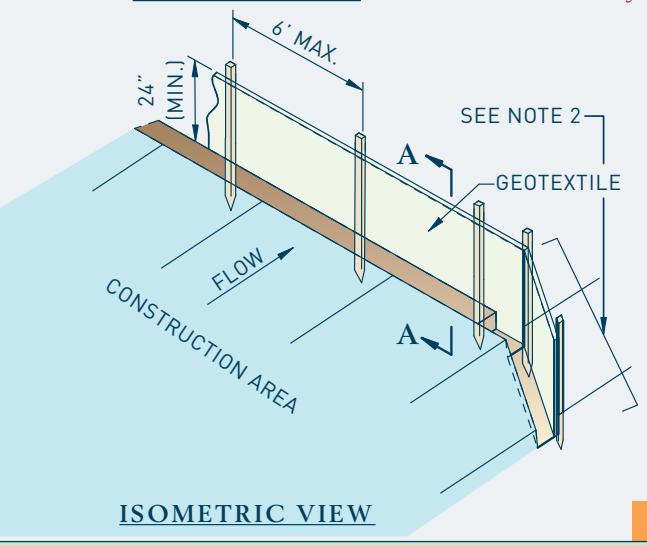
DelDOT

# EROSION & SEDIMENT CONTROL

# FIELD GUIDE

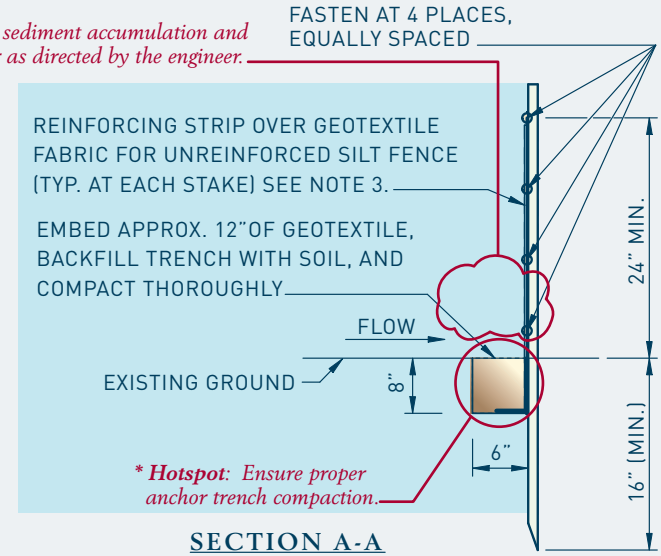
## III. PERIMETER CONTROLS, DIVERSION AND INLET PROTECTION

SF
RSF
PLAN SYMBOLS

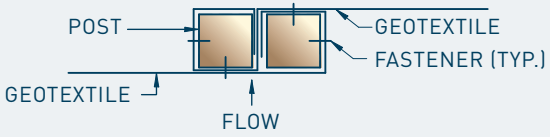



ISOMETRIC VIEW

* ***Hotspot***: *Monitor for sediment accumulation and remove as necessary or as directed by the engineer.*



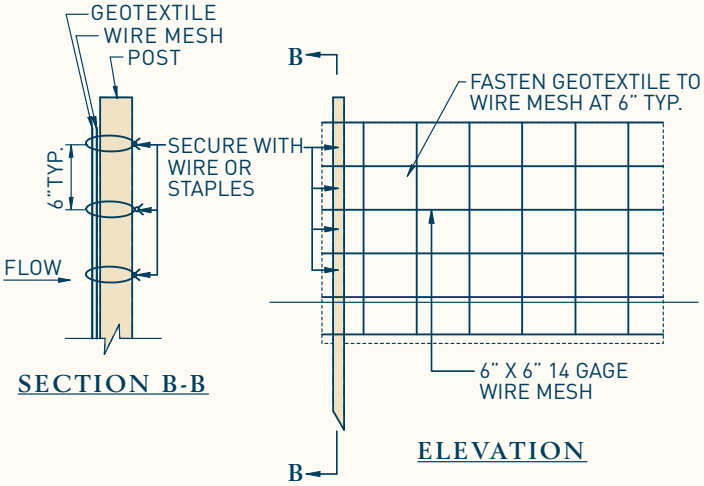

SECTION A-A




**SILT FENCE CONNECTION DETAIL**

NOTES:

1. THIS DEVICE IS INTENDED TO CONTROL SHEET FLOW ONLY. IT SHALL NOT BE USED IN AREAS OF CONCENTRATED FLOW.
2. SILT FENCE ENDS SHALL BE TURNED UPSLOPE TO CONTAIN RUNOFF EVERY 200-FT OR AS DIRECTED BY THE ENGINEER.
3. REINFORCING STRIP IS TO BE ONE COMPLETE STRIP COVERING ALL GEOTEXTILE FABRIC AT POST.




**SECTION B-B**

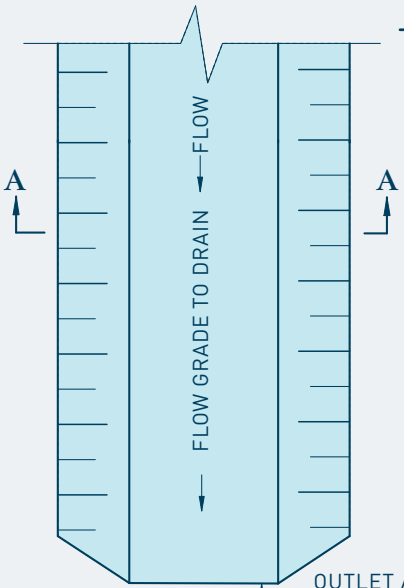
**ELEVATION**

**WIRE MESH DETAIL**
(REINFORCED SILT FENCE ONLY)

III.A - Maintenance

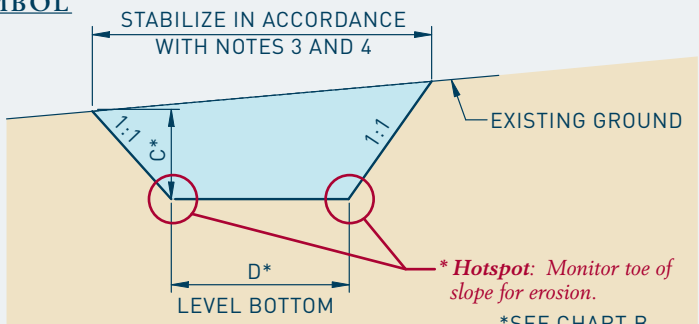
- Throughout the Project construction period, the silt fence shall be maintained by removing trapped sediment. The Contractor shall clean the geotextile of trapped sediment by tapping the geotextile when dry. No trash shall be allowed to accumulate to the height of the fence. Any geotextile that does not function due to clogging or deterioration shall be replaced.
- After every heavy rainfall, the Contractor shall check for excessive buildups of sediment which must be removed so that the silt fence can continue to function.


