ATLANTIC COAST PIPELINE, LLC
ATLANTIC COAST PIPELINE

Construction, Operations, and Maintenance Plans

ATTACHMENT I

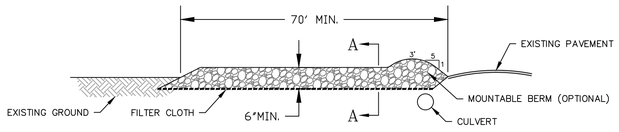
Typical Erosion & Sedimentation Control Details

ATLANTIC COAST PIPELINE, LLC
ATLANTIC COAST PIPELINE

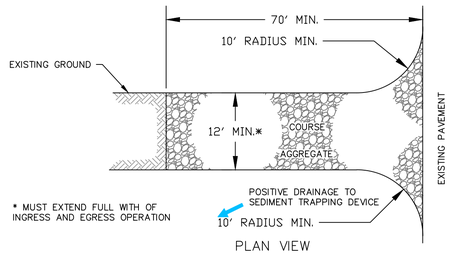
Construction, Operations, and Maintenance Plans

ATTACHMENT I

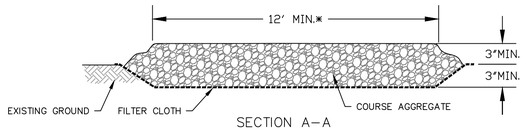
Typical Erosion & Sedimentation Control Details -West Virginia



SIDE ELEVATION



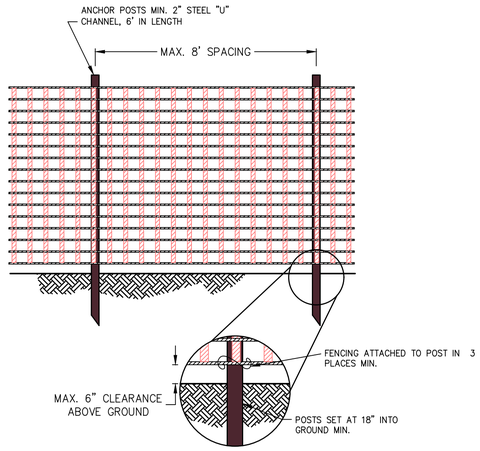
PLAN VIEW



SECTION A–A

STONE CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE



NOTES:
1. PROTECTION BARRIER SHALL BE 4' HIGH, CONSTRUCTED OF DURABLE AND HIGHLY VISIBLE MATERIAL (PLASTIC ORANGE CONSTRUCTION FENCE AND SNOW FENCE MAY BE USED).
2. PROTECTION BARRIERS SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE WORK AT THE SITE.
3. ADDITIONAL WARNING SIGNS SHOULD ALSO BE PLACED ON THE FENCING AND IN APPROPRIATE AREAS NEAR THE WORK ZONE.

CONSTRUCTION FENCE DETAIL

NOT TO SCALE

INTRODUCTION

1. PROTECTIVE FENCING SHOULD BE INSTALLED TO PREVENT ACCESS TO POTENTIALLY HAZARDOUS AREAS OF A CONSTRUCTION SITE.

CONDITIONS WHERE PRACTICE APPLIES

1. APPLICABLE TO ANY CONTROL MEASURE OR SERIES OF MEASURES, WHICH CAN BE CONSIDERED UNSAFE BY VIRTUE OF POTENTIAL FOR ACCESS BY THE PUBLIC. THE DESIGNER, DEVELOPER, AND CONTRACTOR SHOULD ALWAYS BE SURE THAT THE MOST APPROPRIATE TYPE OF FENCE IS UTILIZED FOR A PARTICULAR NEED.

CONSTRUCTION SPECIFICATIONS

1. SAFETY FENCES SHOULD BE LOCATED SO AS TO CREATE A FORMIDABLE BARRIER TO UNDESIRED ACCESS, WHILE ALLOWING FOR THE CONTINUATION OF NECESSARY CONSTRUCTION OPERATIONS.
2. SAFETY FENCES ARE MOST APPLICABLE TO THE CONSTRUCTION OF TRAPS AND DAMS. IN USE WITH THOSE STRUCTURES, SAFETY FENCES SHOULD BE LOCATED FAR ENOUGH BEYOND THE OUTER TOE OF THE EMBANKMENT TO ALLOW FOR THE PASSAGE OF MAINTENANCE VEHICLES. FENCES SHOULD NOT BE INSTALLED ACROSS THE SLOPE OF A DAM OR DIKE.
3. SIGNS NOTING POTENTIAL HAZARDS SUCH AS "DANGER" OR "HAZARDOUS AREA – KEEP OUT" SHOULD BE POSTED AND EASILY SEEN BY ANYONE APPROACHING THE PROTECTED AREA.
4. PLASTIC (POLYETHYLENE) FENCE MAY BE USED AS SAFETY FENCING, PRIMARILY IN SITUATIONS WHERE THE NEED IS FOR A TEMPORARY BARRIER. THE FENCE SHOULD MEET THE PHYSICAL REQUIREMENTS NOTED IN TABLE 3.04.1.
5. SAFETY FENCES SHOULD BE INSTALLED PRIOR TO THE SEDIMENT CONTROL MEASURE BECOMING ACCESSIBLE.
6. APPLICABLE WARNING SIGNS NOTING HAZARDOUS CONDITIONS MUST BE INSTALLED IMMEDIATELY UPON INSTALLATION OF SAFETY FENCE.
7. CHAIN LINK FENCE SHOULD BE USED FOR PERMANENT STRUCTURES (GREATER THAN ONE YEAR).

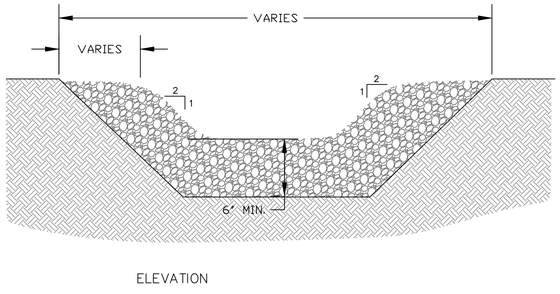
MAINTENANCE

1. SAFETY FENCE SHALL BE CHECKED REGULARLY FOR WEATHER–RELATED OR OTHER DAMAGE. ANY NECESSARY REPAIRS MUST BE MADE IMMEDIATELY.
2. CARE SHOULD BE TAKEN TO SECURE ALL ACCESS POINTS (GATES) AT THE END OF EACH WORKING DAY. ALL LOCKING DEVICES MUST BE REPAIRED OR REPLACED AS NECESSARY.

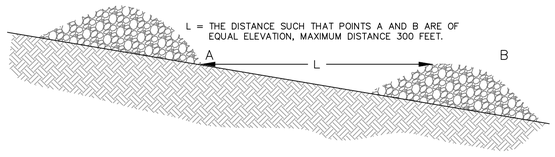
TABLE 3.04.1 PHYSICAL PROPERTIES OF PLASTIC SAFETY FENCE

PHYSICAL PROPERTY	TEST	REQUIREMENTS
RECOMMENDED COLOR	N/A	INTERNATIONAL ORANGE
TENSILE YIELD	ASTM D638	AVERAGE 2,000 lbs.
ULTIMATE TENSILE STRENGTH	ASTM D638	AVERAGE 2,000 lbs. per 4FT. WIDTH
ELONGATION AT BREAK(%)	ASTM D638	GREATER THAN 1000%
CHEMICAL RESISTANCE	N/A	INERT TO MOST CHEMICALS/ACIDS

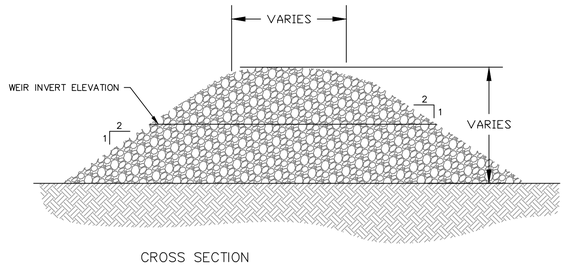
SAFETY FENCE SPECIFICATIONS



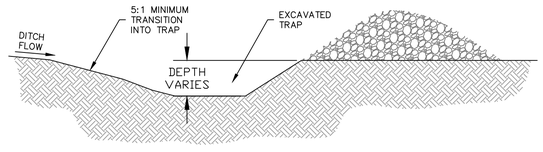
ELEVATION



CHECK DAM SPACING



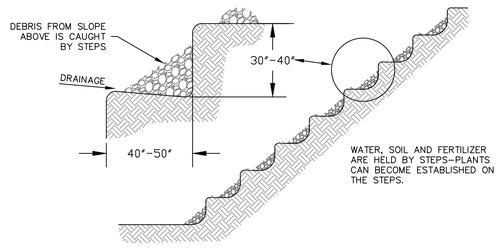
CROSS SECTION



CHECK DAM WITH SUMP

ROCK CHECK DAM DETAIL

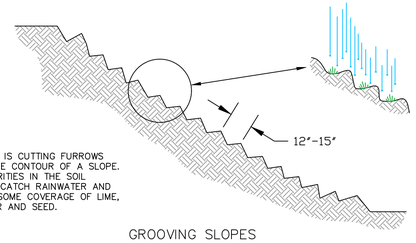
NOT TO SCALE



STAIR STEPPING CUT SLOPES

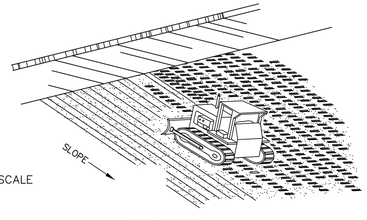
FILL SLOPE TREATMENT

NOTE:
EACH LIFT OF FILL IS COMPACTED, BUT THE OUTER FACE OF THE SLOPE IS ALLOWED TO REMAIN LOOSE SO THAT THE ROCKS, CLODS, ETC. REACH THE NATURAL ANGLE OF REPOSE.



GROOVING IS CUTTING FURROWS ALONG THE CONTOUR OF A SLOPE. IRREGULARITIES IN THE SOIL SURFACE CATCH RAINWATER AND PROVIDE SOME COVERAGE OF LIME, FERTILIZER AND SEED.

GROOVING SLOPES



NOT TO SCALE

TRACKING

NOTE:
DOZER TREADS CREATE GROOVES PERPENDICULAR TO THE SLOPE.

