CHESTER COUNTY CONSERVATION DISTRICT
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610-436-9182 or 610-696-5126
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Standard Erosion and Sedimentation Control Comments and Notes

1. A technical completion check of your submission, dated _____ does not provide enough information. A technical review cannot progress until the District is provided with all omitted information. A copy of the E&S Control Plan Technical Review Checklist (pages 139-140 and 141-143 from the Erosion and Sediment Pollution Control Program Manual) has been included for your use. Please be sure that all required information is included with the next plan submission.

2. Please refer to the complete plan checklists on pages 139-143 of the newly revised Erosion and Sediment Pollution Control Program Manual prior to submitting a revised plan. **Please fill the checklist out and submit it with the revised plan**. This will help ensure that all required information has been provided and expedite the review process.

3. The use of silt fence and inlet protection as primary erosion and sediment pollution controls is not reliable. A more effective and reliable means should be explored. The District recommends utilizing perimeter controls to convey sediment-laden runoff to a sediment basin or trap.

4. Silt fence should be installed and shown on the plan parallel to existing contours.

5. Super silt fence was originally accepted for use in SEPA for specific circumstances. SEPA initially accepted it for use in wooded residential areas where slopes were too long and steep for regular silt fence, yet putting in a sediment trap or small basin would disturb, kill, and remove more natural trees than the sed trap would do good. It is still recommended for this type of application in wooded areas. However, it is not to be utilized where basin/sed traps can be installed and are necessary.

6. The Chester County Conservation District recommends the use of super silt fence at areas that are disturbed adjacent to wetlands.

7. Please add a note in the construction staging requiring the basin to be stabilized and functioning properly prior to any further earth disturbance activities. Upon installation of the temporary sediment basin riser(s), an immediate inspection of the riser(s) shall be conducted by a qualified site representative and the Chester County

Conservation District shall be notified in writing that the proper riser is installed and sealed, per plan. Sediment basins must be protected from unauthorized acts of third parties.

8. Please include a note in the construction staging requiring a site inspection and approval by the Conservation District prior to removal or conversion of sediment traps and basins.

9. Only limited clearing and grubbing is permitted for access to basin and trap installations. Please specify this in the sequence. Additionally, if cut/fill doesn't balance for these installations, clear spoil or borrow areas need to be identified. Consider soil types for berm compaction when locating a borrow area.

10. Please show erosion control blanket (ECB) on all swales and all sediment basin and trap berms. The Conservation District requires the use of ECB for swale stabilization and for sediment basin and traps and berm stabilization. The District may waive this requirement for sediment basin and traps and berms during seed germination periods.

11. Please show all proposed erosion control blanket (ECB) on the plan as shading, crosshatching, or similar.

12. Please add a note that all slopes 3:1 or steeper will utilize ECB.

13. Please remove inlet protection on inlets that drain to a sediment trap or basin. Inlet protection clogs quickly and requires extensive maintenance. Clogged inlets cause runoff to continue downslope, often creating increased erosion and maintenance costs. For inlets not draining to a sediment trap or basin, utilizing inlet protection, add this note: Sediment must be removed from storm water inlet protection after each runoff event.

14. Add this note to the sequence of the plan: All Earth Disturbance activities shall proceed in accordance with the following sequence. Each stage shall be completed before any following stage is initiated. Clearing and grubbing shall be limited only to those areas described in each stage.

    At least 7 days before starting any earth disturbance activities the operator shall invite all contractors involved in those activities including but not limited to: the landowner and all appropriate municipal officials, a representative from the Chester County Conservation District for an on site pre-construction meeting.

15. Add the following note to plan: Until the site is stabilized, all erosion and sedimentation BMP's must be maintained properly. Maintenance must include inspections of all erosion and sedimentation BMP's after each runoff event and on a weekly basis. All site inspections will be documented in an inspection log kept for this purpose. The compliance actions and the date, time and name of the person

conducting the inspection. The inspection log will be kept on site at all times and made available to the District upon request.

All preventive and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching and renetting, must be preformed immediately. If erosion and sedimentation BMPs fail to perform as expected, replacement BMPs or modifications of those installed will be needed.

Where BMPs are found to fail to alleviate erosion or sediment pollution the permittee or co-permittee shall include the following information:

a. The location and severity of the BMPs failure and any pollution events.
b. All steps taken to, reduce, eliminate and prevent the recurrence of the non-compliance.
c. The time frame to correct the non-compliance, including the exact dates when the activity will return to compliance.

After final site stabilization has been achieved, temporary erosion and sediment BMPs must be removed. Areas disturbed during removal of the BMPs must be stabilized immediately.

16. Approval of the use of skimmer(s) does not approve the use of any skimmer)s) in violation of any patent, patent rights, and/or patent laws. At this time, the only Skimmer device accepted by the Chester County Conservation District is the Faircloth Skimmer. Information on this skimmer can be obtained from the Conservation District or at www.fairclothskimmer.com. Faircloth's address and phone number as well as the capacity of the basin, diameter and length of arm, and dewatering time should be provided on the detail for the skimmer. Please attach a rope to the skimmer for maintenance purposes and show this on the detail.

17. Add this note to the plan: Before initiating any revision to the approved erosion and sediment control plan or revisions to other plans which may affect the effectiveness of the approved E & S control plan, the operator must receive approval of the revisions from the Chester County Conservation District. The operator shall assure that the approved erosion and sediment control plan is properly and completely implemented. Immediately upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the operator shall implement appropriate best management practices to eliminate potential for accelerated erosion and/or sediment pollution.

18. Add this note to the plan: All pumping of sediment laden water or potentially sediment laden water shall be through a sediment control BMP, such as a pumped water filter bag discharging over non-disturbed areas.

19. Add this note to the plan: The contractor is advised to become thoroughly familiar with the provisions of the Appendix 64, Erosion Control rules and Regulations, Title 25, Part 1, Department of Environmental Protection, Subpart C, Protection of natural Resources, Article III, Water Resources, Chapter 102, Erosion Control.

20. Add this note to the plan: The operator shall remove from the site, recycle, or dispose of all building materials and wastes in accordance with the Department's Solid Waste Management Regulations at 25 Pa. Code 260.1 et seq., 271.1 et seq., and 287.1 et seq. The contractor shall not illegally bury, dump, or discharge any building material or wastes at the site.

21. Add this note to the plan: A copy of the approved erosion and sediment control plan must be available at the project site at all times. The operator shall assure that an erosion and sediment control plan has been prepared, approved by the Chester County Conservation District, and is being implemented and maintained for all soil and/or rock spoil and borrow areas, regardless of their locations.

22. The E & S control plan mapping must display a PA ONE CALL SYSTEM INCORPORATED symbol including the site identification number. (This is a numbered symbol not a note.)

23. The Chester County Conservation District does not accept the "Typical On-Lot Control Detail" only. On lot controls should be shown on each lot of the E & S plan.

24. Please provide a contour plan sheet showing the drainage area during earth disturbance to each of the erosion control traps or basins.

25. How will runoff get to the basins prior to storm sewer installation? The swales should be installed at the same time as the basins to direct the flow to the basins. Please address in the sequence what is to be re-graded and what is to remain.

26. The discharge from a sediment basin must be to the waters of the Commonwealth or other approved alternative, and shall be designed, operated, and maintained without causing accelerated erosion or sedimentation. The Chester County Conservation District recommends a 50-foot buffer from the outlet to the Waters of the Commonwealth with proof of no accelerated erosion to the stream. Approved alternatives include stable constructed channels, storm sewers, and similar facilities that can accept the discharge with no erosion occurring.

    If it is not feasible to discharge to the Waters of the Commonwealth, all of the following conditions must be met:

    1. The basin is designed for no discharge for the 10-year storm event.
    2. A detail is included, showing the specific flow path for the discharge from the basin and a profile of this path. Photos must also be included of the discharge area to prove it is in a stable location. No erosion can occur based on the 2cfs

discharge from sediment basins or the maximum design discharge from sediment traps.

3. An agreement is made with the downstream landowner where the basin will discharge, or a statement is included on the plan that any damage that occurs downstream of the basin discharge will be repaired.