Post failure.
Anchor trench erosion.




PLAN

PLAN SYMBOL




SECTION A-A

| CHART B - SWALE DIMENSIONS | | |
|---|---|---|
| SYMBOL | SWALE A | SWALE B |
| C | 1' MIN. | 1' MIN. |
| D | 4' MIN. | 6' MIN. |

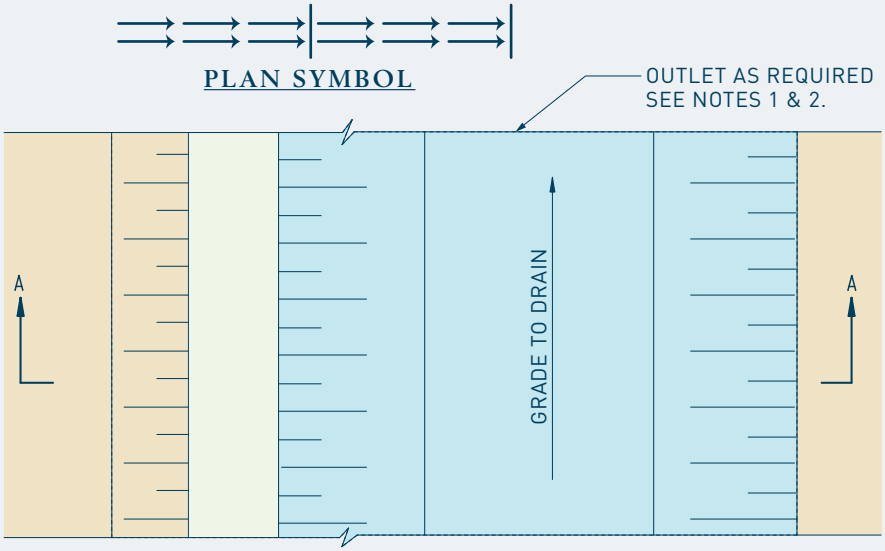
NOTES:

1. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
2. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
3. IF TEMPORARY SWALES OR CLEAN WATER DIVERSIONS ARE TO BE OPERATIONAL FOR MORE THAN 14 DAYS, THEY SHALL BE STABILIZED IN ACCORDANCE WITH THE CONTRACT PLANS PRIOR TO BECOMING OPERATIONAL.
4. IF TEMPORARY SWALES OR CLEAN WATER DIVERSIONS ARE TO BE OPERATIONAL FOR LESS THAN 14 DAYS, THEY SHALL BE STABILIZED WITH GEOTEXTILE IN ACCORDANCE WITH THE STANDARD DETAIL, "GEOTEXTILE-LINED CHANNEL DIVERSION".

III.B - Maintenance

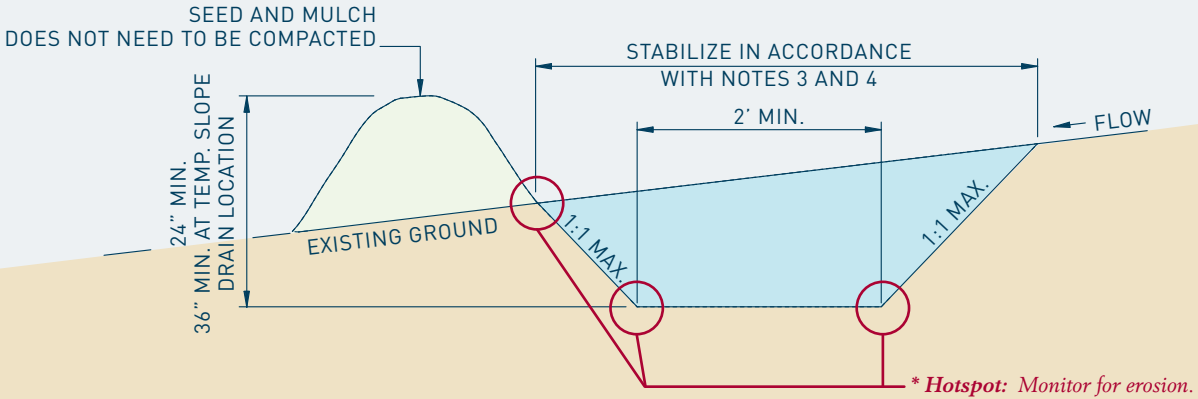
- Throughout the Project construction period, the Contractor shall maintain the temporary swale to the original dimensions and function of the temporary swale.
- After each rainfall, the Contractor shall check for excessive buildups of sediment which must be removed so that the temporary swale continues to function as intended. The Contractor shall remove all accumulated sediment when it reaches 50% of the height of the swale or when the accumulated sediment impedes drainage of the temporary swale, whichever comes first.