SURFACE ROUGHENING DETAIL

NOT TO SCALE

GENERAL NOTES AND COMMENTS:

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0	01/24/17	JEY	ISSUED FOR REVIEW	-	-

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Environmental Resources Management

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Atlantic Coast Pipeline, LLC

925 White Oaks Blvd. Bridgeport, West Virginia 26330 / 681-842-8000

TITLE:

ATLANTIC COAST PIPELINE
EROSION AND SEDIMENT CONTROL DETAILS

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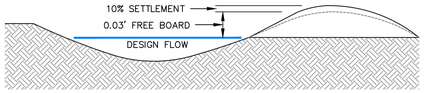
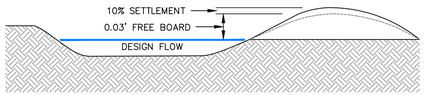
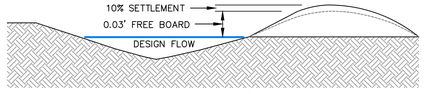
DIR/FILE:	ACP\West Virginia\Details				-	-	0



PARABOLIC DIVERSION



TRAPEZOIDAL DIVERSION



VEE–SHAPED DIVERSION

Table 3.15.1
CHANNEL CROSS SECTION REQUIREMENTS

	A	B
Drainage area	< 5 acres	5 – 10 acres
Bottom width flow channel	4 feet	6 feet
Depth of flow channel	1 foot	1 foot
Side slopes	2:1 or flatter	2:1 or flatter
Grade	0.5% minimum	0.5% minimum

DIVERSION DETAIL

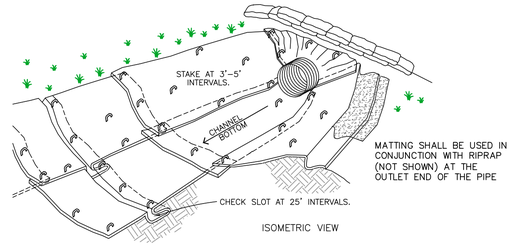
NOT TO SCALE

SOIL AMENDMENT	PERMANENT SEEDING APPLICATION RATE			NOTES
	PER ACRE	PER 1,000 SQ. FT.	PER 1,000 SQ. YD.	
AGRICULTURAL LIME	7.5 TONS	300 LB.	3,100 LB.	OR AS PER SOIL TEST; MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS
10-10-20 FERTILIZER	1,000 LB.	25 LB.	210 LB.	OR AS PER SOIL TEST; MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS

MULCH TYPE	APPLICATION RATE (MIN.)			NOTES
	PER ACRE	PER 1,000 SQ. FT.	PER 1,000 SQ. YD.	
STRAW	3 TONS	140 LB.	1,240 LB.	EITHER WHEAT OR OAT STRAW, FREE OF WEEDS, NOT CHOPPED OR FINELY BROKEN
HAY	3 TONS	140 LB.	1,240 LB.	TIMOTHY, MIXED FLOVER AND TIMOTHY OR OTHER NATIVE FORAGE GRASSES
WOOD CHIPS	4 - 6 TONS	185 - 275 LB	1,650 - 2,500 LB.	MAY PREVENT GERMINATION OF GRASSES AND LEGUMES
HYDROMULCH	1 TON	47 LB.	415 LB.	SEE NOTE 1

NOTES:
1. SHREDDED PAPER HYDROMULCH SHOULD NOT BE USED ON SLOPES STEEPER THAN 5%. WOOD FIBER HYDROMULCH MAY BE APPLIED ON STEEPER SLOPES PROVIDED TACKIFIER IS USED. THE APPLICATION RATE FOR ANY HYDROMULCH SHOULD BE 2,000 LB./ACRE AT MINIMUM.

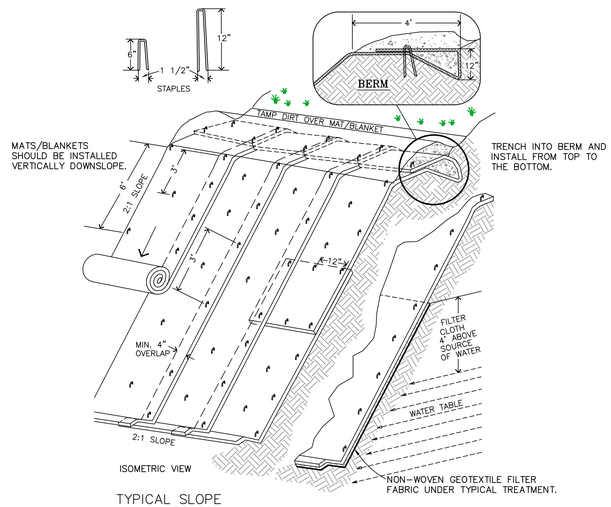
MULCH AND FERTILIZER



NOTES:
1. CHECK SLOTS TO BE CONSTRUCTED PER MANUFACTURERS SPECIFICATIONS.
2. STAKING OR STAPLING LAYOUT PER MANUFACTURERS SPECIFICATIONS.

TYPICAL RECP CHANNEL INSTALLATION DETAIL

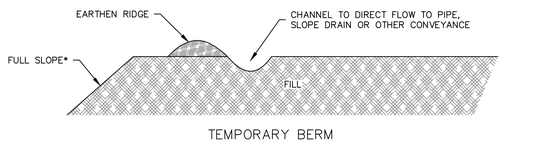
NOT TO SCALE



NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

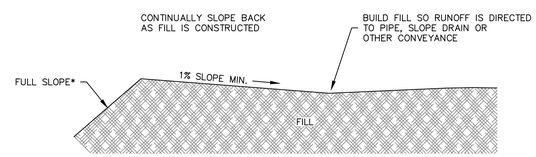
ROLLED EROSION CONTROL DETAIL

NOT TO SCALE



TEMPORARY BERM

* SEED AND MULCH FILL SLOPE EVERY 10 FEET OF FILL OR EVERY 7 DAYS, WHICHEVER COMES FIRST



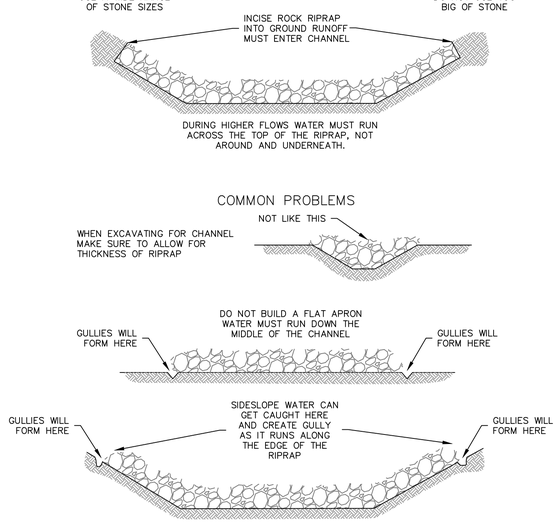
GRADING

Table 3.15.2
STABILIZATION RREQUIREMENTS

channel Grade (%)	A < 5 acres	B 5 – 10 acres
0.5 – 3.0	Seed & straw mulch	Seed & straw mulch
3.1 – 5.0	Seed & straw mulch	Seed & cover /RECP; sod; or line with riprap
5.1 – 8.0	Seed & cover w/ RECP; sod;or line with riprpa	Line with riprap
8.1 – 20.0	Line with riprap	Engineering design

TEMPORARY FILL DIVERSION DETAIL

NOT TO SCALE

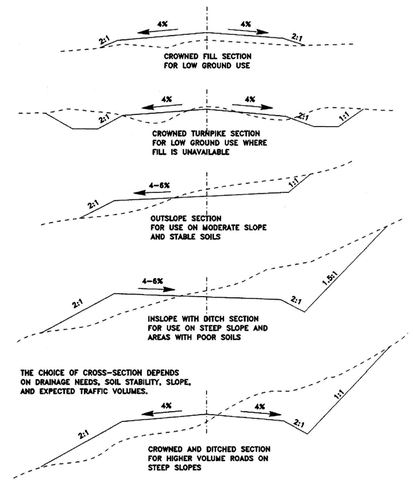


RIPRAP DIVERSION DETAIL

NOT TO SCALE

FIGURE 3.35.1

TYPES OF ROAD CROSS–SECTIONS



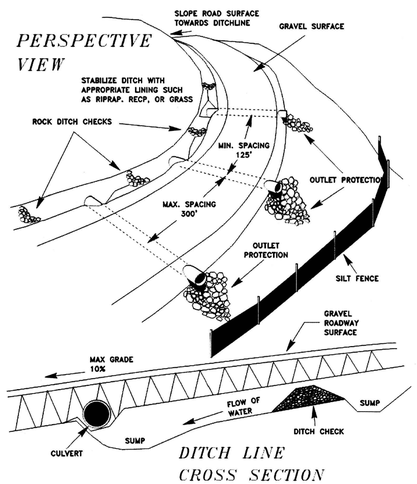
FROM: US FOREST SERVICE AND MICHIGAN DNR

TYPES OF ROAD CROSS–SECTIONS

NOT TO SCALE

FIGURE 3.35.2

SEDIMENT AND EROSION CONTROL FOR ACCESS ROADS AND DRIVEWAYS



SEDIMENT AND EROSION CONTROL FOR ACCESS ROADS AND DRIVEWAYS

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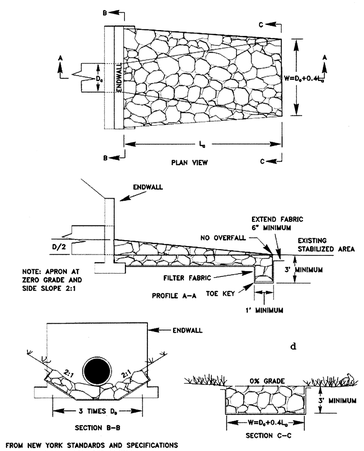
DIR/FILE:	ACP\West Virginia\Details				-	-	0

FIGURE 3.17.1

OUTLET PROTECTION
DISCHARGE TO UNCONFINED SECTION
(MINIMUM TAILWATER)

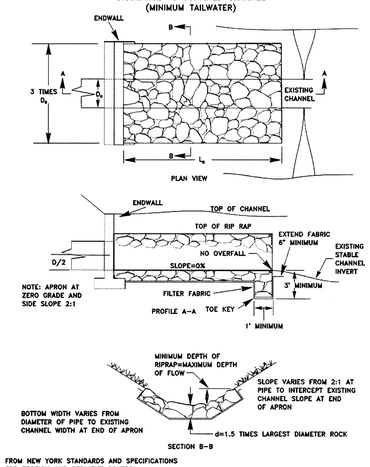


OUTLET PROTECTION UNCONFINED

NOT TO SCALE

FIGURE 3.17.2

OUTLET PROTECTION
DISCHARGE TO CONFINED CHANNEL
(MINIMUM TAILWATER)

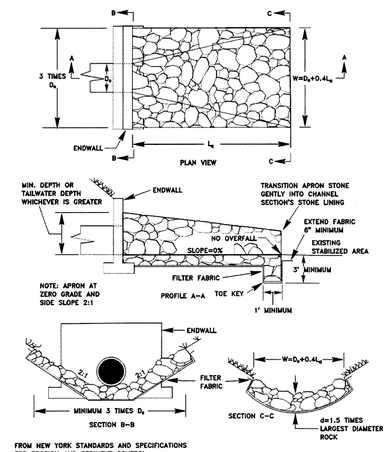


OUTLET PROTECTION CONFINED

NOT TO SCALE

FIGURE 3.17.3

OUTLET PROTECTION
DISCHARGE TO SEMI-CONFINED SECTION
(MAXIMUM TAILWATER)

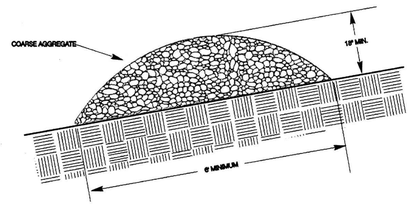


OUTLET PROTECTION SEMI-CONFINED

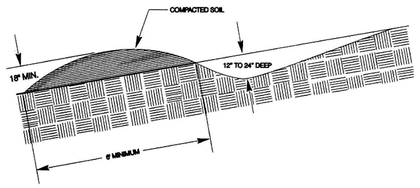
NOT TO SCALE

FIGURE 3.18.1

RIGHT-OF-WAY DIVERSIONS



TYPICAL GRAVEL STRUCTURE



TYPICAL EARTHEN STRUCTURE

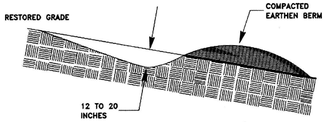
Source: Va. SWCC

RIGHT-OF WAY DIVERSIONS

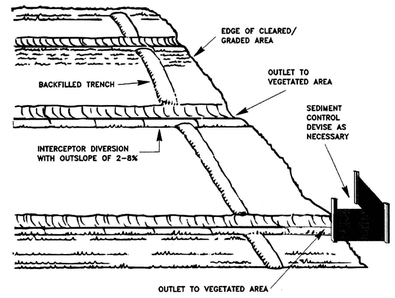
NOT TO SCALE

FIGURE 3.18.2

RIGHT-OF-WAY DIVERSION



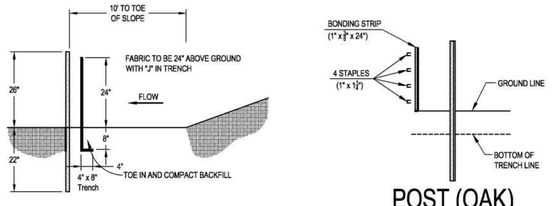
FINAL DIVERSION CROSS-SECTION



RIGHT-OF WAY DIVERSION

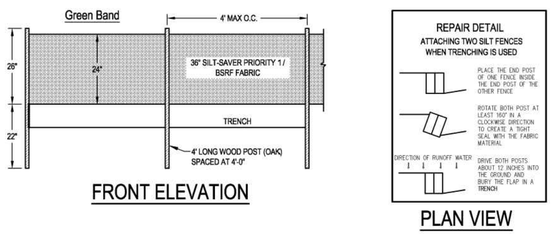
NOT TO SCALE

SILT - SAVER
EROSION AND SEDIMENT CONTROL PRODUCTS



SIDE VIEW

POST (OAK)
($1\frac{3}{4}$ x $1\frac{1}{4}$ x 48")
(OR EQUAL DENSITY)

