/S3	1649+50 TO 1652+00
ANGP–EPSC–066	NEW HAVEN	TRANSMISSION	2012–RTE–CT–06 1	S2/S3	1665+50
ANGP–EPSC–066	NEW HAVEN	TRANSMISSION	2012–RTE–AT–05 3	S1	1659+60
ANGP–EPSC–066	NEW HAVEN	TRANSMISSION	2012–RTE–LV–05 4	S2	1659+60
ANGP–EPSC–066	NEW HAVEN	TRANSMISSION	2012–RTE–AT–06 3	S1	1669+70 TO 1670+50
ANGP–EPSC–075, 079, 077	NEW HAVEN	TRANSMISSION	2012–RTE–CT–06 9	S2/S3	1918+00 TO 1966+50
ANGP–EPSC–V011	FERRISBURGH	DISTRIBUTION MAIN	2012–RTE–CT–06 8	S2/S3	118+80 TO 119+10

Notes:

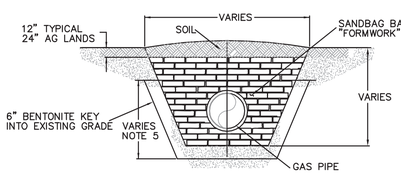
1. INSTALL CONSTRUCTION MATS ON STATION LOCATIONS LISTED IN TABLE TO PROTECT RARE PLANT SPECIES.
2. LIMIT DURATION OF MATTING DURING GROWING SEASON TO EXTENT PRACTICABLE.
3. REMOVE MATTING IMMEDIATELY FOLLOWING THEIR USE. FOR EXAMPLE, WHERE MATTING IS USED FOR TEMPORARY STOCKPILING OF SOIL FROM TRENCHING OPERATIONS, REMOVE MATTING IMMEDIATELY FOLLOWING BACKFILL OPERATIONS.
4. AT A MINIMUM, MATTING IS NOT TO BE LEFT IN PLACE FOR MORE THAN 28 DAYS WHERE FEASIBLE.
5. REFER TO ADDITIONAL ENVIRONMENTAL NOTE 12 ON SHEET ANGP–T–G–011

4 RTE Matting Table

N.T.S. Source: VHB 09/13



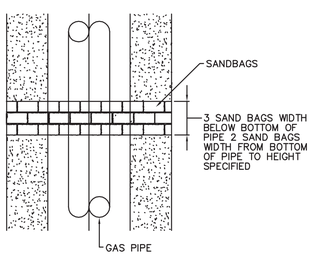
PROFILE VIEW



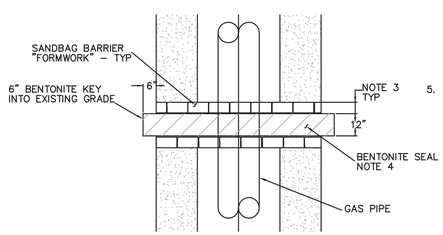
PROFILE VIEW

NOTES:

1. PERMANENT TRENCH BREAKER WITH BENTONITE SEAL IS INTENDED TO PROHIBIT WATER FLOW THROUGH THE BREAKER.
2. PERMANENT TRENCH BREAKER WITH BENTONITE SEAL TO BE INSTALLED AT EDGE OF WETLANDS AND STREAMS.
3. SAND BAG BARRIER WIDTH SHALL BE MINIMUM 1 BAG WIDE AND/OR AS FIELD DETERMINED TO PROVIDE STABILITY.
4. BENTONITE IS TO BE INSTALLED IN THE VOID SPACE BETWEEN THE SANDBAG BARRIER "FORMWORK" IN SUCH A MANNER TO COMPLETELY SURROUND THE PIPE AND FILL THE VOID FROM THE BOTTOM OF THE TRENCH TO A HEIGHT 6" ABOVE THE LEVEL OF IMPORTED PADDING MATERIAL WHICH IS INSTALLED ON THE EXTERIOR SIDE OF THE SANDBAG BARRIER IN THE WETLAND ZONE.
5. AFTER BENTONITE PLACEMENT, INSTALL SAND BAGS ON TOP OF THE PERMANENT TRENCH BREAKER AND BENTONITE SEAL TO THE REQUIRED HEIGHT PER DETAIL 2 AND BACKFILL EXTERIOR SIDES OF SAND BAG BARRIERS.



