

I. Erosion Control Measures and Site Stabilization

The primary emphasis of the erosion/sedimentation control plan to be implemented for the infrastructure construction is as follows:
 - Development of a careful construction sequence.
 - Rapid revegetation of denuded areas to minimize the period of soil exposure.
 - Rapid stabilization of drainage paths to avoid fill and gully erosion.
 - The use of on-site measures to capture sediment (silt fence, check dams, etc.).

The following temporary and permanent erosion and sediment control devices will be implemented as part of the site development. These devices shall be installed as indicated on the plans or as described within this report. For further reference, see the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices.

A. Temporary Erosion Control Measures

The following measures are planned as temporary erosion/sedimentation control measures during construction:

1. Utilize the existing entrance to the site closest to Chestnut Street to access the site during construction until the proposed access driveways have been constructed.

2. Siltation fence or wood waste compost berms shall be installed downstream of any disturbed areas to trap runoff borne sediments until adequate catch (90% or greater) has occurred. The silt fence and/or the wood waste compost berms shall be installed per the details provided in this package and inspected immediately after each rainfall and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence or berm line. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind fence or berm, the barrier shall be replaced with a stone check dam. Wood waste compost berms are not to be used adjacent to wetland areas that are to be left undisturbed.

3. Straw or hay mulch including hydroseeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and September 15th on slopes of less than 15 percent shall be anchored by applying water; mulch placed on slopes of equal to or steeper than 15 percent shall be covered by a fabric netting and anchored with staples in accordance with manufacturer's recommendation. Mulch placed between September 15th and April 15th on slopes equal to or steeper than 8 percent shall be covered with a fabric netting and anchored with staples in accordance with the manufacturer's recommendations. Slopes steeper than 3:1 and the drainage swale located in the I-295 Right-of-Way that are to be revegetated shall receive Curlex blankets by American Excelsior or Engineer approved equivalent. Mulch application rates are provided in Attachment A of this section. Mulch shall not be placed over snow.

4. Temporary stockpiles of stumps, grubbing, or common excavation will be protected as follows:

- a) Temporary stockpiles shall not be located within 100 feet of any wetlands and are to be left undisturbed and any slopes exceeding 15%.
- b) Stockpiles shall be stabilized within 7 days by either temporarily seeding the stockpile with a hydroseed method containing an emulsified mulch tackifier or by covering the stockpile with mulch.
- c) Stockpiles shall be surrounded by silt fence or wood-waste compost berms at the time of formation.

5. All denuded areas within 100 feet of an undisturbed wetland that have been rough graded and are not located within a roadway subspace area shall receive mulch or erosion control mesh fabric within 7 days of initial soil disturbance. All areas within 50 feet of undisturbed wetland area shall be mulched prior to any predicted rain event regardless of the 7-day window. In other areas, the time period may be extended to 14 days. All disturbed areas located within 100 feet of a protected natural resource must be protected with a double row of sediment barriers.

6. For work conducted between September 15th and April 15th of any calendar year, all denuded areas will be covered with hay mulch applied at twice the normal application rate and anchored with fabric netting. The time period for applying mulch as noted in Paragraph I.A.5 shall be limited to 7 days for all areas.

7. Marginal Way shall be swept to control off-tracking of mud, debris, and dust as necessary.

8. During grubbing operations stone check dams will be installed at any evident concentrated flow discharge points.

9. Silt fencing with a maximum stake spacing of 6 feet should be used, unless the fence is supported by wire fence reinforcement of minimum 14 gauge and with a maximum mesh spacing of 6 inches, in which case stakes may be spaced a maximum of 10 feet apart. The bottom of the fence should be anchored.

10. Wood waste compost/bark berms may be used in lieu of siltation fencing. Berms shall be removed and spread into a layer not to exceed 3" thick once upstream areas are completed and a 90% catch of vegetation is attained. Wood waste erosion tubes may also be used for perimeter sediment control or check dams, or to reduce slope lengths. These tubes may be created by filling Filtrix mesh tubes or approved equivalent with wood waste material and staking the tube to the ground where the control is necessary.

11. Inlet Protection measures shall be implemented for all catch basins located with the disturbed construction area. Measures shall be maintained regularly and shall not cause flooding in public right-of-ways.

