# Appendix A – Application Forms

- Residential Erosion Protection & Sediment Control Application
- Small Commercial Land Disturbance Permit Application
- DHEC NOI
- DHEC IL-NOI
- DHEC Transfer of Ownership Application Form
- Lexington County Transfer of Ownership Form
- DHEC NOT

# COUNTY OF LEXINGTON, SOUTH CAROLINA

## Public Works Stormwater Division

440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201 Fax: (803) 785-8593


**RESIDENTIAL BUILDING**
**EROSION PROTECTION & SEDIMENT CONTROL APPLICATION**
*Refer to Section 2.2.2.5 of the Land Development Manual for further details.*

## Applicant Information

OWNER:_____
ADDRESS:_____
CITY:_____STATE:_____ZIP CODE: _____
PHONE:_____FAX:_____E-MAIL:_____

SIGNATURE:_____DATE: _____

## Property Information

PARCEL/TMS #(S):_____LOT NUMBER(S): _____
SUBDIVISION NAME/PHASE:_____
*****IF IN A SUBDIVISION, PLEASE REFER TO ITEM #1 ON THE NEXT PAGE******
CITY:_____ZIP CODE:_____
TOTAL ACRES:_____DISTURBED ACRES:_____

## Contractor Information (if applicable)

(1) COMPANY:_____
LICENSE #: _____
ADDRESS:_____
CITY:_____STATE:_____ZIP CODE: _____
PHONE:_____FAX:_____EMAIL: _____

SIGNATURE:_____DATE: _____

**NOTE: Falsifying information on this form will result in your permit being suspended.**

Primary Permittee: This person is typically the owner or developer of the project (originally installed the project's infrastructure).

Secondary Permittee: This person is typically an individual lot owner or residential builder.

Co-Permittee: This person is typically an individual lot owner, residential builder, or contractor, who has signed an agreement with the owner or developer of a project to be allowed to work under the owner or developer's original permit.

1. **Is the lot(s) part of a larger common development (SUBDIVISION): ( ) Yes ( ) No** (proceed to question 2)
   **NOTE: Projects developed prior to 1992 are not required to get coverage from SCDHEC.**
   If ***yes***, are you the Primary Permittee, Secondary Permittee, or Co-Permittee prior to January 1, 2013?
   **( ) Primary ( ) Secondary ( ) Co-Permittee prior to January 1, 2013**

   A. If you are the Primary Permittee:
      **i.** Will you be following the lot grading plan as approved in the original submittal? **( ) Yes ( ) No**
      - If yes, sign the certification below.
        *I certify that I am the Primary Permittee in possession of the original approved permit. I will be following the lot grading plan as approved in the original submittal, in which lot grading was included:*
        **SIGNATURE:_____ DATE:_____**
      - If no or if the original approved submittal did not provide lot grading, you must submit a completed Individual Lot NOI and a lot grading plan to the Public Works Stormwater Division for approval. Permit review fees for Lexington County are listed on the fee schedule and are applicable to more than one lot. The NPDES approval letter from SCDHEC is to be supplied to Lexington County Building Department to obtain a building permit.

   B. If you are a Secondary Permittee:
      **i.** Will you be following the Primary Permittee's lot grading plan as approved in the original submittal? **( ) Yes ( ) No**
      - If yes, you must submit a completed Individual Lot NOI with a copy of the grading plan being used to the Public Works Stormwater Division. The NPDES approval letter from SCDHEC is to be supplied to Lexington County Building Department to obtain a building permit.
      - If no or if the original approved submittal did not provide lot grading, you must submit a completed Individual Lot NOI and lot grading plan to the Public Works Stormwater Division for approval. Permit review fees for Lexington County are listed on the fee schedule. The NPDES approval letter from SCDHEC is to be supplied to Lexington County Building Department to obtain a building permit.

   C. If there is an existing co-permittee agreement enacted prior to January 1, 2013:
      **i.** Will you be following the Permittee's lot grading plan as approved in the original submittal? **( ) Yes ( ) No**
      - If yes, you must submit a copy of the co-permittee agreement on the developer's letterhead with a copy of the grading plan being used to the Public Works Stormwater Division. Lexington County approval to be supplied to Lexington County Building Department to obtain a building permit.
      - If no or if the original approved submittal did not provide lot grading, you must submit a copy of the co-permittee agreement on the developer's letterhead and lot grading plan to the Public Works Stormwater Division for approval. Permit review fees for Lexington County are listed on the fee schedule. Lexington County approval to be supplied to Lexington County Building Department to obtain a building permit.

   D. If the primary permittee is willing to allow the individual lot owner/residential homebuilder to work under his permit and is willing to take responsibility for the individual lot owner/residential homebuilder's work on the site, you must submit a letter stating this intention on the developer's letterhead to the Public Works Stormwater Division in place of the Individual Lot NOI in the scenarios above.

   Projects permitted prior to September 1, 2007 that were located within a municipality (a city or town within Lexington County) will be required to receive NPDES coverage directly from SCDHEC.

   A copy of the Individual Lot NOI can be found at http://www.scdhec.gov/environment/WaterQuality/Stormwater/ApplicationsForms. The SCDHEC Permit Fee associated with the Individual Lot NOI is $125.

2. **If the lot(s) is not part of a larger common development (subdivision), are you disturbing (grading, stumping, filling) greater than one (1) acre?**
   **( ) yes ( ) no** (proceed to question 3)
   If yes, you must apply for a Small Residential Land Disturbance Permit. A complete Residential Building Erosion Protection & Sedimentation Control Application as well as a sketch plan must be submitted to the Public Works Stormwater Division to obtain a Small Residential Land Disturbance Permit. Permit review fees are listed on the fee schedule. Lexington County approval letter to be supplied prior to building permit approval.

3. **If the lot(s) is not part of a larger common development and disturbance is less than 1 acre *or* if the lot(s) is part of a larger common development that was permitted before 1992, you must sign the certification below.**
   *I certify under penalty of law that I understand and will implement the County's erosion protection and sediment control (EPSC) requirements specified in the attached document. I will ensure that the EPSC measures are maintained. I further certify that Lexington County inspectors may enter the property as necessary to ensure compliance with all related requirements.*

   **SIGNATURE:_____ DATE:_____**
   **(signature for section 3 only)**

**The following are Erosion Prevention and Sediment Control (EPSC) Requirements for Single Family residential lots requiring a Small Residential Land Disturbance Permit or residential lots disturbing less than 1 acre that are not part of a larger common development.**

**Questions concerning EPSC Requirements should be directed to the Public Works Stormwater Division at 803-785-8201.**

1. The lot shall have EPSC protection around the entire boundary with allowances for no more than two entrance/exits. This protection may be silt fencing or earthen or man-made berms or dikes. These measures shall be installed within 24-hours of land disturbance and maintained until the project is stabilized as detailed below. The following guideline should be followed:

    - Sediment accumulated along the silt fence or other BMPs shall be removed when it reaches 1/3 the height of the silt fence or other BMP.

    - Proper construction of these measures can be found from the Stormwater Division of the Lexington County Public Works Department (www.lex-co.com/Departments/publicworks/index.html ) or SC DHEC's BMP Manual (www.scdhec.gov/environment/ocrm/pubs/tech_docs_water.htm#bmp) , also available from the Stormwater Division. Manufacturers recommended installation and maintenance procedures shall be followed if applicable.

2. Nearby stormwater inlets, manholes, etc. in the street or adjacent property shall be protected through the use of sediment tubes, check dams, or inlet protection devices. These measures will be maintained throughout the construction process until the site is stabilized as detailed below. Maintenance requirements are specified inthe SC DHEC BMP Manual.

3. Construction entrances shall be provided at all entrances/exits (maximum of 2). The minimum construction entrance size shall be 10-foot by 20-foot, have a minimum thickness of 6 inches using fabric and stone with a diameter of 1 inch or greater. The stone shall be maintained throughout the construction process until the site is stabilized as detailed below. Sediment tracked onto streets shall be removed weekly. More information on the installation and maintenance of the construction entrances can be obtained from the StormwaterDivision.

4. All EPSC shall be inspected every 7 calendar days.

5. Construction debris and other waste shall be contained in a dumpster. Chemicals, paints, solvents and other materials shall be stored such that exposure risk to precipitation and stormwater runoff is low. Concrete wash water shall be disposed in an area of soil away from surface waters where soil can act as a filter or where the water can evaporate. Remaining cement shall be disposed of in a dumpster or otherwise removed from the site. Be aware that this water can kill vegetation.

6. Areas not used during construction should be vegetated with sod or grass seed. Existing/natural vegetation should be preserved as much as possible. Grass specifications are available from the StormwaterDivision.

7. A lot(s) is considered stabilized once the entire disturbed area other than buildings, driveways, andwalkways, have vegetative cover with a density of 70%.

8. After final stabilization is achieved, all EPSC measures shall be removed from the site.

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## Public Works Stormwater Division
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## SMALL COMMERCIAL LAND DISTURBANCE PERMIT APPLICATION

This form shall be used for commercial development and redevelopment activities that disturb less than one acre and do not involve clearing, grading, or the installation of storm drainage systems, including No Fee Land Disturbance Permits. See Section 2.2.2.2 of the Land Development Manual for further detail. (Only applicable for sites that disturb less than one acre not designed by a professional engineer).

A. Name of Project: _____

B. Applicant Name: _____
Address: _____
City: _____, State: _____ Zip: _____
Phone: _ _ _ - _ _ _ - _ _ _ _ Mobile: _ _ _ - _ _ _ - _ _ _ _ Fax: _ _ _ - _ _ _ - _ _ _ _
Email Address (optional): _____

C. Property Info: ☐ Check Box if same as above
Address: _____
City: _____, South Carolina Zip: _____
Tax Map Number(s): _____

D. Disturbed area to the nearest tenth of an acre: _____

E. Is this project a part of a larger common plan for development or sale? YES_____NO _____

F. Is this a linear construction project that disturbs less than one acre? YES_____NO _____

G. Are there any wetlands/Waters of the State that will be disturbed? YES_____NO _____

H. Are there any flooding problems on or adjacent to this site? YES_____NO _____

I. Where does this stormwater discharge? _____

J. Does this site discharge to an impaired stream or TMDL stream? YES_____NO_____
If J is YES: Stream name_____

General Narrative: Please give a general Site narrative explaining the purposes of the land disturbance, existing and proposed stormwater runoff patterns, offsite stormwater runoff and potential problems with adjacent properties. Also, if applicable, wetland and stream impacts must be discussed along with proof of permit coverage by the US Army Corps of Engineers and SC DHEC, if applicable.

_____

_____

_____

_____

Project Sketch: (Draw To Scale)
Attach to this application a project sketch that includes **all of the following**: Location(s) of all proposed disturbed and undisturbed areas; location of existing and proposed stormwater management control devices, including water quality credits and water quality/quantity BMPs; location of 100-year floodplain and floodway; property lines; locations of all streams/wetlands on or adjacent to the site location of all sediment and erosion control measures (silt fence, riprap, inlet protection, etc.) for each phase of grading; and location of any new driveways or parking areas (grass, gravel, pavement, etc.)

Applicant's Certification:
I hereby certify that all land disturbance, construction, and/or development will be done pursuant to this plan and I am responsible for the land disturbance and related maintenance thereof. Lexington County authorities will be allowed to enter the project site for the purpose of on-site inspections. I realize that if approved, the permit fee will be in accordance with the current fee schedule. **I also realize that Lexington County may deny this application and require that engineering site plans be submitted for a General Land Disturbance Permit**.

_____ _____ _____
Applicant's Printed Name Applicant's Signature Date

## Appendix A – SCDHEC Notice of Intent

*The South Carolina Department of Health & Environmental Control's Notice of Intent for Coverages of Primary Permittees Under South Carolina NPDES General Permit for Stormwater Discharges from Construction Activities SCR10000 can be found:*

http://www.scdhec.gov/environment/WaterQuality/Stormwater/ApplicationsForms/

- or -

http://www.scdhec.gov/library/d-2617.pdf

## Appendix A – SCDHEC Individual Lot Notice of Intent

*The South Carolina Department of Health & Environmental Control's Notice of Intent for Sites Disturbing Less than 1-Acre (Not Part of a Larger Common Plan, Non-Coastal County) can be found:*

http://www.scdhec.gov/environment/WaterQuality/Stormwater/ApplicationsForms/

- or -

http://www.scdhec.gov/library/d-2628.pdf

## Appendix A – SCDHEC Transfer of Ownership

*The South Carolina Department of Health & Environmental Control's Primary Permittee Transfer of Ownership Under South Carolina NPDES Construction Stormwater General Permit SCR10000 can be found:*

http://www.scdhec.gov/environment/WaterQuality/Stormwater/ApplicationsForms/

- or -

http://www.scdhec.gov/Environment/docs/D_0434.pdf

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### LAND DISTURBANCE PERMIT
### TRANSFER OF OWNERSHIP APPLICATION

*Refer to Section 2.6.1 of the Land Development Manual for further details.*

A. Name of Activity: _____

B. Land Disturbance Permit Number: _____- _____

C. NPDES Permit Coverage Number: SCR10 _____

D. New Applicant Name: _____
   Address: _____
   City: _____, State: _____ Zip: _____
   Phone: _ _ _ - _ _ _ - _ _ _ _ Mobile: _ _ _ - _ _ _ - _ _ _ _ Fax: _ _ _ - _ _ _ - _ _ _ _
   Email Address (optional): _____

E. Property Info: ☐ Check Box is same as above
   Address: _____
   City: _____, South Carolina
   Zip: _____
   Tax Map Number(s): _____

F. Original Applicant Name: _____
   Address: _____
   City: _____, State: _____ Zip: _____
   Phone: _ _ _ - _ _ _ - _ _ _ _ Mobile: _ _ _ - _ _ _ - _ _ _ _ Fax: _ _ _ - _ _ _ - _ _
   Email Address (optional): _____

G. Transfer Information: Transfer Date (MM/DD/YYYY): _____/_____/_____

a. Is the entire permit being transferred to a new Permit Holder? ☐Yes ☐No
b. If yes to item G.a, were there bonds on this property? ☐Yes ☐No
c. Is this a subdivision where only a lot or a group of lots are being transferred? ☐Yes ☐No
d. If yes to Item G.b, list the lot, or group of lots being transferred: _____

H. Other Information:

a. If there are no modifications being made to the plans, include five (5) sets of plans (or six (6) sets of plans if in a municipality) with signed Designer and Applicant's certification statements.
b. If this is a subdivision where a lot or group of lots is being transferred, include a plat sheet with the lot or group of lots that are being transferred clearly outlined.

**Original Applicant's Certification**

"I hereby relinquish the responsibility and ownership of the Land Disturbance Permit listed in Item B above. I realize that the land disturbance responsibility for the lots listed in Item G now belong to the new applicant.

_____ _____ _____
Applicant's Printed Name Applicant's Signature Date

**New Applicant's Certification**

"I hereby certify that all land disturbance, construction, and/or development will be done pursuant to this plan and I am responsible for the land disturbance and related maintenance thereof. Lexington County authorities will be allowed to enter the project site for the purpose of on-site inspections. I realize that I am now responsible for all of the land disturbing activities that take place as listed in Item G and will follow the approved plans."