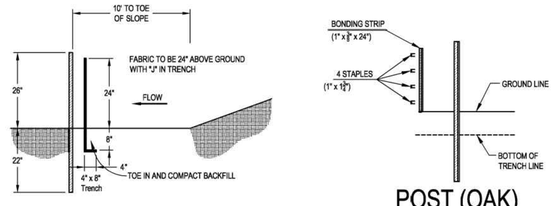


FRONT ELEVATION

PLAN VIEW

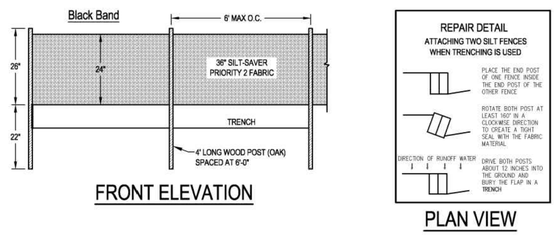
BELTED SILT RETENTION FENCE (BSRF)
PRIORITY 1 – GREEN BAND

SILT - SAVER
EROSION AND SEDIMENT CONTROL PRODUCTS



SIDE VIEW

POST (OAK)
($1\frac{3}{4}$ x $1\frac{1}{4}$ x 48")
(OR EQUAL DENSITY)



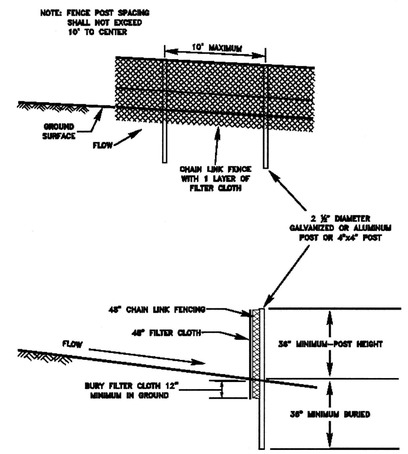
FRONT ELEVATION

PLAN VIEW

BELTED SILT RETENTION FENCE (BSRF)
PRIORITY 2

FIGURE 3.28.1

SUPER SILT FENCE



SUPER SILT FENCE

NOT TO SCALE

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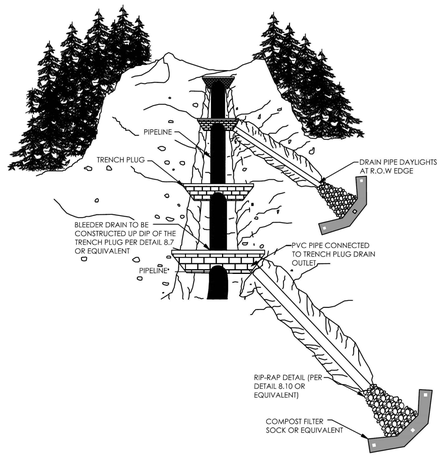
-	-	WV	-	-	0

DIR/FILE: ACP\West Virginia\Details

Where trenching activities are proposed in high slip potential soils and in areas where existing ground slopes are greater than 3:1, bleeder drains shall be installed to passively drain water from the trench area. The following illustration shows a drain placed at every second trench plug.

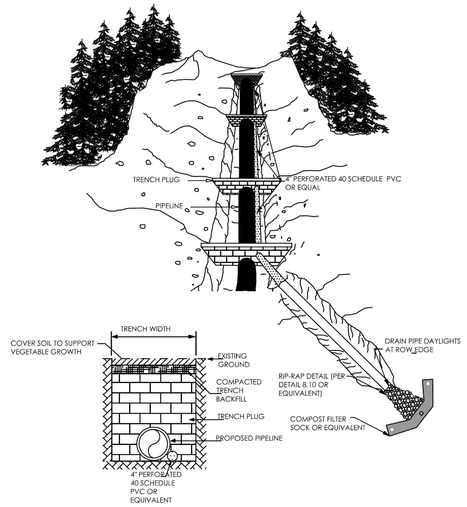


SLIP PREVENTION: BLEEDER DRAIN AND OUTLET DETAIL 8.4

SLIP PREVENTION: BLEEDER DRAIN AND OUTLET DETAIL

NOT TO SCALE

A bleeder drain placed parallel along the pipeline is an effective way to passively drain water from the backfilled trench area. This technique will reduce the number of outlets and control the placement of outlets. The following illustration shows this method.

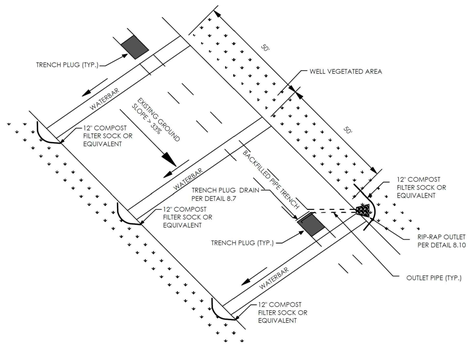


SLIP PREVENTION: BLEEDER DRAIN PARALLEL TO PIPELINE 8.5

SLIP PREVENTION: BLEEDER DRAIN PARALLEL TO PIPELINE

NOT TO SCALE

The outlets associated with pipeline trench drains are typically used in conjunction with right-of-way diversions. Used in this manner, additional outlets and sediment filter controls will not be needed. Spacing for trench plugs in high slip potential soils is related to the severity of the ROW slopes. Trench plug drains shall be installed at every other trench plug on slopes that are 30% or greater.



Spacing of Trench Plugs (Drains to be installed at every other Plug)

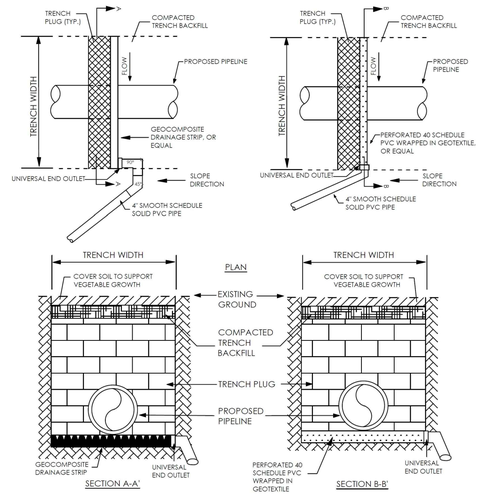
Percent Slope	Spacing in Feet
<5	*
5 - 15	500
15 - 25	300
25 - 35	200
> 35	100

NOT TO SCALE

SLIP PREVENTION: TRENCH PLUG DRAIN OVERVIEW 8.6

SLIP PREVENTION: TRENCH PLUG DRAIN OVERVIEW

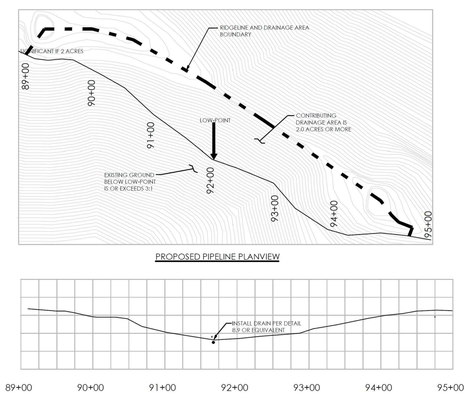
Two (2) types of trench plug drains are illustrated below. Geocomposite Drainage Strips or Perforated Schedule 40 PVC placed behind the trench plug and below the pipeline are effective ways to passively drain water. Both methods show Schedule 40 PVC discharge pipe at a minimum of a 2% grade.



SLIP PREVENTION: TRENCH PLUG DRAIN DETAILS 8.7

SLIP PREVENTION: TRENCH PLUG DRAIN DETAILS

Bleeder drains will sometimes be required at low points associated with side hill construction activities in high slip potential soils. Drainage from the undisturbed profile can infiltrate the backfilled soil within the trench and drain to a low point with the potential of saturating the soil. A drain shall be installed at low topographical areas where the existing ground slopes perpendicular to the ROW are greater than 3:1 and with significant contributing drainage area two (2) acres or more. Unusual conditions will be reviewed on a case by case basis.

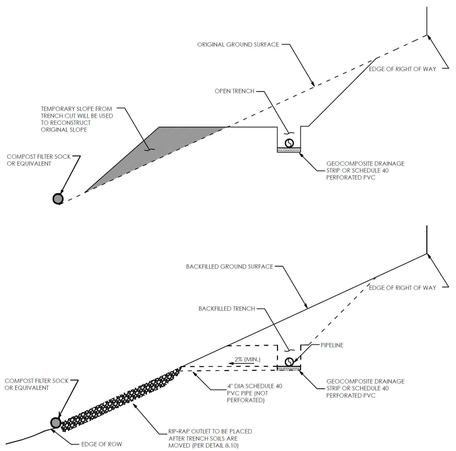


SLIP PREVENTION: SIDE HILL CONSTRUCTION 8.8

SLIP PREVENTION: SIDE HILL CONSTRUCTION

NOT TO SCALE

Two (2) types of low point drains are illustrated below. Geocomposite Drainage Strips or Perforated Schedule 40 PVC placed below the pipeline are effective ways to passively drain water. Both methods show Schedule 40 PVC discharge pipe at a minimum of a 2% grade.

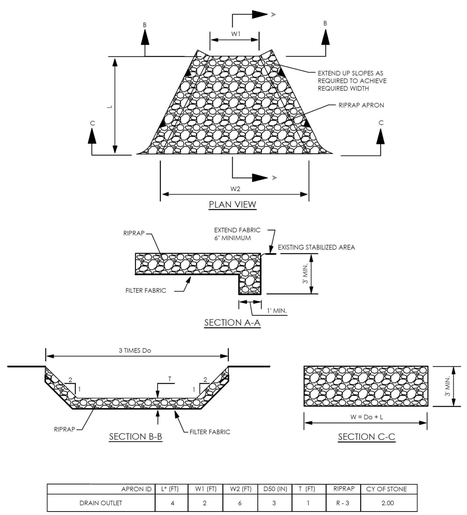


SLIP PREVENTION: SIDE HILL CONSTRUCTION DRAIN 8.9

SLIP PREVENTION: SIDE HILL CONSTRUCTION DRAIN

NOT TO SCALE

Outlet protection structures prevent scour and erosions at discharge outlets by dissipating the energy and reducing velocities. The illustration below show a typical application of an apron lined with rock riprap.



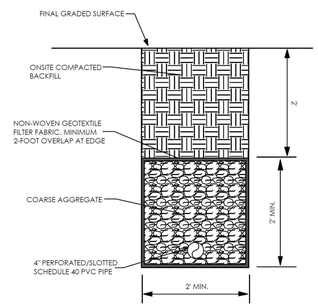
APRON ID	L* (FT)	W1 (FT)	W2 (FT)	D50 (IN)	T (FT)	RIPRAP	CY OF STONE
DRAIN OUTLET	4	2	6	3	1	R - 3	2.00

SLIP PREVENTION: DRAIN OUTLET RIP-RAP OUTLET 8.10

SLIP PREVENTION: DRAIN OUTLET RIP-RAP OUTLET

NOT TO SCALE

French drains can be constructed to passively drain water away from the trench area. These drains can be installed at seepage areas encountered during construction. These drains should be sloped at a minimum of 2% to the outlet locations

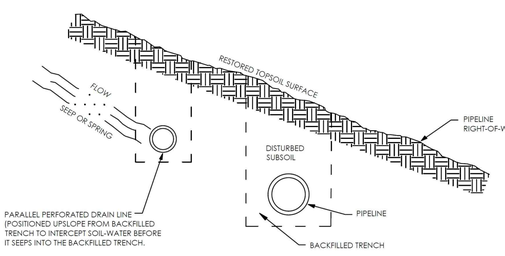


SLIP PREVENTION: SUBSURFACE DRAIN (FRENCH DRAIN) 8.11

SLIP PREVENTION: SUBSURFACE DRAIN (FRENCH DRAIN)

NOT TO SCALE

Parallel drainage tiles can be installed at seepage areas encountered during construction. The drains may be perforated PVC or geocomposite drain strips placed between the seepage area and the pipeline to intercept soil-water before it seeps into the open or backfilled trenchline. These drains should be sloped at a minimum of 2% to the outlet locations.