27. Add this note to the plan: Stockpile heights must not exceed 35 feet. Stockpile slopes must be 2:1 or flatter.

28. Add this note to the plan: An area shall be considered to have achieved final stabilization when it has a minimum uniform 70% perennial vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated surface erosion and subsurface characteristics sufficient to resist sliding and other movements. Immediately after earth disturbance activities cease, the operator shall stabilize any areas disturbed by the activities. During non-germinating periods, mulch must be applied at the specified rates. Disturbed areas which are not at finished grade and which will be redisturbed within 1 year must be stabilized in accordance with the temporary vegetative stabilization specifications. Disturbed areas which are at finished grade or which will not be redisturbed within 1 year must be stabilized in accordance with the permanent vegetative stabilization specifications.

29. Upon completion or temporary cessation of the earth disturbance activity, or any stage thereof, the project site shall be immediately stabilized with the appropriate temporary or permanent stabilization. Plan notes and the construction sequence should reflect this requirement. Seeding notes, general Erosion and Sediment Pollution Control (E&SPC) notes and all other aspects of the plan and narrative should not contain references to the standard 3-day or 20-day stabilization parameter. The construction sequence should incorporate the immediate stabilization requirement into any applicable areas. (Please note that hydroseed is not considered stabilization until it germinates). Hay or straw mulch must be applied at 3.0 tons per acre.

30. At stream crossings, 50' buffer areas should be maintained. On buffers, clearing, sod disturbances, excavation and equipment traffic should be minimized. Activities such as stacking logs, burning cleared brush, discharging rainwater from trenches, welding pipe sections, refueling and maintaining equipment should be accomplished outside of buffers.

31. Permanent storm water management facilities should utilize a recommended or approved alternative, Best Management Practice (BMP). The chosen BMP (S) should be tailored to the needs of the site and the anticipated characteristics of the storm water generated. Infiltration techniques are preferred where environmentally sound. The use of multiple complimentary practices is encouraged. The following BMPs may be incorporated into the project design to satisfy this requirement. Alternative designs will be considered on a site-by site basis.

a. Extended Detention Pond
b. Wet Pond
c. Infiltration Basin
d. Bio-infiltration swales
e. Infiltration Trench
f. Porous Pavement
g. Forebays
h. Level Spreaders

Notes for Projects in Special Protection Watersheds:

32. In High Quality or Exceptional Value Watersheds, sediment traps employing temporary risers must outlet to an auxiliary Best Management Practice (BMP) facility such as a level spreader, plunge pool or biofiltration swale. Basins and traps should not outlet directly to a stream or wetland without employing an acceptable BMP to treat discharge from the facility. In lieu of an auxiliary outlet structure BMP, alternative basin and trap designs, such as floating risers or turbidity barriers, will be considered by the District on a site-by-site basis as a means of increasing basin efficiency.

33. A fifty-foot wide vegetated (no discharge) buffer is required on each side of waterway and wetlands in High quality &/or Exceptional Value watersheds. The Special Protection Waters Implementation Handbook, Appendix 5, Section 1, Erosion Control, recommends that on level terrain a minimum fifty foot vegetated buffer strip should be provided on each side of a protected stream. Four feet of additional buffer should be provided for each degree above level the area in question is inclined.

34. All sediment basins in High Quality or Exceptional Value Watersheds should have dewatering times between four and seven days when at full capacity. All sediment basins must utilize a principle spillway designed to dewater from the top six inches of the water surface or have a permanent pool of at least 18 inches. Dewatering from the water surface is generally accomplished through a floating riser such as a skimmer. Basin length to width ratios must be 4:1 or greater. Interior slopes and the basin bottom must be immediately stabilized.

35. Sediment traps with greater than 2.5 tributary acres should utilize temporary risers. Rock filter embankments should not be used in traps with greater than 2.5 tributary acres. Complete dewatering calculations should be provided for all traps with temporary risers in specially protected watersheds to ensure that dewatering times are maximized. The above-mentioned four-to-seven day dewatering parameter should be satisfied where possible. Traps with extended dewatering times that are located in sinkhole prone areas should utilize an acceptable lining to reduce or prohibit infiltration.

36. The following note should appear on all E & S plans for projects in specially protected watersheds:

- This project is in a specially protected High quality or Exceptional Value watershed, extreme care should be exercised in all disturbance activities to prevent degradation to the Waters of the Commonwealth.

- Because this project is in a specially protected High Quality or Exceptional Value watershed, upon completion or temporary cessation of earth disturbance activities, the project site must be immediately stabilized with the appropriate temporary or permanent stabilization.

Comments as per the PA DEP NPDES II Post Construction Stormwater Requirements

1. A separate Post Construction Stormwater Management Plan should be provided as part of the NPDES II section E permit. This should be part of the complete plan set. Identification and location of PCSM BMPs should be provided on this plan.

2. A separate Post Construction Stormwater Management Narrative shall be provided with calculations relating the difference between the pre-post of the two year storm as part of the NPDES II permit. BMPs should address :
   - Infiltration;
   - Volume and rate control
   - Water Quality treatment

3. Provide short-term and long term Operation and Maintenance (O& M) measures for the proposed Stormwater Management Facilities including the responsible party for the proposed Stormwater BMPs on the PCSM plan.

4. Infiltration BMP Details should show non-woven geotextile (permeable filter fabric) surrounding the entire stone bed. Seepage Bed Details should note Non-Woven Geotextile (or filter fabric).

5. Infiltration BMP Detail should show a minimum of 12" over lap of the filter fabricon top of the bed.

6. Add this note to the infiltration BMP detail: *Infiltration BMP* filter fabric and stone should be kept clean of soil/sediment during the installation process. If inspection indicates that soil sediment has entered any of the infiltration seepage beds, appropriate measures (i.e. cleaning the soil/sediment from the fabric, stone, bed etc. and or replacement of the fabric and stone) should be addressed.

7. Add this note to the Infiltration BMP detail: All stone for the construction of the *infiltration BMP* should be uniformly graded and clean washed aggregate.

8. Add this note to the Infiltration BMP detail: The bottom of all infiltration BMPs shall be undisturbed or uncompacted subgrade.

9. The following should be addressed in the SW Sequence of Construction :
   - The filter fabric installation activity to prevent sediment, soil, etc. from entering the stone in the infiltration BMP.
   - Installation of the stone to be checked by the design or site engineer prior to installation into the infiltration BMP to ensure that is clean washed stone
   - Appropriate measures to be taken in the event of sediment entering and clogging the infiltration BMP.
   - Methods for protecting the proposed infiltration BMP area from impacts during construction.

10. Provide specific details pertaining to the construction of all proposed Stormwater Management Infiltration/Water Quality BMPs.

11. Identify measures to ensure that all stormwater runoff from unstabilized areas onsite do not enter the infiltration systems during the construction process.

12. Provide specific details pertaining to the amount of stabilization required before any stormwater runoff can enter any Infiltration BMP

13. Provide measures to adequately check and immediately remedy sediment laden stormwater runoff from draining into any infiltration BMPs during and after construction.

14. Add this note to the maintenance section of the SW BMPs: Inflow and outflow points into the individual on-lot systems should be kept clear of leaves and other debris. Any leaves or debris will negatively impact the performance of these systems. All downspouts and overflow pipes should be kept in good working order.

15. Provide a note that addresses solutions to unfavorable conditions encountered during the installation of the on-lot infiltration system (i.e. groundwater and/or bedrock etc)

16. Provide detailed measures that will be implemented to convert the E & S BMPs into permanent SWM BMPs including the following:
    - amount of additional excavation below the bottom of the Sed Trap/Basin
    - limitation for subsoil compaction
    - additional soil percolation testing upon conversion of the Sed Trap/Basin

17. Provide soils testing – perc information to ensure that an adequate infiltration rate exist. Include information for the appropriate dewatering calculations for the on-lot infiltration beds and shallow surface basins.

18. Show all proposed areas for infiltration BMPs on the SW and E & S plan.

19. All proposed stormwater Infiltration BMPs should have a minimum of 10 feet distance from any proposed structures with below grade spaces (i.e. basements, crawl spaces, etc) Greater separation distances may be necessary if infiltration beds are located up gradient of any proposed structures).

CHESTER COUNTY CONSERVATION DISTRICT

Plan Requirements For Projects In High Quality & Exceptional Value Watersheds

January 2003

1. ***Upon completion or temporary cessation of the earth disturbance activity, or any stage thereof, the project site shall be immediately stabilized with the appropriate temporary or permanent stabilization.*** Plan notes and the construction sequence should reflect this requirement. Seeding notes, general Erosion and Sediment Pollution Control (E&SPC) notes and all other aspects of the plan and narrative *should not* contain references to the standard 3-day or 20-day stabilization parameter. The construction sequence should incorporate the immediate stabilization requirement into any applicable areas. (Please note that hydroseed is not considered stabilization until it germinates.)