_____ _____ _____
Applicant's Printed Name Applicant's Signature Date

## Appendix A – SCDHEC Notice of Termination

*The South Carolina Department of Health & Environmental Control's Notice of Termination (NOT) of Coverage Under an NPDES General Permit for Stormwater Discharges Associated with Construction Activity can be found:*

http://www.scdhec.gov/environment/WaterQuality/Stormwater/ApplicationsForms/

- or -

http://www.scdhec.gov/library/d-2610.pdf

# Appendix B – SCDHEC Construction General Permit

*The South Carolina Department of Health & Environmental Control's NPDES General Permit for Stormwater Discharges from Construction Activities can be found:*

http://www.scdhec.gov/Environment/WaterQuality/Stormwater/TechnicalDocuments/

- or -

http://www.scdhec.gov/Environment/docs/CGP-permit.pdf

# Appendix C – SCDHEC BMP Manual

*The South Carolina Department of Health & Environmental Control's Storm Water Management BMP Field Manual can be found:*

http://www.scdhec.gov/Environment/WaterQuality/Stormwater/TechnicalDocuments/

- or -

http://www.scdhec.gov/Environment/docs/OCRM_DHEC_FIELD_MANUAL.pdf

# Appendix D – Stormwater Design Material

- BMP Construction Details
- Option B – Unified Sizing Criteria (USC) Design Spreadsheets
    - Option B - USC Comprehensive Stormwater Design Summary
    - Bioretention Design Summary
    - Enhanced Swale Design Summary
    - Infiltration Trench Design Summary
- Option A and B – Comprehensive Stormwater Design Summary Tables
- SWPPP Requirements
- No Discharge Pond Design Guidance
- Vegetation Specifications
- Commercial Designer Checklist
- Residential Designer Checklist
- Operation and Maintenance Plan/Agreement
- SCDHEC Current 303d List and TMDL Information
- Georgia Stormwater Management Manual – First Edition

# Appendix D – BMP Construction Details

# COUNTY OF LEXINGTON, SOUTH CAROLINA

## Public Works Stormwater Division

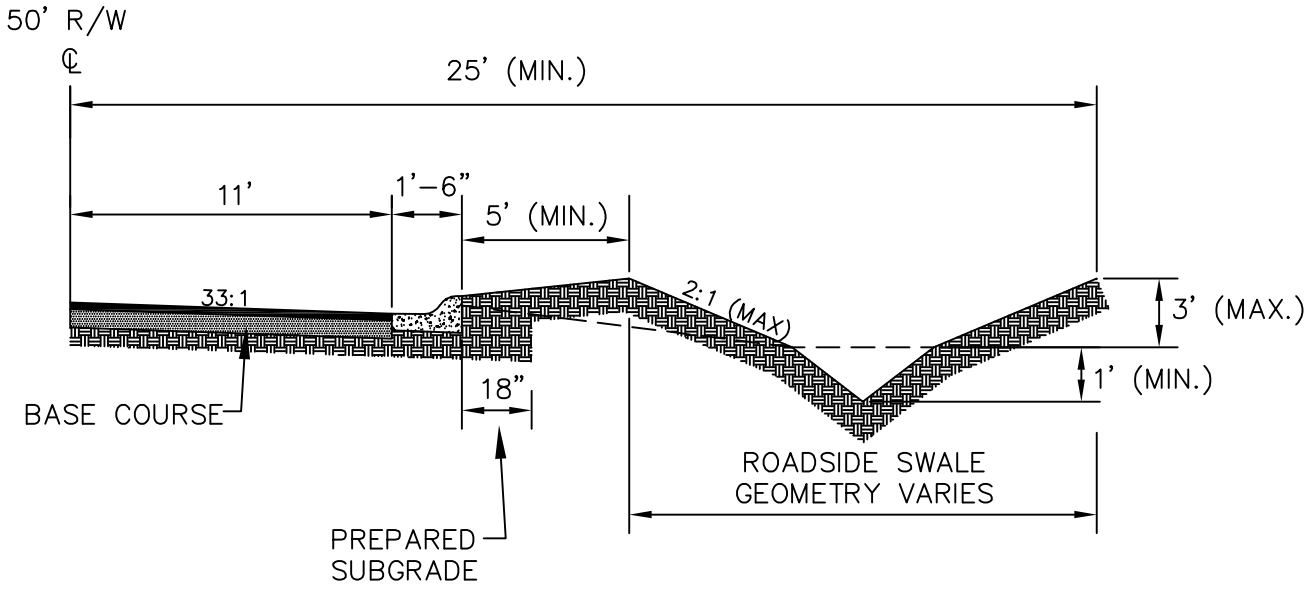
440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201 Fax: (803) 785-8593


## LEXINGTON COUNTY STANDARD CONSTRUCTION DETAILS

1. Alternatives for RL or RC Streets Model
2. Beaver Dam Detail (or Engineer Approved Equal)
3. Bioretention Area (Sheet 1 of 3)
4. Bioretention Area (Sheet 2 of 3)
5. Bioretention Area (Sheet 3 of 3)
6. Block & Gravel Inlet Protection (Sheet 1 of 2)
7. Block & Gravel Inlet Protection (Sheet 2 of 2)
8. CB2 Model
9. CB Model
10. CB Front Model
11. CB Side Model
12. Commercial-Industrial Road Section with Ditch (66'RW)
13. Concrete Islands
14. Concrete Key Model
15. Curb Types
16. Diversion Swale
17. Divided Private Street (8' Lanes with Barrier Curb) Model
18. Divided Residential Street (18 Inch Rolled Curb and Barrier Curb) Model
19. Dry Extended Detention Pond (Sheet 1 of 2)
20. Dry Extended Detention Pond (Sheet 2 of 2)
21. Filter Fabric Inlet Protection
22. Gravel Construction Entrance, Exit
23. Infiltration Trench (Sheet 1 of 2)
24. Infiltration Trench (Sheet 2 of 2)
25. Inlet Protection
26. Junction Box
27. Length of Need and Placement of Guardrail
28. Level Spreader
29. Level Spreader Detail
30. Manhole Lid 2
31. Manhole Lid Model
32. Matting Detail Channel Installation Model
33. Matting Detail Channel Installation Model 2
34. Matting Orientation
35. Matting Orientation 2

36. Micropool Extended Detention Pond (Sheet 1 of 2)
37. Micropool Extended Detention Pond (Sheet 2 of 2)
38. Open Cut Repair for Light Commercial Industrial, and Residential
39. Open Cut Repair for Local Asphalt Pavement
40. Outlet Structure (Other Options) Model
41. Outlet Structure
42. Permanent Vegetation Notes and Schedule (Sheet 1 of 2)
43. Permanent Vegetation Notes and Schedule (Sheet 2 of 2)
44. Private Commercial Street Model
45. Private Residential Street Model
46. Residential Collector 18' Barrier Curb, 4' Sidewalk (50 RW)
47. Residential Collector and Light Commercial Industrial with 18'
48. Residential Collector Road Section with Barrier Curbing Model
49. Residential Local 18'Rolled Curb, 4' Sidewalk (50 RW)
50. Residential Local Cul-de-Sac (with and without island)
51. Residential Local Offset Cul-de-Sac (with or without island)
52. Residential Local Road Section Ditch 50' RW Model
53. Residential Local Road Section Valley Gutter Curbing Model
54. Residential Local 'T' Road Termination
55. Residential Local 'Y' Road Termination
56. Residential Local, Residential Collector Turnaround
57. Riprap Apron
58. Riprap Channel Plan and Section
59. Riprap Channel Plan and Section-Recover (no PDF file)
60. Riprap Headwall
61. Sand Filers- Typical Surface (Sheet 1 of 2)
62. Sand Filers- Typical Surface (Sheet 2 of 2)
63. Sand Filers- Typical Underground (Sheet 1 of 2)
64. Sand Filers- Typical Underground (Sheet 2 of 2)
65. Security Fence
66. Sediment Basin with Optional Skimmer Sheet 1 of 2
67. Sediment Basin Sheet 2 of 2 Model
68. Sediment Tube Inlet Protection
69. Single Family Residential Erosion Control Measures
70. SFR Details57. Sight Distance
71. Steel Beam Guardrail
72. Steel Beam Guardrail (Adjustable)
73. Steel Beam Guardrail (Standard)
74. Steel Beam Guardrail End Treatment Type B
75. Steel Beam Guardrail End Treatment Type T
76. Stilling Basin
77. Stone Check Dam
78. Straight Headwall (for 24 in. diameter pipe or less)
79. Swales – Dry Enhanced (Sheet 1 of 2)
80. Swales – Dry Enhanced (Sheet 2 of 2)
81. Swales – Wet Enhanced (Sheet 1 of 2)

82. Swales – Wet Enhanced (Sheet 2 of 2)
83. Temporary Catch Basin Sediment Trap
84. Temporary Silt Fence
85. Temporary Slope Drain
86. Temporary Vegetation Notes and Schedule (Sheet 1 of 2)
87. Temporary Vegetation Notes and Schedule (Sheet 2 of 2)
88. Trash Rack
89. Trash Rack 2
90. Tree Protection Detail
91. Trench Drain
92. Type 'A' Lot Grading (All Drainage to Road)
93. Type 'B' Lot Grading (All Drainage to Road and Alley)
94. Type 'C' Lot Grading (All Drainage to Alley)
95. Wet Extended Detention Pond (Sheet 1 of 2)
96. Wet Extended Detention Pond (Sheet 2 of 2)
97. Wet Detention Pond (Sheet 1 of 2)
98. Wet Detention Pond (Sheet 2 of 2)
99. Wetlands – Extended Detention Shallow Wetland (Sheet 1 of 2)
100. Wetlands – Extended Detention Shallow Wetland (Sheet 2 of 2)
101. Wetlands – Pocket Wetland (Sheet 1 of 2)
102. Wetlands – Pocket Wetland (Sheet 2 of 2)
103. Wetlands – Pond/Wetland System (Sheet 1 of 2)
104. Wetlands – Pond/Wetland System (Sheet 2 of 2)
105. Wetlands – Shallow Wetland (Sheet 1 of 2)
106. Wetlands – Shallow Wetland (Sheet 2 of 2)
107. Wingwall Headwall (For 30 inch Diam Pipe or Larger)
108. Yard Inlet Model
109. YI Model

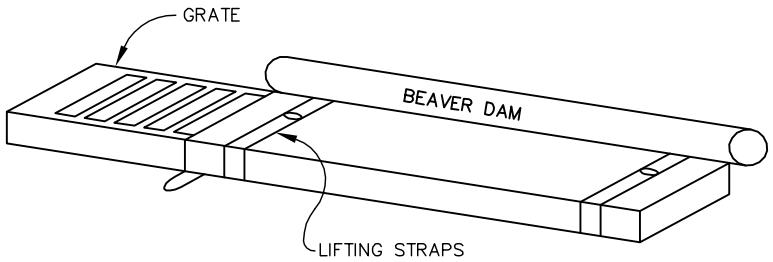


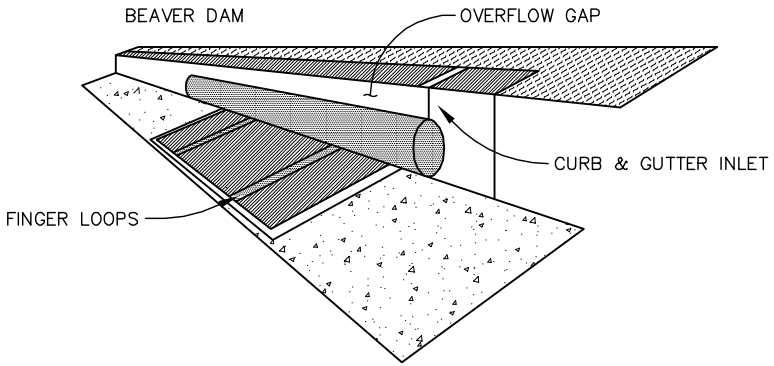

1. COMPACTION OF PREPARED SUBGRADE TO EXTEND 18" FROM B.O.C.
2. A MINIMUM OF 95% COMPACTION REQUIRED WITHIN R.O.W.

NOTES:

1. USE CURB CUTS TO DRAIN ROADWAY. SPACING BASED ON MAX SPREAD.
2. UNDERDRAIN SYSTEM TO BE USED AS NECESSARY/DESIGNED.

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| ALTERNATIVES FOR<br>RL or RC STREETS | |
| DRAWING NO: A–3 | |
| DATE: October, 2007 | |




MANUFACTURER:
DANDY PRODUCTS, INC.
2011-R HARRISBURG PIKE
GROVE CITY, OH 43123
(800) 591-2284

MAINTENANCE : WITH A STIFF BRISTLE BROOM SWEEP SILT & OTHER DEBRIS OFF SURFACE AFTER EACH EVENT.

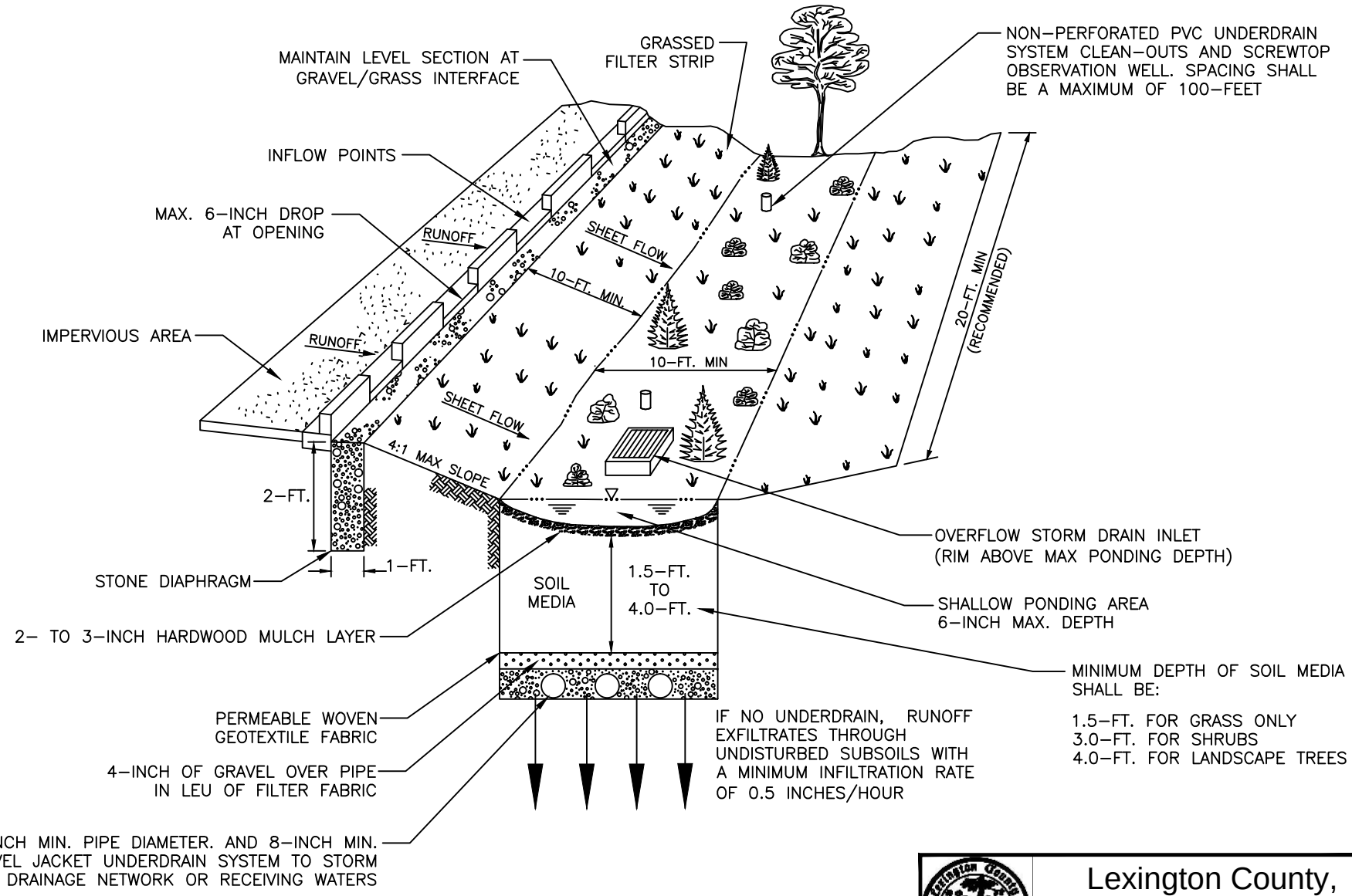
INSTALLATION : STAND GRATE ON END. SLIDE THE BEAVER DAM BAG ON W/DAM ON TOP OF THE GRATE. PULL ALL EXCESS DOWN. LAY UNIT ON ITS SIDE. CAREFULLY TUCK FLAP IN. PRESS VELCRO STRIPS TOGETHER. INSTALL THE UNIT MAKING SURE FRONT EDGE OF GRATE IS INSERTED IN FRAME FIRST THEN LOWER BACK INTO PLACE. PRESS VELCRO DOTS TOGETHER WHICH ARE LOCATED UNDER LIFTING STRAPS. THIS INSURES STRAPS REMAIN FLUSH WITH GUTTER.

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

BEAVER DAM DETAIL
(or Engineer approved equal)