SLIP PREVENTION: SEEP INTERCEPT DRAIN PARALLEL TO TRENCH 8.12

SLIP PREVENTION: SEEP INTERCEPT DRAIN PARALLEL TO TRENCH

NOT TO SCALE

GENERAL NOTES AND COMMENTS:

SYM.	DATE	BY	REVISION INFORMATION	PROJECT/TASK	APP.
0	01/24/17	JEY	ISSUED FOR REVIEW	-	-

SEAL

Environmental Resources Management (ERM)

DRAWN:	JEY	01/24/17
CHECKED:	-	-
APP. FOR BID:		
APP. FOR CONST.:		
SCALE:	AS NOTED	

Atlantic Coast Pipeline, LLC

925 White Oaks Blvd. Bridgeport, West Virginia 26330 / 681-842-8000

TITLE: **ATLANTIC COAST PIPELINE EROSION AND SEDIMENT CONTROL DETAILS**

DISTRICT:	-	COUNTY:	-	STATE: WV	GROUP	DWG. NO.	REV.
DIR/FILE:	ACP\West Virginia\Details				-	-	0

ATLANTIC COAST PIPELINE, LLC
ATLANTIC COAST PIPELINE

Construction, Operations, and Maintenance Plans

ATTACHMENT I

Typical Erosion & Sedimentation Control Details - Virginia

The following construction details are taken from the Virginia Erosion and Sediment Control Handbook (VESCH), Third Edition, 1992, as amended. Specific details and guidelines are covered more completely in Chapter 3 of the VESCH.

The Contractor must go to the VESCH to reference practices that are covered in the specification but not listed below.

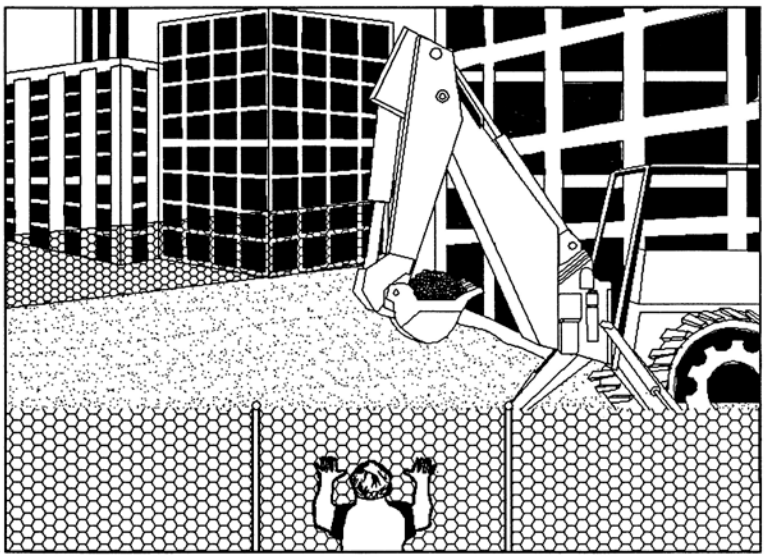
Practice	Title	Key
3.01	Safety Fence	SAF
3.02	Temporary Stone Construction Entrance	CE
3.04	Straw Bale Barrier	STB
3.05	Silt Fence	SF
3.07	Storm Drain Inlet Protection	IP
3.09	Temporary Diversion Dike	DD
3.10	Temporary Fill Diversion	FD
3.11	Temporary Right-Of-Way Diversion	RWD
3.12	Diversion	DV
3.18	Outlet Protection	OP
3.19	RipRap	RR
3.20	Rock Check Dams	CD
3.24	Temporary Vehicular Stream Crossing	SC
3.25	Utility Stream Crossing	USC
3.26	Dewatering Structure	DS
3.36	Soil Stabilization Blankets & Matting	B/M

The following items are specific to the practices within this document and are not found in the VESCH manual. Details for these items are located at the end of this appendix following the items listed above.

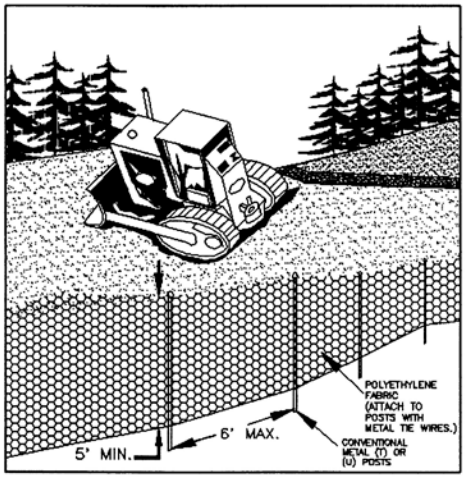
Timber Mat Stabilization	TM
Geotextile Bag/Dewatering Bag	GB

1992 3.01

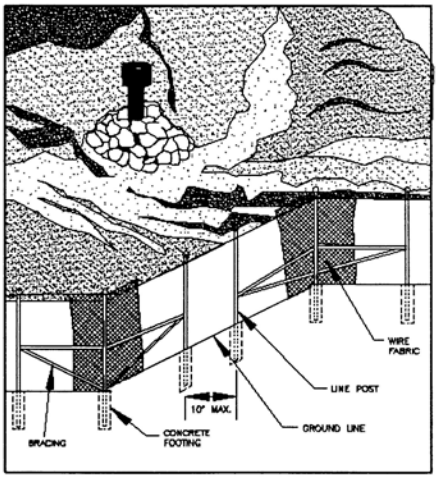
SAFETY FENCE



PERSPECTIVE VIEW



PERSPECTIVE VIEW
PLASTIC FENCE

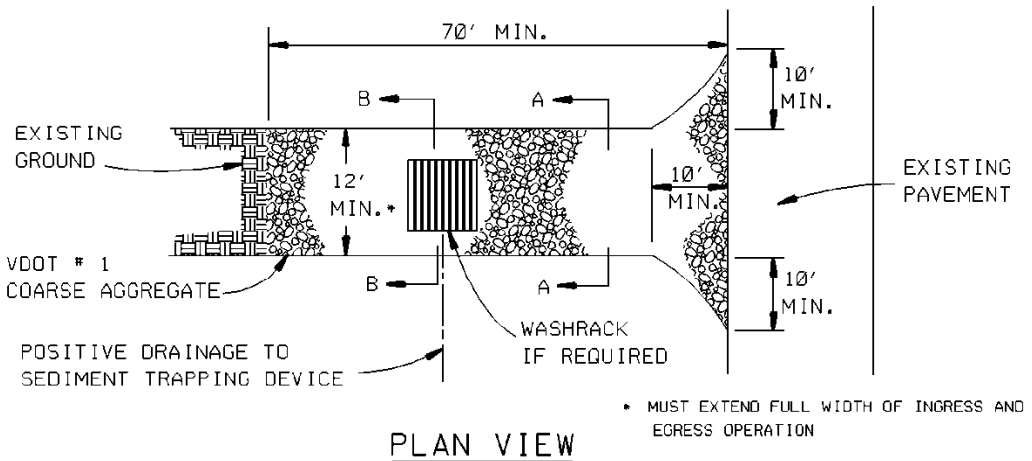


PERSPECTIVE VIEW
METAL FENCE

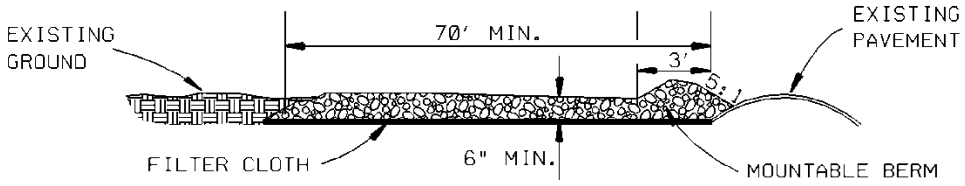
Source: Adapted from Conwed Plastics and VDOT Road and Bridge Standards