*No stabilization. Improper swale cross section.*




NOTES:

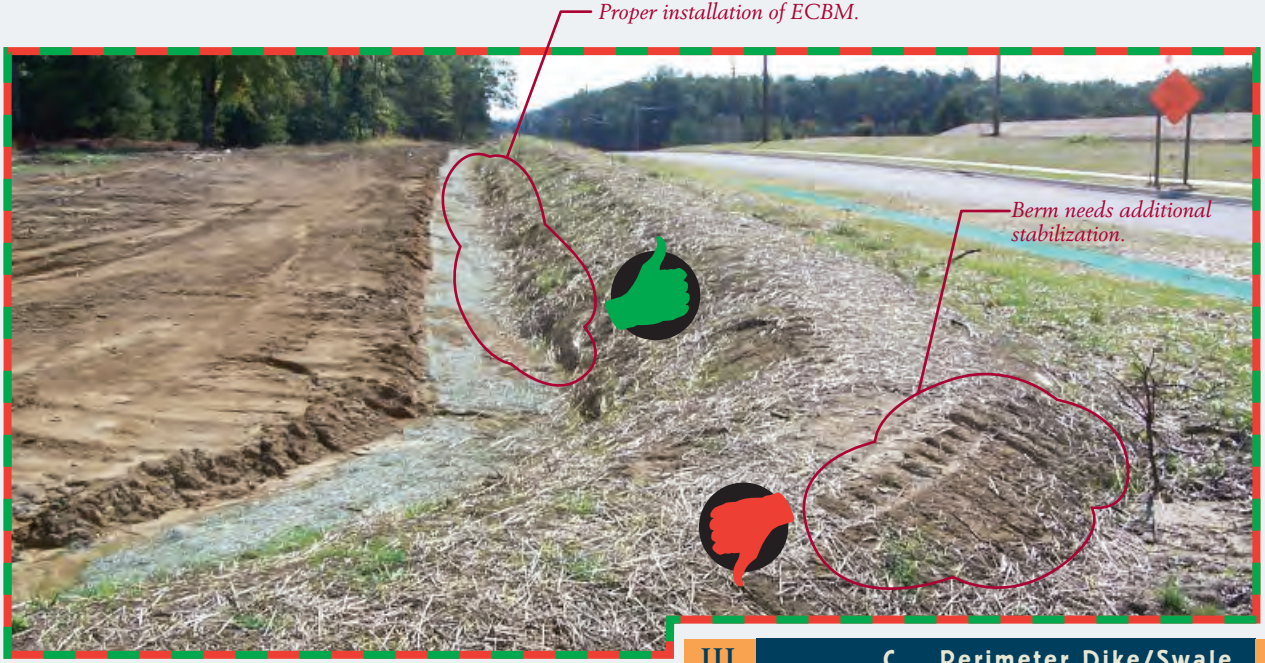
1. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
2. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
3. IF PERIMETER DIKE SWALES ARE TO BE OPERATIONAL FOR MORE THAN 14 DAYS, THEY SHALL BE STABILIZED IN ACCORDANCE WITH THE CONTRACT PLANS PRIOR TO BECOMING OPERATIONAL.
4. IF TEMPORARY SWALES OR CLEAN WATER DIVERSIONS ARE TO BE OPERATIONAL FOR LESS THAN 14 DAYS, THEY SHALL BE STABILIZED WITH GEOTEXTILE IN ACCORDANCE WITH THE STANDARD DETAIL, "GEOTEXTILE-LINED CHANNEL DIVERSION".

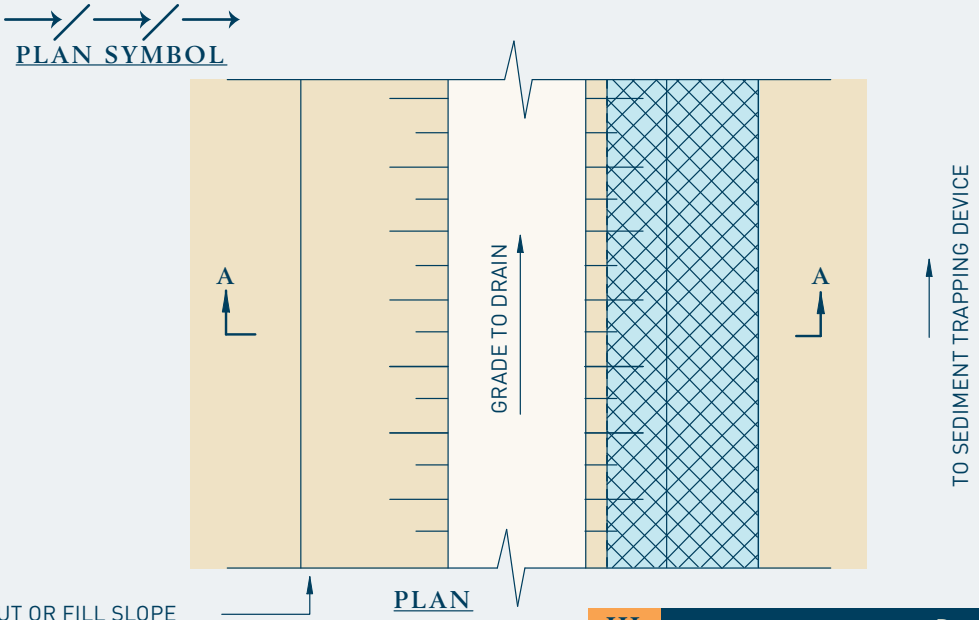

SEED AND MULCH
DOES NOT NEED TO BE COMPACTED
STABILIZE IN ACCORDANCE
WITH NOTES 3 AND 4
2' MIN.
FLOW
24" MIN.
36" MIN. AT TEMP. SLOPE
DRAIN LOCATION
EXISTING GROUND
1:1 MAX.
1:1 MAX.
* Hotspot: Monitor for erosion.

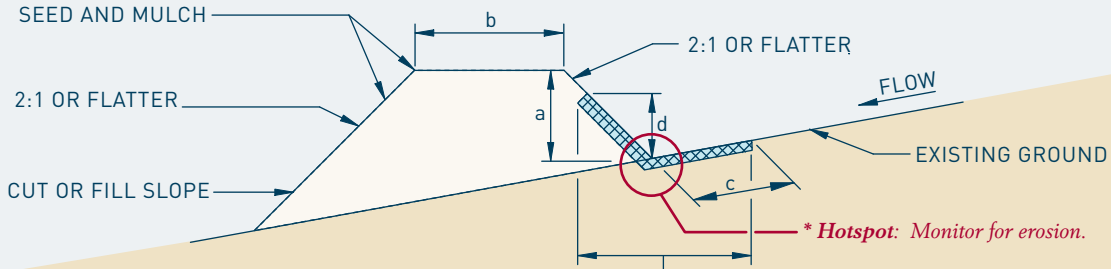
SECTION A-A

III.C - Maintenance

- Throughout the Project construction period, the Contractor shall maintain the perimeter dike/swale to the original dimensions and function of the swale and of the dike.
- After each rainfall, the Contractor shall check for excessive buildup of sediment that must be removed so that the perimeter dike/swale continues to function as intended. The Contractor shall remove all accumulated sediment when it reaches 50% of the height of the swale.