DRAWING NO: C-4
DATE: October, 2007

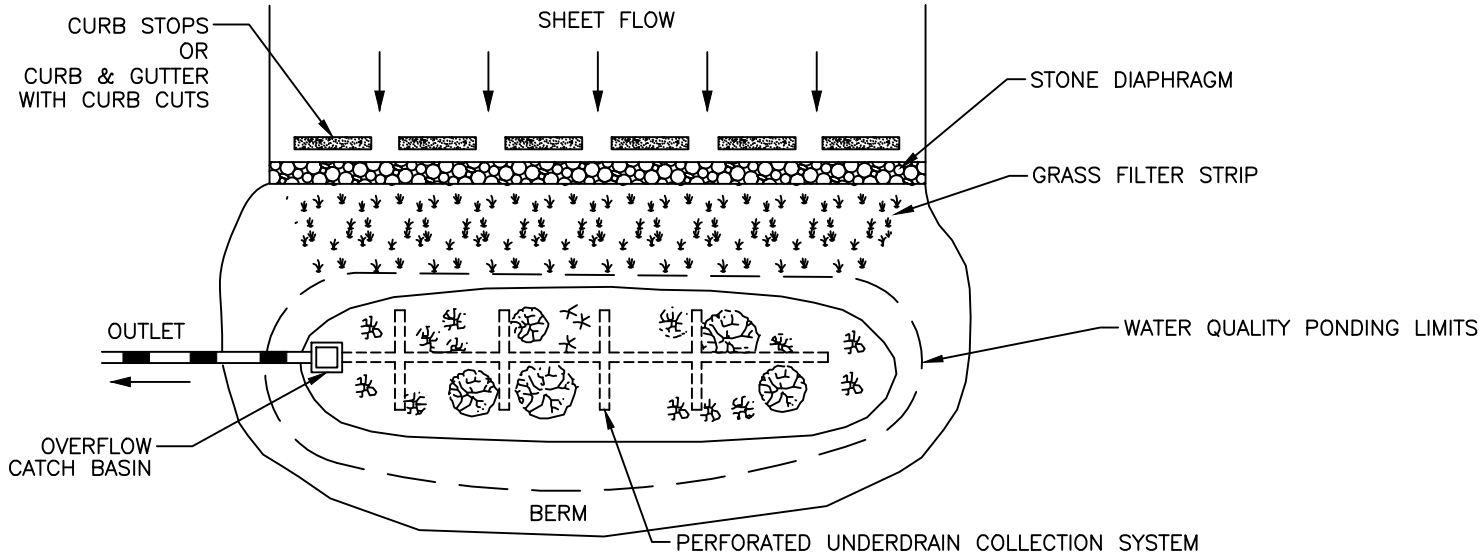
# TYPICAL BIORETENTION AREA



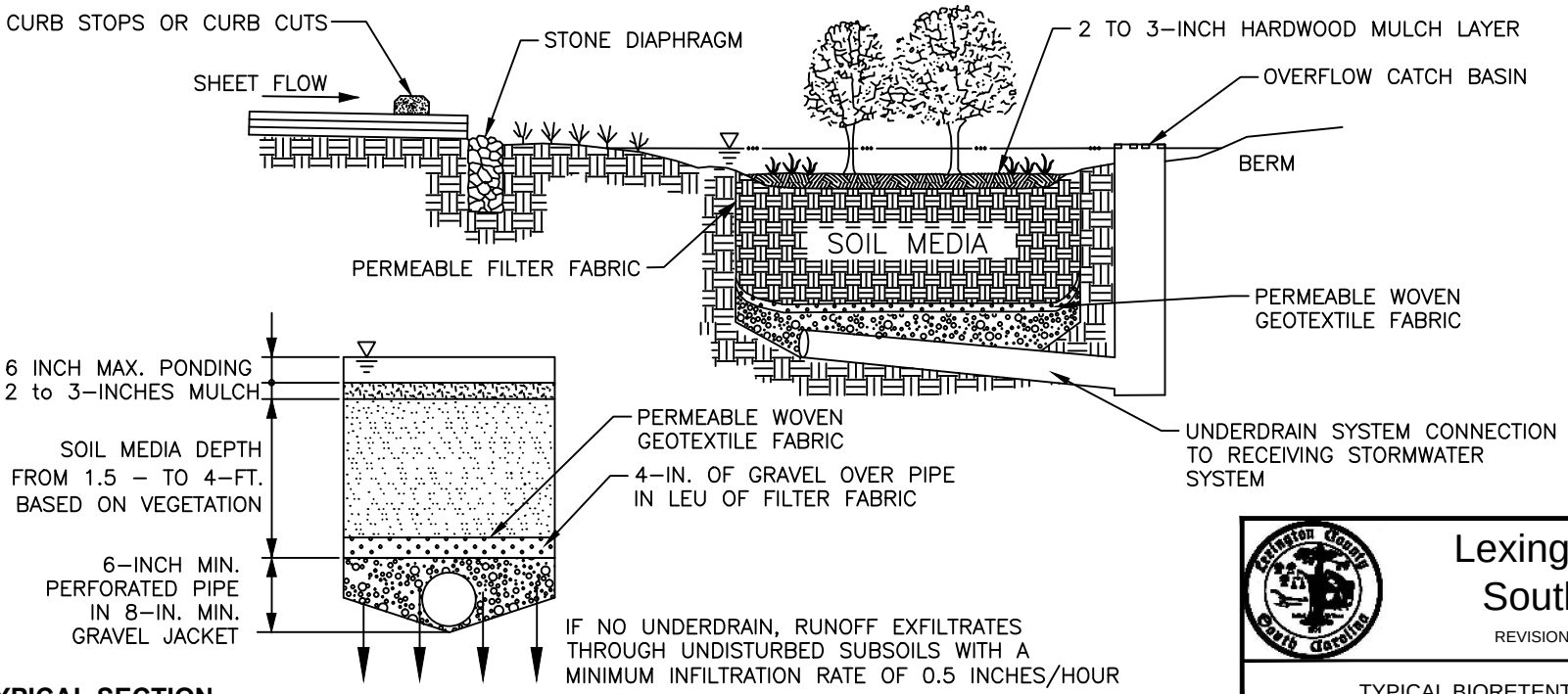

SOURCE: ADAPTED FROM THE GEORGIA STORMWATER MANAGEMENT MANUAL, VOLUME 2, 2001 AND SCDHEC'S STORMWATER MANAGEMENT BMP HANDBOOK, 2005

Lexington County, South Carolina

REVISION DATE: AUGUST 2014




**PLAN VIEW**




**TYPICAL SECTION**

Lexington County,
South Carolina

REVISION DATE: AUGUST 2014

TYPICAL BIORETENTION AREA: pg 2 of 3

# TYPICAL BIORETENTION AREA

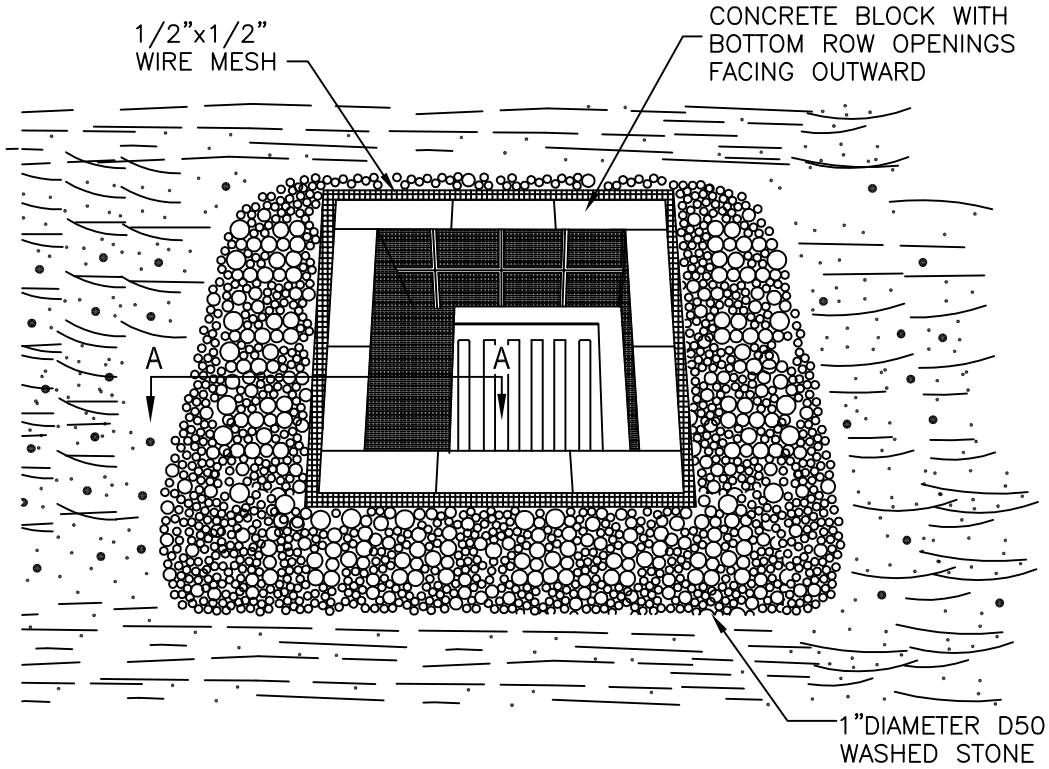
THE MINIMUM WIDTH OF THE BIORETENTION AREA SHALL BE TEN (10)–FEET AND THE REQUIRED MINIMUM LENGTH SHALL BE TWENTY (20)–FEET.

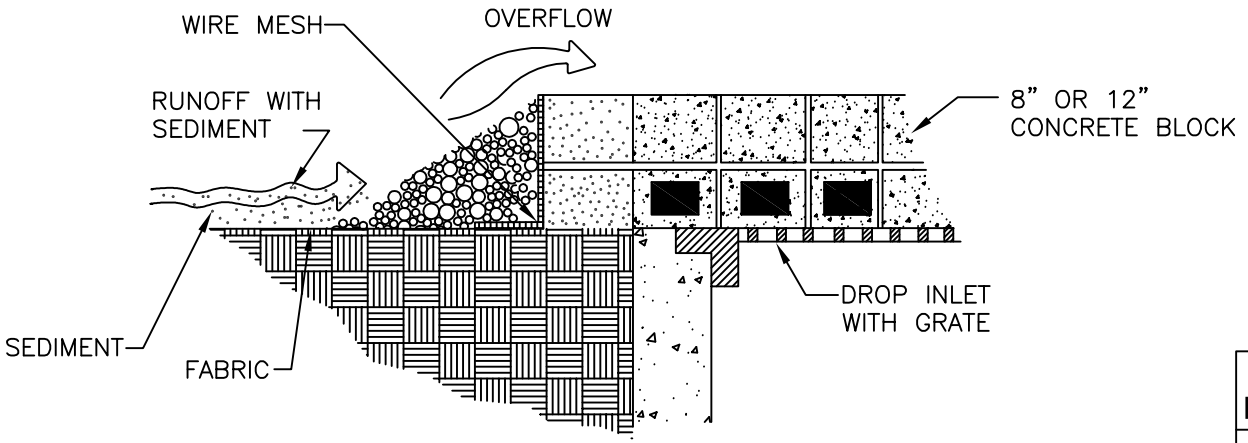
THE SOIL MEDIA SHOULD BE SANDY LOAM, LOAMY SAND, OR LOAM TEXTURE WITH A CLAY CONTENT RANGING FROM 10 TO 25%. THE MINIMUM DEPTH OF THE PLANTING MIX SHALL BE BASED ON THE FOLLOWING:

- INFILTRATION RATE OF 0.5 INCHES/HOUR MINIMUM
- PH OF 5.5 TO 6.5
- MAXIMUM OF 500PPM SOLUBLE SALTS
- 1.5–FEET FOR GRASS ONLY BIORETENTION AREAS,
- 3.0–FEET FOR BIORETENTION AREAS THAT UTILIZE SHRUBS, AND
- 4.0–FEET FOR BIORETENTION AREAS THAT UTILIZE TREES.

IF AN UNDERDRAIN IS NOT USED, THE RECEIVING SOIL MUST HAVE A MINIMUM INFILTRATION RATE OF 0.5 INCHES/HOUR.

OBSERVATION WELLS A MAXIMUM OF 100–FT APART SHALL BE INSTALLED IN EVERY INFILTRATION TRENCH AND SHALL BE MADE OF 4– TO 6–INCH PVC PIPE. THE WELL SHALL EXTEND TO THE BOTTOM OF THE TRENCH. THE OBSERVATION WELL SHALL BE INSTALLED ALONG THE CENTERLINE OF THE BIORETENTION AREA, AND BE FLUSH WITH THE GROUND ELEVATION OF THE TRENCH. THE TOP OF THE WELL SHALL BE CAPPED AND LOCKED TO DISCOURAGE VANDALISM AND TAMPERING.




CROSS SECTION A-A

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT |
|---|
| BLOCK & GRAVEL<br>INLET PROTECTION<br>(Sheet 1 of 2) |
| DRAWING NO: C–12 |
| DATE: October 2007 |

## BLOCK AND GRAVEL DROP INLET PROTECTION

### Installation:

Block and gravel filters can be used where heavy flows and higher velocities are expected and where an overflow capacity is necessary to prevent excessive ponding around the structure.

Gravel shall consist of 1–inch D50 Washed Stone and should extend to height equal to the elevation of the top of the blocks.

Place the bottom row of the concrete blocks lengthwise on their side so that the open end faces outward, not upward.

The height of the barrier can be varied, depending upon design needs by stacking a combination of blocks that are 8– and 12–inches wide.

Wire mesh should be placed over the outside vertical face of the concrete blocks to prevent stones from being washed through the holes in the blocks. Hardware cloth or comparable wire mesh with ½–inch x ½–inch openings should be used.

### Inspection and Maintenance:

Inspections should be made every seven (7) calendar days or every 14 days and within 24–hours after each rainfall event that produces ½–inches or more of precipitation. Any needed repairs should be handled immediately.

Sediment should be removed when it reaches approximately 1/3 the height of the blocks. If a sump is used, sediment should be removed when it fills approximately 1/3 the depth of the hole.

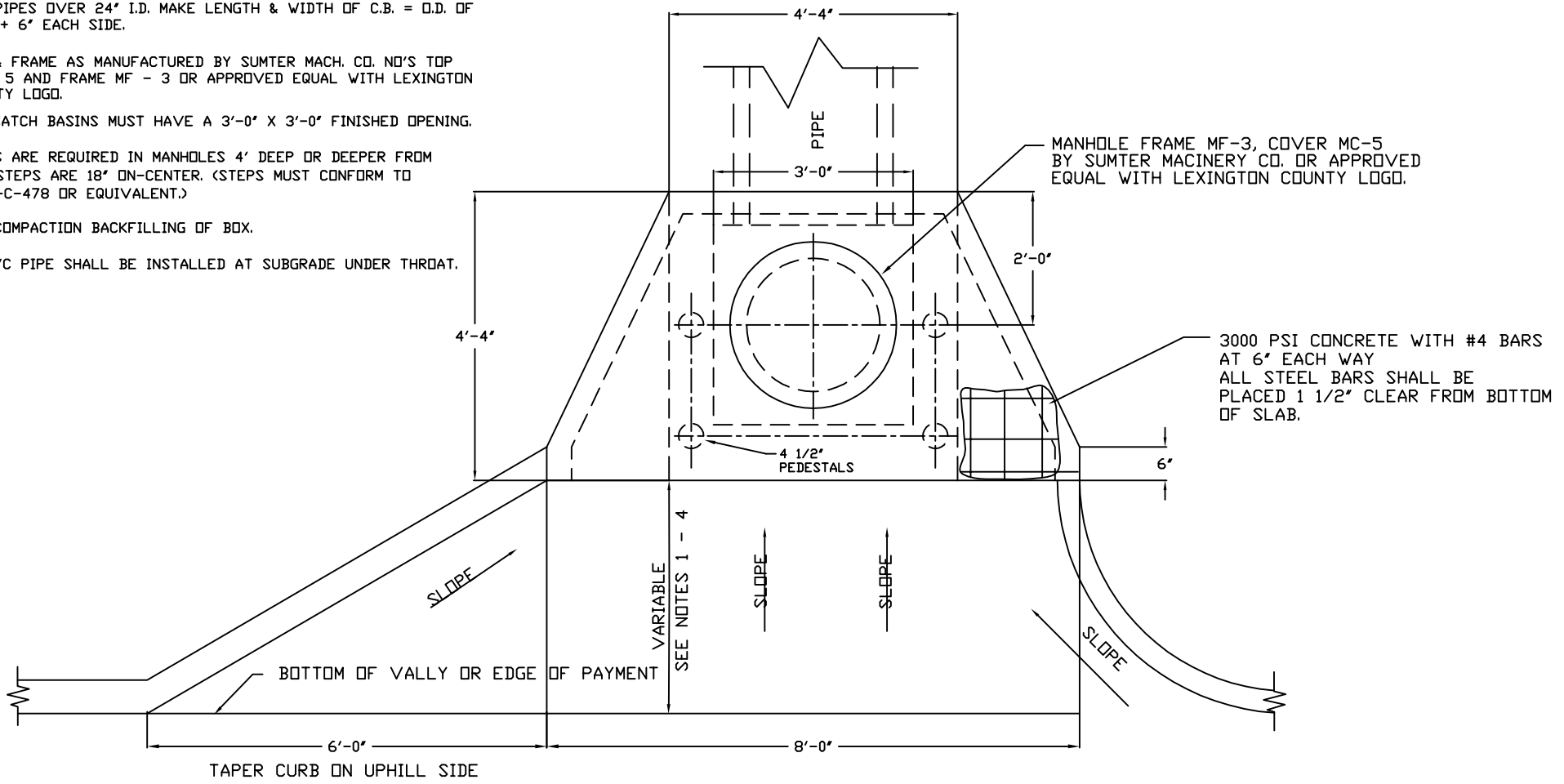
If the stone filter becomes clogged with sediment, the stones must be pulled away from the inlet and cleaned or replaced. Since cleaning of gravel at a construction site may be difficult, an alternative approach would be to use the clogged stone as fill and put fresh stone around the inlet.

Storm drain inlet protection structures should be removed only after the disturbed areas are permanently stabilized. Remove all construction material and sediment, and dispose of them properly. Grade the disturbed area to the elevation of the drop inlet structure crest. Stabilize all bare areas immediately.

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| BLOCK & GRAVEL INLET PROTECTION<br>(Sheet 2 of 2) | |
| DRAWING NO: C–12A | |
| DATE: October 2007 | |

NOTES:

1. FOR 18"-24" I.D. PIPES USE 3'-0" X 3'-0" BOX.
2. FOR PIPES OVER 24" I.D. MAKE LENGTH & WIDTH OF C.B. = O.D. OF PIPE + 6" EACH SIDE.
3. TOP & FRAME AS MANUFACTURED BY SUMTER MACH. CO. NO'S TOP MC - 5 AND FRAME MF - 3 OR APPROVED EQUAL WITH LEXINGTON COUNTY LOGO.
4. ALL CATCH BASINS MUST HAVE A 3'-0" X 3'-0" FINISHED OPENING.
5. STEPS ARE REQUIRED IN MANHOLES 4' DEEP OR DEEPER FROM LID. STEPS ARE 18" ON-CENTER. (STEPS MUST CONFORM TO ASTM-C-478 OR EQUIVALENT.)
6. 95% COMPACTION BACKFILLING OF BOX.
7. 4" PVC PIPE SHALL BE INSTALLED AT SUBGRADE UNDER THROAT.




NOTES

① 1' MINIMUM AND 3' MAXIMUM OFFSET FROM EDGE OF PAVEMENT (FLUSH WITH BARRIER CURB ROAD SECTION.)

② 3' MINIMUM AND 5' MAXIMUM OFFSET FROM EDGE OF PAVEMENT ON ROLLED CURB ROAD SECTION.

③ 3' MINIMUM AND 5' MAXIMUM OFFSET FROM VALLEY GUTTER ROAD SECTION.