Plate 3.01-1

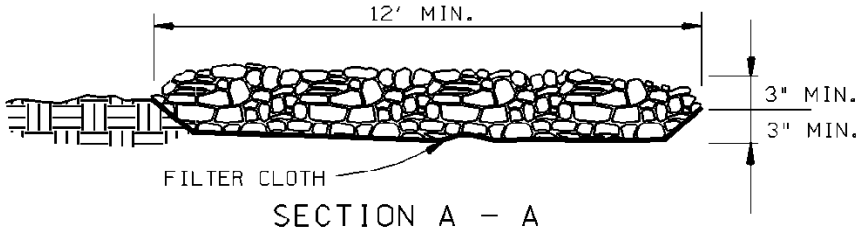
STONE CONSTRUCTION ENTRANCE - 3.02



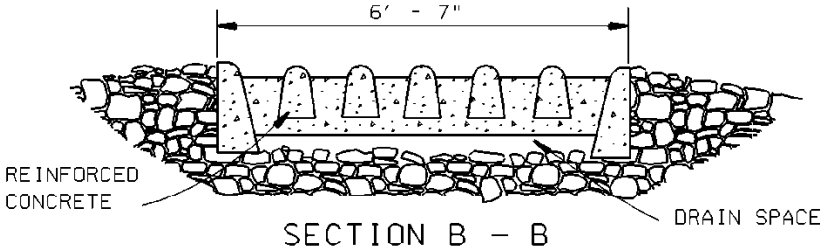
PLAN VIEW



ELEVATION



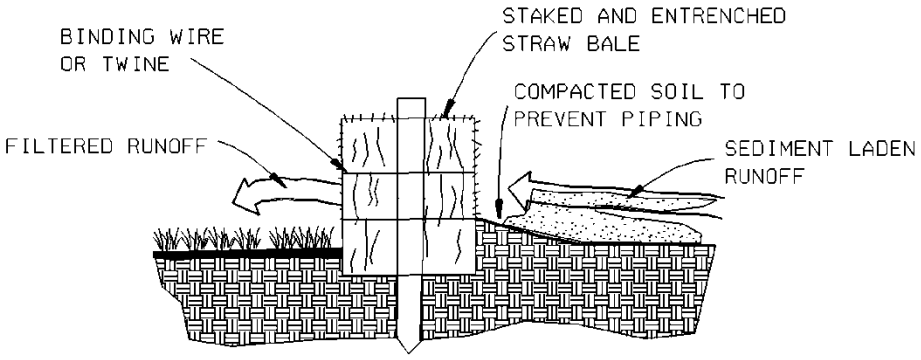
SECTION A – A



SECTION B – B

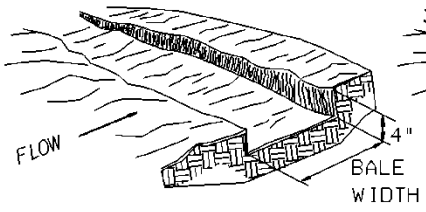
ves302.dgn

STRAW BALE BARRIER - 3.04

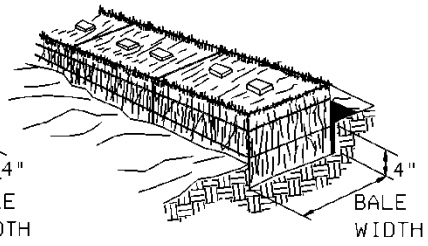


PROPERLY INSTALLED STRAW BALE
CROSS SECTION

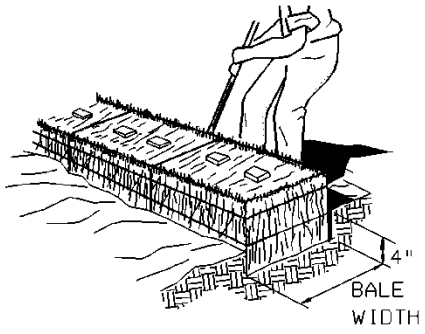
1. EXCAVATE THE TRENCH



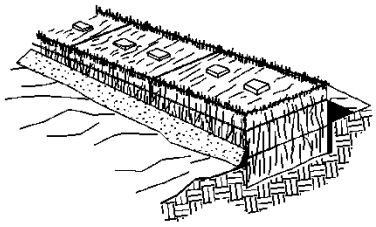
2. PLACE AND STAKE STRAW BALES



3. WEDGE LOOSE STRAW BETWEEN BALES



4. BACKFILL AND COMPACT THE
EXCAVATED SOIL



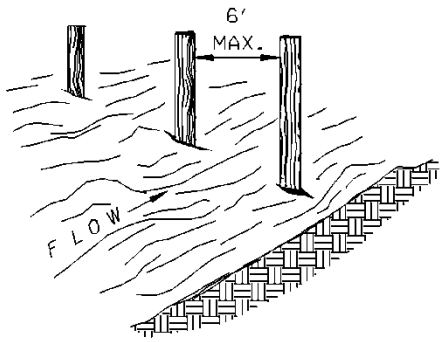
CONSTRUCTION OF STRAW BALE BARRIER

va6304.dgn

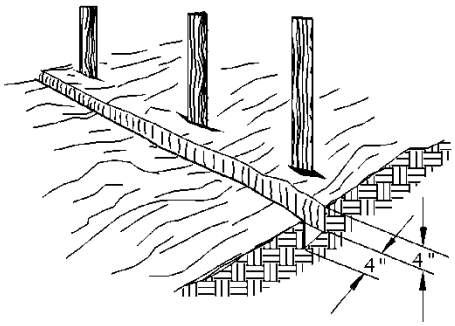
SILT FENCE - 3.05

CONSTRUCTION OF SILT FENCE

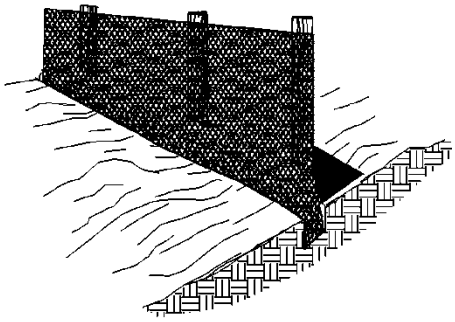
1. SET THE STAKES



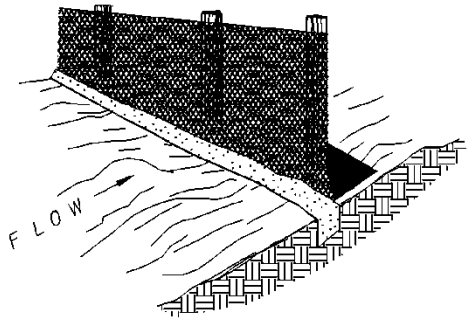
2. EXCAVATE A 4" X 4" TRENCH UPSLOPE ALONG THE LINE OF STAKES.



3. STAPLE FILTER MATERIAL TO STAKES AND EXTEND IT INTO TRENCH.

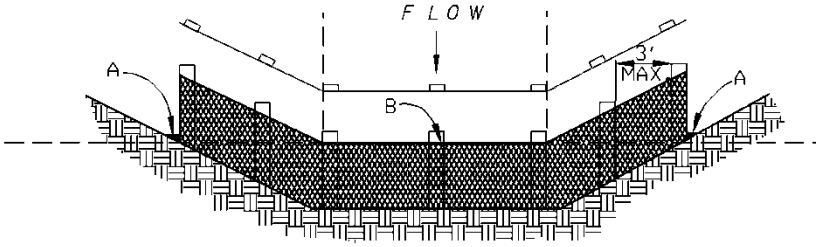


4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



SHEET FLOW INSTALLATION

(PERSPECTIVE VIEW)



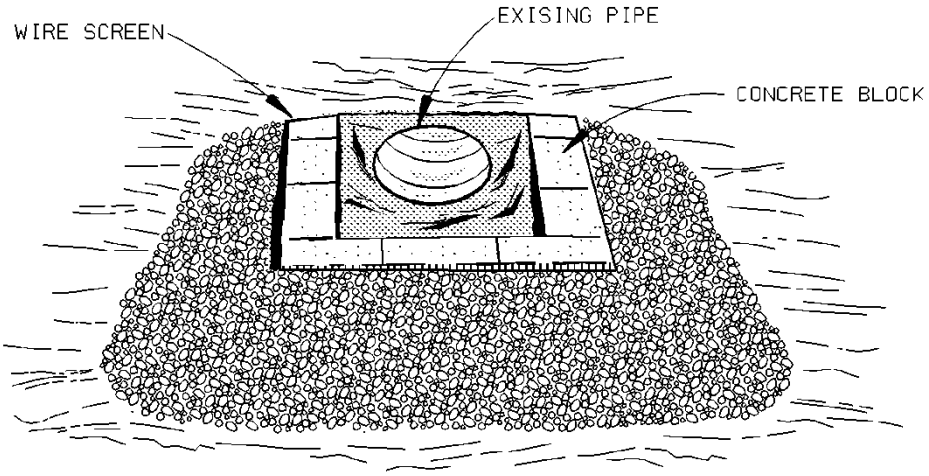
POINTS A SHOULD BE HIGHER THAN POINT B

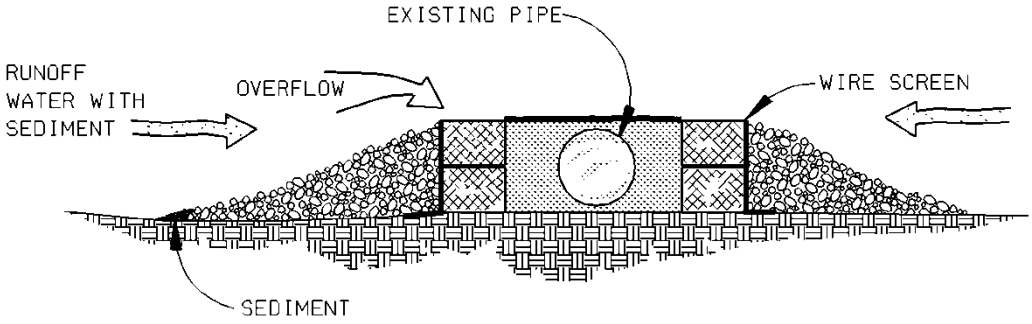
DRAINAGEWAY INSTALLATION

(ELEVATION)

vea305.dgn

INLET PIPE PROTECTION - 3.07

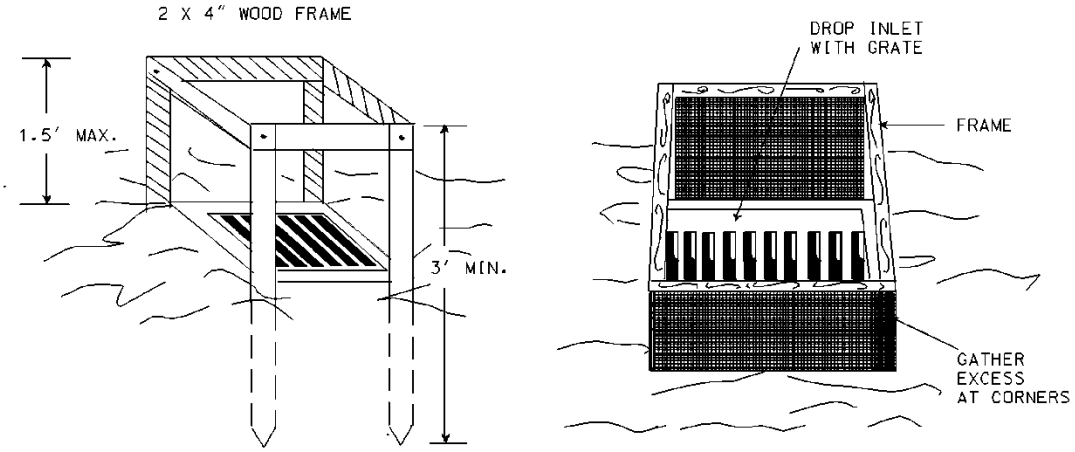




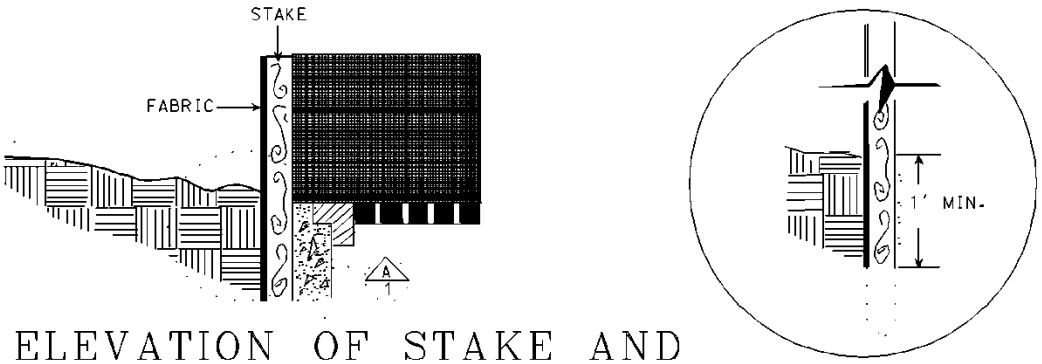
BLOCK AND GRAVEL PIPE INLET SEDIMENT FILTER

THIS METHOD OF INLET PROTECITON IS APPLICABLE WHERE HEAVY FLOWS ARE EXPECTED, AND WHERE AN OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE.

SILT FENCE DROP INLET PROTECTION - 3.07-1



PERSPECTIVE VIEWS



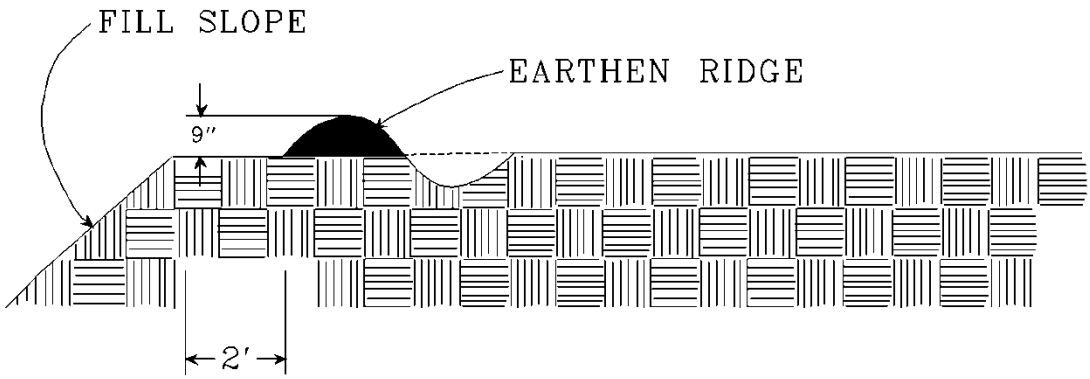
ELEVATION OF STAKE AND FABRIC ORIENTATION

DETAIL A

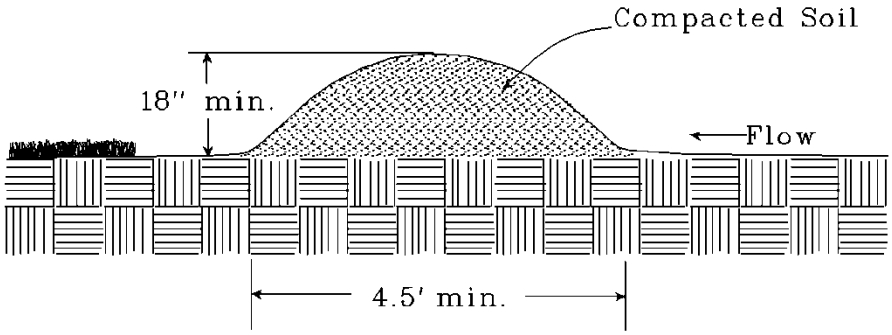
SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVERLAND FLOWS (NOT EXCEEDING 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