2. ***All sediment basins should have dewatering times between four and seven days when at full capacity. All sediment basins must utilize a principle spillway designed to dewater from the top six inches of the water surface or have a permanent pool of at least 18 inches. Dewatering from the water surface is generally accomplished through a floating riser such as a skimmer. Basin length to width ratios must be 4:1 or greater. Interior slopes and the basin bottom must be immediately stabilized.***

3. ***Sediment traps with greater than 2.5 tributary acres should utilize temporary risers.*** Rock filter embankments should not be used in traps with greater than 2.5 tributary acres. Complete dewatering calculations should be provided for all traps with temporary risers in specially protected watersheds to ensure that dewatering times are maximized. The above mentioned four-to-seven day dewatering parameter should be satisfied where possible. Traps with extended dewatering times that are located in sinkhole prone areas should utilize an acceptable lining to reduce or prohibit infiltration.

4. ***Sediment traps employing temporary risers must outlet to an auxiliary Best Management Practice (BMP) facility such as a level spreader, plunge pool or biofiltration swale.*** Basins and traps *should not* outlet directly to a stream or wetland without employing an acceptable BMP to treat discharge from the facility. In lieu of an auxiliary outlet structure BMP, alternative basin and trap designs, such as floating risers or turbidity barriers, will be considered by the District on a site-by-site basis as a means of increasing basin efficiency.

5. ***A fifty-foot wide vegetated (no discharge) buffer is required on each side of waterway and wetlands in High quality &/or Exceptional Value watersheds.*** The *Special Protection Waters Implementation Handbook,* Appendix 5, Section 1, Erosion Control, recommends that on level terrain a minimum fifty foot vegetated buffer strip should be provided on each side of a protected stream. Four feet of additional buffer should be provided for each degree above level the area in question is inclined.

6. ***Vegetated temporary or permanent channels with design storm* velocities greater than 1.5 fps should utilize a geotextile lining to provide immediate stabilization and to expedite the establishment of the vegetative lining.*** Unit shear stress or allowable velocity calculations should be performed to ensure that the chosen lining will meet the manufacturer's suggested design criteria. The sequence of construction should specifically address all geotexile installation and the immediate stabilization requirement. Alternative, non-vegetative channel linings such as rip-rap, gabions or concrete do not require any form of geotextile stabilization.

GENERAL CONSERVATION NOTES AND SPECIFICATIONS

1. INTENT OF CONSERVATION PLAN: THE INTENT OF THIS PLAN IS TO PREVENT ACCELERATED EROSION OF THE EXPOSED SITE SOILS DURING AND AFTER CONSTRUCTION. THE PROGRAM REQUIRES RETENTION OF SEDIMENT LADEN RUNOFF ON THE CONSTRUCTION SITE TO MINIMIZE THE IMPACT OF DEVELOPMENT ON EXISTING STREAMS AND ADJACENT PROPERTY OWNERS. THESE OBJECTIVES WILL BE ACHIEVED BY MINIMIZING THE EXPOSURE TIME OF POTENTIALLY EROSIVE SOILS TO RUNOFF AND INSTALLATION OF THE TEMPORARY AND PERMANENT EROSION CONTROLS IN PROPER SEQUENCE WITH CONSTRUCTION. THE CHESTER COUNTY CONSERVATION DISTRICT (CCCD) SHALL HAVE FINAL DISCRETION IN ALL CASES OF UNFORESEEN EROSIVE CONDITIONS.

2. SURFACE STABILIZATION CRITERIA: ANY DISTURBED AREA WHERE ACTIVITY HAS CEASED AND WILL REMAIN EXPOSED MUST BE SEEDED AND MULCHED IMMEDIATELY. DURING NON-GERMINATING PERIODS MULCH MUST BE APPLIED AT THE RECOMMENDED RATES. DISTURBED AREAS THAT ARE NOT AT FINISHED GRADE AND WILL BE REDISTURBED WITHIN ONE YEAR MAY BE SEEDED AND MULCHED WITH A QUICK GROWING TEMPORARY SEEDING MIXTURE AND MULCH. DISTURBED AREAS THAT ARE EITHER AT FINISHED GRADE OR WILL NOT BE REDISTURBED WITHIN ONE YEAR MUST BE SEEDED AND MULCHED WITH A PERMANENT SEED MIXTURE AND MULCH. CRUSHED STONE ON PAVEMENT SUBGRADES IS CONSIDERED ADEQUATE PROTECTION. ALL DISTURBED VEGETATED REGIONS SHALL BE STABILIZED, PREFERABLY WITH A PERMANENT TREATMENT AS FOLLOWS:

   A. TEMPORARY COVER ON DISTURBED AREAS: PREPARATION OF THE SURFACE, FERTILIZATION AND SEEDING WITH EITHER ANNUAL OR WINTER RYE GRASS. GROUND LIMESTONE SHALL BE APPLIED AT THE RATE OF 190 POUNDS/1,000 SQUARE FEET AND 10-20-20 ANALYSIS FERTILIZER SHALL BE APPLIED AT A RATE OF 25 POUNDS/1,000 SQUARE FEET. THE FERTILIZER AND LIMESTONE SHALL BE WORKED INTO THE SOIL TO A DEPTH OF 4 INCHES PRIOR TO SEEDING. ANNUAL RYE GRASS SHALL BE APPLIED AT A RATE OF 1 POUND/1,000 SQUARE FEET AND WINTER RYE AT A RATE OF 3.5 POUNDS/1,000 SQUARE FEET. ALTERNATIVELY MULCHING WITH HAY OR STRAW (2-3 BALES/1,000 SQUARE FEET), NON-ASPHALTIC EMULSION, MAY BE USED. MULCHING IS MOST APPLICABLE TO THOSE AREAS SUBJECT TO PERIODIC DISTURBANCE AND REWORKING DURING NON-GERMINATING PERIODS. HAY OR STRAW MULCH WILL BE APPLIED AT RATES OF AT LEAST 3 TONS PER ACRE.

   B. PERMANENT COVER ON DISTURBED AREAS: PERMANENT LANDSCAPED AREAS SHALL BE STABILIZED BY SEEDING AND MULCHING. ALL LANDSCAPE AREAS PLANNED TO BE MAINTAINED SHOULD BE SEEDED WITH A TURF GRASS MIXTURE WHICH CONTAINS EITHER 15-20 PERCENT PENN FINE OR MANHATTAN RYE GRASS, OR 20 PERCENT RED TOP APPLIED AT A RATE OF 2 POUNDS PER 1,000 SQUARE FEET, OR AS RECOMMENDED FOR THE MIXTURE USED BY THE SUPPLIER. PERMANENT VEGETATION ON AREAS WHICH WILL NOT BE MAINTAINED SHALL BE SEEDED WITH A MIXTURE OF KENTUCKY 31 TALL FESCUE (88 PERCENT) AND RED TOP (12 PERCENT) AT RATES OF 1 POUND/1,000 SQUARE FEET AND 4 POUND/1,000 SQUARE FEET IN NORMAL LANDSCAPING AREAS AND DRAINAGE WAYS RESPECTIVELY. PREPARATION OF THE SEED BED AND FERTILIZATION SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS INDICATED FOR TEMPORARY COVER ON DISTURBED AREAS (SECTION A. ABOVE). NEW SEEDING OF FLAT AND MILD SLOPE AREAS SHALL BE MULCHED WITH STRAW AT 3 BALES/1,000 SQUARE FEET. NEW SEEDING ON SLOPES AND WITHIN DRAINAGE CHANNELS SHALL BE SIMILARLY MULCHED WITH STRAW, AND RUNOFF DIVERTED FROM THE SEEDBEDS UNTIL GRASS IS ESTABLISHED. STRAW SHALL BE EITHER WHEAT, BARLEY OR OAT STRAW, REASONABLY FREE OF VIABLE SEED, WELL CURED TO LESS THAN 20 PERCENT MOISTURE CONTENT BY WEIGHT.