④ TYPE 2 CB TO BE USED WHERE GUTTER SLOPE IS 5% OR GREATER

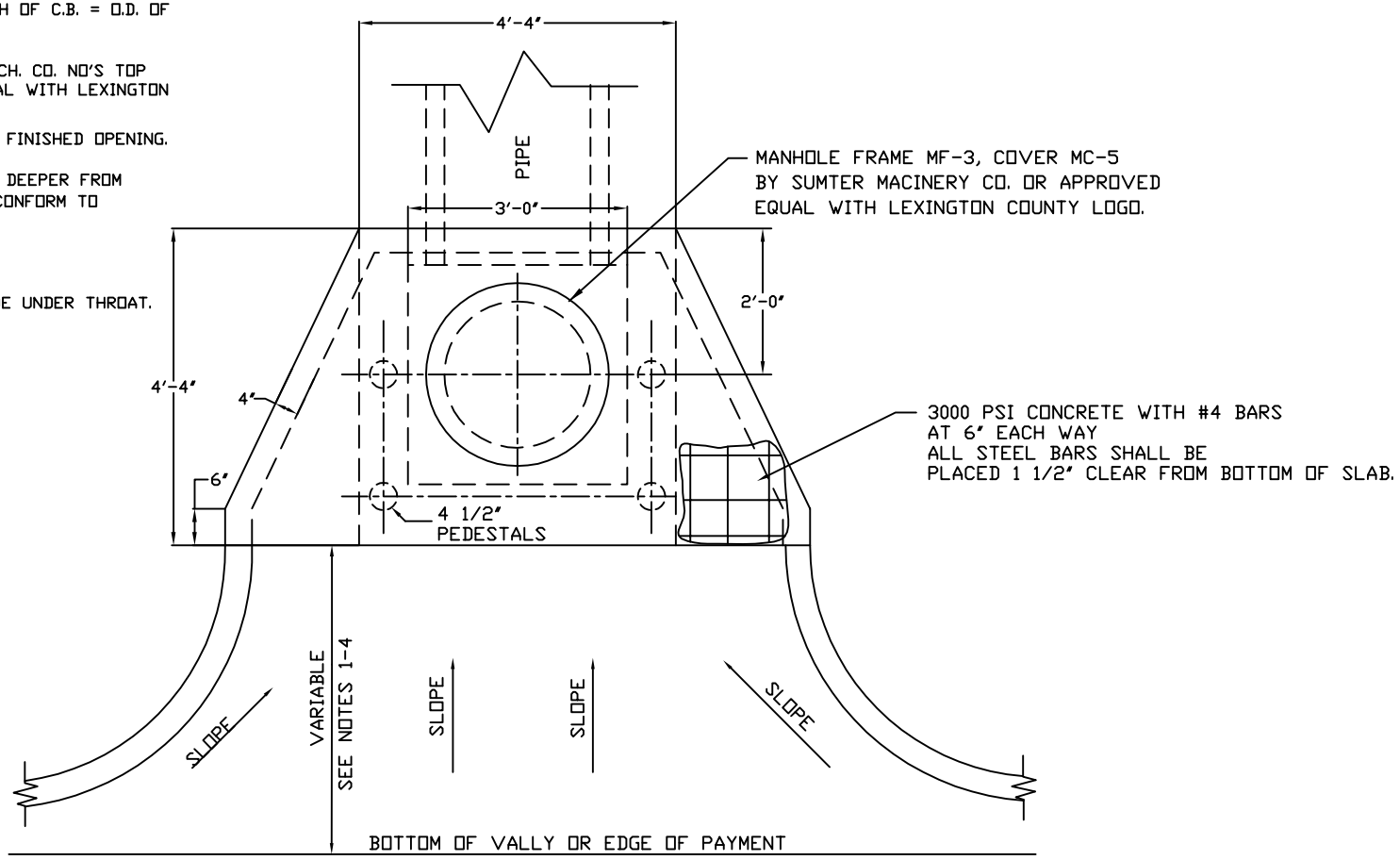
PLAN VIEW

# TYPE 2 CATCH BASIN

| | |
|---|---|
| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
| TYPE 2 CATCH BASIN TOP VIEW | |
| SCALE: NTS | DWG: CB2.DWG |
| DATE: 8/29/08 | L.R. NONE |

NOTES:

1. FOR 18"-24" I.D. PIPES USE 3'-0" X 3'-0" BOX.
2. FOR PIPES OVER 24" I.D. MAKE LENGTH & WIDTH OF C.B. = O.D. OF PIPE + 6" EACH SIDE.
3. TOP & FRAME AS MANUFACTURED BY SUMTER MACH. CO. NO'S TOP MC - 5 AND FRAME MF - 3 OR APPROVED EQUAL WITH LEXINGTON COUNTY LOGO.
4. ALL CATCH BASINS MUST HAVE A 3'-0" X 3'-0" FINISHED OPENING.
5. STEPS ARE REQUIRED IN MANHOLES 4' DEEP OR DEEPER FROM LID. STEPS ARE 18" ON-CENTER. (STEPS MUST CONFORM TO ASTM-C-478 OR EQUIVALENT.)
6. 95% COMPACTION BACKFILLING OF BOX.
7. 4" PVC PIPE SHALL BE INSTALLED AT SUBGRADE UNDER THROAT.




NOTES

① 1' MINIMUM AND 3' MAXIMUM OFFSET FROM EDGE OF PAVEMENT (FLUSH WITH BARRIER CURB ROAD SECTION.)

② 3' MINIMUM AND 5' MAXIMUM OFFSET FROM EDGE OF PAVEMENT ON ROLLED CURB ROAD SECTION.

③ 3' MINIMUM AND 5' MAXIMUM OFFSET FROM VALLEY GUTTER ROAD SECTION.

# PLAN VIEW

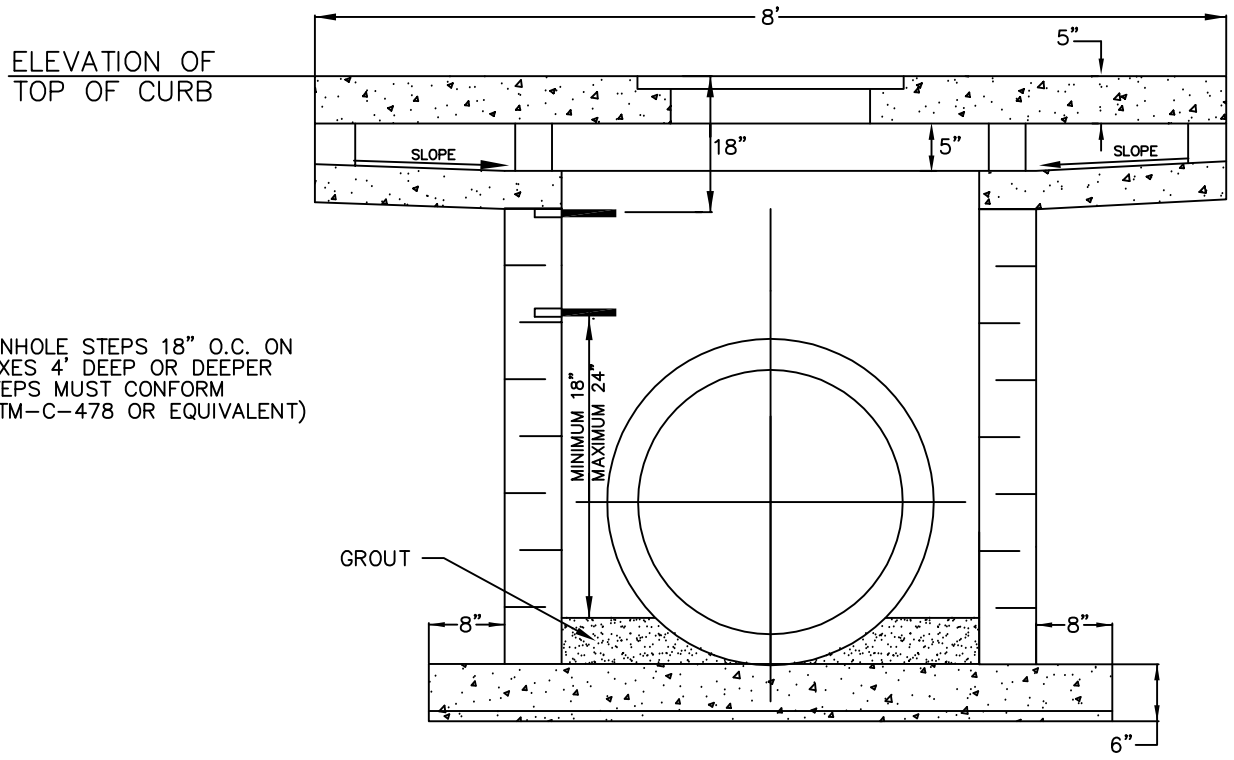
# CATCH BASIN

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

CATCH BASIN
TOP VIEW

SCALE: NTS | DWG: CB.DWG

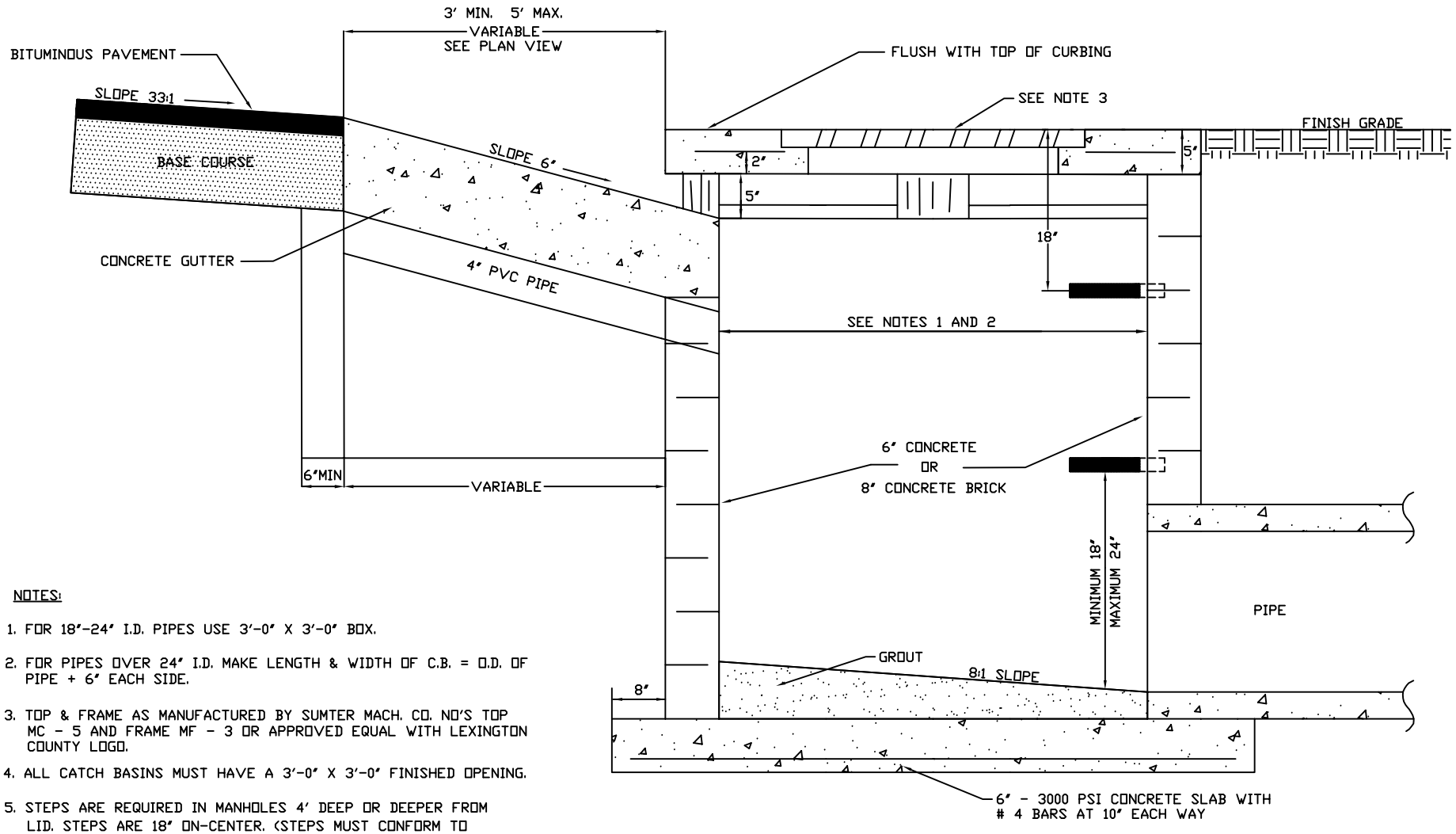
DATE: 8/29/08 | L.R. NONE




NOTES:

1. FOR 18"-24" I.D. PIPES USE 3'-0" X 3'-0" BOX.
2. FOR PIPES OVER 24" I.D. MAKE LENGTH & WIDTH OF C.B. = O.D. OF PIPE + 6" EACH SIDE.
3. TOP & FRAME AS MANUFACTURED BY SUMTER MACH. CO. NO'S TOP MC - 5 AND FRAME MF - 3 OR APPROVED EQUAL WITH LEXINGTON COUNTY LOGO.
4. ALL CATCH BASINS MUST HAVE A 3'-0" X 3'-0" FINISHED OPENING.
5. STEPS ARE REQUIRED IN MANHOLES 4' DEEP OR DEEPER FROM LID. STEPS ARE 18" ON-CENTER. (STEPS MUST CONFORM TO ASTM-C-478 OR EQUIVALENT.)
6. 95% COMPACTION BACKFILLING OF BOX.
7. 4" PVC PIPE SHALL BE INSTALLED AT SUBGRADE UNDER THROAT.

| | |
|---|---|
| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
| CATCH BASIN<br>FRONT VIEW | |
| SCALE: NTS | DWG: CBFRONT.DWG |
| DATE: 8/29/08 | L.R. NONE |




NOTES:

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2. FOR PIPES OVER 24" I.D. MAKE LENGTH & WIDTH OF C.B. = O.D. OF PIPE + 6" EACH SIDE.
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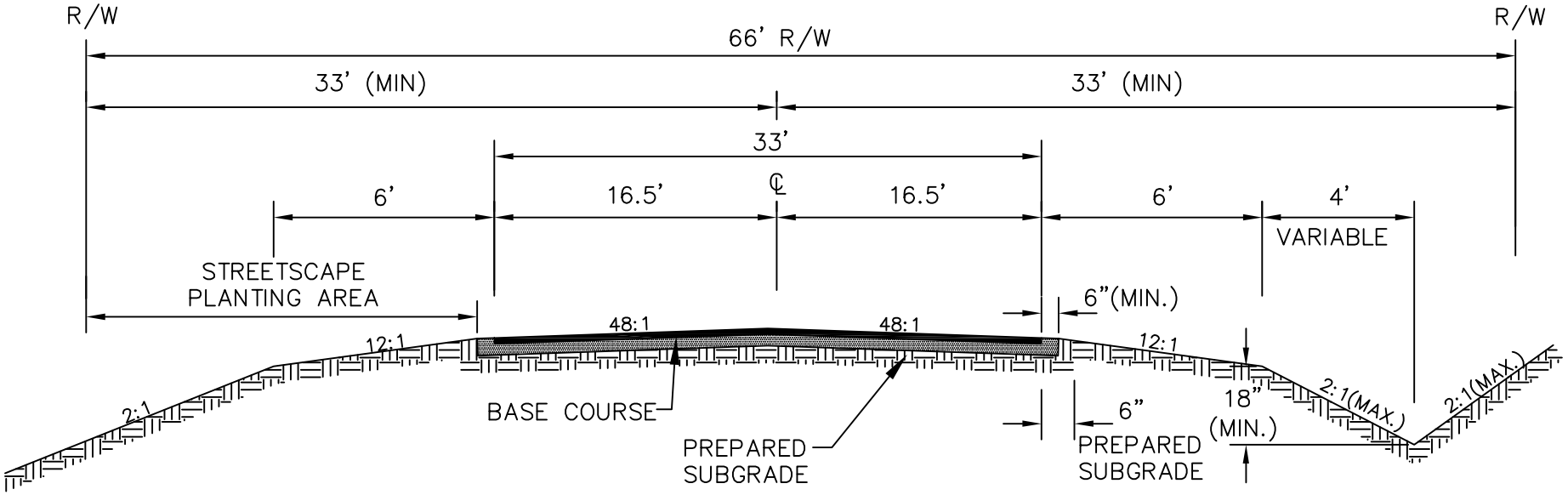
5. STEPS ARE REQUIRED IN MANHOLES 4' DEEP OR DEEPER FROM LID. STEPS ARE 18" ON-CENTER. (STEPS MUST CONFORM TO ASTM-C-478 OR EQUIVALENT.)
6. 95% COMPACTION BACKFILLING OF BOX.
7. 4" PVC PIPE SHALL BE INSTALLED AT SUBGRADE UNDER THROAT.