12. Water shall be furnished and applied in accordance with DOT specifications - Section 637 - Dust Control.

13. Loam and seed is intended to serve as the primary permanent revegetative measure for all denuded areas not provided with other erosion control measures such as riprap. Application rates are provided in Attachment A of this section. Seeding shall not occur over snow.

B. Permanent Erosion Control Measures

The following permanent erosion control measures have been designed as part of the Erosion and Sedimentation Control Plan:

1. All areas disturbed during construction but not subject to other restoration (building, paving, riprap, etc.) shall be loamed, limed, fertilized, mulched, and seeded. Fabric netting anchored with staples shall be placed over the mulch in areas as noted in Paragraph I.A.3. All disturbed areas within 100 feet of an undisturbed wetland area shall be mulched prior to any predicted rain event regardless of the 7-day window. Native topsoil shall be stockpiled and reused for final restoration if deemed to be of sufficient quality.

II. Implementation Schedule

The following construction sequence shall be required to insure that the effectiveness of the erosion and sedimentation control measures is optimized:

Note: For all grading activities, the contractor shall exercise extreme caution not to overexpose the site by limiting the disturbed area.

1. Install perimeter siltation fence and/or wood waste berms prior to grubbing respective areas.
2. Clear and grub area as necessary for construction.
3. Remove existing pavement within work limits.
4. During grubbing operations, install stone check dams at any evident concentrated flow discharge points.
5. Commence earthwork operations for proposed driveways and apartment foundations.
6. Continue grading to subgrade as necessary.
7. Commence installation of underground utilities.
8. Complete remaining earthwork operations.
9. Install subbase and base course gravels for driveways.
10. Complete installation of utility appurtenances.
11. Install surface course gravels for the driveways.
12. Loam, lime, fertilize, seed, and mulch remaining disturbed areas.
13. Remove accumulated sediment from ahead of any sediment barriers as necessary.
14. Once the site is stabilized and a 90% catch of vegetation has been obtained, remove all temporary erosion control measures.
15. Touch up loam and seed.

Note: All denuded areas not subject to final paving, riprap, or gravel shall be revegetated.

Prior to construction of the project, the contractor shall submit to the owner a schedule for the completion of the work, which will satisfy the following criteria:

1. The above construction sequence shall generally be completed in the specified order; however, several separate items may be constructed simultaneously. Work must also be scheduled or phased to prevent the extent of the exposed areas as specified below. The intent of the above sequence is to provide for sufficient erosion and sedimentation control and to have structural measures such as silt fence and construction entrance in place before large areas of land are denuded.
2. The work shall be conducted in sections which will:
 - a) Limit the amount of exposed area to those areas in which work is expected to be undertaken during the preceding 30 days.
 - b) Revegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event, or temporarily stabilized within 7 days of initial disturbance of soil for areas within 100 feet of an undisturbed wetland area and within 14 days for all other areas. Areas within 100 feet of an undisturbed wetland shall be mulched prior to any predicted rain event regardless of the 7-day window.

III. Winter Stabilization Plan

If a summer/fall construction schedule is not possible and construction is necessary between September 15th and April 15th of any calendar year, the contractor shall submit a schedule, which will satisfy the following criteria:

1. The extent of exposed area shall be limited to those areas in which work is expected to be undertaken during the preceding 15 days and can be mulched in the event of a predicted snow event.
2. All disturbed areas shall be covered with mulch within 7 days of final grading. Mulch shall not be placed over snow.
3. Once final grade has been established, the contractor may choose to dormant seed the disturbed areas prior to placement of mulch and placement of staple-anchored fabric netting.
4. If dormant seeding is used for the site, all disturbed areas shall receive 6" of loam and seed at an application rate of 5 lbs. per 1000 s.f. Seeding shall not occur over snow.

All areas seeded during the winter months shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 80% catch) shall be revegetated by replacing loam, seed, and mulch as necessary to achieve 80% catch.

- b. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.
4. The area of denuded non-stabilized construction area shall be limited to the minimum area practicable. An area shall be considered denuded until the subbase gravel is installed or the areas of future loam and seed have been loamed, seeded, and mulched at a rate twice that specified in the seeding plan (e.g. 115 lbs. per 1,000 s.f. x 2 = 230 lbs. per 1,000 s.f.).
5. The above schedule shall be subject to the approval of the Owner.

The Contractor shall install any added measures that may be necessary to control erosion and sedimentation from the site dependent upon the actual site and weather conditions.