3. THE CONTRACTOR SHALL USE WHATEVER MEANS NECESSARY TO PROTECT TREES AND SHRUBS FROM UNNECESSARY DAMAGE.

4. A COPY OF THESE EROSION AND SEDIMENT POLLUTION CONTROL PLANS MUST BE POSTED AT THE CONSTRUCTION SITE IN ACCORDANCE WITH STATE LAW.

5. THE PROPOSED EROSION CONTROL DESIGN IS BASED ON EXISTING FEATURES AT THE SITE COMPILED FROM FIELD SURVEYS, UTILITY SURVEYS AND EXISTING MAPPING. IF ACTUAL SITE CONDITIONS DIFFER FROM THOSE DEPICTED ON THE PLANS AND IMPACT THE PROPOSED DESIGN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.

6. THE CONTRACTOR MUST DEVELOP, AND HAVE APPROVED BY THE TOWNSHIP, A SEPARATE EROSION AND SEDIMENTATION CONTROL PLAN FOR EACH SPOIL, BORROW OR OTHER WORK AREA NOT DETAILED IN THE PERMITTED PLAN LOCATED OUTSIDE OF THE CONSTRUCTION LIMITS.

7. SHOULD ANY MEASURES CONTAINED WITHIN THIS PLAN PROVE INADEQUATE FOR CONTROLLING EROSION AND SEDIMENT POLLUTION, ADDITIONAL MEASURES MUST BE IMPLEMENTED BY THE CONTRACTOR IMMEDIATELY TO ELIMINATE ALL PROBLEMS PER CCCD RECOMMENDATIONS.

8. EROSION AND SEDIMENT POLLUTION CONTROLS MUST BE CONSTRUCTED, STABILIZED AND FUNCTIONAL BEFORE ANY SITE DISTURBANCE WITHIN TRIBUTARY AREAS OF THOSE CONTROLS.

INSTALLATION AND MAINTENANCE OF TEMPORARY SEDIMENT CONTROL STRUCTURES

1. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT POLLUTION CONTROLS AND SITE STABILIZATION. THE CONTRACTOR SHALL ASSIGN ONE INDIVIDUAL TO BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL FACILITIES AND MEASURES. THE CONTRACTOR SHALL NOTIFY THE CHESTER COUNTY CONSERVATION DISTRICT (CCCD) 3 DAYS PRIOR TO THE START OF EARTHMOVING ACTIVITIES AND WHEN ACTIVITIES CEASE.

2. SEDIMENT DISPOSAL: SILT REMOVED FROM TEMPORARY SEDIMENT CONTROL STRUCTURES SHALL BE DISPOSED OF IN APPROVED ONSITE AREAS, OUTSIDE OF WETLANDS, FLOOD PLAINS, STEEP SLOPES, AND ANY OTHER ENVIRONMENTALLY SENSITIVE AREAS. DISPOSAL AREAS ARE TO BE SURROUNDED BY SILT FENCING AND MULCHED IMMEDIATELY.

3. DUST CONTROL: DUST AND OTHER PARTICLES SHALL BE KEPT WITHIN TOLERABLE LIMITS BY USING WATER. APPLICATION SHALL BE AS NEEDED OR AS DIRECTED BY THE CCCD OR WEST BRADFORD TOWNSHIP.

4. FAILURE OF SILT BARRIER FENCE: REPLACE FAILED SECTIONS OF SILT BARRIER FENCE (I.E. OVERTOPPED OR UNDERMINED) WITH ROCK FILTER OUTLETS. SEE ROCK FILTER OUTLET DETAIL.

5. EXPOSED AREAS: ALL AREAS LEFT EXPOSED ARE TO BE TEMPORARILY SEEDED AND MULCHED IMMEDIATELY. ALL STOCKPILES ARE TO BE TEMPORARILY SEEDED IMMEDIATELY UPON COMPLETION. IN THE EVENT THAT STOCKPILING OF SOIL MATERIALS IS TO BE PHASED OVER AN EXTENDED PERIOD OF TIME, TEMPORARY SEEDING IS TO OCCUR AT THE END OF EACH STOCKPILING PHASE.

6. TEMPORARY (REINFORCED) SILT BARRIER FENCE: SEDIMENT IS TO BE REMOVED FROM SILT BARRIERS WHEN DEPTHS REACH A MAXIMUM OF 6 INCHES. SILT CONTAMINATED MATERIAL SHALL BE REPLACED WITHIN 7 DAYS.

7. TEMPORARY CONTROL MEASURES: ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED, REPAIRED AND REPLACED AS NECESSARY ON A WEEKLY BASIS AND AFTER EACH RAINFALL EVENT. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION OF THESE MEASURES.

8. TEMPORARY ROCK CONSTRUCTION ENTRANCE: THIS STRUCTURE SHALL BE USED TO REMOVE SEDIMENTS FROM WHEELS BEFORE ENTERING THE PUBLIC ACCESS AND TRAVEL WAYS. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENTS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AND/OR REMOVAL OF ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES.

9. SILT BARRIER FENCING: MUST BE INSTALLED PARALLEL TO EXISTING CONTOURS OR IN SECTIONS OF LEVEL ALIGNMENTS. ENDS OF FENCING MUST BE EXTENDED TO GROUND SURFACE ELEVATION LEVEL WITH NOMINAL TOP OF SILT BARRIER FENCE, TRAVELING UPSLOPE AT AN ANGLE OF 45 DEGREES TO THE ALIGNMENT OF THE MAIN FENCING SECTION, AND MUST EXTEND A MINIMUM OF 10 FEET BEYOND THE MAIN FENCING SECTION.

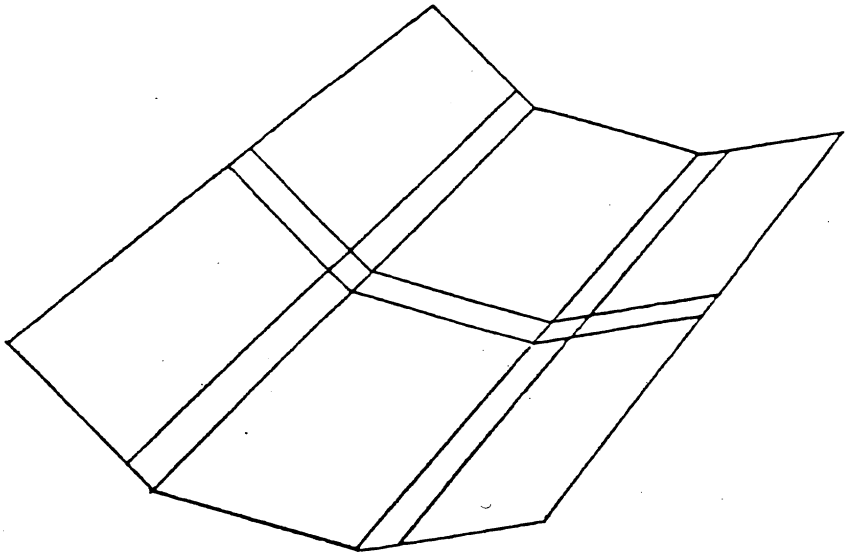
10. SOIL STOCKPILE SLOPES SHALL BE 2:1 OR FLATTER. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. ALL STOCKPILES SHALL BE COMPLETELY SURROUNDED BY SILT FENCING OR EARTHEN BERMS.

11. ANY PUMPED BASIN, AND TRENCH DEWATERING MUST BE FILTERED THROUGH A SEDIMENT FILTER BAG FOR PUMPED WATER.

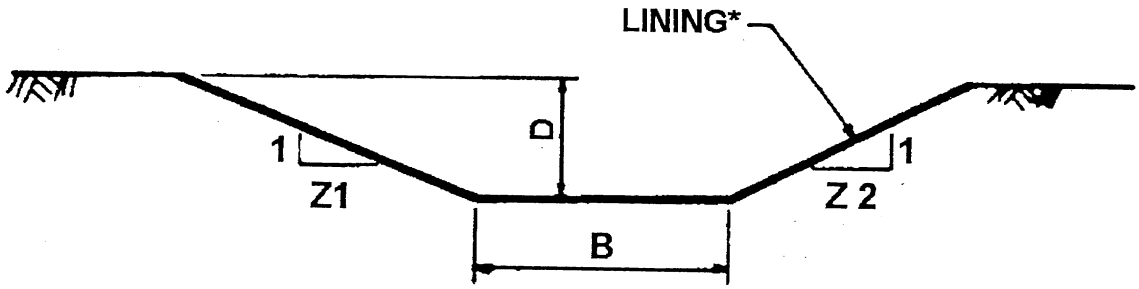
12. ALL EROSION CONTROL BLANKETING SHOWN ON THE PLAN SHALL BE NORTH AMERICAN GREEN TYPE SC150 OR APPROVED EQUAL.