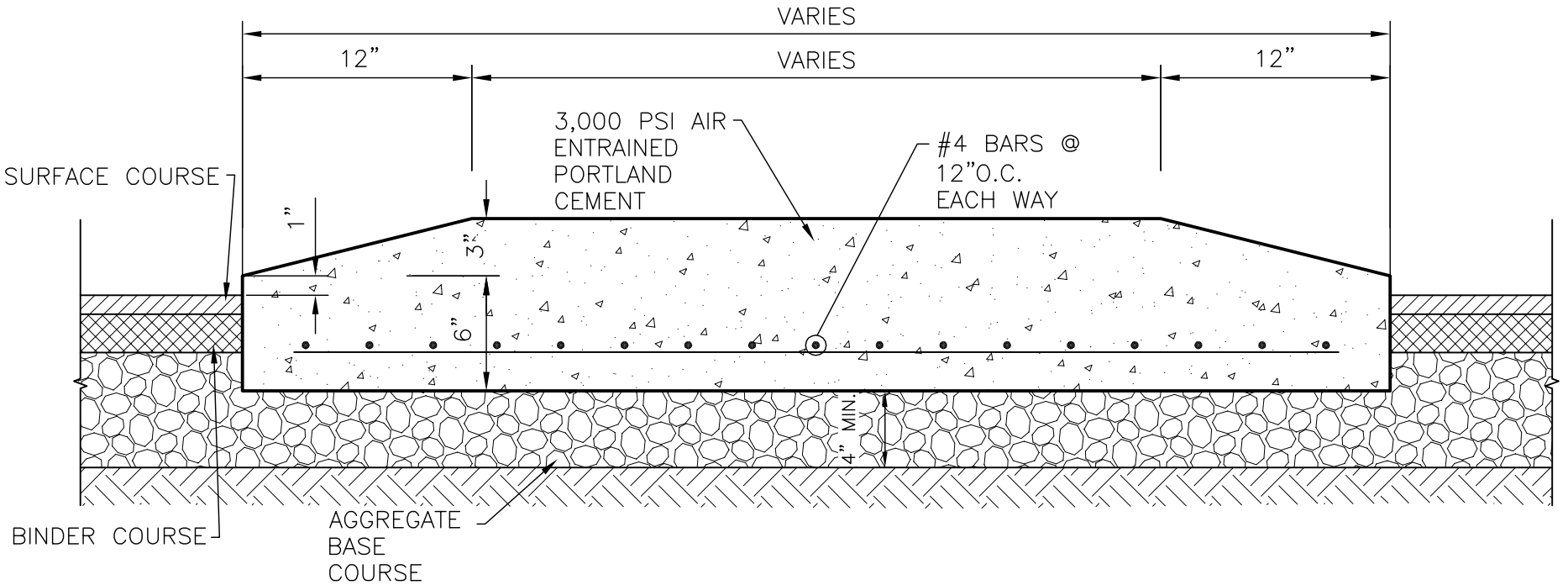
| | |
|---|---|
| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
| CATCH BASIN SIDE VIEW | |
| SCALE: NTS | DWG: CBSIDE.DWG |
| DATE: 8/29/08 | L.R. NONE |

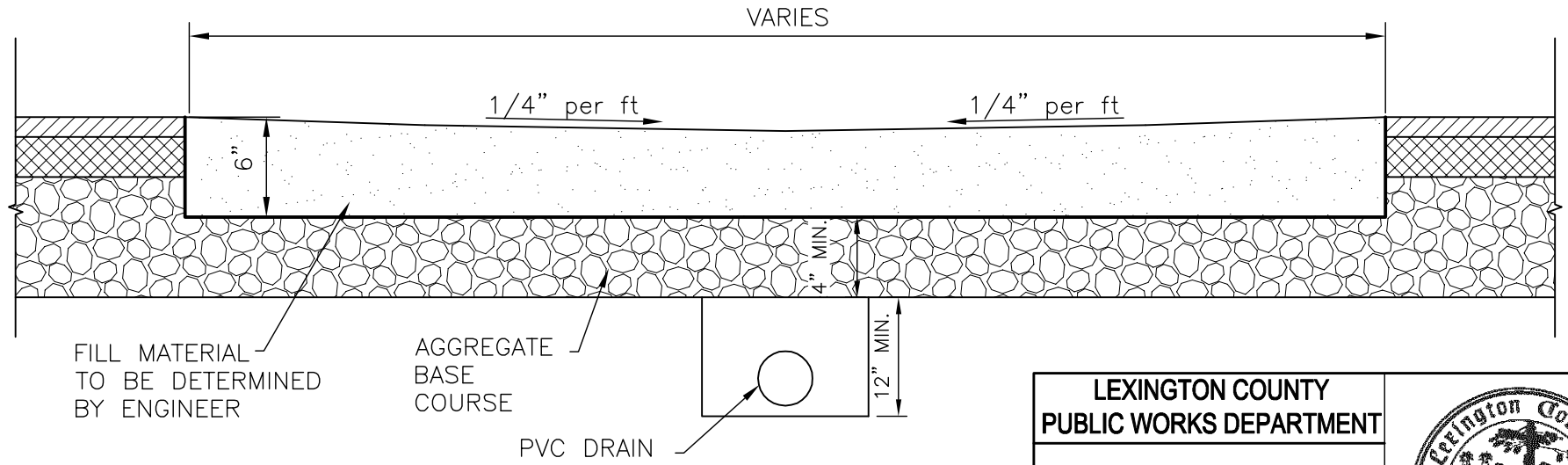



NOTES:

1. PREPARED SUBGRADE SHALL BE 36' WIDE.
2. PRIME BASE COURSE .25–.30 GALLONS PER SQUARE YARD, WHEN REQUIRED.
3. STREETSCAPE PLANTING AREA MAY BE SLOPED AWAY FROM ROAD.
4. MINIMUM OF 95% COMPACTION WITHIN R.O.W.

| |
|---|
| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT |
| COMMERCIAL / INDUSTRIAL<br>ROAD SECTION w/ DITCH<br>(66' R/W) |
| DRAWING NO: A–2A |
| DATE: October, 2007 |



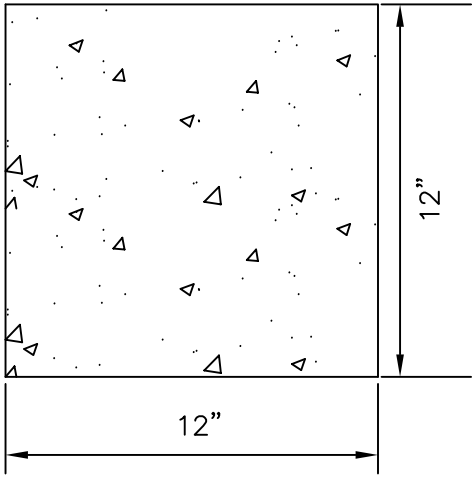




**LEXINGTON COUNTY**
**PUBLIC WORKS DEPARTMENT**

# CONCRETE ISLANDS

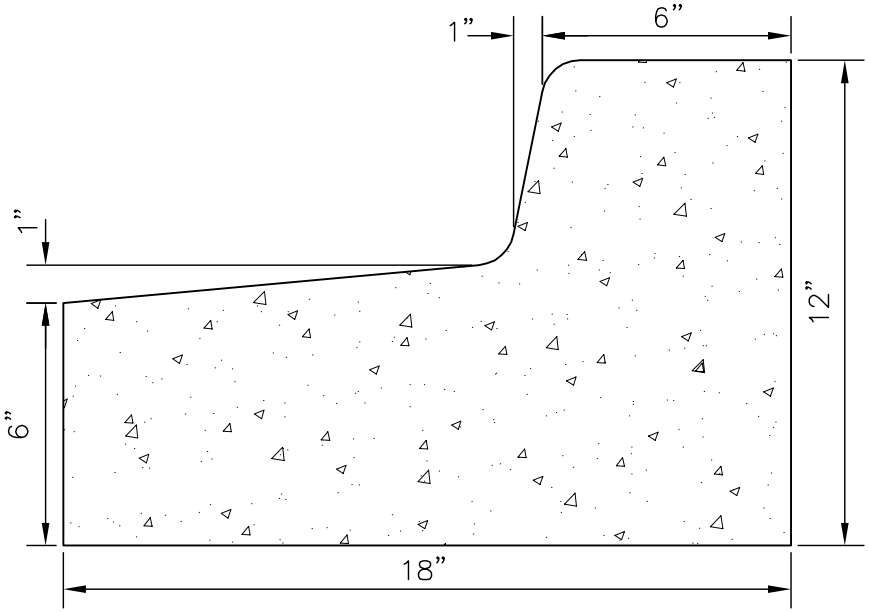
DRAWING NO:B-7

DATE:October, 2007

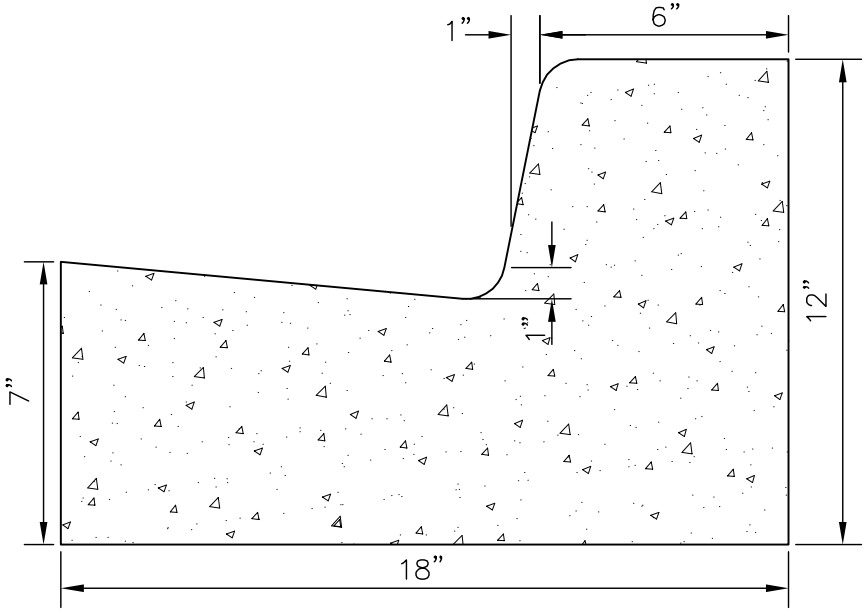



KEY SHOULD EXTEND FROM B.O.C. TO B.O.C. ACROSS ROADWAY.

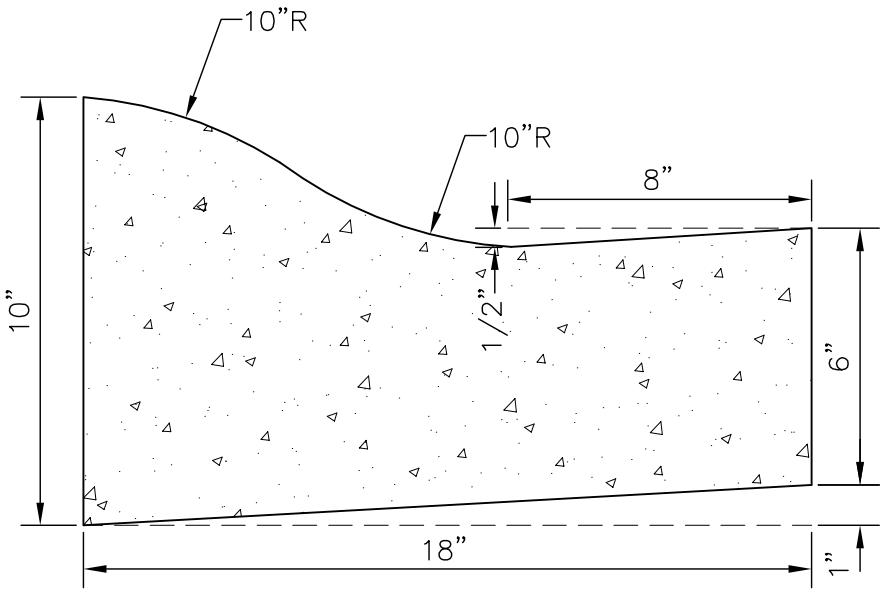
| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| CONCRETE KEY | |
| DRAWING NO: E–2 | |
| DATE: October, 2007 | |




EXPULSION




COLLECTION

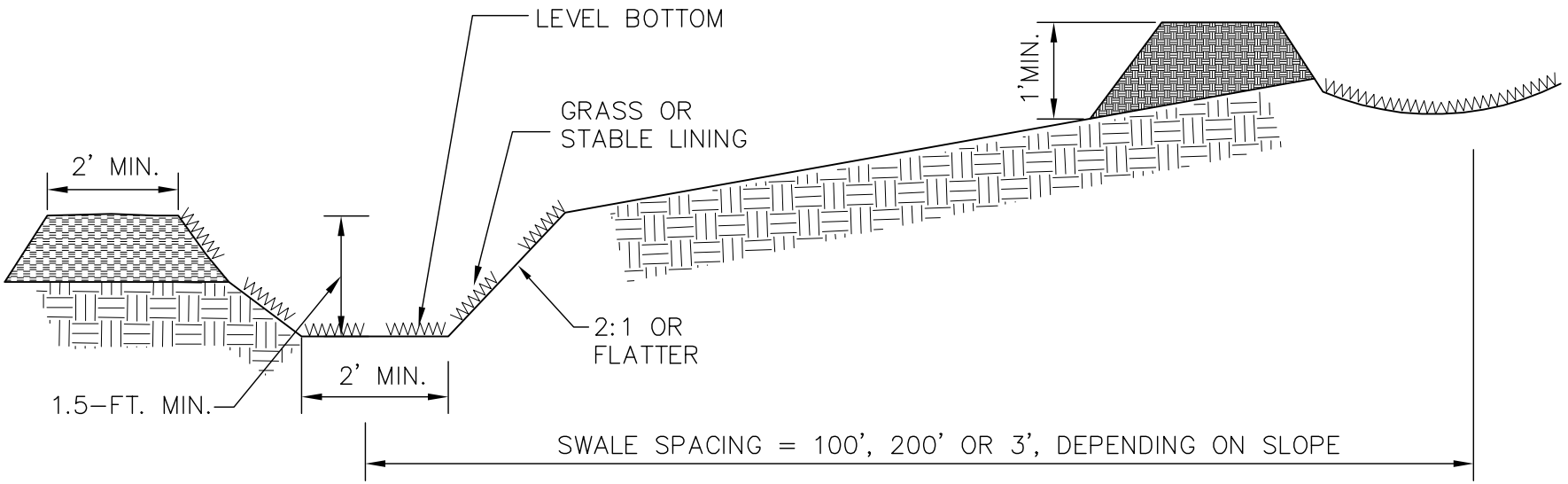



ROLLED

NOTES:

1. CONCRETE STRENGTH SHALL BE 3000 PSI.
2. CONSTRUCTION JOINTS SHALL BE SPACED EVERY 8 TO 10 FEET.

| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
|---|---|
| CURB TYPES | |
| DRAWING NO: B–1 | |
| DATE: October, 2007 | |




## DIVERSION SWALE

INSTALLATION

THE BOTTOM WIDTH SHOULD BE A MINIMUM OF 2', AND THE BOTTOM SHOULD BE LEVEL.

THE DEPTH SHOULD BE A MINIMUM OF 1.5' AND THE SIDE SLOPES SHOULD BE 2H:1V OR FLATTER.

THE MAXIMUM GRADE SHALL BE 5%, WITH POSITIVE DRAINAGE TO A SUITABLE OUTLET.

SLOPES SHALL BE STABILIZED IMMEDIATELY USING VEGETATION, SOD, AND EROSION CONTROL BLANKETS OR TURF REINFORCEMENT MATS TO PREVENT EROSION.

THE UPSLOPE SIDE OF THE SWALE SHOULD PROVIDE POSITIVE DRAINAGE SO NO EROSION OCCURS AT THE OUTLET. PROVIDE ENERGY DISSIPATION MEASURES AS NECESSARY.

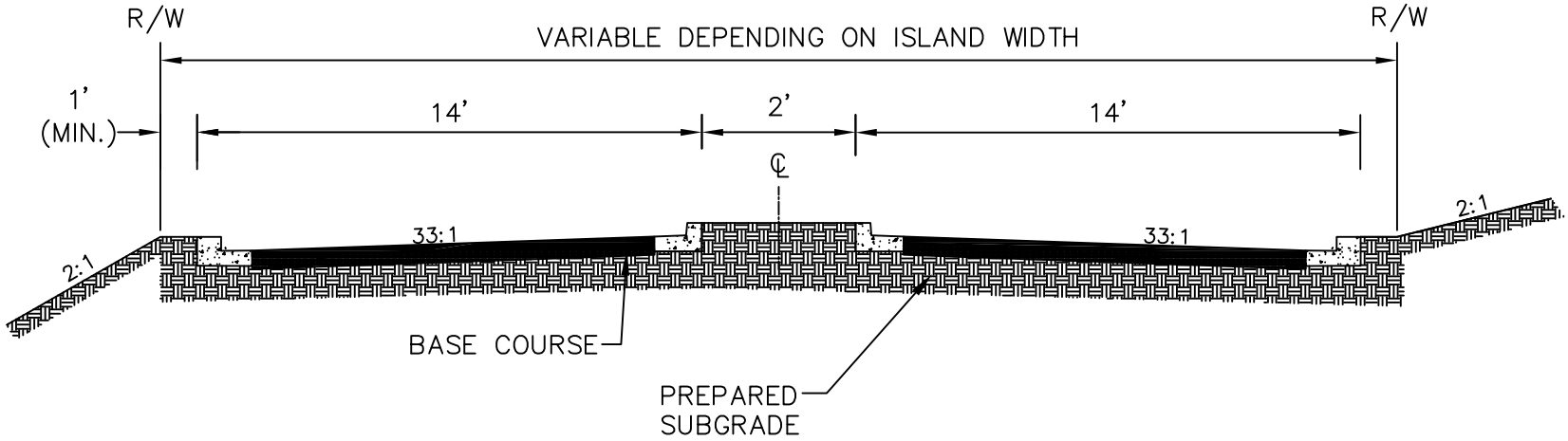
SEDIMENT–LADEN RUNOFF SHALL BE DIRECTED TO A SEDIMENT TRAPPING FACILITY.