Proper installation of ECBM.
Berm needs additional stabilization.


PLAN SYMBOL
A
GRADE TO DRAIN
A
TO SEDIMENT TRAPPING DEVICE
CUT OR FILL SLOPE
PLAN




SECTION A-A

**CHART B - EARTH DIKE DIMENSIONS**

| SYMBOL | DIKE A (5 ac (2 ha) or less) | DIKE B (5-10 ac (2-4 ha)) |
|---|---|---|
| a-DIKE HEIGHT | 12" | 18" |
| b-DIKE WIDTH | 12" | 24" |
| c-FLOW WIDTH | 48" | 72" |
| d-FLOW DEPTH | 14" | 27" |

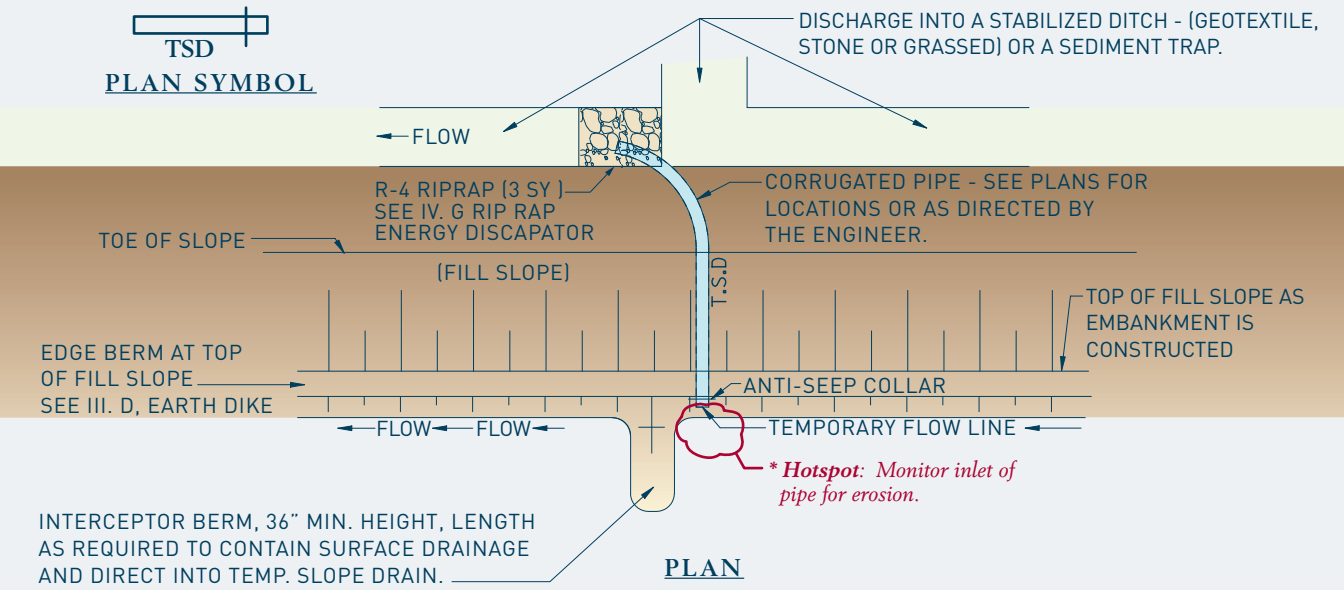
NOTES:

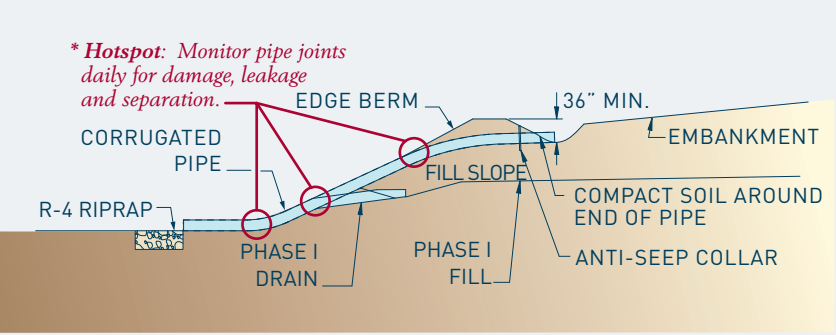
1. IF DESIRED, TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER TO FACILITATE CROSSING BY CONSTRUCTION TRAFFC.
2. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO ENSURE A STABILIZED OUTFALL.

III.D - Maintenance

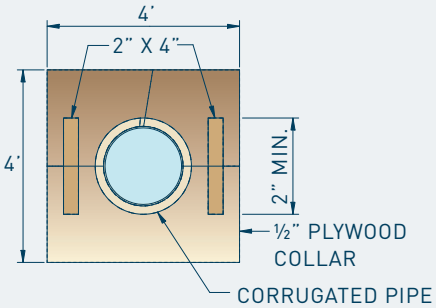
- Throughout the Project construction period, the Contractor shall maintain the earth dike to the original dimensions and function of the channel and the dike.
- After each rainfall, the Contractor shall check for excessive buildups of sediment which must be removed so that the earth dike can continue to function as intended. The Contractor shall remove all accumulated sediment when it reaches 50% of the height of the earth dike.


Good berm construction,
BUT
needs more vegetation.

