

Contractor shall pay particular attention to the following MINIMUM STANDARDS:

MS-1: Though TS / PS labels are shown generically on the plans, the contractor shall seed all areas not indicated to be otherwise stabilized with permanent seed mixture within 7 days of reaching final grade or with temporary seed mixture any area yet to reach final grade but that is not proposed to be actively involved in the work within 30 days. These seed mixtures and application specifications are shown hereon. The contractor shall honor the clearing and grading limits shown on the plan.

MS-2: The contractor shall stabilize with TS and protect from erosion, with any applicable method, all stockpiles and any on-site or off-site borrow or spoil areas, as applicable. Approval of this plan does not cover off-site borrow or spoil areas. Prior to commencing land disturbing activities in areas other than indicated on these plans (including but not limited to, off-site borrow or waste areas), the contractor shall submit a Supplementary Erosion Control Plan for review and approval by the Plan Approving Authority.

MS-3: Where TS/PS are not applicable provide other means of stabilization (CRS, etc.) within 7 days of reaching final grade or within 30 days where the area is yet to reach final grade but is not proposed to be actively involved in the work.

MS-4: All soil erosion and sediment control measures shall be placed in advance of the work they are intended to protect.

MS-5: Earthen controls and structures shall be stabilized immediately upon installation.

MS-6: Where a sediment trap (<3 acres of drainage) or sediment basin (>3 acres of drainage) are indicated calculations shown are based on outlined drainage areas. Contractor shall honor indicated drainage divides and conform to volumes, details, etc. provided on plans.

MS-7: Care has been taken in design to minimize drainage over slopes and provide a suitable protective stabilization method. Contractor shall protect slope areas during and after construction from concentrated runoff and the erosion effects of wind and rain. Stabilize as soon as practical to minimize erosion.

MS-8: Where concentrated runoff has been routed down slopes care has been taken to design an adequate channel or drain. Contractor shall install these measures along with their stabilization as soon as practical to protect slopes. NOT APPLICABLE; no channels or drains are proposed over slopes.

MS-9: NOT APPLICABLE; seepage through slopes is not anticipated to be encountered on this project.

MS-10: Inlet or culvert inlet protection is proposed for the inlets of all storm sewers or culverts on-site. RLD shall insure proper installation and assure adequate sizing based on drainage area of each inlet.

MS-11: RLD shall verify that adequate channel linings and proper outlet protection is in place prior to operation of storm sewer system.

MS-12: When working in and around a live watercourse, the contractor shall take great care to minimize impact on the stream. Assure that proper permits from DEQ / COE are in hand prior to commencing such work. (NOT APPLICABLE).

MS-13: Where more than 2 trips in 6 months are expected across a live watercourse obtain the necessary permit and install a temporary stream crossing. (NOT APPLICABLE).

MS-14: Other federal, state, and local regulations must be met when working in live watercourses. (NOT APPLICABLE)

MS-15: The bed and banks of disturbed watercourses must be stabilized immediately. (NOT APPLICABLE)

MS-16: Regarding utility installations, no more than 500 LF of trench may be open at a given time. Excavated material shall be placed on uphill side of trench. Effluent of any dewatering system used must be filtered. Trenches shall be properly backfilled and compacted per detail and specs. Completed installation shall be re-stabilized immediately.

MS-17: The contractor shall provide adequate means of cleaning mud from trucks and / or other equipment prior to entering public streets. It is the contractor's responsibility to insure that the streets are in a clean, mud and dust free condition at all times.

MS-18: See Maintenance under ESC Narrative for CE, IP, SF, and TS/PS at a minimum.

MS-19: Increases in stormwater volume, velocity, and peak runoff have been addressed in the plan per calculations submitted for review. Responsible Land Disturber shall pay particular attention to off-site areas contributing runoff to the site, off-site locations receiving runoff from this project, and proper operation of stormwater management practices on-site. All ditches, swales, and natural watercourses downstream of this project shall be field inspected during and after construction by the RLD to ensure compliance with DCR's MS-19. If erosion or scour is occurring the developer shall be responsible for all corrective measures.

General Erosion and Sediment Control Notes,
Roanoke County, Virginia

ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS VR 625-02-00 EROSION AND SEDIMENT CONTROL REGULATIONS.

ES-2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE ONSITE PRECONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.

ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN AND NARRATIVE, AS WELL AS A COPY OF THE LAND DISTURBING PERMIT, SHALL BE MAINTAINED ON THE SITE AT ALL TIMES. THE EROSION AND SEDIMENT CONTROL ADMINISTRATOR WILL DELIVER THESE MATERIALS AT THE ONSITE PRECONSTRUCTION CONFERENCE.

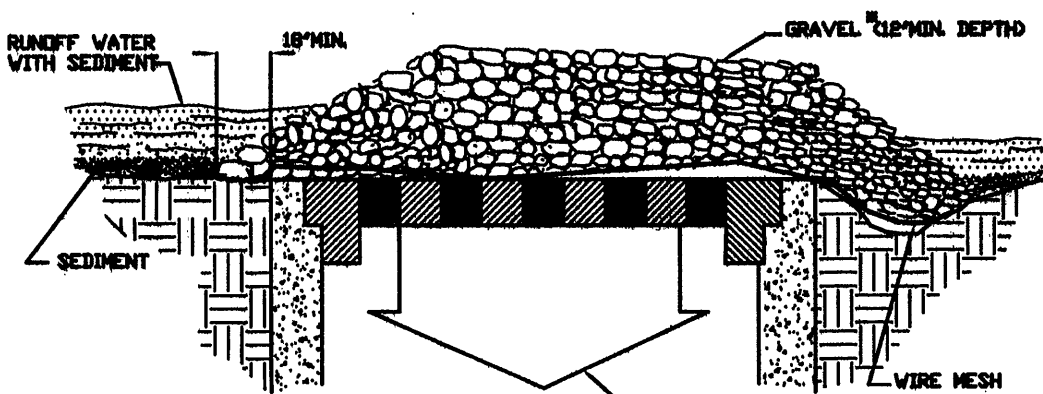
ES-5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.

ES-6: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.

ES-7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING THE LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES-8: DURING DEWATERING OPERATION, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.

ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY. AN INSPECTION REPORT MUST BE FILED WITH THE BOTETOURT COUNTY EROSION AND SEDIMENT CONTROL ADMINISTRATOR ONCE EVERY TWO WEEKS, BEGINNING WITH COMMENCEMENT OF THE LAND DISTURBING ACTIVITY, AND WITHIN 48 HOURS OF ANY RUNOFF-PRODUCING RAINFALL EVENT. FAILURE TO SUBMIT A REPORT WILL BE GROUNDS FOR IMMEDIATE REVOCATION OF THE LAND DISTURBING PERMIT. REPORTS MUST BE POSTMARKED WITHIN 24 HOURS OF THE DEADLINE. A STANDARD INSPECTION REPORT FORM WILL BE SUPPLIED, WHICH SHOULD BE COMPLETED AS NECESSARY. THIS PROVISION IN NO WAY WAIVES THE RIGHT OF BOTETOURT COUNTY PERSONNEL TO CONDUCT SITE INSPECTIONS, NOR DOES IT DENY THE RIGHT OF THE PERMITTEE (S) TO ACCOMPANY THE INSPECTOR (S).