INSPECTION AND MAINTENANCE:

SWALES SHOULD BE INSPECTED, EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24–HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES ½–INCHES OR MORE OF PRECIPITATION AND REPAIRS MADE AS NECESSARY.

DAMAGE CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITY MUST BE REPAIRED BEFORE THE END OF EACH WORKING DAY.

| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
|---|---|
| TYPICAL SWALE SECTION | |
| DRAWING NO: D–13 | |
| DATE: October 2007 | |

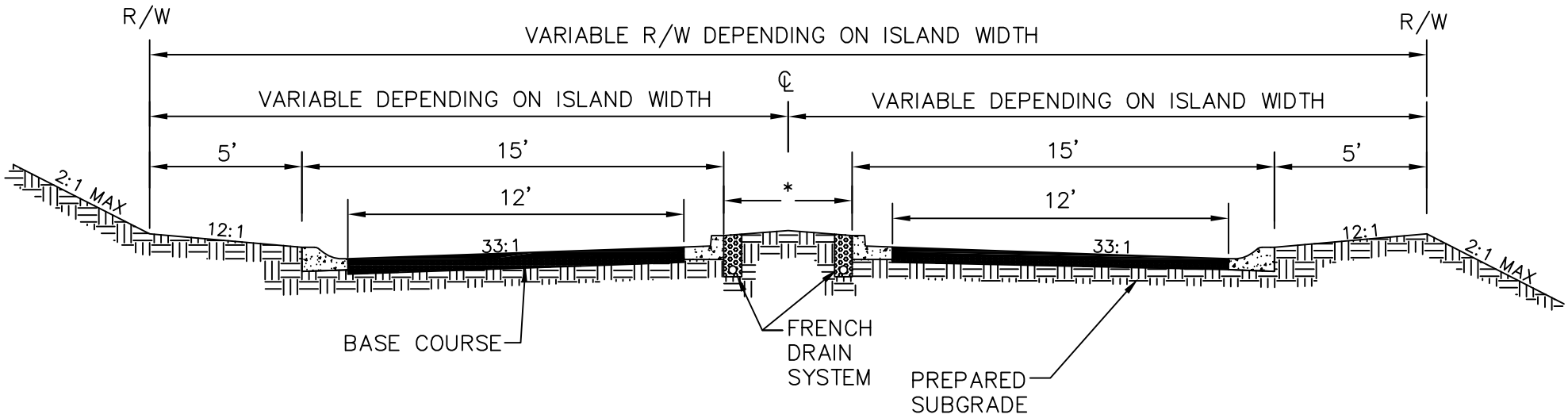



1. COMPACTION OF PREPARED SUBGRADE TO EXTEND 18" FROM B.O.C.
2. A MINIMUM OF 95% COMPACTION REQUIRED WITHIN R.O.W.

*VARIABLE DEPENDING ON ISLAND WIDTH.

NO STRUCTURES ABOVE GROUND ALLOWED IN ISLAND.

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| DIVIDED PRIVATE STREET<br>(8' lanes w/ barrier curb) | |
| DRAWING NO: A–9 | |
| DATE: October, 2007 | |



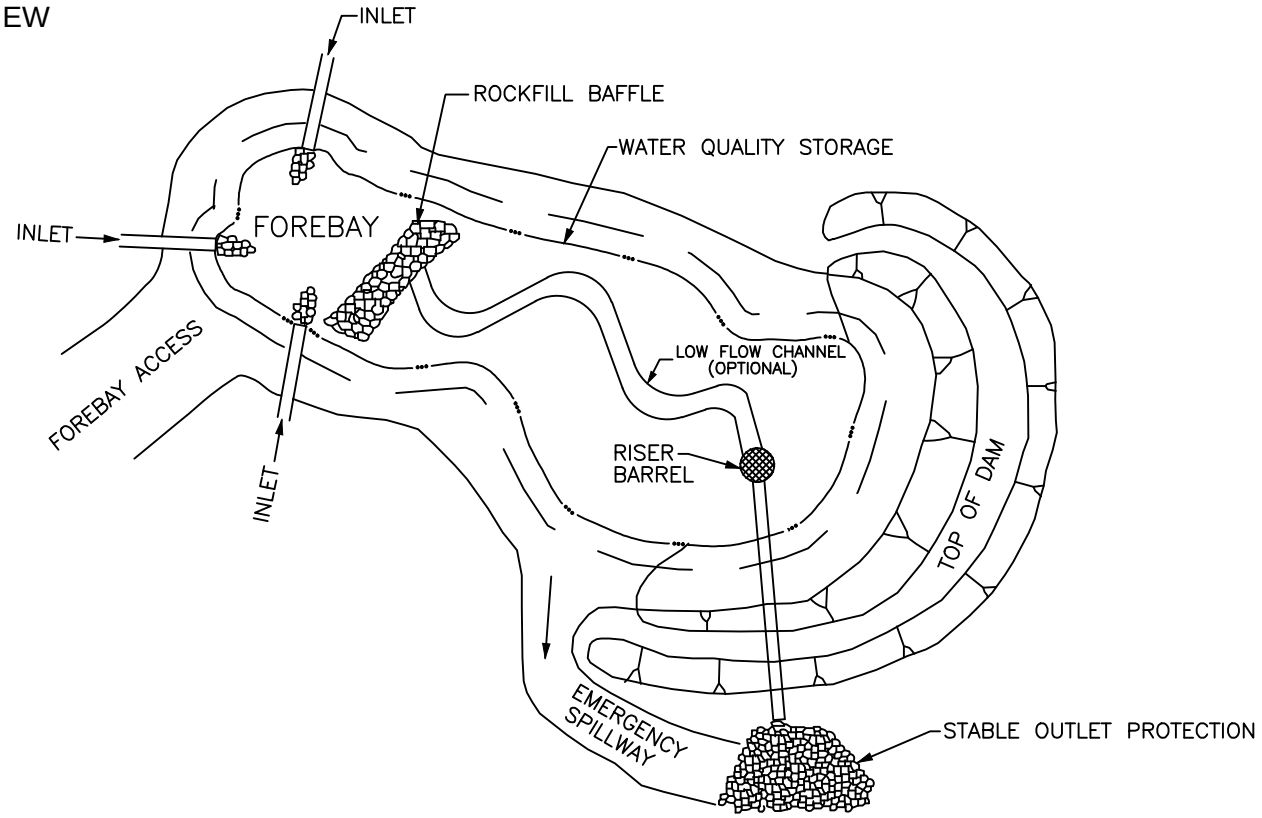

1. COMPACTION OF PREPARED SUBGRADE TO EXTEND 18" FROM B.O.C.
2. A MINIMUM OF 95% COMPACTION REQUIRED WITHIN R.O.W.

NOTES:
*VARIABLE DEPENDING ON ISLAND WIDTH.

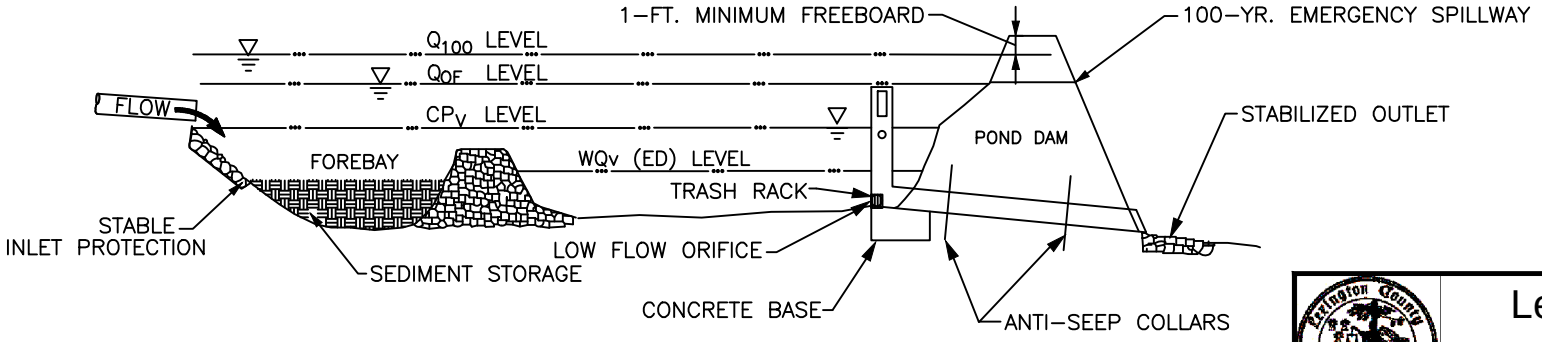
NO STRUCTURES ABOVE GROUND ALLOWED IN ISLAND.

| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT |
|---|
| DIVIDED RESIDENTIAL (18" rolled curb & barrier curb) |
| DRAWING NO: A–8 |
| DATE: October, 2007 |

## PLAN VIEW




## PROFILE




SOURCE: ADAPTED FROM SCDHEC'S STORMWATER MANAGEMENT BMP HANDBOOK, 2005 AND THE GEORGIA STORMWATER MANAGEMENT MANUAL, VOLUME 2, 2001

Lexington County, South Carolina

REVISION DATE: AUGUST 2014

DRY EXTENDED DETENTION POND: pg 1 of 2

## DRY EXTENDED DETENTION PONDS

DRY POND INSIDE SLOPES SHOULD NOT BE MORE THAN 3:1

THE POND FLOOR SHOULD HAVE A MINIMUM SLOPE OF 2% TOWARD THE OUTLET OR UNDERDRAIN SYSTEM.
ADEQUATE MAINTENANCE ACCESS MUST BE PROVIDED FOR ALL DRY DETENTION AND DRY ED PONDS.

LOW FLOW CHANNEL
A LOW FLOW CHANNEL SHOULD BE PROVIDED TO PREVENT STANDING WATER CONDITIONS. THIS CHANNEL SHOULD BE PROTECTED TO PREVENT SCOURING. THE REMAINDER OF THE POND SHOULD DRAIN TOWARD THIS CHANNEL. WHERE RECREATIONAL USES ARE DESIRED, THE LOW-FLOW CHANNEL SHOULD BE PLACED TO ONE SIDE INSTEAD IN THE MIDDLE OF THE POND.

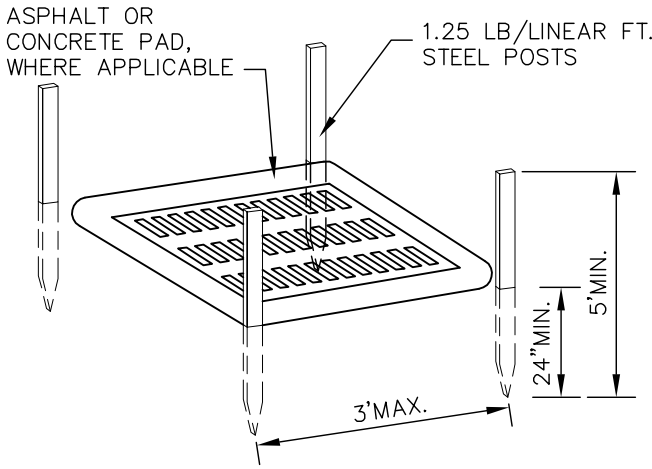
OUTFALL
FOR A DRY DETENTION POND, THE OUTLET STRUCTURE IS SIZED FOR WATER QUANTITY CONTROL (BASED UPON HYDROLOGIC ROUTING CALCULATIONS) AND CAN CONSIST OF A WEIR, ORIFICE, OUTLET PIPE, COMBINATION OUTLET, OR OTHER ACCEPTABLE CONTROL STRUCTURE.

A LOW FLOW ORIFICE CAPABLE OF RELEASING THE WATER QUALITY VOLUME OVER 24 HOURS MUST BE PROVIDED. THE WATER QUALITY ORIFICE SHOULD HAVE A MINIMUM DIAMETER OF 2-INCHES AND SHOULD BE ADEQUATELY PROTECTED FROM CLOGGING BY AN ACCEPTABLE EXTERNAL TRASH RACK.

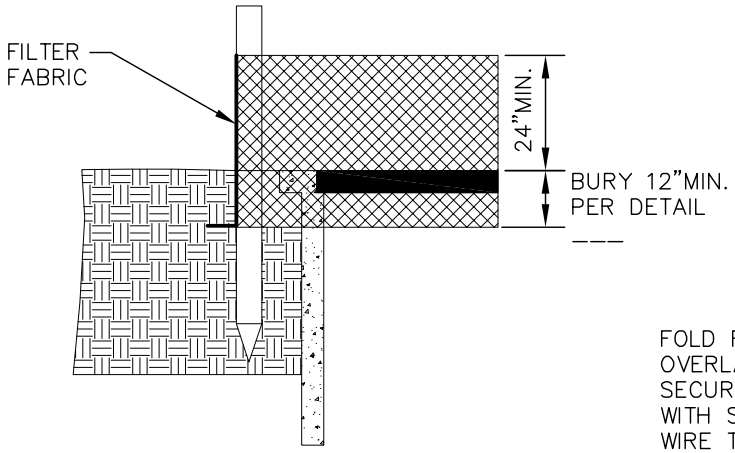
THE OUTFALL OF DRY PONDS SHOULD ALWAYS BE STABILIZED TO PREVENT SCOUR AND EROSION. IF THE POND DISCHARGES TO A CHANNEL WITH DRY WEATHER FLOW, CARE SHOULD BE TAKEN TO MINIMIZE TREE CLEARING ALONG THE DOWNSTREAM CHANNEL, AND TO REESTABLISH A FORESTED RIPARIAN ZONE IN THE SHORTEST POSSIBLE DISTANCE.

EMERGENCY SPILLWAY
AN EMERGENCY SPILLWAY MUST BE INCLUDED TO PASS THE 100-YEAR STORM EVENT. THE SPILLWAY PREVENTS POND WATER LEVELS FROM OVERTOPPING THE EMBANKMENT AND CAUSING STRUCTURAL DAMAGE. THE SPILLWAY MUST BE DESIGNED AND INSTALLED TO PROTECT AGAINST EROSION PROBLEMS.

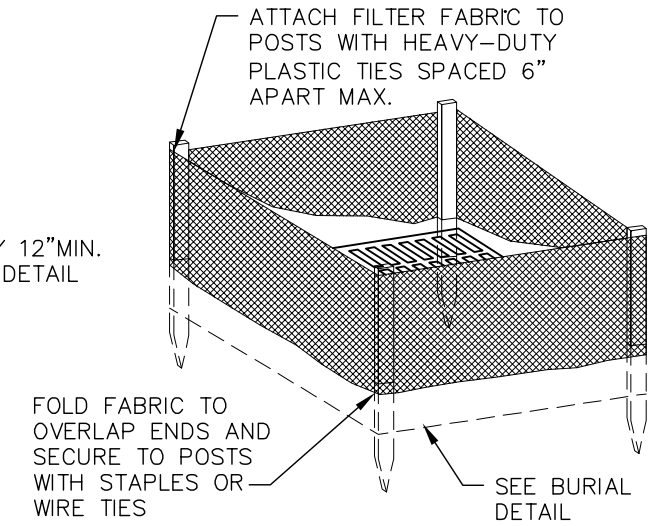
ANTI-SEEP COLLAR
SEEPAGE CONTROL OR ANTI-SEEP COLLARS SHOULD BE PROVIDED FOR ALL OUTLET PIPES.




POST INSTALLATION DETAIL




FILTER FABRIC BURIAL DETAIL




FILTER FABRIC INSTALLATION DETAIL

## INSTALLATION:

1. FILTER FABRIC IS USED FOR INLET PROTECTION WHEN STORM WATER FLOWS ARE RELATIVELY SMALL (1.0 CFS OR LESS) WITH LOW VELOCITIES, AND WHERE THE INLET DRAINS AREA HAS GRADES NO GREATER THAN 5% AND THE IMMEDIATE DRAINAGE AREA AROUND THE INLET (5 FOOT RADIUS) HAS GRADES LESS THAN 1%. AREAS RECIEVING CONCENTRATED FLOW ARE NOT ACCEPTABLE. THIS PRACTICE CANNOT BE USED WHERE DITCHES ARE PAVED. A TRENCH SHALL BE EXCAVATED 6 INCHES WIDE AND 6 INCHES DEEP AROUND THE OUTER PERIMETER OF THE STAKES UNLESS FABRIC IS PNEUMATICALLY INSTALLED.

2. FILTER FABRIC SHALL CONFORM TO SOUTH CAROLINA STANDARD SPECIFICATIONS (LATEST EDITION). FILTER FABRIC SHALL EXTEND A MINIMUM OF 12 INCHES INTO THE TRENCH. THE TRENCH SHALL BE BACKFILLED WITH SOIL OR CRUSHED STONE AND COMPACTED OVER THE FILTER FABRIC UNLESS FABRIC IS PNEUMATICALLY INSTALLED.

3. USE STEEL POSTS WITH A MINIMUM POST LENGTH OF 5 FEET CONSISTING OF STANDARD "T" SECTIONS WITH A WEIGHT OF 1.25 POUNDS PER FOOT (+ 8%). THE HEIGHT OF THE FILTER BARRIER ABOVE GROUND SHALL BE A MINIMUM OF 24 INCHES. POSTS SHALL BE SPACED AROUND THE PERIMETER OF THE INLET A MAXIMUM OF 3 FEET APART AND DRIVEN INTO THE GROUND A MINIMUM OF 24 INCHES. ATTACH FABRIC TO POSTS USING ONLY HEAVY DUTY PLASTIC TIES.

4. FILTER FABRIC SHOULD BE IN A CONTINUOUS ROLL AND CUT TO THE LENGTH OF THE PROTECTED AREA TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER FABRIC SHOULD BE WRAPPED TOGETHER ONLY AT A SUPPORT POST WITH BOTH ENDS SECURELY FASTENED TO THE POST WITH A MINIMUM 6 INCH OVERLAP.