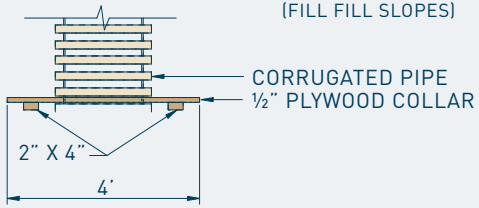

TSD
PLAN SYMBOL
DISCHARGE INTO A STABILIZED DITCH - (GEOTEXTILE, STONE OR GRASSED) OR A SEDIMENT TRAP.
FLOW
R-4 RIPRAP (3 SY ) SEE IV. G RIP RAP ENERGY DISCAPATOR
CORRUGATED PIPE - SEE PLANS FOR LOCATIONS OR AS DIRECTED BY THE ENGINEER.
TOE OF SLOPE
(FILL SLOPE)
T.S.D
TOP OF FILL SLOPE AS EMBANKMENT IS CONSTRUCTED
EDGE BERM AT TOP OF FILL SLOPE SEE III. D, EARTH DIKE
ANTI-SEEP COLLAR
FLOW FLOW
TEMPORARY FLOW LINE
* Hotspot: Monitor inlet of pipe for erosion.
INTERCEPTOR BERM, 36" MIN. HEIGHT, LENGTH AS REQUIRED TO CONTAIN SURFACE DRAINAGE AND DIRECT INTO TEMP. SLOPE DRAIN.
PLAN




SLOPE DRAIN PROFILE
(FILL FILL SLOPES)




ELEVATION



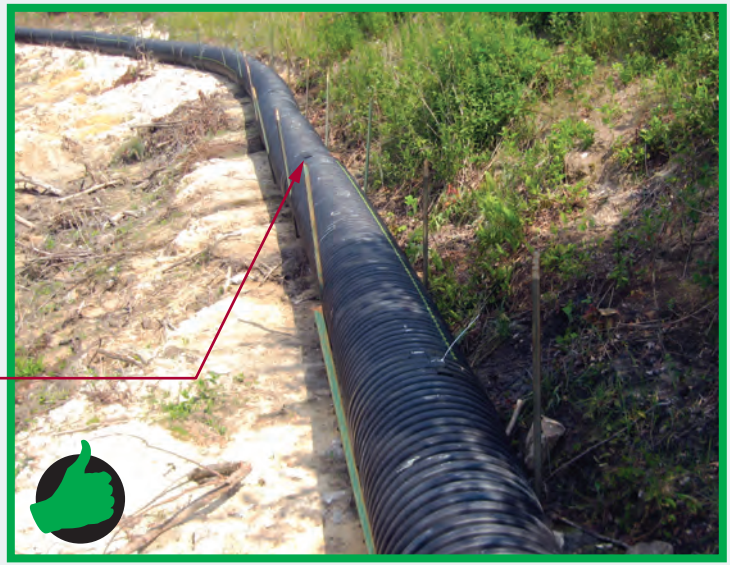

ANTI-SEEP COLLAR PLAN

NOTES:

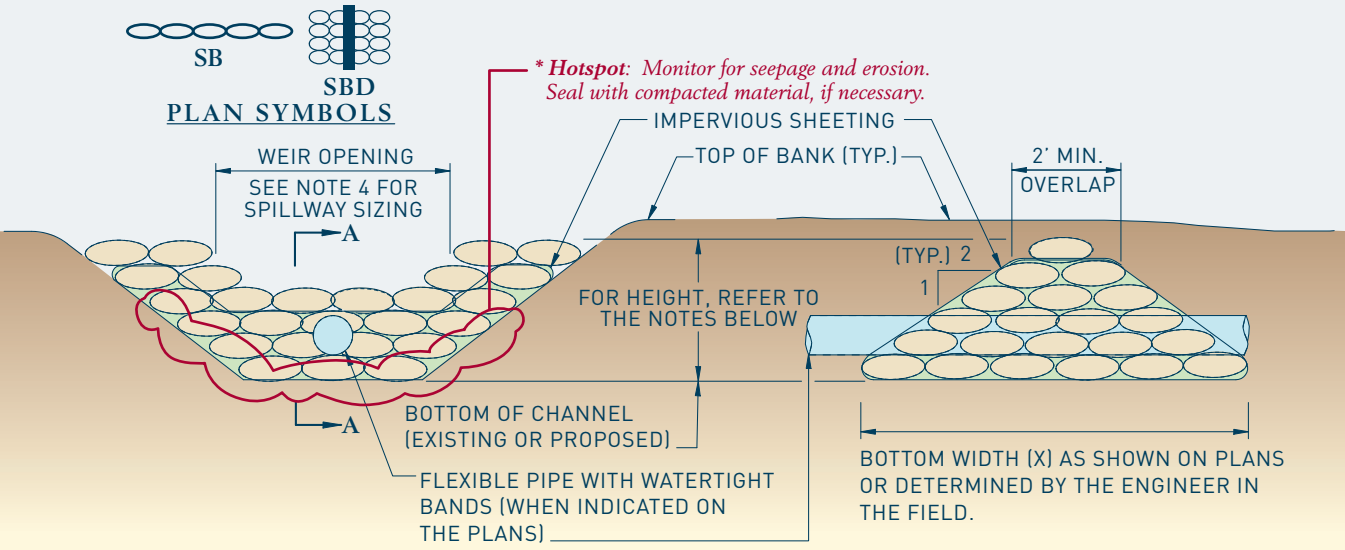
1. ALL TEMPORARY SLOPE DRAINS SHALL DISCHARGE INTO THE BACK OF SEDIMENT TRAPS, INTO SEDIMENT BASINS OR DITCHES DISCHARGING INTO TRAPS OR BASINS.
2. TEMPORARY SLOPE DRAINS SHALL BE USED AT THE TOP OF FILL SLOPES AS EMBANKMENT IS CONSTRUCTED, TO PREVENT EXCESSIVE EROSION UNTIL SHOULDERS ARE CONSTRUCTED AND THE SLOPES ARE SEEDED AND MULCHED.

III.E - Maintenance

- Maintenance of embankment slopes, edge berms, and interceptor berms shall conform to the requirements of Section 202.
- The drain system shall be inspected for clogging and rips or breaks and shall be cleaned and repaired as required to remain functional.