SPECIFIC APPLICATION

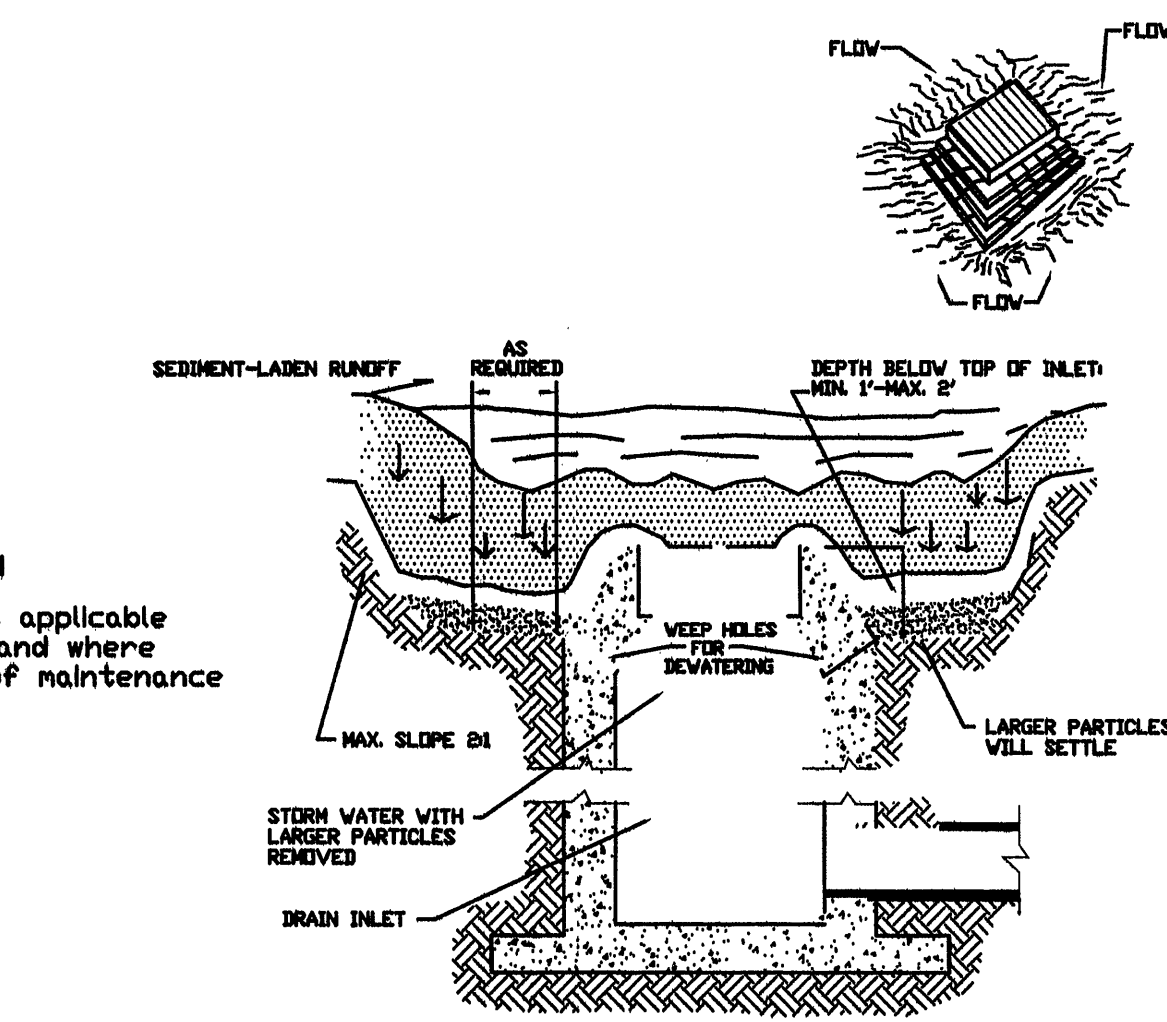
This method of inlet protection is applicable where heavy concentrated flows are expected, but not where ponding around the structure might cause excessive inconvenience or damage to adjacent structures and unprotected areas.

■ Gravel shall be VDOT #3, #357 or #5 coarse aggregate.

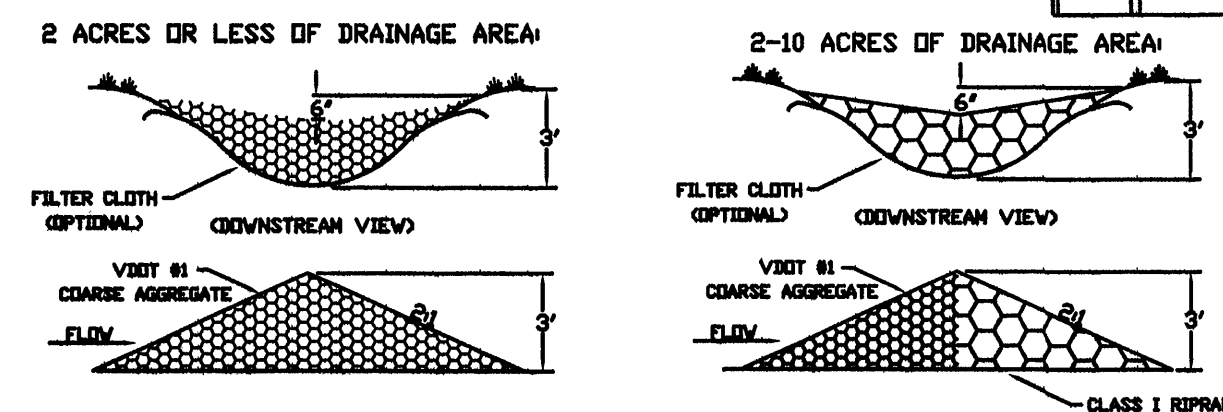
IP GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER

SPECIFIC APPLICATION

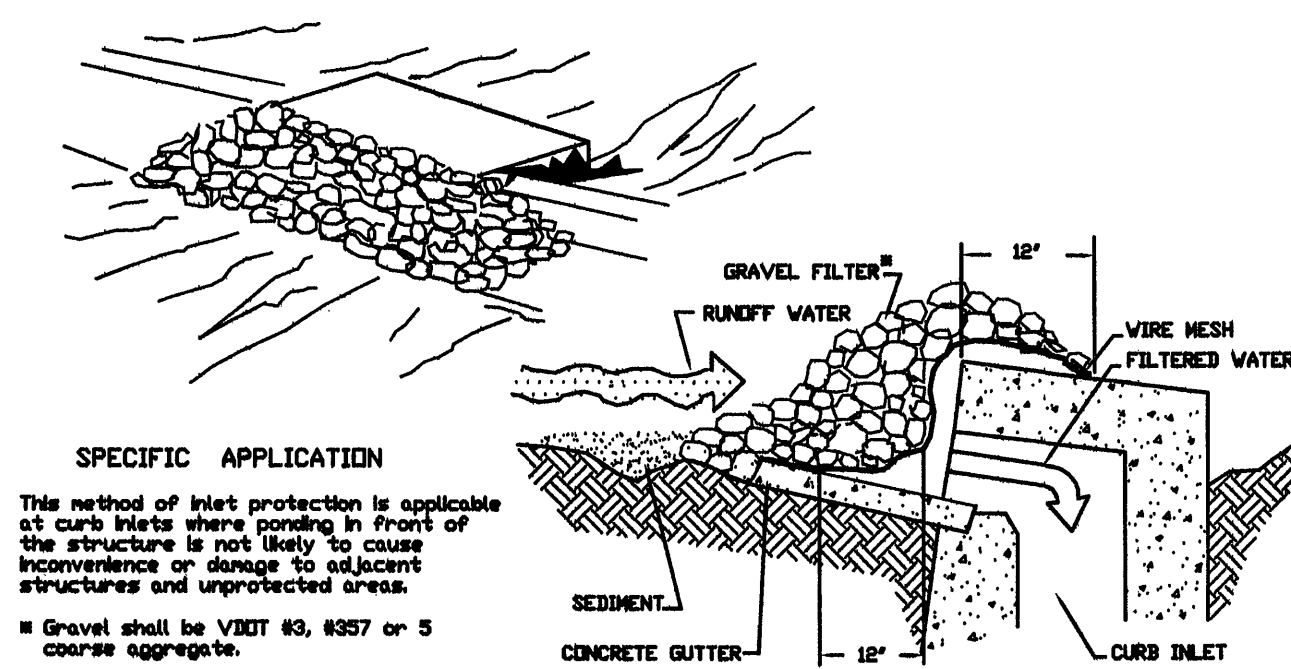
This method of inlet protection is applicable where heavy flows are expected and where an over-flow capability and ease of maintenance are desirable.