5. STEEL POSTS SHALL HAVE A METAL PLATE SECURELY ATTACHED SUCH THAT WHEN THE POST IS DRIVEN TO THE PROPER DEPTH, THE PLATE WILL BE BELOW GROUND LEVEL FOR ADDITIONAL STABILITY.

## INSPECTION AND MAINTENANCE:

1. INSPECTIONS SHOULD BE MADE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF RECEIVING ½" OR MORE OF RAINFALL. ANY NEEDED REPAIRS SHOULD BE HANDLED IMMEDIATELY.

2. IF THE FABRIC BECOMES CLOGGED, IT SHOULD BE REPLACED.

3. SEDIMENT SHOULD BE REMOVED WHEN IT REACHES APPROXIMATELY 1/3 THE HEIGHT OF THE FILTER FABRIC. IF A SUMP IS USED, SEDIMENT SHOULD BE REMOVED WHEN IT FILLS APPROXIMATELY 1/3 THE DEPTH OF THE HOLE. MAINTAIN THE POOL AREA, ALWAYS PROVIDING ADEQUATE SEDIMENT STORAGE VOLUME FOR THE NEXT STORM. TAKE CARE NOT TO DAMAGE OR UNDERCUT FABRIC WHEN REMOVING SEDIMENT. SEDIMENT REMOVAL WILL BE PAID FOR AS SILT BASINS.

4. STORM DRAIN INLET PROTECTION STRUCTURES SHOULD BE REMOVED ONLY AFTER THE DISTURBED AREAS ARE PERMANENTLY STABILIZED. REMOVE ALL CONSTRUCTION MATERIAL AND SEDIMENT, AND DISPOSE OF THEM PROPERLY. GRADE THE DISTURBED AREA TO THE ELEVATION OF THE INLET STRUCTURE CREST. USE APPROPRIATE PERMANENT STABILIZATION METHODS TO STABILIZE BARE AREAS AROUND THE INLET.

5. THE PAY ITEMS SHALL BE:

INLET STRUCTURE FILTER TYPE A_____LF

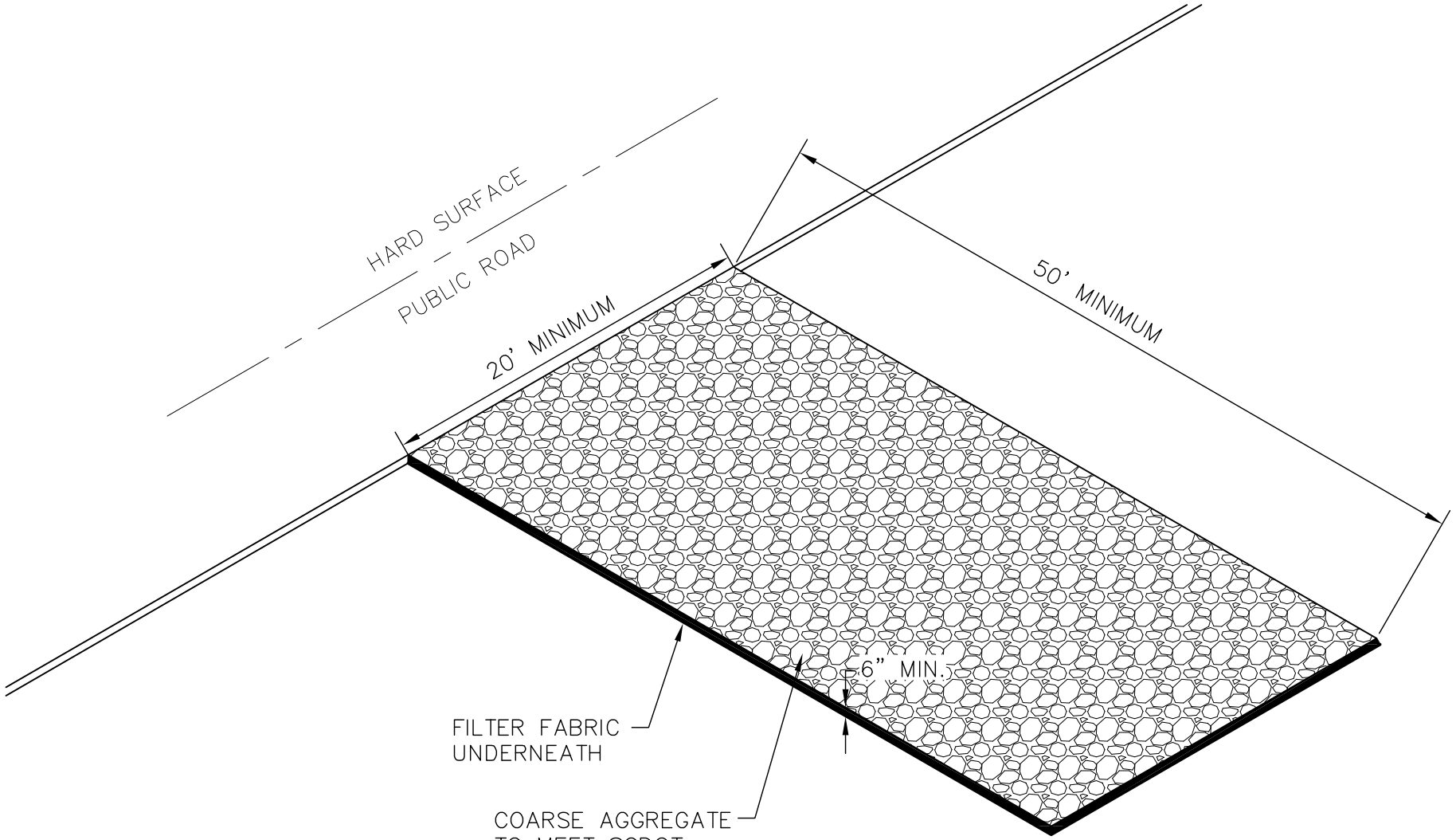
SILT BASINS_____CY

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

FILTER FABRIC
INLET PROTECTION

DRAWING NO: C-1

DATE: October, 2007



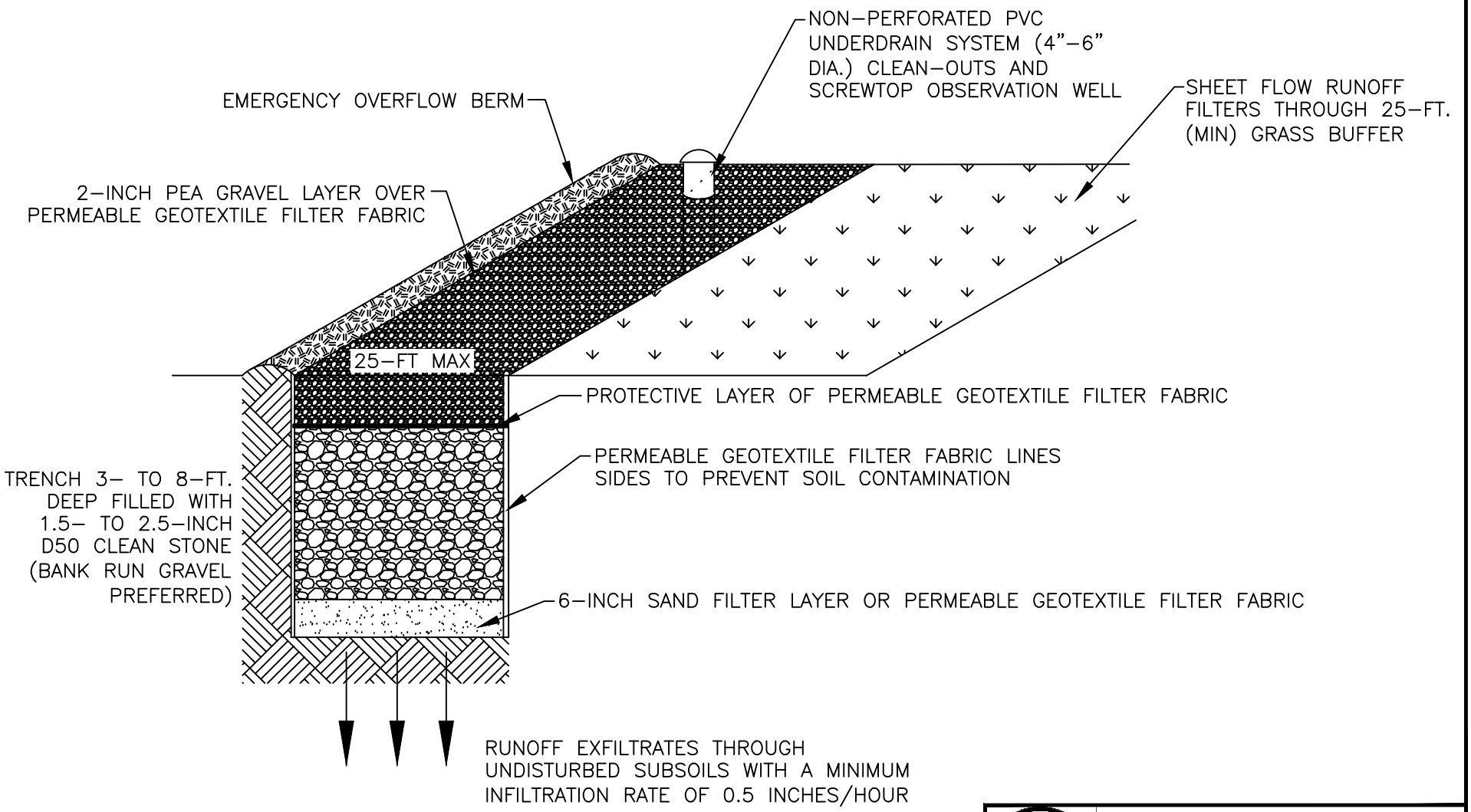

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

# GRAVEL CONSTRUCTION ENTRANCE/EXIT

DRAWING NO: C-10

DATE: October, 2007

# SCHEMATIC OF AN INFILTRATION TRENCH




SOURCE: ADAPTED FROM SCDHEC'S STORMWATER MANAGEMENT BMP HANDBOOK, 2005

Lexington County, South Carolina

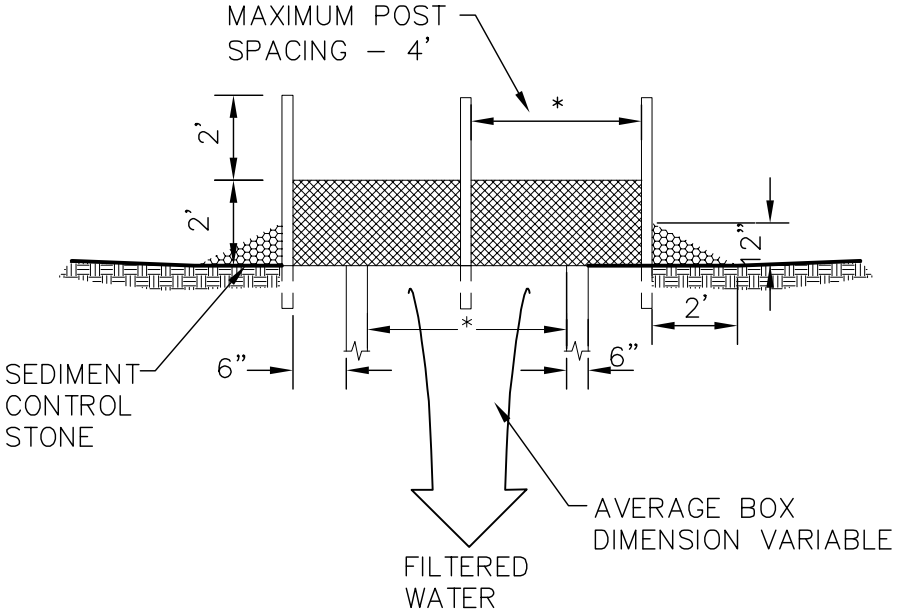
REVISION DATE: AUGUST 2014

## INFILTRATION TRENCH

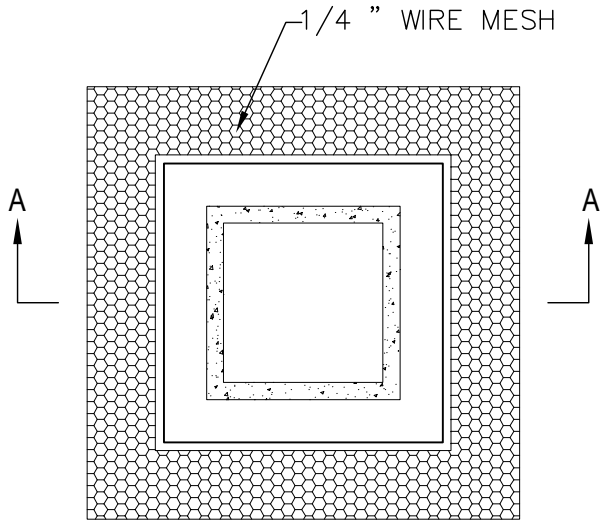
A 6–INCH SAND FILTER SHALL BE LOCATED ON THE BOTTOM OF THE TRENCH.

THE STONE FILL MEDIA SHALL CONSIST OF 1.5– TO 2.5– INCH D50 CLEAN STONE (BANK–RUN GRAVEL PREFERRED) WITH 6–INCHES OF PEA GRAVEL (VOID SPACE 40%) LOCATED ON TOP SEPARATED BY A PERMEABLE FILTER FABRIC. (THIS FILTER FABRIC SHOULD BE EASILY SEPARATED FROM THE GEOTEXTILES THAT PROTECT THE SIDES OF THE EXCAVATED TRENCH)

OBSERVATION WELLS A MAXIMUM OF 100–FT APART SHALL BE INSTALLED IN EVERY INFILTRATION TRENCH AND SHALL BE MADE OF 4– TO 6–INCH PVC PIPE. THE WELL SHALL EXTEND TO THE BOTTOM OF THE TRENCH. THE OBSERVATION WELL SHALL BE INSTALLED ALONG THE CENTERLINE OF THE TRENCH, AND BE FLUSH WITH THE GROUND ELEVATION OF THE TRENCH. THE TOP OF THE WELL SHALL BE CAPPED AND LOCKED TO DISCOURAGE VANDALISM AND TAMPERING.



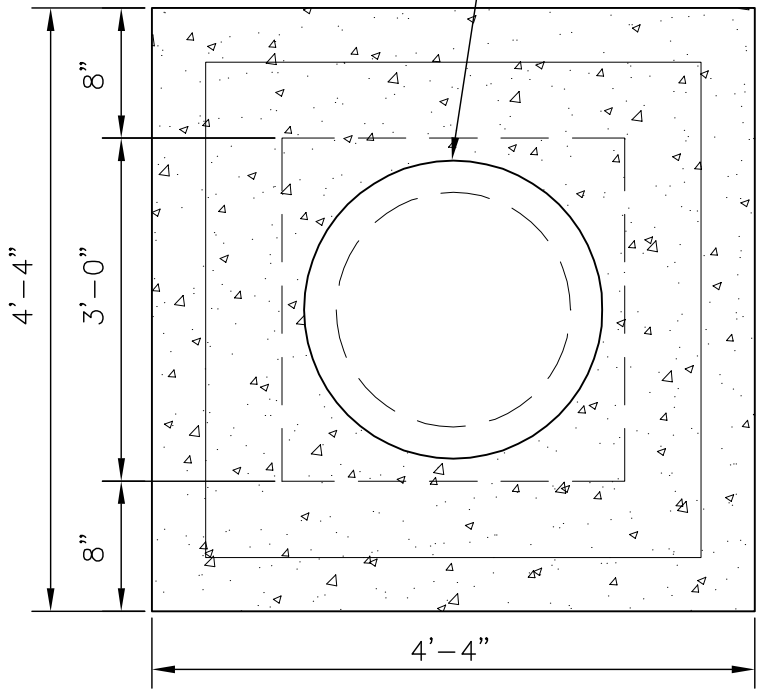

## SECTION A-A
MULTI–DIRECTIONAL FLOW



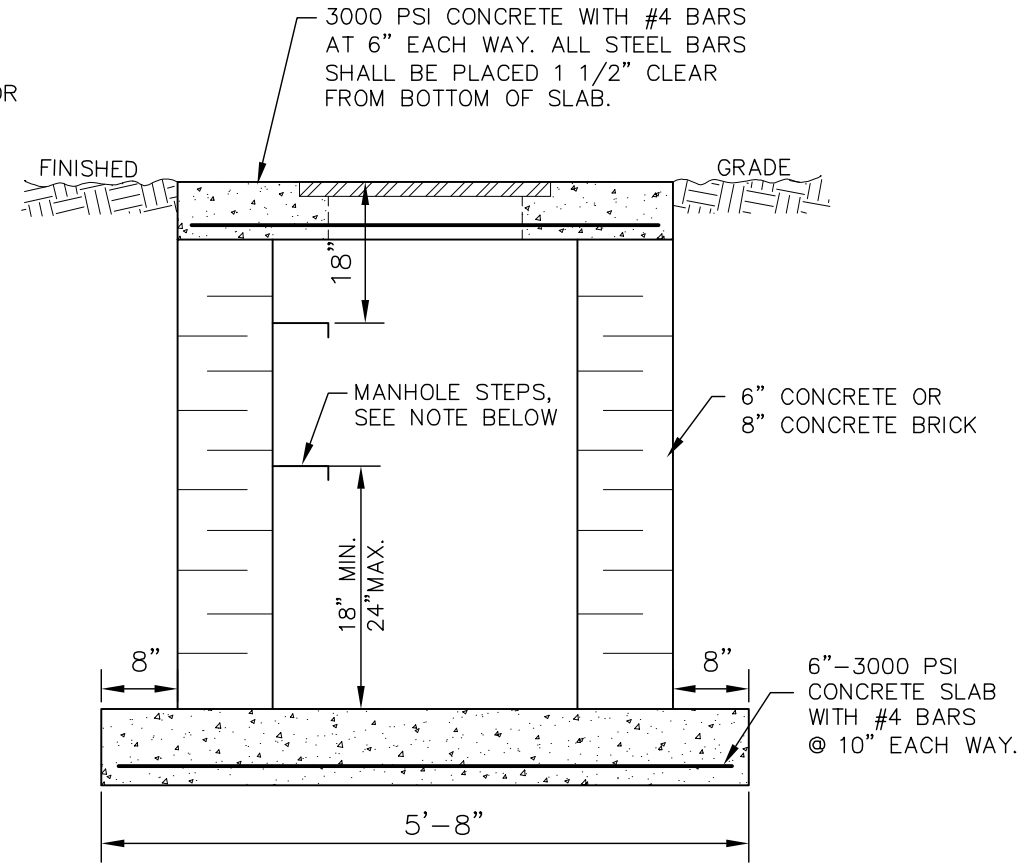

## NOTES

1. SEDIMENT CONTROL STONE SHALL BE NO. 5 OR NO. 57.
2. WIRE MESH SHALL BE HARDWARE CLOTH 23 GAUGE MIN. AND SHALL HAVE 1/4" MESH OPENINGS.
3. TOP OF WIRE MESH SHALL BE A MINIMUM OF ONE FOOT BELOW THE SHOULDER OR ANY DIVERSION POINT.
4. STEEL POST SHALL BE 5'. IN HEIGHT, BE INSTALLED 1.5' DEEP MINIMUM, AND BE OF THE SELF–FASTENER ANGLE STEEL TYPE.
5. WOOD POST SHALL BE 6' IN HEIGHT, BE INSTALLED TO 1.5' DEEP MINIMUM, AND BE 3" IN DIAMETER.
6. POST SPACING SHALL BE A MAXIMUM OF 4'.