Pipe supported by fill with
stable riprap outfall


SB
SBD
PLAN SYMBOLS
* Hotspot: Monitor for seepage and erosion.
Seal with compacted material, if necessary.
IMPERVIOUS SHEETING
TOP OF BANK (TYP.)
2' MIN.
OVERLAP
WEIR OPENING
SEE NOTE 4 FOR
SPILLWAY SIZING
A
(TYP.) 2
1
FOR HEIGHT, REFER TO
THE NOTES BELOW
A
BOTTOM OF CHANNEL
(EXISTING OR PROPOSED)
FLEXIBLE PIPE WITH WATERTIGHT
BANDS (WHEN INDICATED ON
THE PLANS)
BOTTOM WIDTH (X) AS SHOWN ON PLANS
OR DETERMINED BY THE ENGINEER IN
THE FIELD.
ELEVATION
SECTION A-A

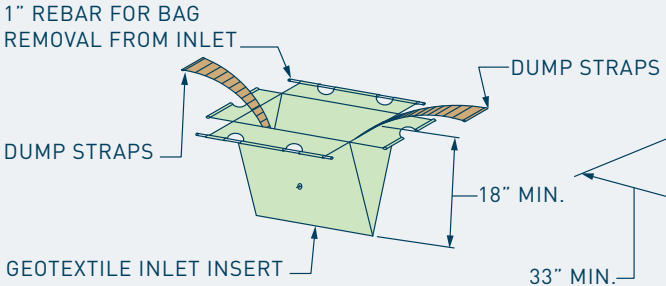
NOTES:

1. THE WORK SHALL CONSIST OF INSTALLING A SANDBAG DIKE FOR THE PURPOSE OF EROSION CONTROL WHEN CONSTRUCTION ACTIVITIES TAKE PLACE WITHIN THE STREAM CHANNEL SUCH AS BANK STABILIZATION OR BRIDGE ABUTMENT CONSTRUCTION.
2. THE SANDBAG DIKE SHALL BE INSTALLED AT THE UPSTREAM LOCATION FIRST.
3. THE HEIGHT OF THE SANDBAG DIKE SHALL BE 1' ABOVE THE PEAK ELEVATION OF THE ONE YEAR STORM, OR EQUAL WITH THE TOP OF BANK, WHICHEVER IS LESS. SEE PLANS FOR INFORMATION.
4. THE SPILLWAY SHALL BE SIZED TO PASS A (1) ONE YEAR STORM EVENT PEAK FLOW, SEE PLANS.
5. THE PIPE, WHEN UTILIZED, SHALL BE SIZED TO PASS THE STREAM BASE FLOW. A STABILIZED OUTFALL SHALL BE PROVIDED.

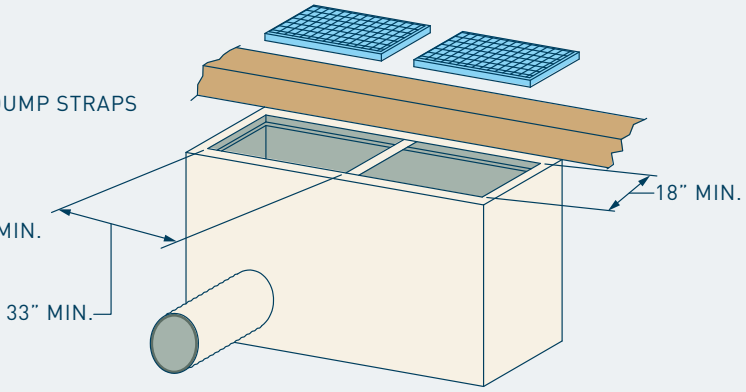
III.F - Maintenance

- The Contractor shall maintain the original dimensions of the accepted sandbag dikes and sandbag diversions.

PLAN SYMBOL



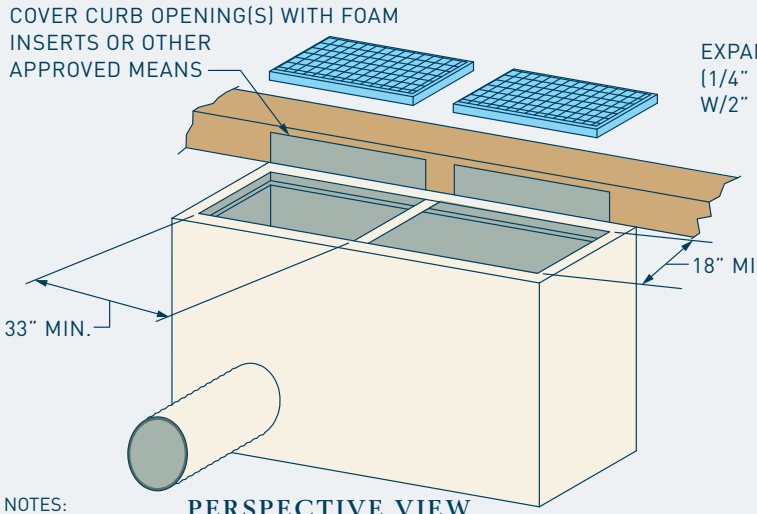

INSERT CROSS-SECTION



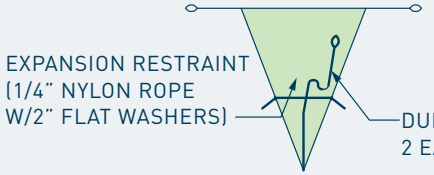

PERSPECTIVE VIEW

NOTES:

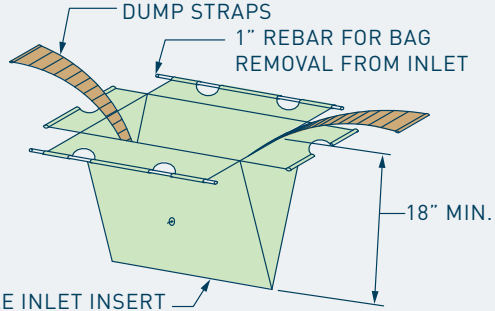
1. ONE (1) GEOTEXTILE INLET INSERT SHALL BE INSTALLED PER GRATE OPENING.