IP EXCAVATED DROP INLET SEDIMENT TRAP

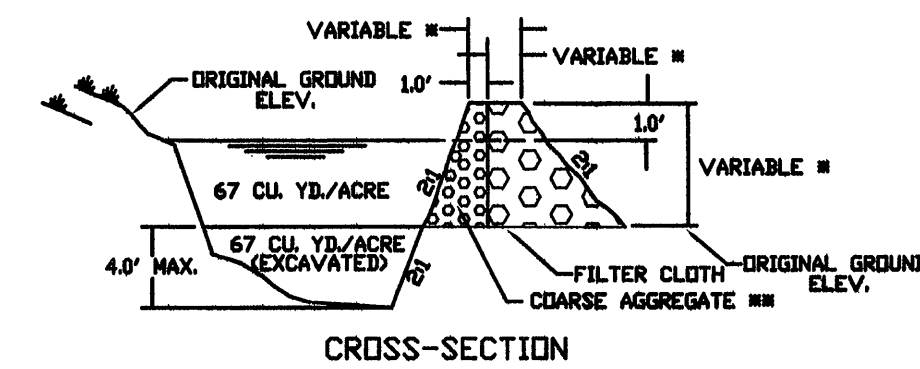


CD ROCK CHECK DAM

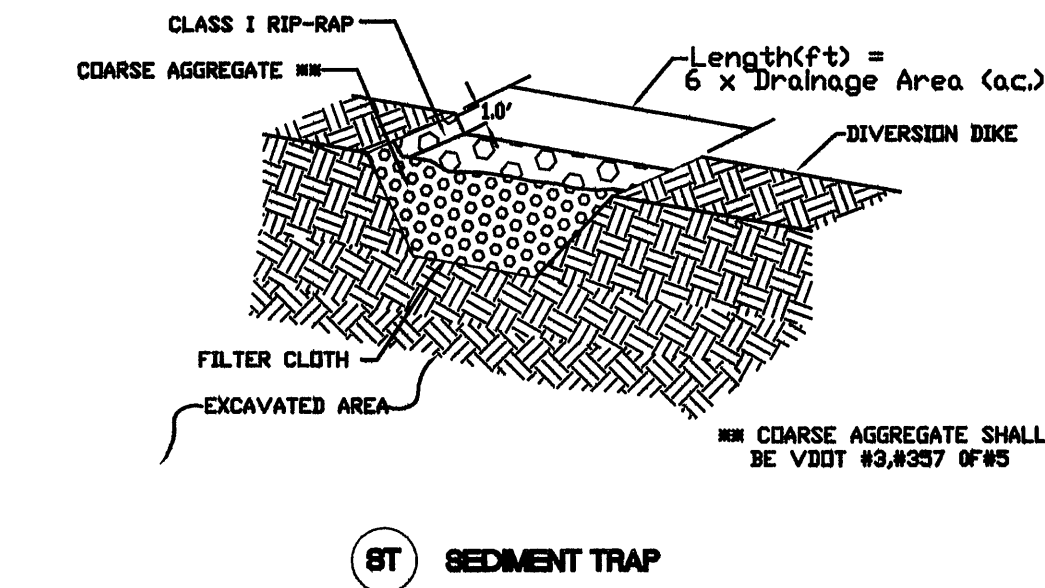


IP GRAVEL CURB INLET SEDIMENT FILTER

| NO. | TITLE | KEY | SYMBOL | NO. | TITLE | KEY | SYMBOL |
|------|--|-----|--------|------|---|-----|--------|
| 3.01 | SAFETY FENCE | SAF | | 3.20 | ROCK CHECK DAMS | CD | |
| 3.02 | TEMPORARY GRAVEL CONSTRUCTION ENTRANCE | CE | | 3.21 | LEVEL SPREADER | LS | |
| 3.03 | CONSTRUCTION ROAD STABILIZATION | CRS | | 3.22 | VEGETATIVE STREAMBANK STABILIZATION | VSS | |
| 3.04 | STRAW BALE BARRIER | STB | | 3.23 | STRUCTURAL STREAMBANK STABILIZATION | SSS | |
| 3.05 | SILT FENCE | SF | | 3.24 | TEMPORARY VEHICULAR STREAM CROSSING | VSC | |
| 3.06 | BRUSH BARRIER | BB | | 3.25 | UTILITY STREAM CROSSING | USC | |
| 3.07 | STORM DRAIN INLET PROTECTION | IP | | 3.26 | DEWATERING STRUCTURE | DS | |
| 3.08 | CULVERT INLET PROTECTION | CIP | | 3.27 | TURBIDITY CURTAIN | TC | |
| 3.09 | TEMPORARY DIVERSION DIKE | DD | | 3.28 | SUBSURFACE DRAIN | SD | |
| 3.10 | TEMPORARY FILL DIVERSION | FD | | 3.29 | SURFACE ROUGHENING | SR | |
| 3.11 | TEMPORARY RIGHT-OF-WAY DIVERSION | RWD | | 3.30 | TOPSOILING | TD | |
| 3.12 | DIVERSION | DV | | 3.31 | TEMPORARY SEEDING | TS | |
| 3.13 | TEMPORARY SEDIMENT TRAP | ST | | 3.32 | PERMANENT SEEDING | PS | |
| 3.14 | TEMPORARY SEDIMENT BASIN | SB | | 3.33 | SODDING | SD | |
| 3.15 | TEMPORARY SLOPE DRAIN | TSJ | | 3.34 | BERMUDA GRASS AND ZOYSIAGRASS ESTABLISHMENT | BE | |
| 3.16 | PAVED FLUME | PF | | 3.35 | MULCHING | MU | |
| 3.17 | STORMWATER CONVEYANCE CHANNEL | SCC | | 3.36 | SOIL STABILIZATION BLANKETS AND MATTING | SS | |
| 3.18 | OUTLET PROTECTION | OP | | 3.37 | TREES, SHRUBS, VINES AND GROUND COVERS | VEG | |
| 3.19 | RIPRAP | RR | | 3.38 | TREE PRESERVATION AND PROTECTION | TP | |
| | | | | 3.39 | DUST CONTROL | DC | |