The Contractor shall note that no areas within 100 feet of an undisturbed wetland shall remain denuded for longer than 7 days before being temporarily stabilized. All other areas shall be stabilized within 14 days. For construction between September 15th and April 15th of any calendar year, all areas shall be temporarily stabilized within 7 days.

IV. Inspection and Maintenance

The following inspection and maintenance standards shall be required to insure the effectiveness of the erosion and sedimentation control measures are optimized during construction.

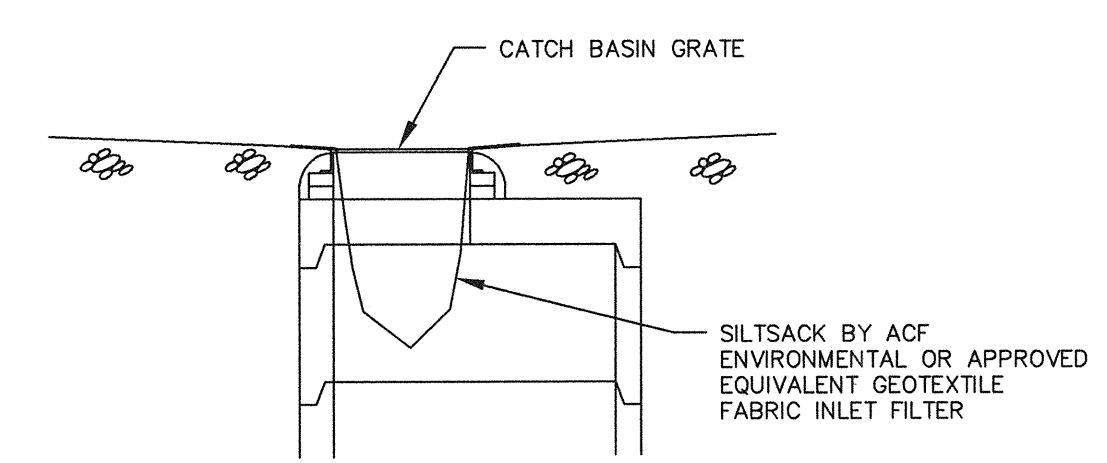
For further reference, see the Maine Department of Environmental Protection Chapter 500 Stormwater Management Rules and the Maine Construction General Permit (MCGP) requirements.

1. Inspect disturbed and impervious areas, erosion control measures, materials storage areas exposed to precipitation and locations where vehicles enter or exit the site. Inspection should occur at least once a week as well as before and after a storm event, and prior to completing permanent stabilization measures.
2. Maintain all erosion and stormwater control measures until areas are permanently stabilized. If maintenance, modification, and/or installation of additional best management practices (BMPs) are necessary, implementation must be completed within 7 calendar days and prior to any storm event.