13. THE CONTRACTOR SHALL RECYCLE ALL CONSTRUCTION DEBRIS THAT CONSISTS OF RECYCLABLE MATERIALS. ALL OTHER MATERIALS SHALL BE DISPOSED OF OFFSITE, IN A PA DEP APPROVED LOCATION.

STANDARD CONSTRUCTION DETAIL #1
Vegetated Channels



LINING INSTALLATION

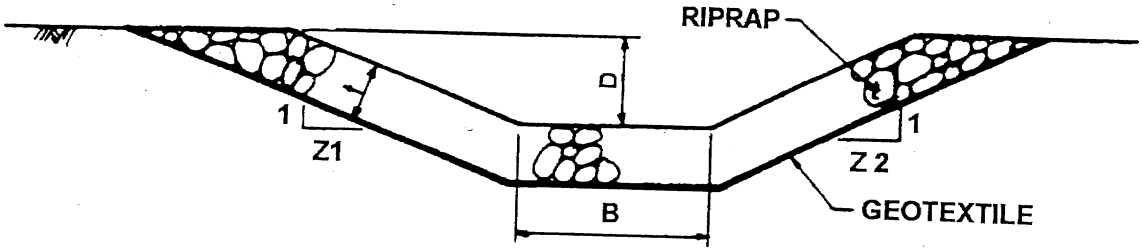


CHANNEL CROSS-SECTION

CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)	LINING*

* See Manufacturer's Lining Installation Detail for Staple Patterns, and Vegetative Stabilization Specifications for Soil Amendments, Seed Mixtures, and Mulching information.

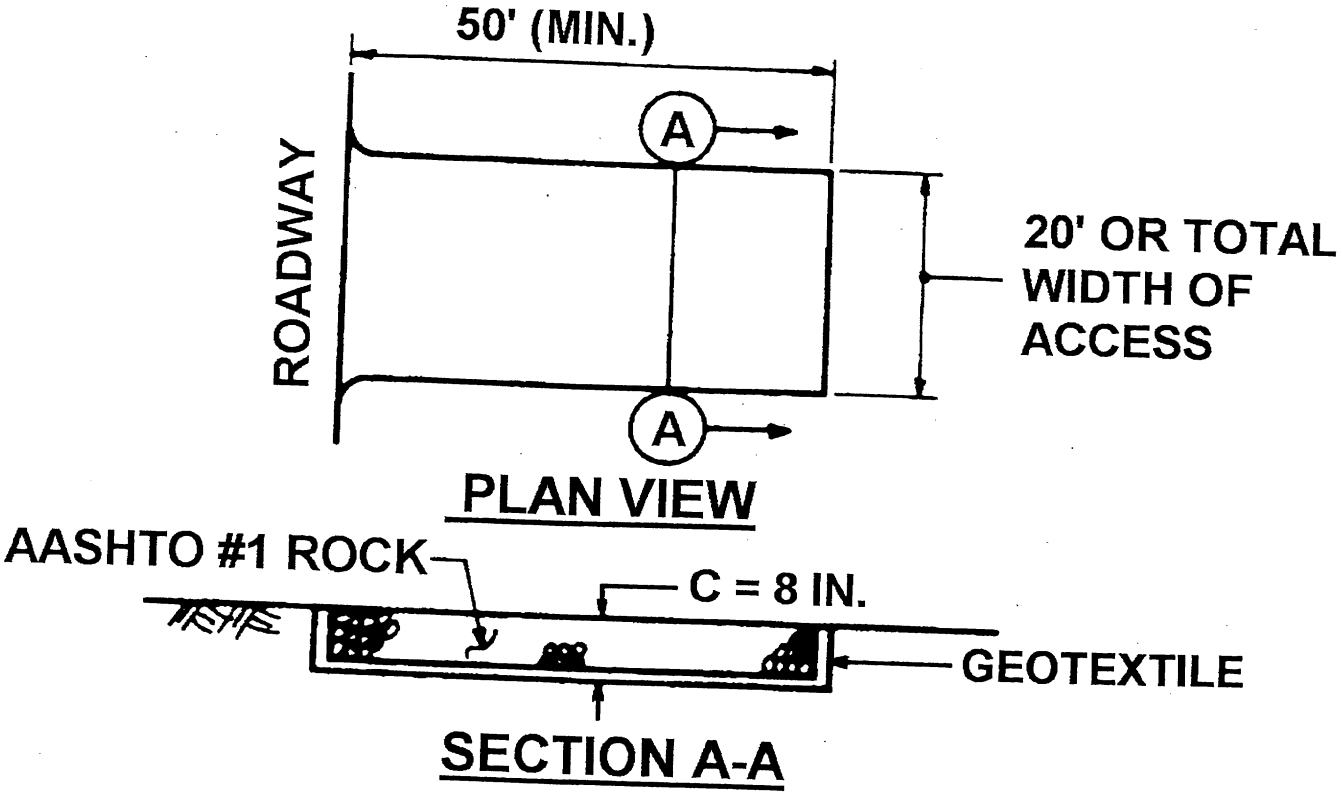
STANDARD CONSTRUCTION DETAIL #2
RIPRAP CHANNELS



CHANNEL CROSS-SECTION

CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)	RIPRAP	
						SIZE (R-__)	THICK. t (IN)

STANDARD CONSTRUCTION DETAIL #16
Rock Construction Entrance



MAINTENANCE: Rock Construction Entrance thickness shall be constantly maintained to the specified dimensions by adding rock. A stockpile shall be maintained on site for this purpose. At the end of each construction day, all sediment deposited on paved roadways shall be removed and returned to the construction site.

TABLE 18
Maximum Slope Lengths for Filter Fabric Fence

Slope - Percent	Maximum Slope Length (ft) Above Fence	
	18" High Fence	30" High Fence*
2 (or less)	150	500
5	100	250
10	50	150
15	35	100
20	25	70
25	20	55
30	15	45
35	15	40
40	15	35
45	10	30
50	10	25

*Reinforced 30" high fence. See Standard Construction Details #20 or #21.

Wherever there is a break or change in slope above the silt fence, the Maximum Allowable Slope Length should be determined by the following method:

(a) Determine the length and percent of the slope segment immediately above the fence.

(b) Subtract the length of this segment from the allowable slope length for that percent slope shown in Table 18. If the result is positive, find the percentage of the allowable slope length that has been used (slope length ÷ allowable slope length).

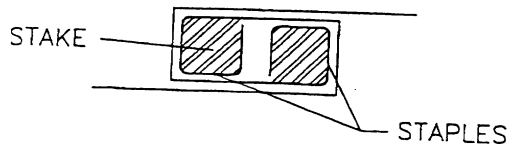
(c) Subtract the result from 1.00 to determine the unused percentage of allowable slope length.

(d) Determine the maximum allowable slope length for the percent slope of the remaining segment from Table 18.

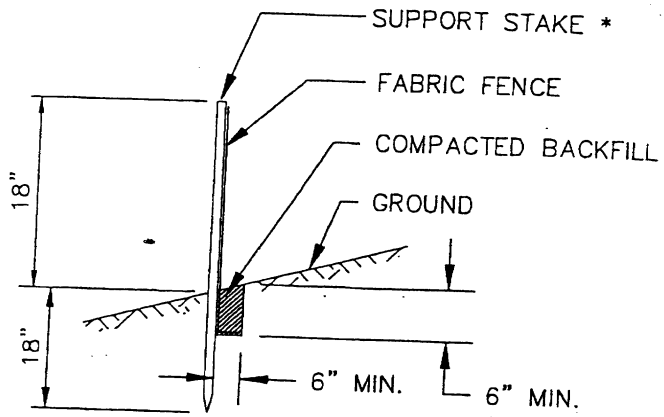
(e) Multiply this allowable slope length by the remainder from step (c) above.

(f) Add the result from step (b) to that from step (e). This is the maximum allowable slope length for the entire slope.