PERSPECTIVE VIEW




INSERT CROSS-SECTION

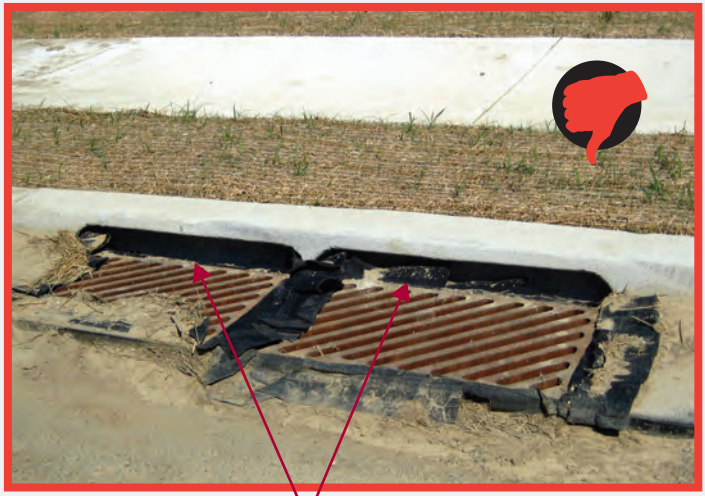



NOTES:

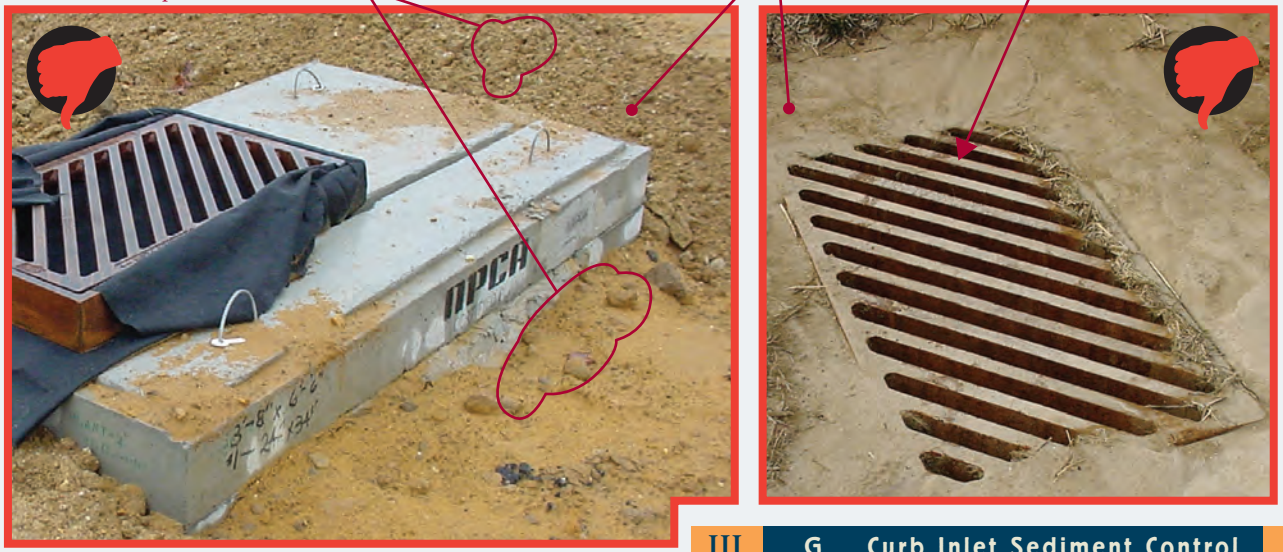
CURB INLET SEDIMENT CONTROL SHALL ONLY BE USED WHEN DRAINAGE INLET SEDIMENT CONTROL CANNOT BE USED. EX. PARTIALLY COMPLETED STREETS, PAVED AREAS.

III.G - Maintenance

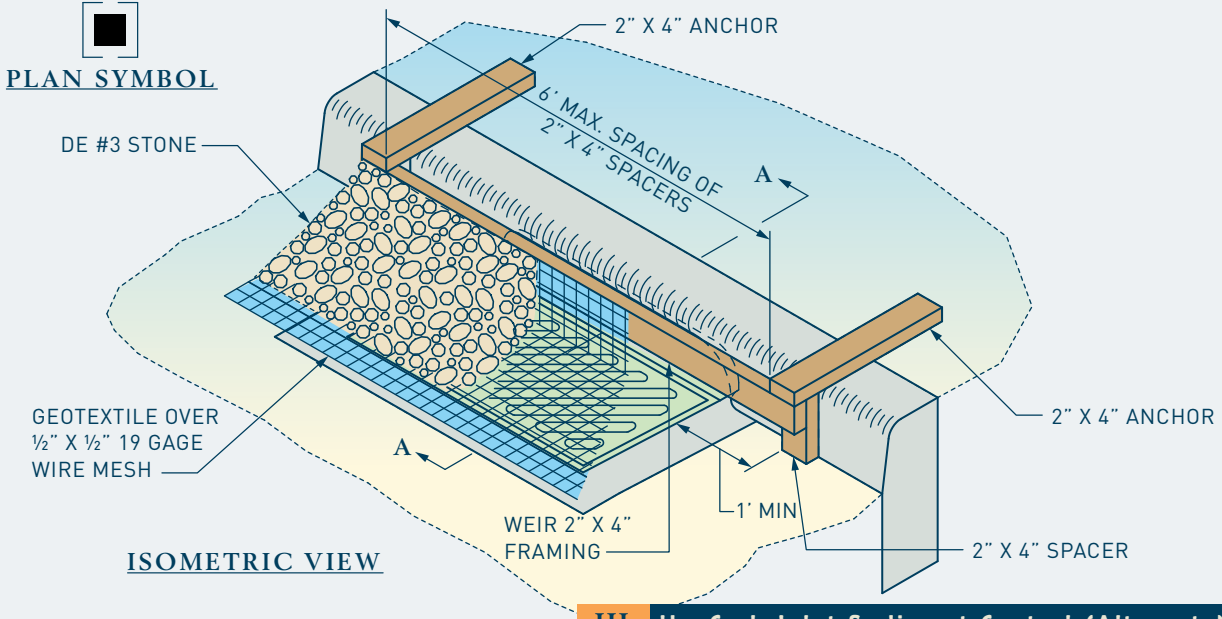
- Throughout the Project construction period, the inlet sediment controls shall be maintained and remain functional. Maintenance shall include cleaning the geotextile of trapped sediment by tapping the geotextile when it is dry. After every rainfall, the Contractor shall inspect the inlet sediment control. The geotextile insert shall be replaced when 50% of the voids are clogged. Any geotextile that does not function due to clogging or deterioration shall be replaced.