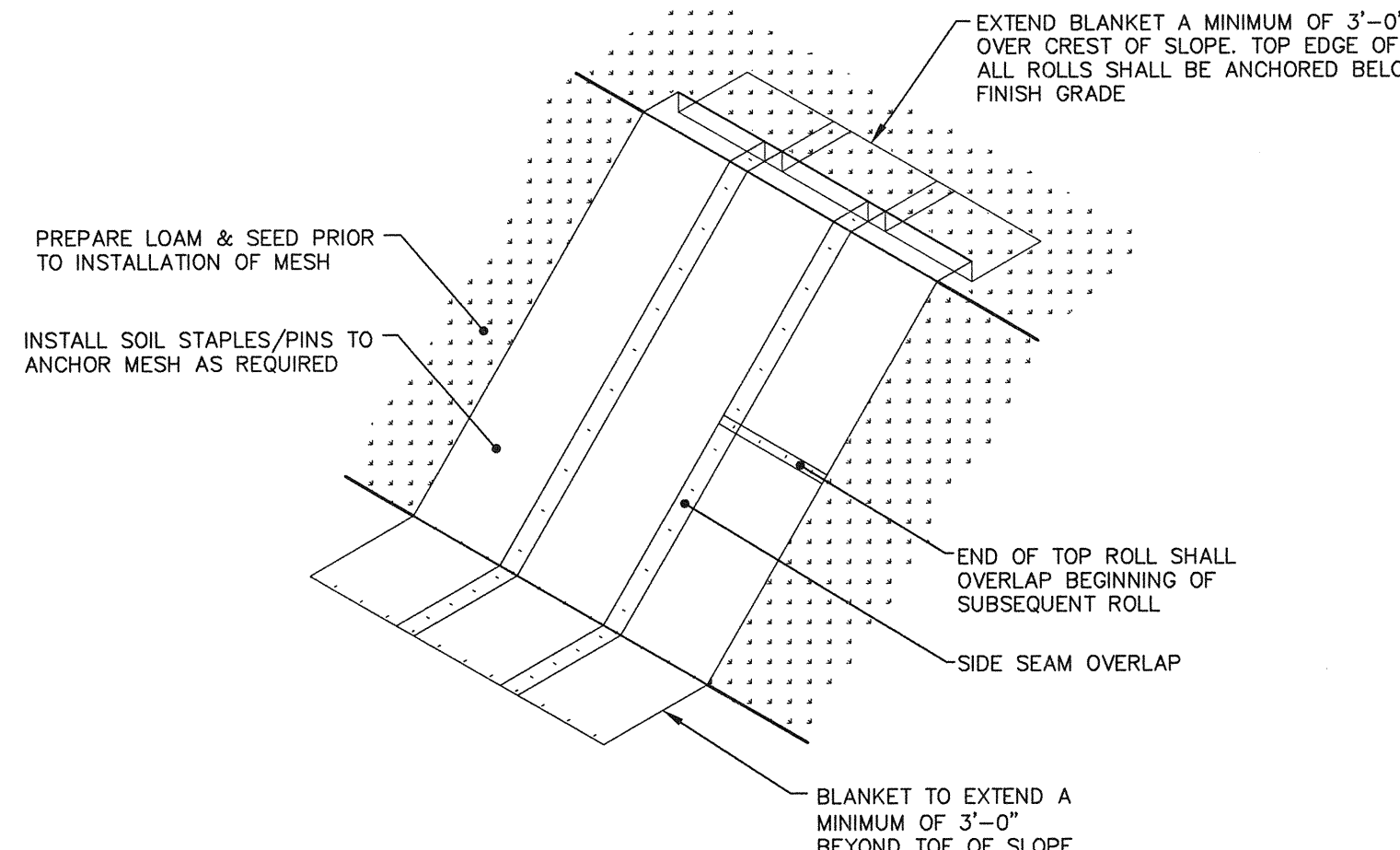
V. Housekeeping

The following standards shall be required. For further reference, see the Maine Department of Environmental Protection Chapter 500 Stormwater Management Rules.

1. Spill prevention controls must be utilized to prevent pollutants from being discharged from materials onsite.
2. During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area or adjacent to the stormwater catch basins and drain manholes.
3. Action must be taken to ensure activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction.
4. Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.
5. Water collected as a result of trench dewatering must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site.
6. Identify and prevent contamination by non-stormwater discharges.
7. Additional requirements may be applied on a site-specific basis.



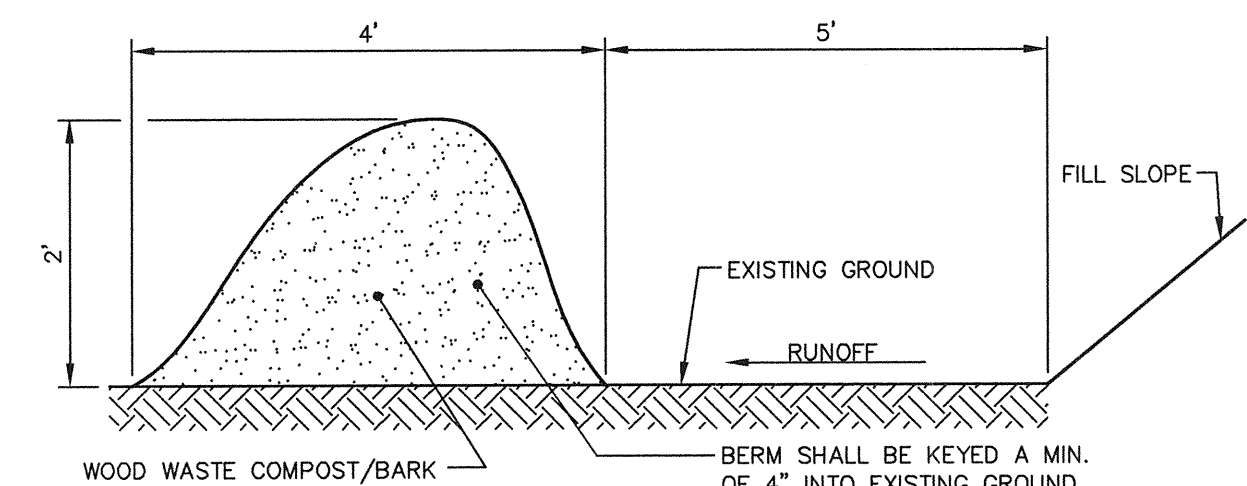
INLET PROTECTION
N.T.S.