STANDARD CONSTRUCTION DETAIL #19
Standard Filter Fabric Fence (18" High)



JOINING FENCE SECTIONS



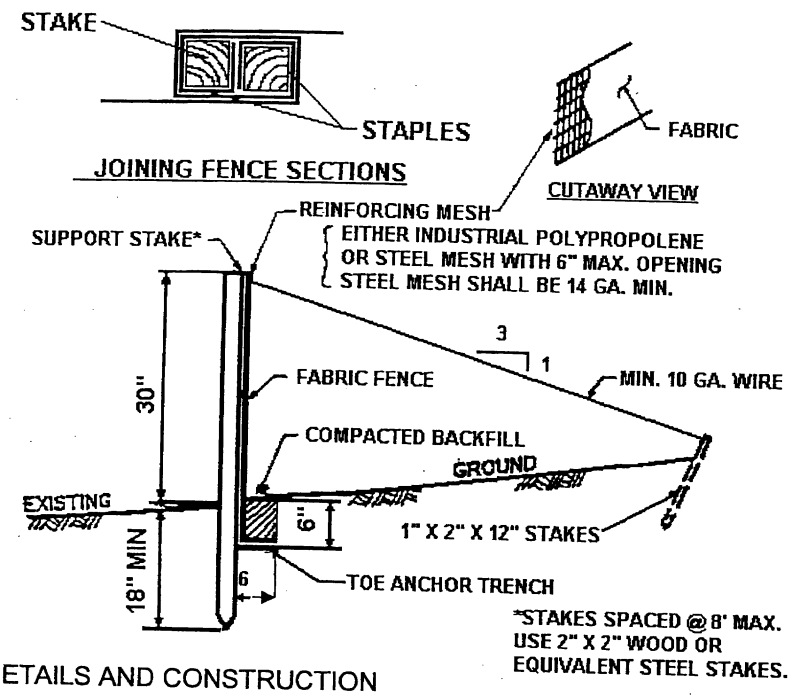
*Stakes spaced @ 8' maximum. Use 2"x 2" wood or equivalent steel stakes.

Filter Fabric Fence must be placed at level existing grade. Both ends of the barrier must be extended at least 8 feet up slope at 45 degrees to the main barrier alignment.

Sediment must be removed when accumulations reach 1/2 the above ground height of the fence.

Any section of Filter fabric fence which has been undermined or topped must be immediately replaced with a Rock Filter Outlet. See Standard Construction Detail # 18.

STANDARD CONSTRUCTION DETAIL # 20
Reinforced Filter Fabric Fence (30" High)



NOTE: SHOW ALL DETAILS AND CONSTRUCTION DIMENSIONS ON PLAN DRAWINGS.

Filter fabric fence must be installed at existing level grade. Both ends of each fence section must be extended at least 8 feet upslope at 45 degrees to the main fence alignment.

Sediment must be removed where accumulations reach 1/ 2 the above ground height of the fence.

Any fence section which has been undermined or topped must be immediately replaced with a rock filter outlet. See Standard Construction Detail # 18.

SUPER SILT FENCE - Super silt fence may be used to control runoff from some small disturbed areas where the maximum slope lengths for reinforced filter fabric fence cannot be met and sufficient room for construction of sediment traps or basins does not exist.

Only those fabric types specified for use as silt fence by the manufacturer should be used.

The maximum slope length above any super silt fence should not exceed that shown in Table 19. The slope length shown is the distance from the fence to the drainage divide or the nearest upslope channel. **NOTE: Slope length may not be increased by use of multiple rows of Super Silt Fence!**

Super silt fence should not be used in areas where rock or rocky soils prevent the full and uniform anchoring of the fence or proper installation of the fence posts. It should be used only where access exists or can be made for the construction equipment required to install and remove the chain link fencing.

TABLE 19
Maximum Slope Lengths for Super Silt Fence

Slope Percent	Maximum Slope Length (ft)
2 (or less)	1,000
5	500
10	300
20	200
30	100
40	75
50	50

Super silt fence should be installed at level grade. Both ends of each fence section should be extended at least 8 feet upslope at 45 degrees to the main fence alignment to allow for pooling of water.

Super silt fence should be installed according to the details shown in Standard Construction Detail #22.

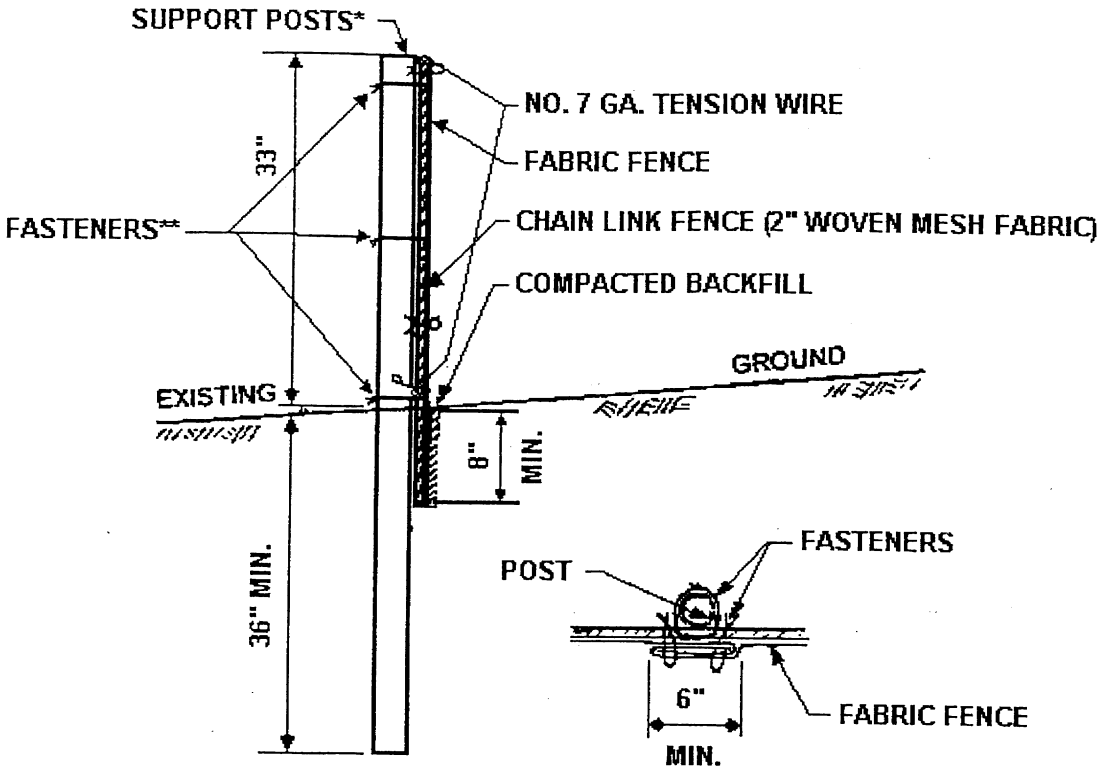
An 8" deep trench should be excavated, minimizing the disturbance on the downslope side. The bottom of the trench should be at level grade. Maximum deviation from level grade should be 5%, and not extend for more than 50 ft.

A chain link fence should be installed in the downslope side of the trench with the fence on the upslope side of the poles. Poles should be 2 ½" diameter galvanized or aluminum posts set at 10' maximum spacing. Poles should be driven a minimum 36" below the ground surface and extend a minimum of 33" above the ground surface. Poles do not need to be set in concrete.

Filter fabric should be stretched and securely fastened to the fence with wire fasteners, staples, or preformed clips. It should extend a minimum of 33" above the ground surface.

At fabric ends, both ends should be overlapped a minimum of 6", folded, and secured to the fence (see Standard Construction Detail #22). The fabric toe should be placed in the bottom of the trench, backfilled, and compacted.

STANDARD CONSTRUCTION DETAIL # 22
Super Filter Fabric Fence



JOINING FENCE SECTIONS

* Posts spaced @ 10' max. Use 2 1/2" dia. galvanized or aluminum posts.

** Chain Link To Post Fasteners spaced @ 14" max. Use No. 6 Ga. aluminum wire or No. 9 galvanized steel pre-formed clips. Chain Link To Tension Wire Fasteners spaced @ 60" max. Use No. 10 Ga. galvanized steel wire. Fabric To Chain Fasteners spaced @ 24" max. C to C.

No. 7 Ga. Tension Wire installed horizontally at top and bottom of chain-link fence.

Filter Fabric Fence must be placed at existing level grade. Both ends of the barrier must be extended at least 8 feet upslope at 45 degrees to main barrier alignment.