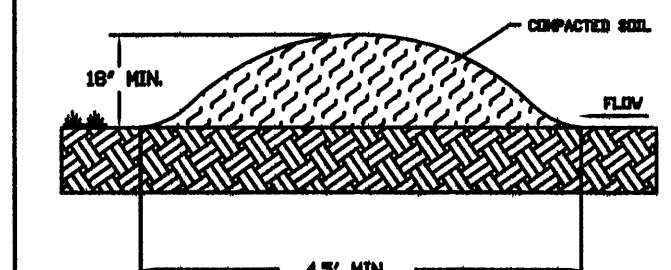
■ SEE PLATE 313-1



NOTE:
FOR AREAS LESS THAN 3.0 ACRES, FOR AREAS LARGER THAN 3.0 ACRES A SEDIMENT BASIN IS REQUIRED. SEE DETAIL THIS SHEET.

TEMPORARY SEDIMENT TRAP DATA

| STRUCTURE | DRAINAGE AREA (ACRES) | STORAGE (C.Y.) REQ'D | DESIGN | VEIR LENGTH (FT.) | VEIR HEIGHT (FT.) | BERM HEIGHT (FT.) |
|-----------|-----------------------|----------------------|-----------------------------------|-------------------|-------------------|-------------------|
| 1 | 1.4 AC. | 188 C.Y. | 203 C.Y. | 9' | 1.25' | 2.25' |
| | | | BOTTOM OF WET = 52' x 29' | | | |
| | | | TOP OF WET 58' x 35' - 1.5' DEEP | | | |
| | | | TOP OF DRY 63' x 40' - 1.25' DEEP | | | |
| 2 | 1.8 AC. | 241 C.Y. | 249 C.Y. | 11' | 1.50' | 2.50' |
| | | | BOTTOM OF WET = 49' x 27' | | | |
| | | | TOP OF WET 57' x 35' - 2.0' DEEP | | | |
| | | | TOP OF DRY 63' x 41' - 1.5' DEEP | | | |