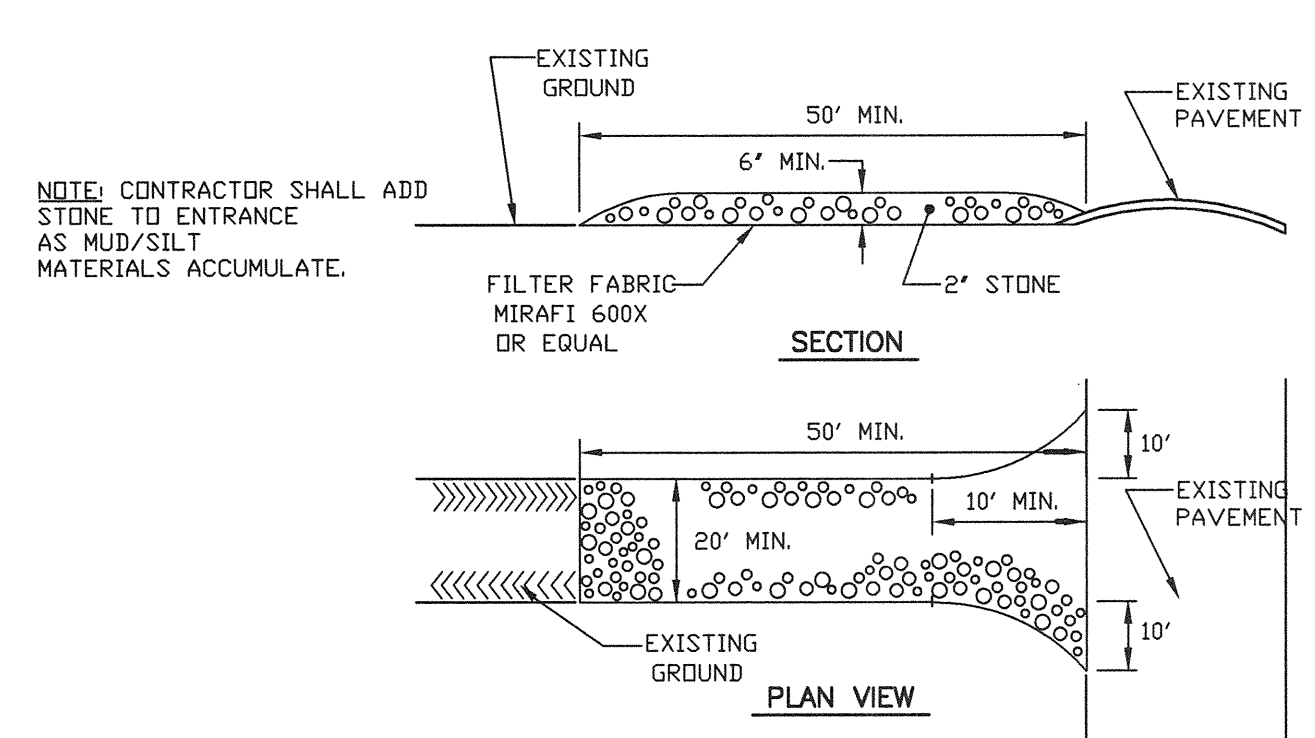
EROSION CONTROL MESH
N.T.S.