Sediment must be removed when accumulations reach 1/ 2 the above ground height of the fence.

ROCK FILTERS - Rock filters may be used to control runoff within constructed channels until the protective lining is installed. They may also be used below construction work within an existing stream channel while flow is being diverted past the work area. In such cases, the filter should be located between the work area and the discharge from the bypass system. Rock filters may not be used in lieu of sediment basins.

Rock filters may be used to control sediment originating within a channel, either during construction of the channel (before the channel is stabilized) or during a temporary disturbance within the channel. Rock filters may not be used in collector channels in lieu of sediment basins.

Rock filters should not be used in lieu of appropriate channel linings. This practice often results in overtopping of the channel during storm events, scouring of the channel bottom below the filter, or erosion of the channel side slopes as sediment deposits build up behind the filter.

Rock filters should not be used in lieu of an adequate protective lining in sediment basin emergency spillways. This can reduce the effective discharge capacity of the spillway and, in doing so, increase the possibility of embankment failure.

Rock filters should be constructed according to the specifications shown in Standard Construction Detail #23.

Rock filters should be constructed with Riprap sized as follows:

For channels with Total Depth > 3 feet, use R-4.
For channels with Total Depth between 2 and 3 feet, use R-3.
For channels with Total Depth between 1 and 2 feet, use R-2.

Rock filters should not be used in channels of less than 1 foot total depth.

The filter should be equal in height to ½ the total depth of the channel with a 6" depression in the center.

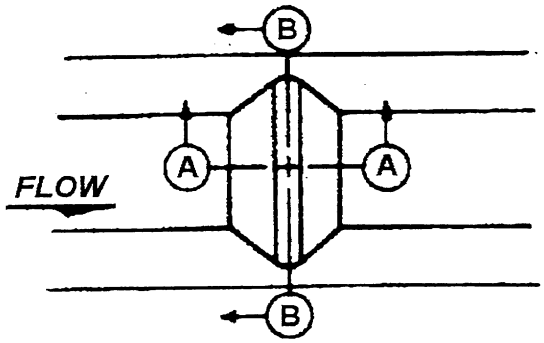
A one foot thick layer of AASHTO #57 stone should be placed on the upstream side of the filter.
NOTE: Filter fabric and straw bales should not be used in rock filters!

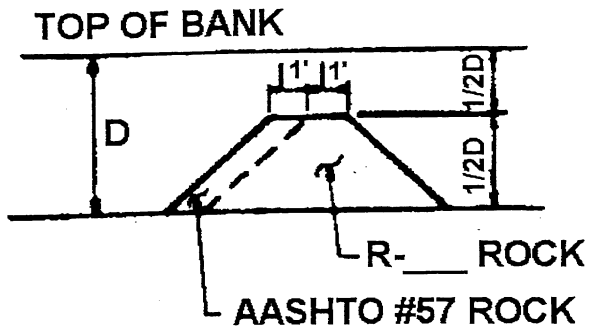
Rock filters should be inspected weekly and after each runoff event.

Clogged filter stone (AASHTO # 57) should be replaced.

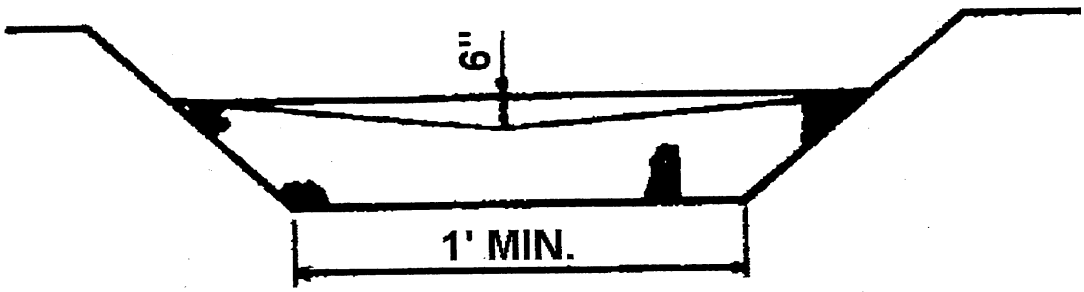
Needed repairs should be initiated immediately after the inspection.

STANDARD CONSTRUCTION DETAIL # 23
Rock Filters





SECTION A-A



SECTION B-B

FOR 3' ≤ D USE R-4
FOR 2' ≤ D < 3' USE R-3
FOR 1' ≤ D < 2' USE R-2

ROCK FILTER NO.	LOCATION	D (FT.)	RIPRAP SIZE

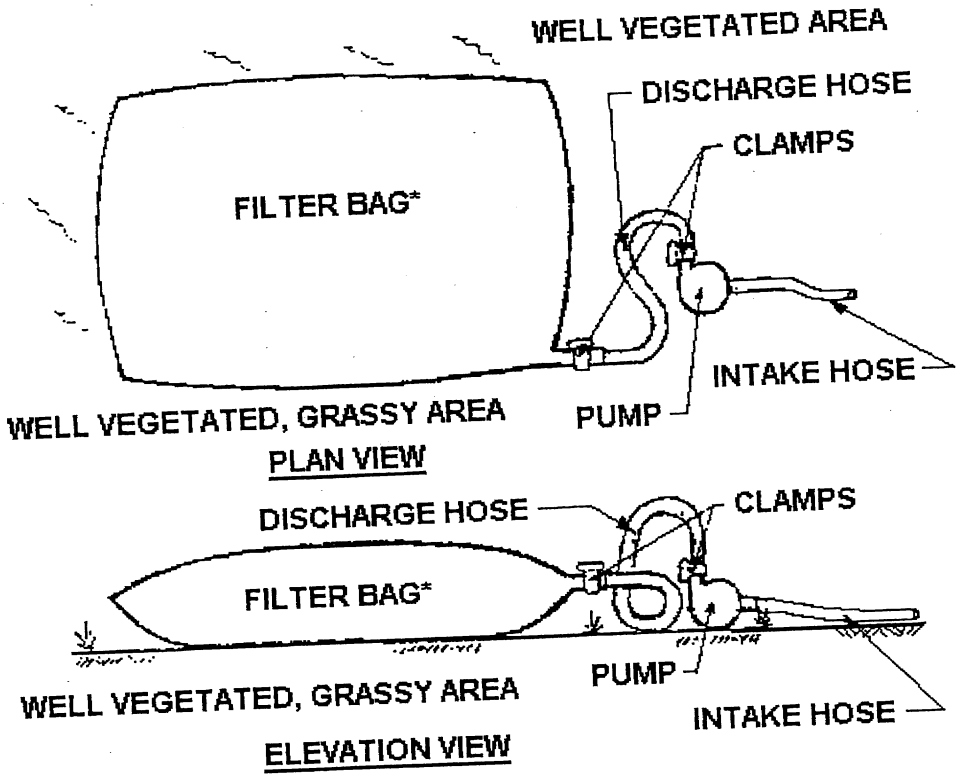
Sediment must be removed when accumulations reach 1/ 2 the height of the filters.
Immediately upon stabilization of each channel, remove accumulated sediment, remove Rock Filter, and stabilize disturbed areas.

PUMPED WATER FILTER BAGS - Filter bags may be used to filter water pumped from disturbed areas prior to discharging to waters of the Commonwealth. They may also be used to filter water pumped from the sediment storage areas of sediment basins.

The pumping rate should be specified on the plan drawings next to the typical detail. Pumping rates will vary depending on the size of the filter bag, and the type and amount of sediment discharged to the bag.

Filter bags should be installed according to the details shown in Standard Construction Detail #26.

STANDARD CONSTRUCTION DETAIL #26
Pumped Water Filter Bag



Filter bags shall be made from non-woven geotextile material sewn with high strength, double stitched "J" type seams. They shall be capable of trapping particles larger than 150 microns.

A suitable means of accessing the bag with machinery required for disposal purposes must be provided. Filter bags shall be replaced when they become ½ full. Spare bags shall be kept available for replacement of those that have failed or are filled.

Bags shall be located in well-vegetated (grassy) area, and discharge onto stable, erosion resistant areas. Where this is not possible, a geotextile flow path shall be provided. Bags shall not be placed on slopes greater than 5%.

The pump discharge hose shall be inserted into the bags in the manner specified by the manufacturer and securely clamped.