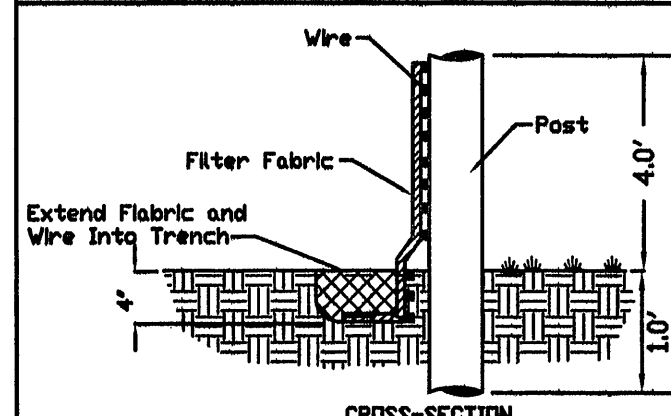


DD TEMPORARY DIVERSION DIKE

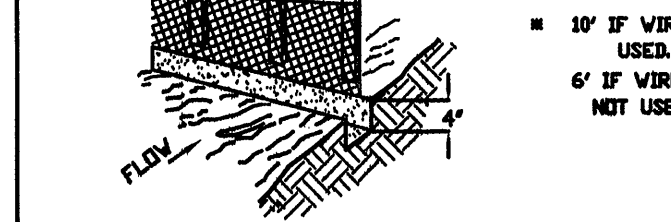
FD TEMPORARY FILL DIVERSION

RWD TEMPORARY RIGHT-OF-WAY DIVERSION

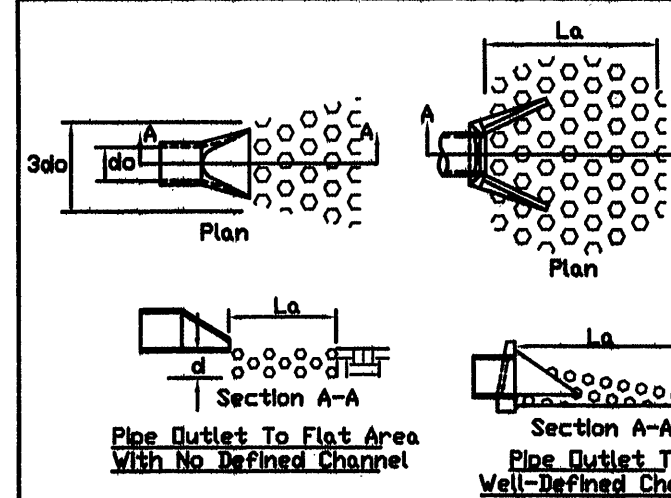
DV DIVERSION



SF CONSTRUCTION OF A SILT FENCE

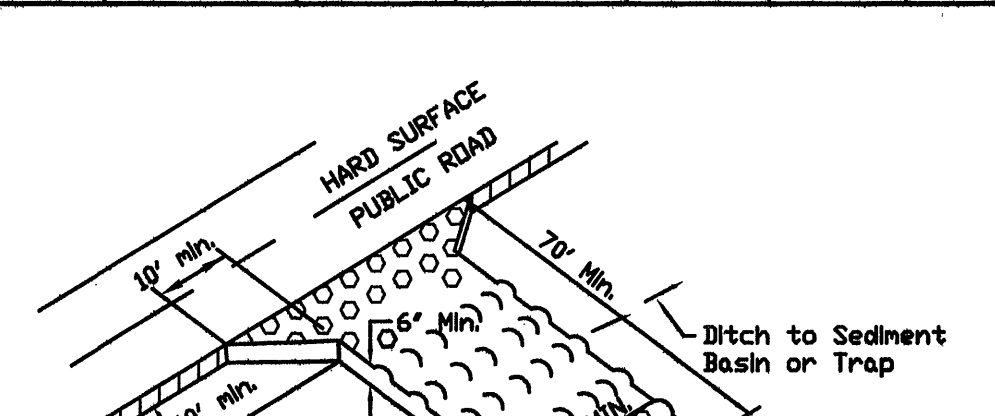


SF CONSTRUCTION OF A SILT FENCE

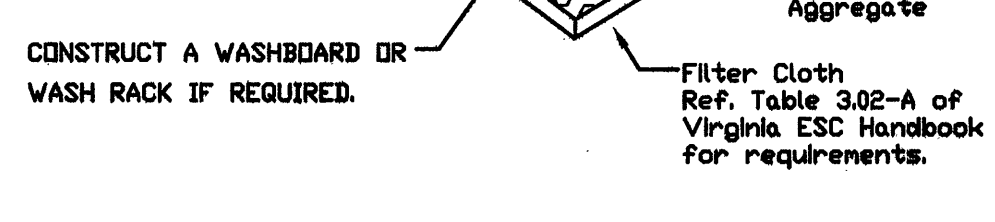


OP OUTLET PROTECTION

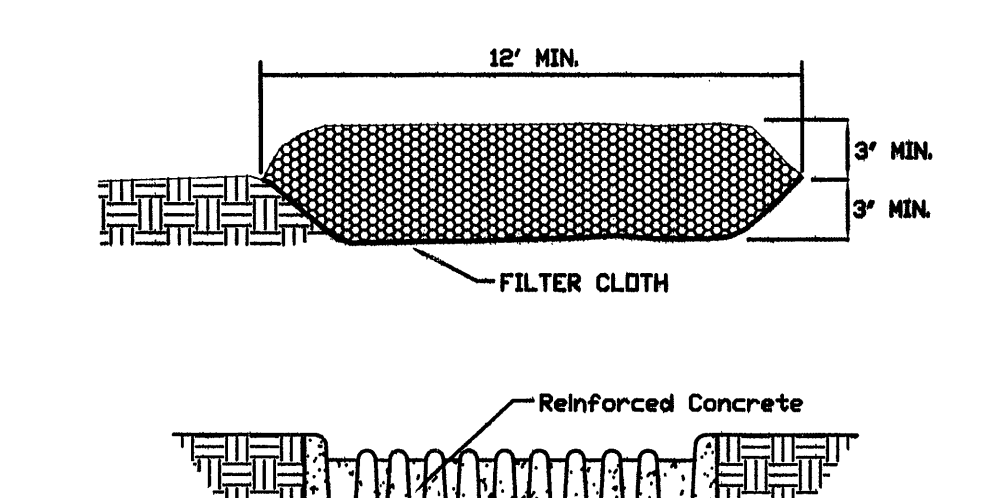
NOTES
1. Apron lining may be rip-rap, grouted rip-rap, or concrete.
2. La is the length of the rip-rap apron as calculated using plates 1-36d and 1-36e.
3. d = 1.5 times the maximum stone diameter, but not less than 6\"/>