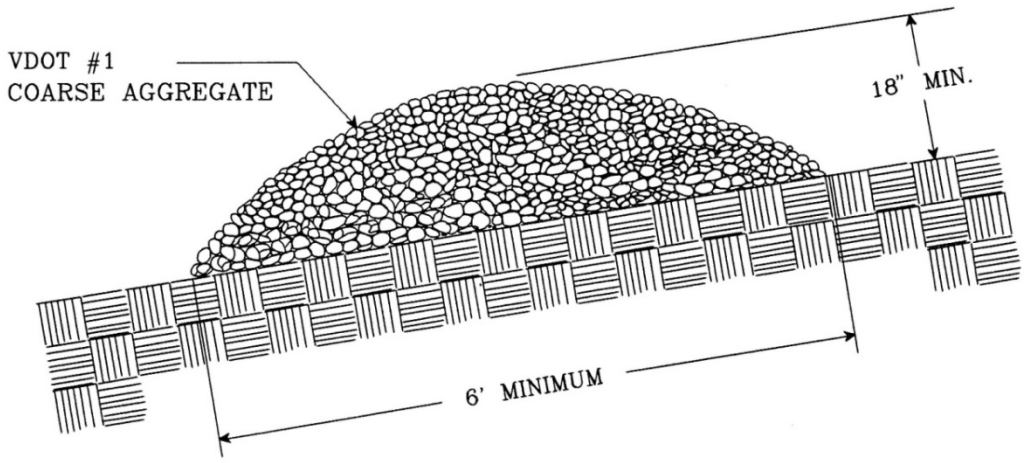
TEMPORARY FILL DIVERSION - 3.10



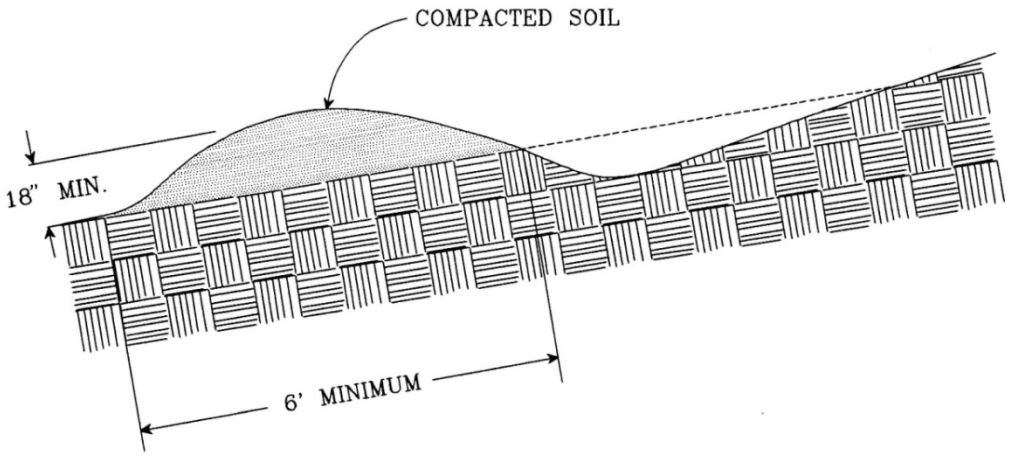
TEMPORARY DIVERSION DIKE - 3.09



TEMPORARY RIGHT–OF–WAY DIVERSIONS

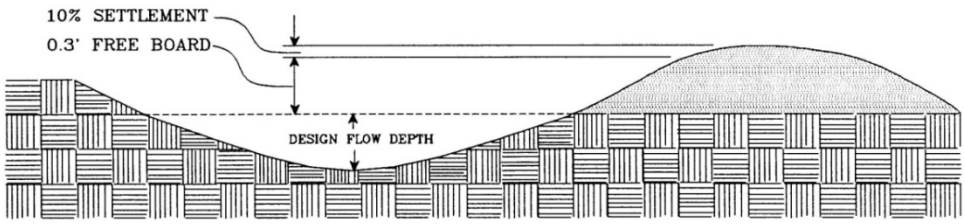


TYPICAL GRAVEL STRUCTURE

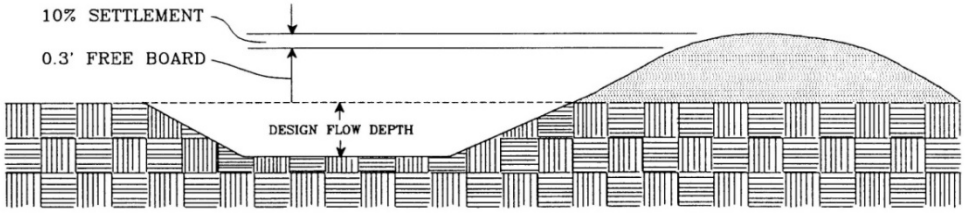


TYPICAL EARTHEN STRUCTURE

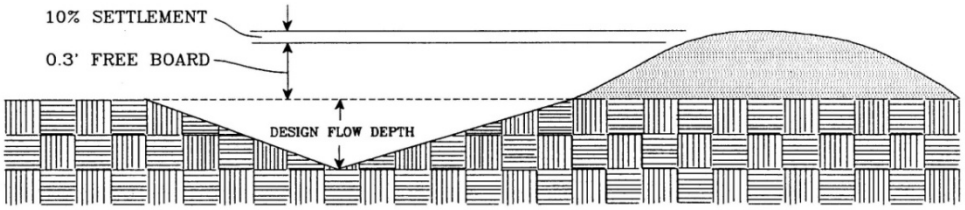
DIVERSIONS



TYPICAL PARABOLIC DIVERSION

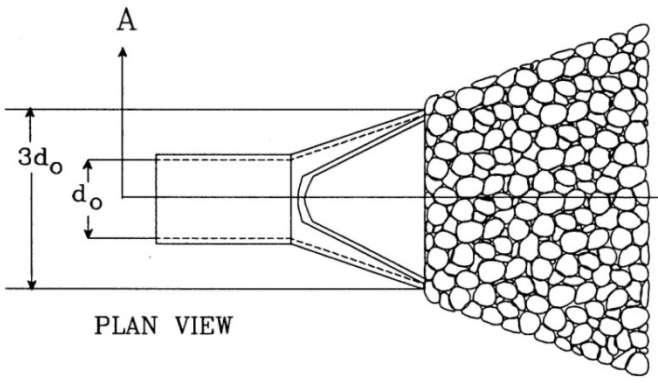


TYPICAL TRAPEZOIDAL DIVERSION



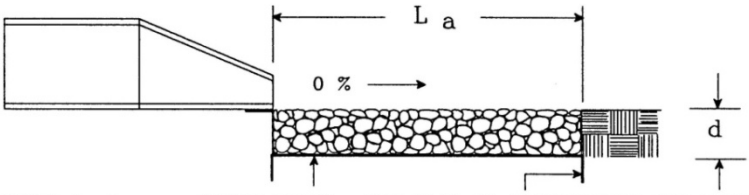
TYPICAL VEE-SHAPED DIVERSION

PIPE OUTLET CONDITIONS



PLAN VIEW

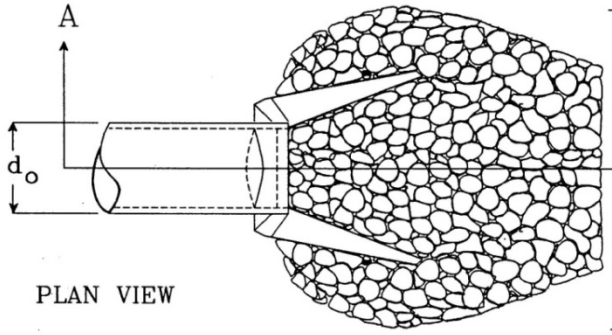
PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL



SECTION A–A

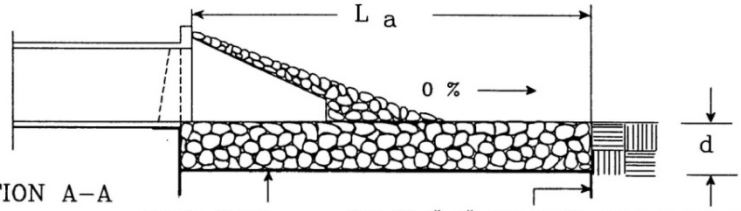
FILTER CLOTH

KEY IN 6"–9"; RECOMMENDED FOR ENTIRE PERIMETER



PLAN VIEW

PIPE OUTLET TO WELL DEFINED CHANNEL



SECTION A–A

FILTER CLOTH

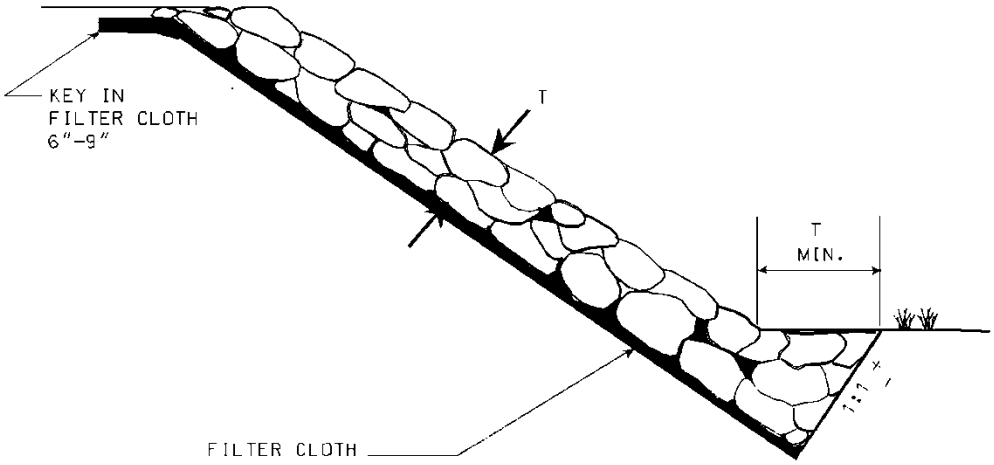
KEY IN 6"–9"; RECOMMENDED FOR ENTIRE PERIMETER

NOTES: 1. APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, GABION BASKET, OR CONCRETE.
2. La IS THE LENGTH OF THE RIPRAP APRON AS CALCULATED USING PLATES 3.18–3 AND 3.18–4.
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 6 INCHES.