NOTES:

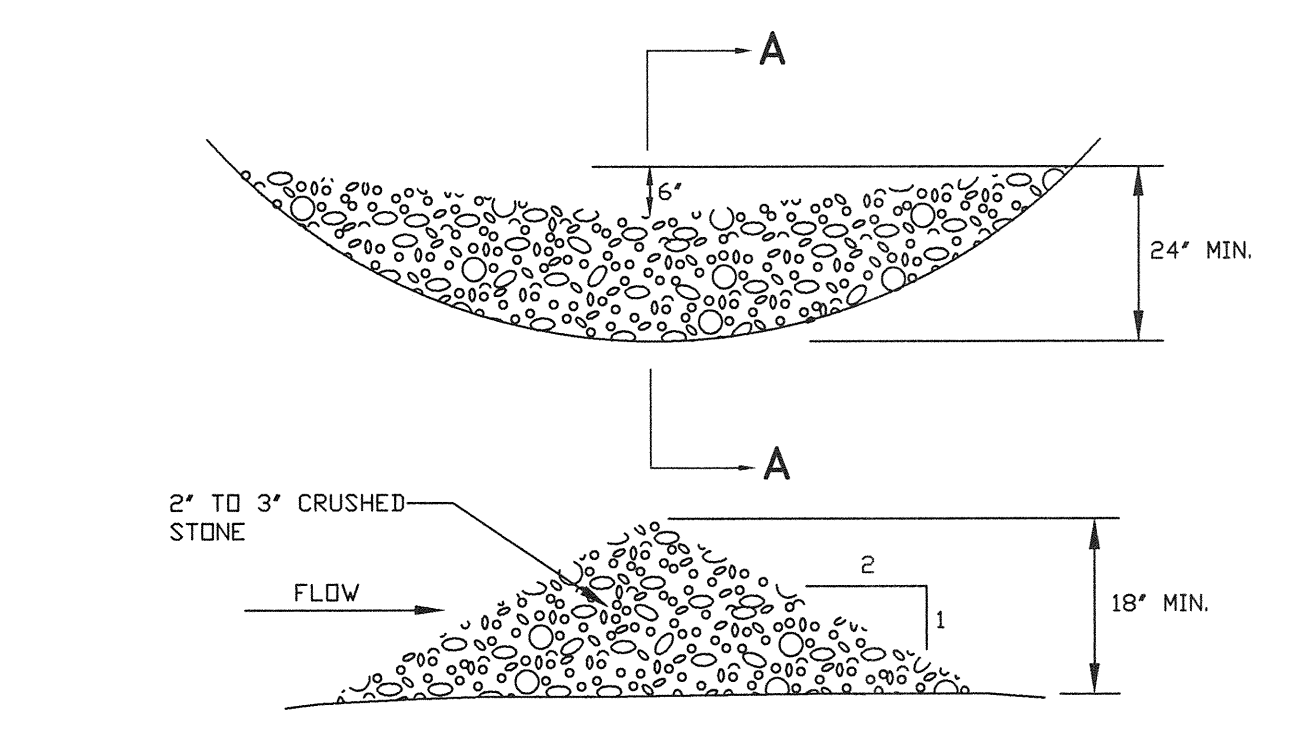
1. THE WOOD WASTE COMPOST/BARK MIX SHALL CONFORM TO THE FOLLOWING STANDARDS:
 - A. MOISTURE CONTENT - 30-60%
 - B. pH - 5.0 - 8.0.
 - C. SCREEN SIZE - 100% LESS THAN 3", MAX. 70% LESS THAN 1".
 - D. NO LESS THAN 40% ORGANIC MATERIAL (DRY WEIGHT) BY LOSS OF IGNITION.
 - E. NO STONES LARGER THAN 2" IN DIAMETER.
 - F. SILTS, CLAYS OR SUGAR SANDS ARE NOT ACCEPTABLE IN THE MIX.
2. THE COMPOST BERM SHALL BE PLACED, UNCOMPACTED, ALONG A RELATIVELY LEVEL CONTOUR.
3. THE WOOD WASTE COMPOST/BARK FILTER BERM MAY BE USED IN LIEU OF SILTATION FENCE, AT THE TOE OF SHALLOW SLOPES, ON FROZEN GROUND, LEDGE OUT CROPS, VERY ROOTED FORESTED AREA OR AT THE EDGE OF GRAVEL PARKING AREAS.
4. BERMS SHALL REMAIN IN PLACE UNTIL UPSTREAM AREA IS COMPLETED OR 70% CATCH OF VEGETATION IS ATTAINED. BERMS SHALL BE REMOVED BY SPREADING SUCH THAT NATIVE EARTH CAN BE SEEN BELOW.
5. WOOD WASTE COMPOST/BARK FILTER BERM SHALL NOT BE USED IN WETLAND AREAS.



WOOD WASTE COMPOST/BARK
FILTER BERM
N.T.S.