CE TEMPORARY GRAVEL CONSTRUCTION ENTRANCE



CE TEMPORARY GRAVEL CONSTRUCTION ENTRANCE



CE TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

EROSION-SILTATION CONTROL COST ESTIMATE

ALL COSTS GIVEN ARE COMPLETE IN PLACE

| DESCRIPTION | UNIT | QUANTITY | UNIT COST | TOTAL COST |
|-------------------------------|------|----------|-----------|--------------|
| CONSTRUCTION ENTRANCE | EA | 1 | 700.00 | 700.00 |
| SILT FENCE | LF | 500 | 3.00 | 1,500.00 |
| INLET PROTECTION | EA | 2 | 75.00 | 150.00 |
| ROCK CHECK DAMS | EA | 4 | 100.00 | 400.00 |
| TEMPORARY DIVERSION DIKE | LF | 1,280 | 2.00 | 2,520.00 |
| SEDIMENT TRAP | EA | 2 | 500.00 | 1,000.00 |
| STORMWATER CONVEYANCE CHANNEL | LF | | | |
| PERMANENT SEEDING | ACRE | 2.6 | 1,200.00 | 3,120.00 |
| TEMPORARY SEEDING | ACRE | 2.6 | 750.00 | 1,950.00 |
| SUB-TOTAL | | | | \$ 11,340.00 |
| 10% CONTINGENCY | | | | \$ 1,160.00 |
| TOTAL PROJECT COST | | | | \$ 12,500.00 |

TS TEMPORARY SEEDING MIXTURE

| PLANTING DATES | SPECIES | RATE (LBS./ACRE) |
|-------------------|--|------------------|
| SEPT. 1 - FEB. 15 | 50/50 MIX OF ANNUAL RYEGRASS (LOULUM MULTIFLORUM) & CEREAL (WINTER) RYE (SECALE CEREALE) | 50 - 100 |
| FEB. 16 - APR. 30 | ANNUAL RYEGRASS (LOULUM MULTIFLORUM) | 60 - 100 |
| MAY. 1 - AUG. 31 | GERMAN MILLET (SETARIA ITALICA) | 50 |

TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

PS PERMANENT SEEDING MIXTURE

| TYPE A | TYPE B (SLOPES 3:1 OR STEEPER) |
|---|---|
| 15 OCTOBER TO 1 FEBRUARY K-31 FESCUE @ 5 LB / 1000 SF BORDO WINTER RYE @ 1/2 LB / 1000 SF | 15 MARCH TO 1 MAY CROWN VETCH @ 1/2 LB / 1000 SF PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF RED TOP @ 1/8 LB / 1000 SF |
| 1 FEBRUARY TO 1 JUNE K-31 FESCUE @ 5 LB / 1000 SF ANNUAL RYE @ 1/2 LB / 1000 SF | 15 AUGUST TO 1 OCTOBER CROWN VETCH @ 1/2 LB / 1000 SF PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF RED TOP @ 1/8 LB / 1000 SF |
| 1 JUNE TO 1 SEPTEMBER K-31 FESCUE @ 5 LB / 1000 SF GERMAN MILLET @ 1/2 LB / 1000 SF | |
| 1 SEPTEMBER TO 15 OCTOBER K-31 FESCUE @ 5 LB / 1000 SF ANNUAL RYE @ 1/2 LB / 1000 SF | |

140 LB / 1000 SF PULVERIZED AGRICULTURAL LIMESTONE
FERTILIZER: 5-20-10 @ 25 LB / 1000 SF
38-0-0 @ 7 LB / 1000 SF

MULCH: IF REQUIRED, SHALL BE USED OVER ALL SEEDING AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

SOIL CONDITIONING: INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED SEED, MULCHING, MAINTENANCE OF NEW SEEDLINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED BY THE INSPECTOR.

SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.

TOTAL DISTURBED AREA = 3.4 AC.