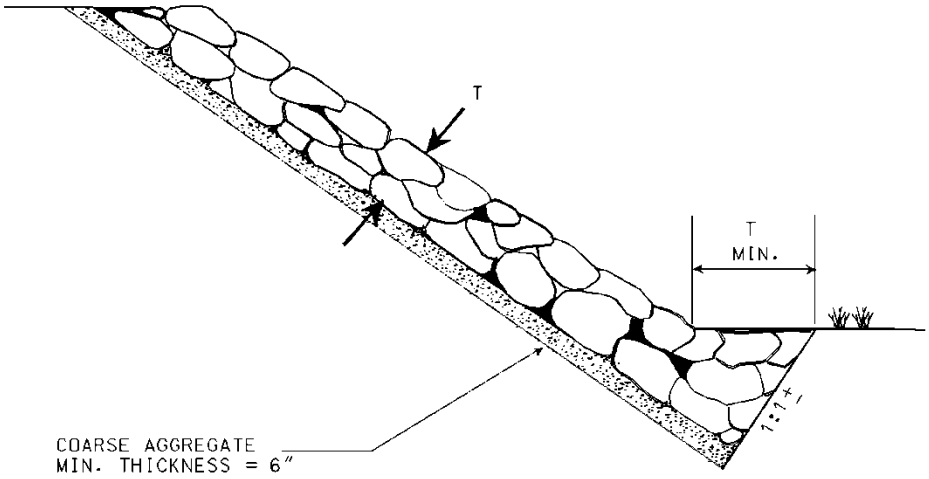
TOE REQUIREMENTS FOR BANK STABILIZATION - 3.19

FILTER CLOTH UNDERLINER

(PREFERRED)

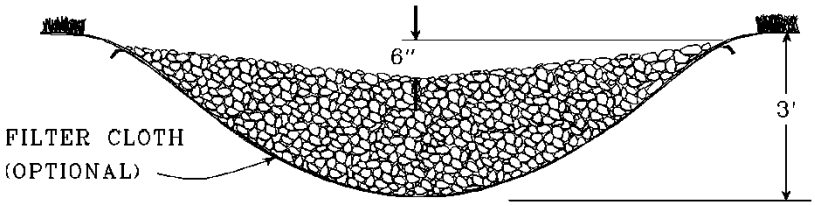


GRANULAR FILTER

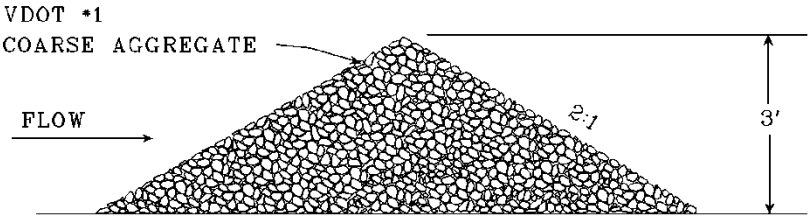


ROCK CHECK DAM - 3.20

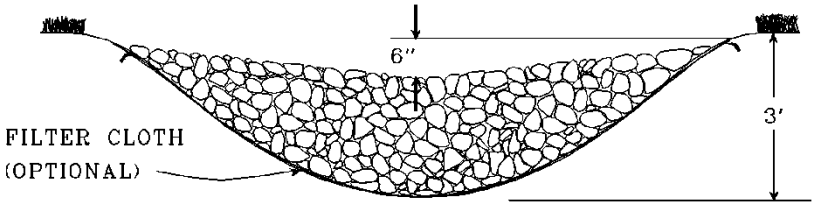
2 ACRES OR LESS OF DRAINAGE AREA:



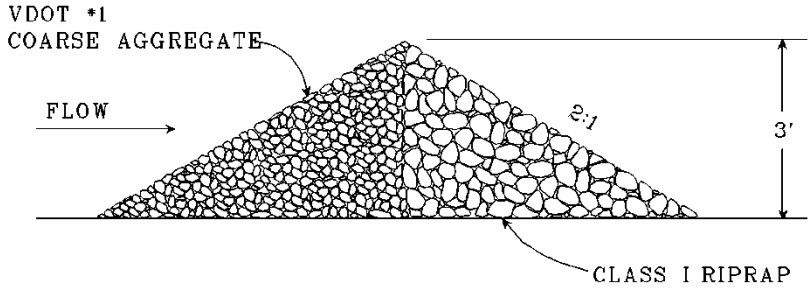
(DOWNSTREAM VIEW)



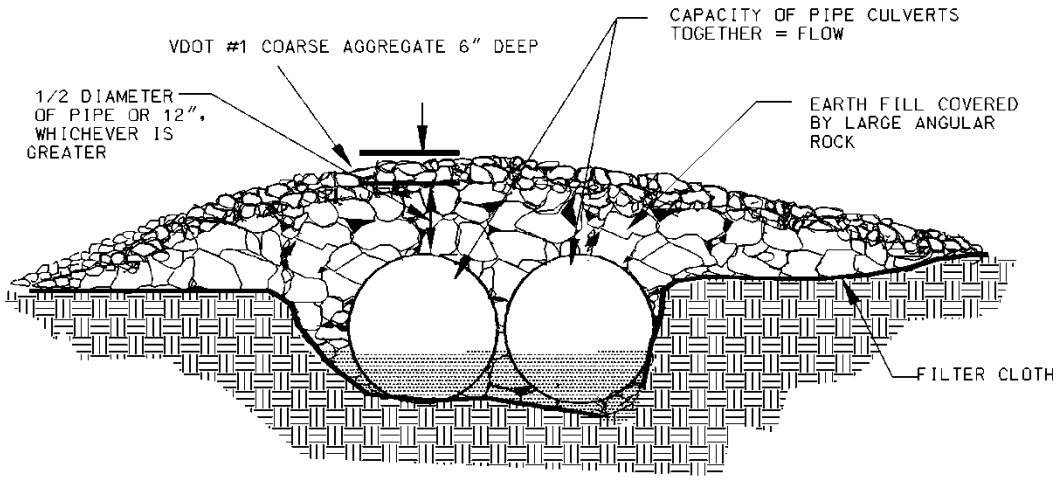
2-10 ACRES OF DRAINAGE AREA:



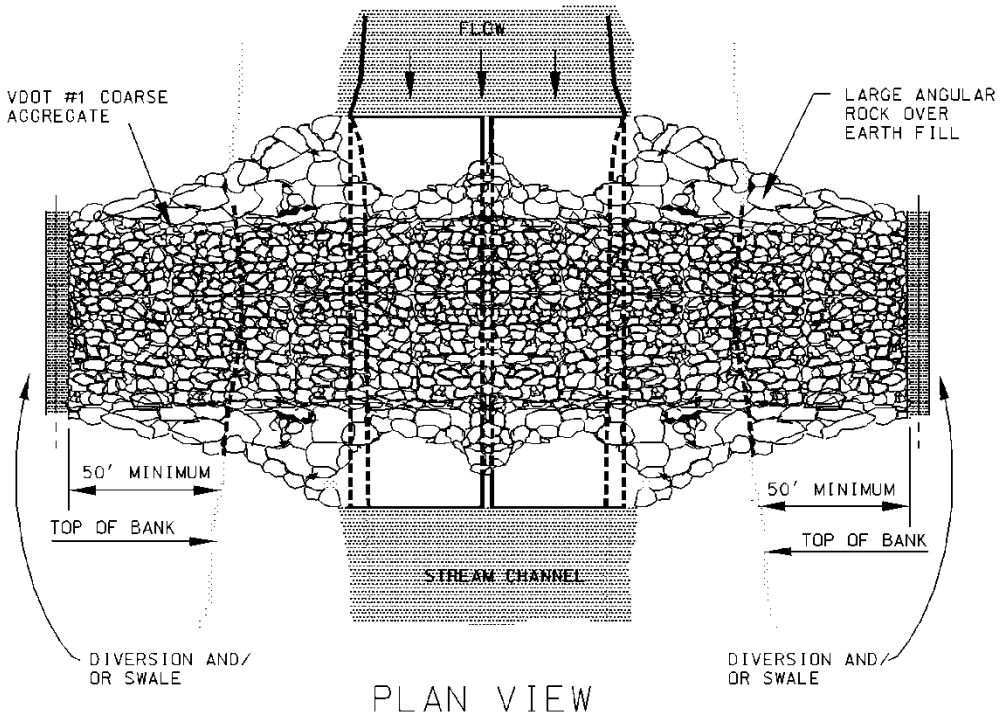
(DOWNSTREAM VIEW)



TEMPORARY CULVERT CROSSING - 3.24

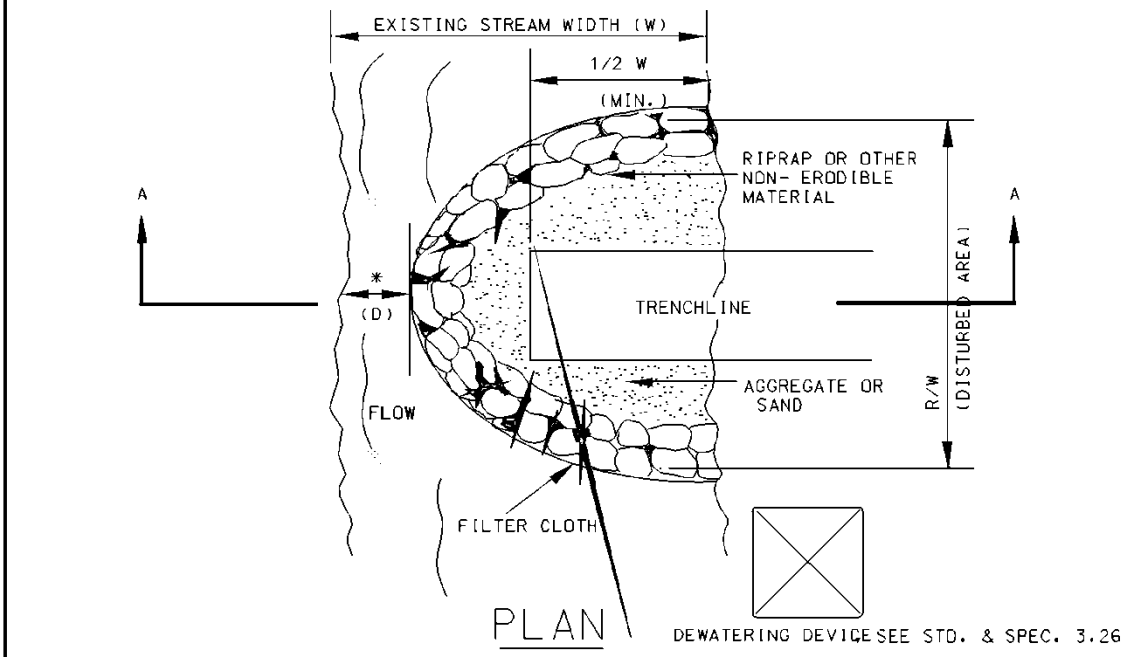


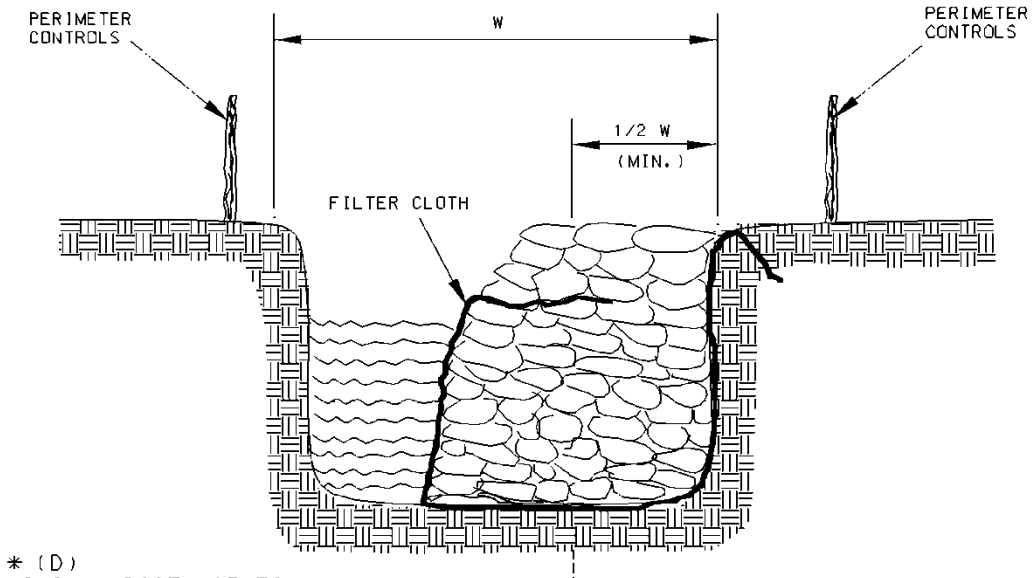
ELEVATION



PLAN VIEW

COFFERDAM CROSSING - 3.25



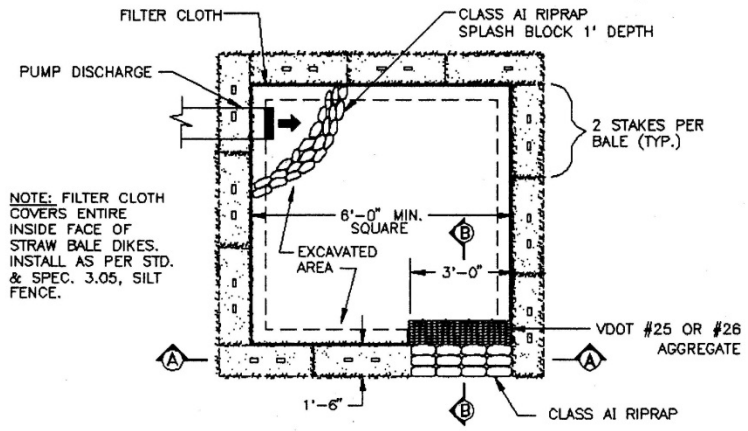


* (D)
MINIMUM DISTANCE TO
BE 25% OF TOTAL
WIDTH (W) OF THE
STREAM.