*Inlet throat not blocked.*


Positive drainage to insert not provided.
Should be using DRAINAGE INLET PROTECTION (III. I)
No insert.
OPCA

PLAN SYMBOL



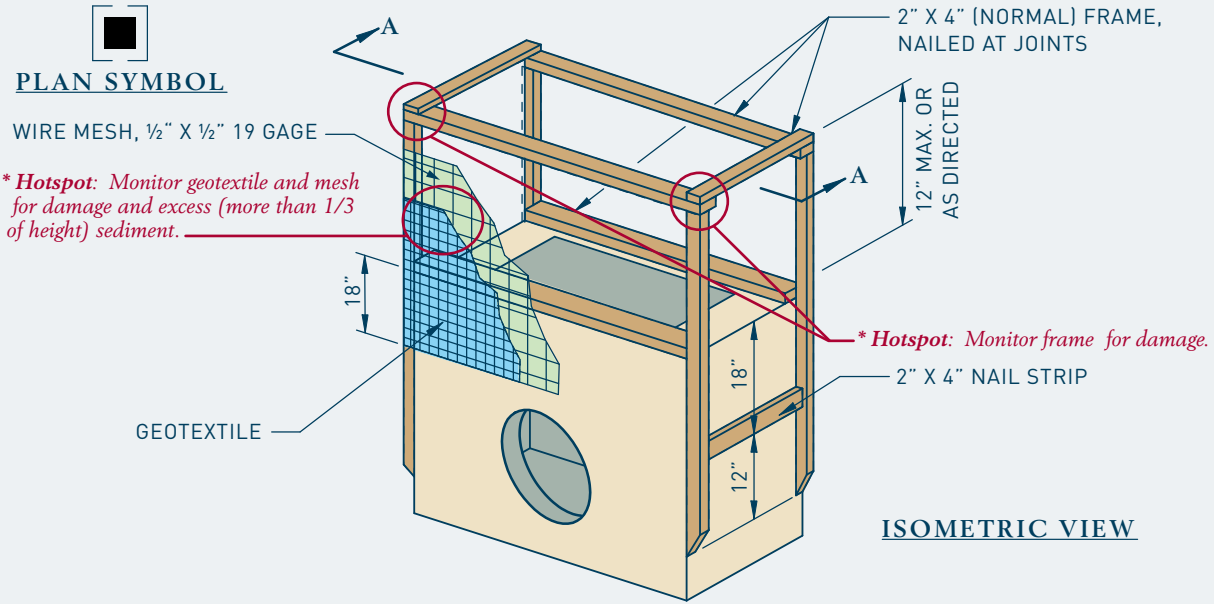

ISOMETRIC VIEW

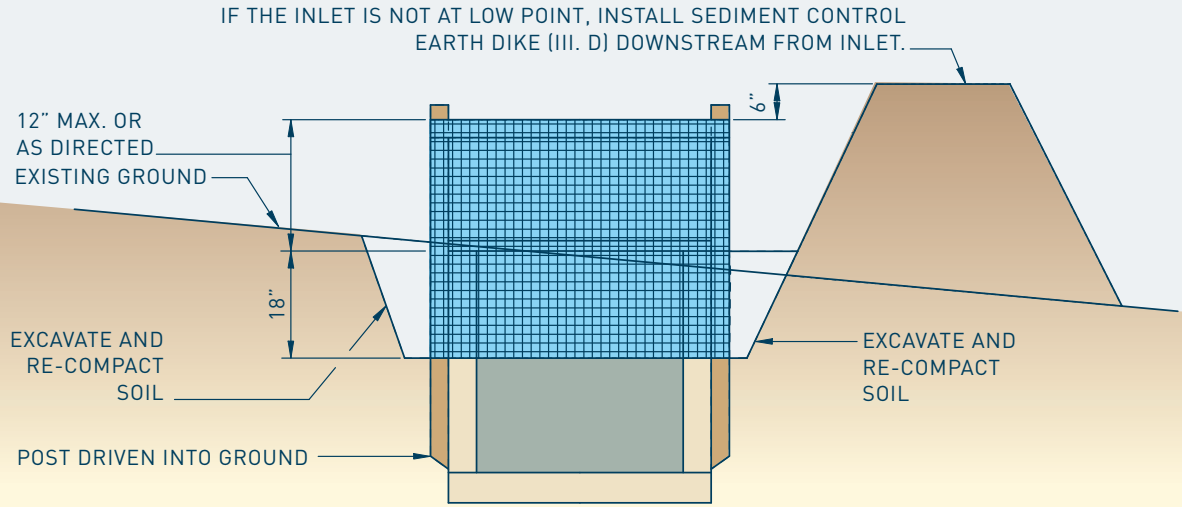



NOTES:

CURB INLET PROTECTION (ALTERNATE ONLY) TO BE USED WHEN CURB INLET PROTECTION CANNOT BE USED.

SECTION A-A


PLAN SYMBOL
A
2" X 4" (NORMAL) FRAME, NAILED AT JOINTS
12" MAX. OR AS DIRECTED
A
WIRE MESH, ½" X ½" 19 GAGE
* Hotspot: Monitor geotextile and mesh for damage and excess (more than 1/3 of height) sediment.
18"
* Hotspot: Monitor frame for damage.
2" X 4" NAIL STRIP
18"
12"
GEOTEXTILE
ISOMETRIC VIEW


IF THE INLET IS NOT AT LOW POINT, INSTALL SEDIMENT CONTROL EARTH DIKE (III. D) DOWNSTREAM FROM INLET.
12" MAX. OR AS DIRECTED
EXISTING GROUND
6"
18"
EXCAVATE AND RE-COMPACT SOIL
EXCAVATE AND RE-COMPACT SOIL
POST DRIVEN INTO GROUND

SECTION A-A

III.H - Maintenance

- Throughout the Project construction period, the inlet sediment controls shall be maintained and remain functional. Maintenance shall include cleaning the geotextile of trapped sediment by tapping the geotextile when it is dry. After every rainfall, the Contractor shall inspect the inlet sediment control. Any geotextile that does not function due to clogging or deterioration shall be replaced.
- The Contractor shall remove all accumulated sediment from around the drainage inlet sediment control when the sediment has reached 6" (150 mm) from the top of the geotextile.


- When the sediment has reached 50% of the height of the curb, the Contractor shall remove all accumulated sediment from around the curb inlet sediment control.

*No framing, wrong geotextile.*