The pumping rate shall be no greater than 750 gpm or ½ the maximum specified by the manufacturer, whichever is less. Pump intakes should be floating and screened.

Faircloth Skimmers* for sediment control!

The Faircloth Skimmer is a device that improves sediment trapping efficiency by regulating the filling and draining of sediment basins better than conventional methods using perforated riser or stone. For research document, read the article on "Proper Sizing of the Control Orifice for the Fairlcoth Skimmer" in the Soil & Water Publication and Resource Index

To view a picture of the skimmer, click here.

Installation Manual available upon request.

To order, call or fax (919) 732-1244

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*U. S. Patent # 5,820,751

Faircloth Skimmer
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5" Skimmer AVAILABLE SOON! Price approximately $995.00

Will drain approximately 60,000 cubic feet in 48 hours (30,000 cubic feet in 24 hours). This is the maximum flow; the orifice can be varied.

4" Skimmer $715.00

Maximum orifice diameter 4", will drain up to approximately 30,000 cubic feet in 48 hours (15,000 cubic feet in 24 hours) or a basin approximately 88' x 88' x 5' deep accounting for side slopes. This is the maximum flow; the orifice can be varied.

3" Skimmer $545.00

Maximum orifice diameter 3", will drain up to approximately 17,000 cubic feet in 48 hours (8,500 cubic feet in 24 hours) or a basin approximately 75' x 75' x 4' deep accounting for side slopes. This is the maximum flow; the orifice can be varied.

2.5" Skimmer $455.00

Maximum orifice diameter 2.5", will drain up to approximately 11,000 cubic feet in 48 hours (5,500 cubic feet in 24 hours) or a basin approximately 56' x 56' x 4' deep accounting for side slopes. This is the maximum flow; the orifice can be varied.

Does not include pipe for the barrel, which is available locally at plumping dealers.

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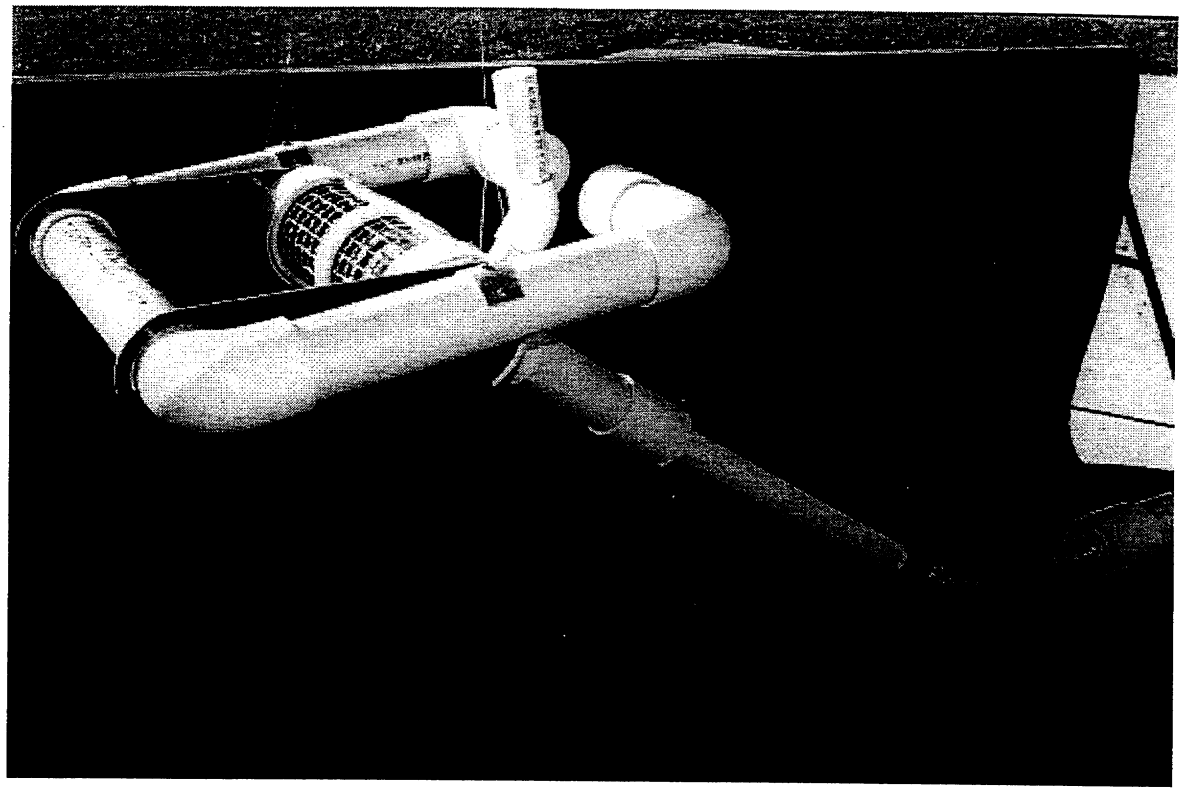


INSTRUCTIONS FOR COMPLETING FILTER FABRIC FENCING CALCULATIONS

Column 1 – Segment Identification. Every break in grade upslope of the fence will start a new segment.

Column 2 – Slope in percent of the segment in question.

Column 3 – Length in feet of the segment in question.

Column 4 – Maximum slope length above the fence for the slope of the segment. From Table 18 of the Erosion and Sediment Pollution Control Program Manual, page 87. If the exact slope is not in the table, either interpolate between the values given, or use the next highest slope (use common sense, i.e. if the slope is 9 percent, just use the value given in the table for ten percent to save time, unless you need the additional slope length. If the value is 6 percent, interpolate to gain the additional slope length).

Column 5 – In words, this is the previous equivalent slope length already used for the current slope, added to the current slope length all of which is divided by the maximum slope length to determine the new percent maximum used. In symbols, it is:

$$\text{Column 5} = \frac{(\text{Previous Column 5} / 100)\,(\text{Column 4}) + (\text{Column 3})}{(\text{Column 4})} \times 100$$

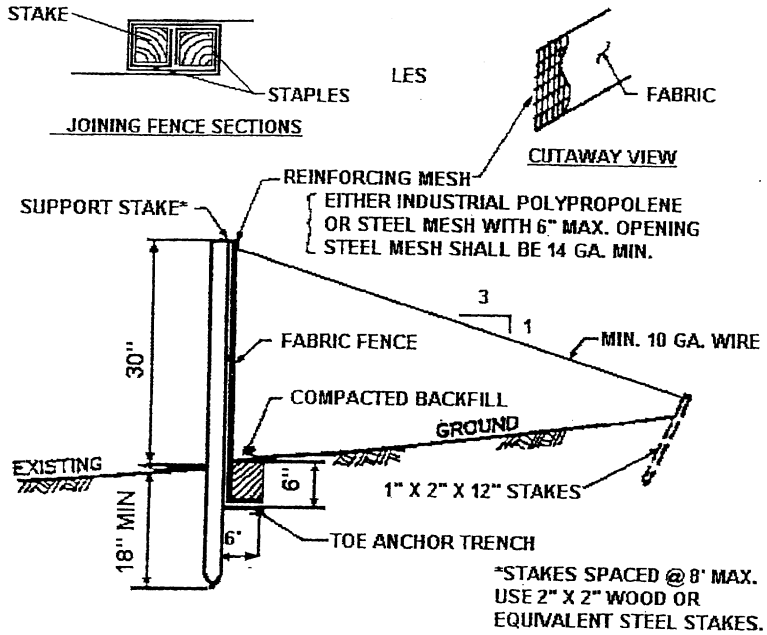
If column 5 is greater than 1, the fence is not strong enough and the next stronger fence or another control (sediment trap, sedimentation basin) must be selected.

Column 6 – The percentage of maximum allowable slope length remaining, i.e. 100 minus Column 5.

FILTER FABRIC FENCING CALCULATIONS

BARRIER IDENTIFICATION: _____

CONSTRUCTION DETAIL:



Filter fabric fence must be installed at existing level grade. Both ends of each fence section must be extended at least 8 feet upslope at 45 degrees to the main fence alignment.

Sediment must be removed where accumulations reach 1/ 2 the above ground height of the fence.

Any fence section which has been undermined or topped must be immediately replaced with a rock filter outlet. See Rock Filter Outlet Detail.

SEGMENT	SLOPE PERCENT	SLOPE LENGTH	MAX. ALLOWABLE SLOPE LENGTH	% MAX. USED	% MAX. REMAINING