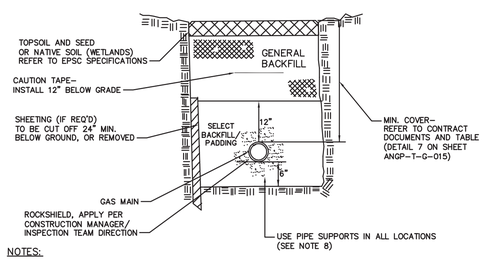
PLAN VIEW
SAND BAG TRENCH BREAKER



PLAN VIEW
TRENCH BREAKER WITH BENTONITE

5 Permanent Trench Break or Sandbags

N.T.S. Source: CHA 12/12 LD_



NOTES:

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2. UNLESS OTHERWISE NOTED OR DIRECTED, GENERAL BACKFILL MATERIAL SHALL CONSIST OF NATIVE MATERIAL CONTAINING NO STONES OR CLODS LARGER THAN 3" IN THE LONGEST DIMENSION.
3. IN AREAS OF ROCK OR UNSUITABLE SOILS OR AS DETERMINED BY CONSTRUCTION MANAGER, PIPE SHALL BE BEDDED WITH COMPACTED SELECT BACKFILL. WHEN NATIVE MATERIALS ARE UNSUITABLE FOR BACKFILLING, AS DIRECTED BY CONSTRUCTION MANAGER, CONTRACTOR SHALL BACKFILL WITH COMPACTED SAND TO 12" ABOVE TOP OF PIPE. THE REMAINING TRENCH SHALL BE BACKFILLED WITH AN APPROVED MATERIAL.
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6 Typical Trench Detail-Cross Country

N.T.S. Source: CHA 11/14 LD_

1

PIPELINE MINIMUM COVER REQUIREMENTS	
AREA	COVER
VELCO ROW OR ROW ACCESS POINT	4'
VTRANS ROW*	4'
AG AREAS*	4'
PAVED AREAS	5'
BOTTOM OF DITCHLINE	4'
STREAMS	5' MIN. UNLESS OTHERWISE NOTED ON SHEET ANGP–T–G–017
ALL OTHER AREAS*	3'
*UNLESS OTHERWISE NOTED ON APPROVED PERMIT PLANS OR CONSTRUCTION LINE LIST	

7 Typical Minimum Cover of Pipeline

N.T.S. Source: CHA 11/14 LD_

DWG. NO.	REFERENCE DWG.	REV	DSN	CK	DESCRIPTION
		1	BCK	TDB	DEPTH OF COVER UPDATE (6/11/15)

	BID		CONSTRUCTION	
ENVIRONMENTAL	JLS	06/28/13	JLS	04/02/15
DRAFTING DESIGNER	GIL	06/28/13	GIL	04/02/15
DRAFTING SUPERVISOR	BZD	06/28/13	BCK	04/02/15
DESIGN ENGINEER	MDF	06/28/13	TDB	04/02/15
DESIGN MANAGER	SAB	06/28/13	JEO	04/02/15
	INITIALS	DATE	INITIALS	DATE

VERMONT GAS
PROPOSED 12" PIPELINE
ADDISON NATURAL GAS PROJECT
CONSTRUCTION DETAILS

LOC. CHITTENDEN & ADDISON COUNTIES

YEAR: 2015 | W.O. | SCALE: NOTED | DWG. ANGP–T–G–015 | REV. 1

Vermont Gas

VHB Vanasse Hangen Brustlin, Inc.

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