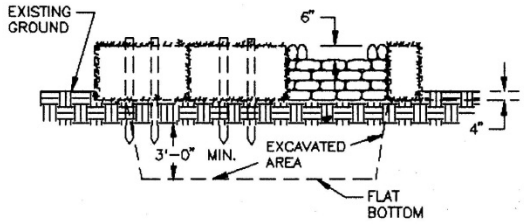
SECTION A-A

1992 3.26

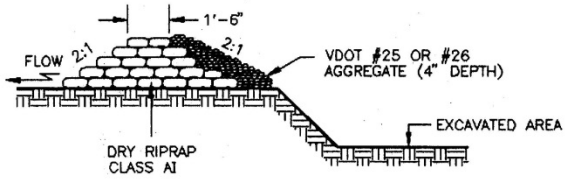
STRAW BALE/SILT FENCE PIT



PLAN VIEW



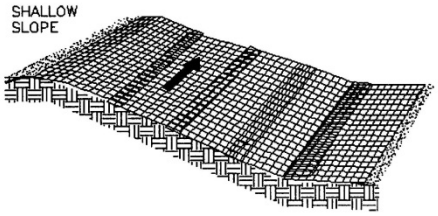
CROSS-SECTION A-A



CROSS-SECTION B-B

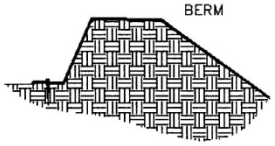
1992 3.36

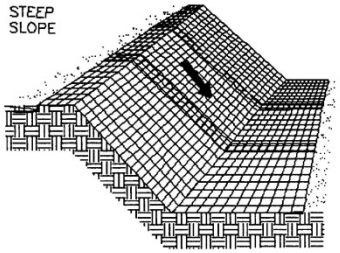
TYPICAL ORIENTATION OF TREATMENT – 1 (SOIL STABILIZATION BLANKET)



ON SHALLOW SLOPES, STRIPS OF NETTING PROTECTIVE COVERINGS MAY BE APPLIED ACROSS THE SLOPE.

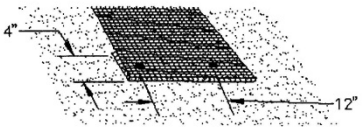
WHERE THERE IS A BERM AT THE TOP OF THE SLOPE, BRING THE MATERIAL OVER THE BERM AND ANCHOR IT BEHIND THE BERM.

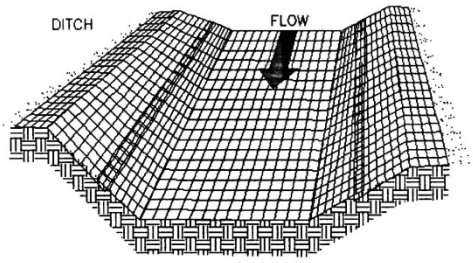




ON STEEP SLOPES, APPLY PROTECTIVE COVERING PARALLEL TO THE DIRECTION OF FLOW AND ANCHOR SECURELY.

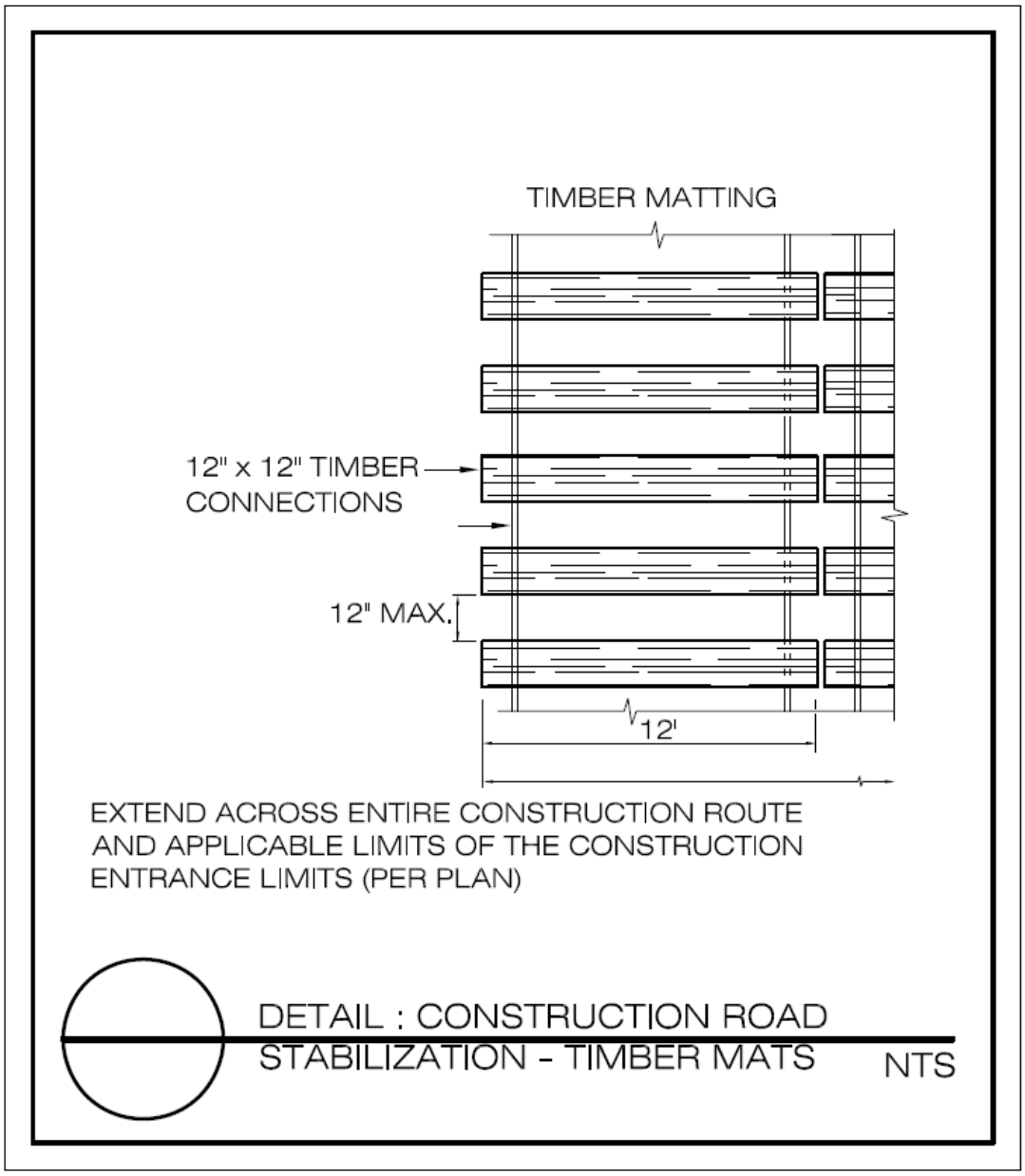
BRING MATERIAL DOWN TO A LEVEL AREA BEFORE TERMINATING THE INSTALLATION. TURN THE END UNDER 4" AND STAPLE AT 12" INTERVALS.





IN DITCHES, APPLY PROTECTIVE COVERING PARALLEL TO THE DIRECTION OF FLOW. USE CHECK SLOTS AS REQUIRED. AVOID JOINING MATERIAL IN THE CENTER OF THE DITCH IF AT ALL POSSIBLE.

TIMBER MAT STABILIZATION



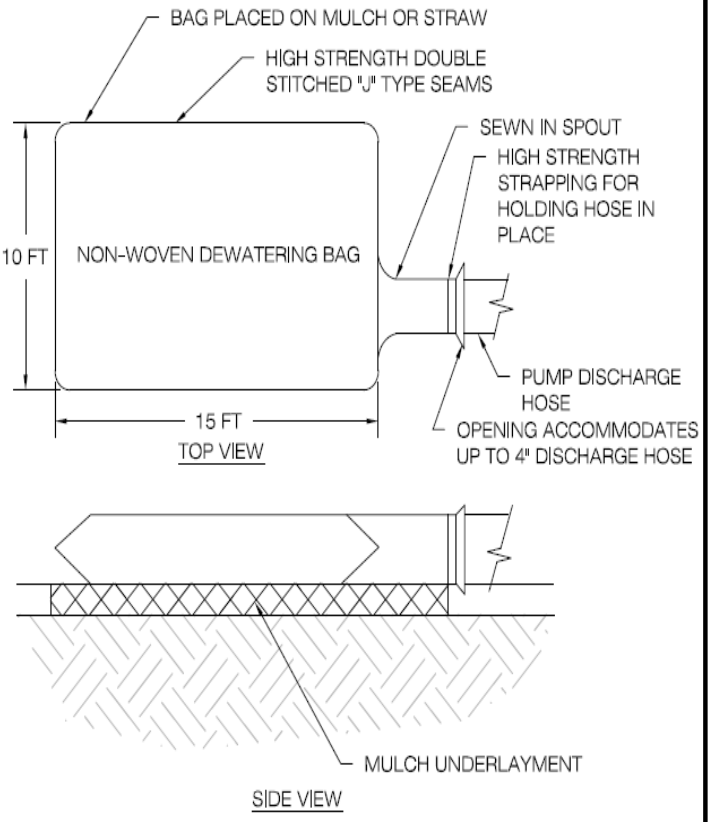
GEOTEXTILE/DEWATERING BAG

THE DEWATERING BAG SHALL BE MADE OF NON-WOVEN GEOTEXTILE WITH A MIN. SURFACE AREA OF 225 SQUARE FEET PER SIDE. ALL STRUCTURAL SEEMS SHALL BE SEWN WITH A DOUBLE STITCH USING A DOUBLE NEEDLE MACHINE WITH HIGH STRENGTH THREAD. THE SEAM STRENGTH SHALL WITHSTAND 100 LB/IN USING ASTM D-4884 TEST METHOD, THE DEWATERING BAG SHALL HAVE A NOZZLE LARGE ENOUGH TO ACCOMMODATE A FOUR INCH DISCHARGE HOSE, THE NOZZLE SHALL BE SEALED TIGHTLY AROUND THE DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE TO PREVENT UNTREATED WATER FROM ESCAPING, THE GEOTEXTILE FABRIC SHALL BE A NON-WOVEN FABRIC WITH THE FOLLOWING PROPERTIES:

GEOTEXTILE FABRIC FOR DEWATERING BAG			
PROPERTIES	TEST METHOD	UNITS	DEWATERING BAG 12 OZ
WEIGHT	ASTM D-3776	OZ/YD	12
GRAB TENSILE	ASTM D-4632	LBS.	300
PUNCTURE	ASTM D-4833	LBS.	175
FLOWRATE	ASTM D-4491	GAL/MIN/FT2	70
PERMITIVITY	ASTM D-4491	1.3 SEC-1	1
MULLEN BURST	ASTM D-3786	LBS.IN2	580
UV RESISTANT	ASTM D-4355	%	70
AOS % RETAINED	ASTM D-4751	0.40-0.80 MM	100

NOTE:
ALL PROPERTIES ARE MINIMUM AVERAGE ROLL VALUE EXCEPT THE WEIGHT OF THE FABRIC WHICH IS GIVEN FOR INFORMATION ONLY.

CONSTRUCTION:
THE DEWATERING BAG SHALL BE INSTALLED OVER A 3 INCH GRAVEL BASE TO PROMOTE INFILTRATION AND DEWATERING OF THE BAG.



DETAIL: GEOTEXTILE BAG (DEWATERING BAG)

NTS