STABILIZED CONSTRUCTION ENTRANCE
N.T.S.



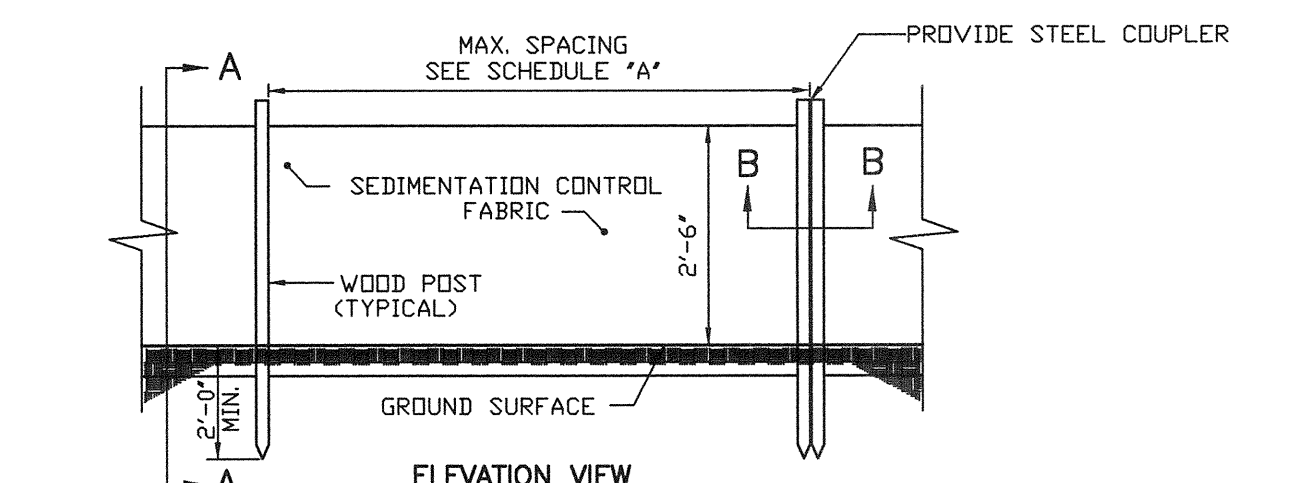
SECTION A-A

L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION

SPACING BETWEEN CHECK DAMS

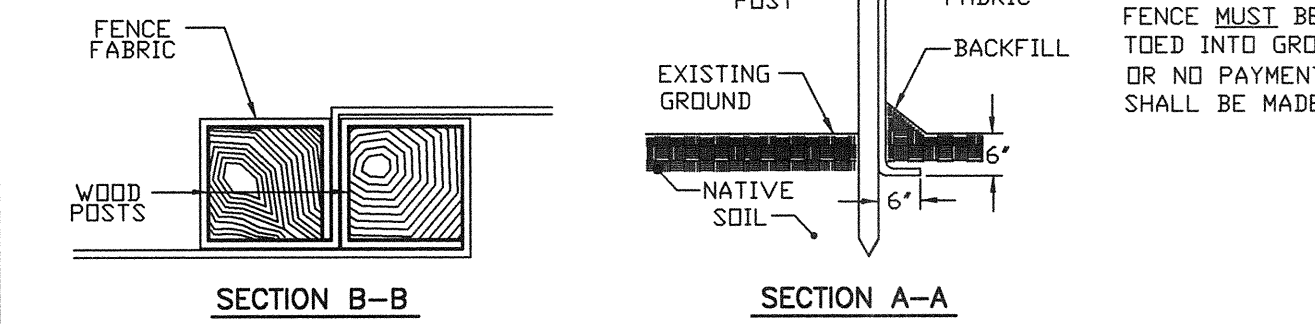
S ₀ (FT./FT.)	L (FT.)
0.020	75
0.030	50
0.040	40
0.050	30
0.080	20
0.100	15'

STONE CHECK DAM
N.T.S.



SCHEDULE "A"

SILT FENCE REINFORCEMENT	MAX. SPACING
NONE	6'
WIRE REINFORCEMENT 14 GAUGE, 6" MESH	10'



SILTATION FENCE
N.T.S.

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JUNE 15, 2007

Issued For:
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Title: **EROSION AND SEDIMENTATION CONTROL DETAILS AND NOTES**

Scale: NONE

North:
Sheet No:
12