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| INLET PROTECTION | |
| DRAWING NO: C–2 | |
| DATE: October, 2007 | |




PLAN VIEW




SECTION

## NOTE:

MANHOLE STEPS SHALL BE 18" OR 12" OC ON BOXES 4' DEEP OR DEEPER. (STEPS MUST CONFORM TO ASTM-C-478 OR EQUIVALENT)

| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
|---|---|
| JUNCTION BOX | |
| DRAWING NO: D-1 | |
| DATE: October, 2007 | |

## CLEAR ZONE DISTANCES
## (IN FEET FROM EDGE OF DRIVING LANE)

| Design Speed | Design ADT | FILL SLOPES | | | CUT SLOPES | | |
|---|---|---|---|---|---|---|---|
| | | ⁻⁻ to ⁻ | 5:1 to 4:1 | 3:1 | 3:1 | 4:1 to 5:1 | ⁻⁻ to ⁻ |
| 40 MPH or less | Under 750 | 7-10 | 7-10 | ✳✳ | 7-10 | 7-10 | 7-10 |
| | 750-1500 | 10-12 | 12-14 | ✳✳ | 10-12 | 10-12 | 10-12 |
| | 1500-6000 | 12-14 | 14-16 | ✳✳ | 12-14 | 12-14 | 12-14 |
| | Over 6000 | 14-16 | 16-18 | ✳✳ | 14-16 | 14-16 | 14-16 |
| 45-50 MPH | | | | | | | |
| | Under 750 | 10-12 | 12-14 | ✳✳ | 8-10 | 8-10 | 10-12 |
| | 750-1500 | 14-16 | 16-20 | ✳✳ | 10-12 | 12-14 | 14-16 |
| | 1500-6000 | 16-18 | 20-26 | ✳✳ | 12-14 | 14-16 | 16-18 |
| | Over 6000 | 20-22 | 24-28 | ✳✳ | 14-16 | 18-20 | 20-22 |
| 55 MPH | | | | | | | |
| | Under 750 | 12-14 | 14-18 | ✳✳ | 8-10 | 10-12 | 10-12 |
| | 750-1500 | 16-18 | 20-24 | ✳✳ | 10-12 | 14-16 | 16-18 |
| | 1500-6000 | 20-22 | 24-30 | ✳✳ | 14-16 | 16-18 | 20-22 |
| | Over 6000 | 22-24 | 26-32✳ | ✳✳ | 16-18 | 20-22 | 22-24 |

✳ CLEAR ZONES ARE LIMITED TO 30 FEET FOR PRACTICALITY AND TO PROVIDE A CONSISTENT ROADWAY TEMPLATE AS LONG AS PREVIOUS EXPERIENCE WITH SIMILAR PROJECTS OR DESIGNS INDICATES SATISFACTORY PERFORMANCE. WHERE A SITE SPECIFIC INVESTIGATION INDICATES A HIGH PROBABILITY OF CONTINUING ACCIDENTS, OR SUCH OCCURRENCES ARE INDICATED BY ACCIDENT HISTORY, THE DESIGNER MAY PROVIDE CLEAR ZONE DISTANCES GREATER THAN 30 FEET, AS INDICATED.

✳✳ SINCE RECOVERY IS LESS LIKELY ON THE UNSHIELDED, TRAVERSABLE 3:1 SLOPES, FIXED OBJECTS SHOULD NOT BE PRESENT IN THE VICINITY OF THE TOE OF THESE SLOPES. RECOVERY OF HIGH SPEED VEHICLES THAT ENCROACH BEYOND THE EDGE OF SHOULDER MAY BE EXPECTED TO OCCUR BEYOND THE TOE OF SLOPE. DETERMINATION OF THE WIDTH OF THE RECOVERY AREA AT THE TOE OF SLOPE SHOULD TAKE INTO CONSIDERATION RIGHT OF WAY AVAILABILITY, ENVIRONMENTAL CONCERNS, ECONOMIC FACTORS, SAFETY NEEDS, AND ACCIDENT HISTORIES. ALSO, THE DISTANCE BETWEEN THE EDGE OF THE TRAVEL LANE AND THE BEGINNING OF THE 3:1 SLOPE SHOULD INFLUENCE THE RECOVERY AREA PROVIDED AT THE TOE OF SLOPE.

## RUNOUT LENGTHS $L_R$

| DESIGN SPEED (mph) | TRAFFIC VOLUME (ADT) | | | |
|---|---|---|---|---|
| | OVER 6000 | 2000-6000 | 800-2000 | UNDER 800 |
| 70 | 475 | 445 | 395 | 360 |
| 65 | 450 | 425 | 370 | 345 |
| 60 | 425 | 400 | 345 | 330 |
| 55 | 360 | 345 | 315 | 280 |
| 50 | 330 | 300 | 260 | 245 |
| 45 | 260 | 245 | 215 | 200 |
| 40 | 230 | 200 | 180 | 165 |
| 35 | 200 | 185 | 165 | 150 |
| 30 | 165 | 165 | 150 | 130 |

## ⊗MAXIMUM FLARE RATE TABLE

| DESIGN SPEED MPH | FLARE RATE BEYOND SHY LINE | | FLARE RATE INSIDE SHY LINE | ▲SHY LINE OFFSET |
|---|---|---|---|---|
| | RIGID | SEMI-RIGID | | |
| 70 | 20:1 | 15:1 | 30:1 | 9.2' |
| 60 | 18:1 | 14:1 | 26:1 | 7.9' |
| 55 | 16:1 | 12:1 | 24:1 | 7.2' |
| 50 | 14:1 | 11:1 | 21:1 | 6.6' |
| 45 | 12:1 | 10:1 | 18:1 | 5.6' |
| 40 | 10:1 | 8:1 | 16:1 | 4.6' |
| 30 | 8:1 | 7:1 | 13:1 | 3.6' |

▲SHY LINE IS AS DEFINED IN THE AASHTO ROADSIDE DESIGN GUIDE.
⊗ INTERPOLATE AS NECESSARY

NOTE: SEMI-RIGID BARRIERS INCLUDE ALL STEEL BEAM AND THRIE BEAM GUARDRAIL; RIGID BARRIERS INCLUDE ALL CONCRETE BARRIERS.

## ⊗SUGGESTED SHY LINE OFFSET VALUES

| DESIGN SPEED (mph) | SHY LINE OFFSET (feet) |
|---|---|
| 80 | 12.1 |
| 75 | 10.5 |
| 70 | 9.2 |
| 60 | 7.9 |
| 55 | 7.2 |
| 50 | 6.6 |
| 45 | 5.6 |
| 40 | 4.6 |
| 30 | 3.6 |

⊗INTERPOLATE AS NECESSARY

## NOTES:

1. SHY LINE OFFSET VALUES ARE MEASURED FROM EDGE OF TRAVELWAY TO THE FACE OF OBJECT (GUARDRAIL, BRIDGE PARAPET, ETC.). THIS IS THE DISTANCE THAT A DRIVER WILL NOT TEND TO SHY FROM AN OBJECT.

2. CLEAR ZONE IS THE AREA FROM THE EDGE OF TRAVELWAY TO AN OBJECT THAT IS NOT PROTECTED. THIS IS ALSO THE RECOVERY AREA FOR ERRANT VEHICLES. WHEN THE CLEAR ZONE CAN BE OBTAINED BETWEEN THE EDGE OF TRAVELWAY AND OBSTACLES, NO GUARDRAIL IS REQUIRED.

3. RUNOUT LENGTH IS THE DISTANCE FROM WHERE A VEHICLE LEAVES THE PAVEMENT TO THE BACK OF AN OBJECT THAT MAY BE HIT BY SAID VEHICLE. THIS LINE SHOULD GO THROUGH THE THIRD POST OF END TREATMENT AND ALL SLOPES BEFORE THIS LINE SHOULD BE TRAVERSABLE.

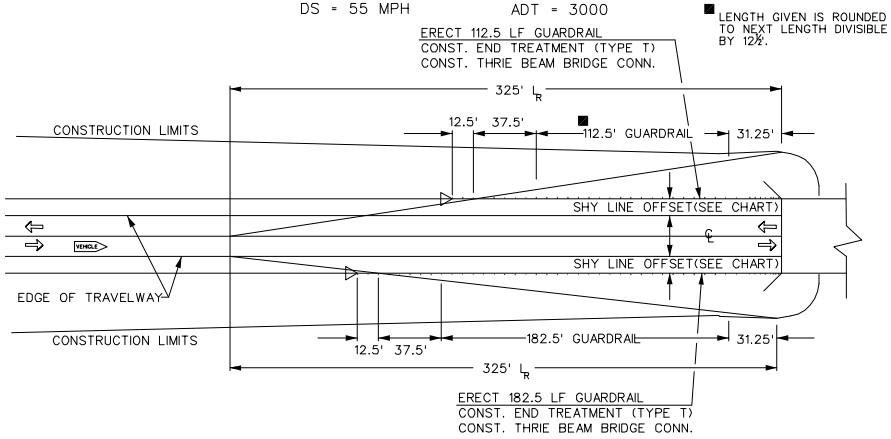
4. TO CALCULATE LENGTH OF GUARDRAIL, FIND APPROPRIATE RUNOUT LENGTH FROM TABLE. PLOT THIS LENGTH FROM BACK OF OBSTACLE TO TRAVELWAY EDGE. PLOT GUARDRAIL AT PROPER SHY LINE DISTANCE. THE RUNOUT LENGTH LINE SHOULD GO THROUGH THE THIRD POST OF THE END TREATMENT. SHOW GUARDRAIL TO COVER OBSTACLE, MEASURE THIS LENGTH, DIVISIBLE BY 12½ FEET. ALWAYS ROUND UP THEN SUBTRACT 37½ FEET FROM THE AMOUNT FOR THE END TREATMENT. REMAINDER WILL BE LENGTH OF GUARDRAIL NEEDED TO PROTECT OBSTACLE.

## LOCATION OF GUARDRAIL AT OBSTACLES

| LATERAL CLEARANCE FROM BACK OF POSTS | TYPE OF PROTECTION |
|---|---|
| 36" OR GREATER | STEEL BEAM GUARDRAIL |
| 24" TO 35" | THRIE BEAM GUARDRAIL |
| LESS THAN 24" | CONCRETE BARRIER OR SPECIAL DESIGN GUARDRAIL |

DS = 55 MPH ADT = 3000

■ LENGTH GIVEN IS ROUNDED TO NEXT LENGTH DIVISIBLE BY 12½.




EXAMPLE OF GUARDRAIL LENGTH OF NEED

CHOSEN 2 LANE, 2 WAY ROADWAY.
LENGTH OF NEED DETERMINED FOR VEHICLE TRAVELING IN DIRECTION SHOWN.

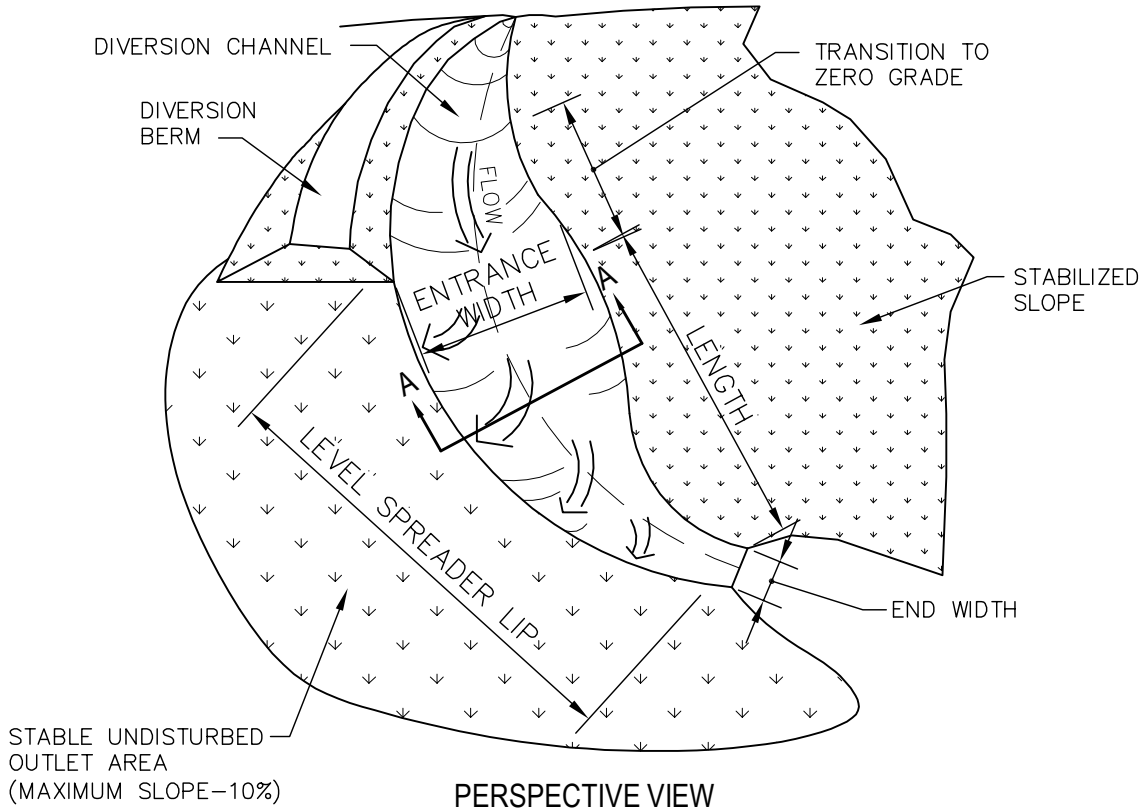
NO SCALE

# LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT

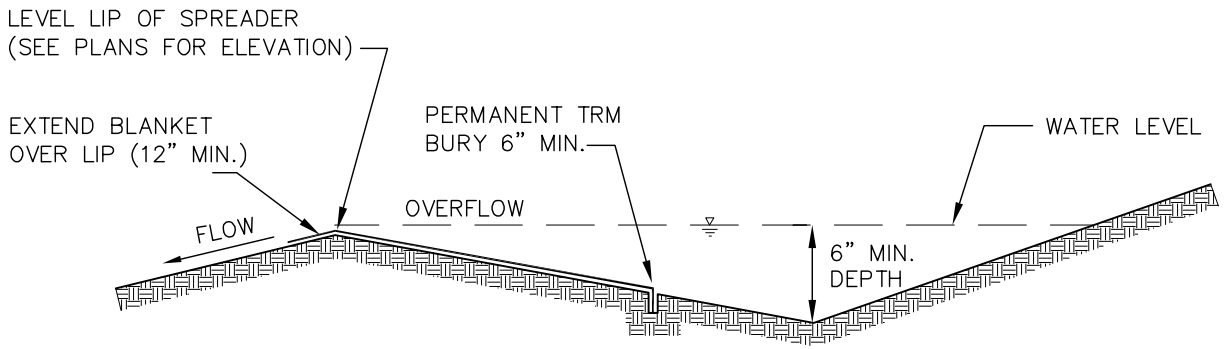
## LENGTH OF NEED & PLACEMENT OF GUARDRAIL (SCDOT DWG NO. 805-1C revised Feb 2007)

DRAWING NO: E-4C

DATE: October 2007




PERSPECTIVE VIEW




SECTION A-A

| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
|---|---|
| LEVEL SPREADER | |
| DRAWING NO: C–17 | |
| DATE: October 2007 | |

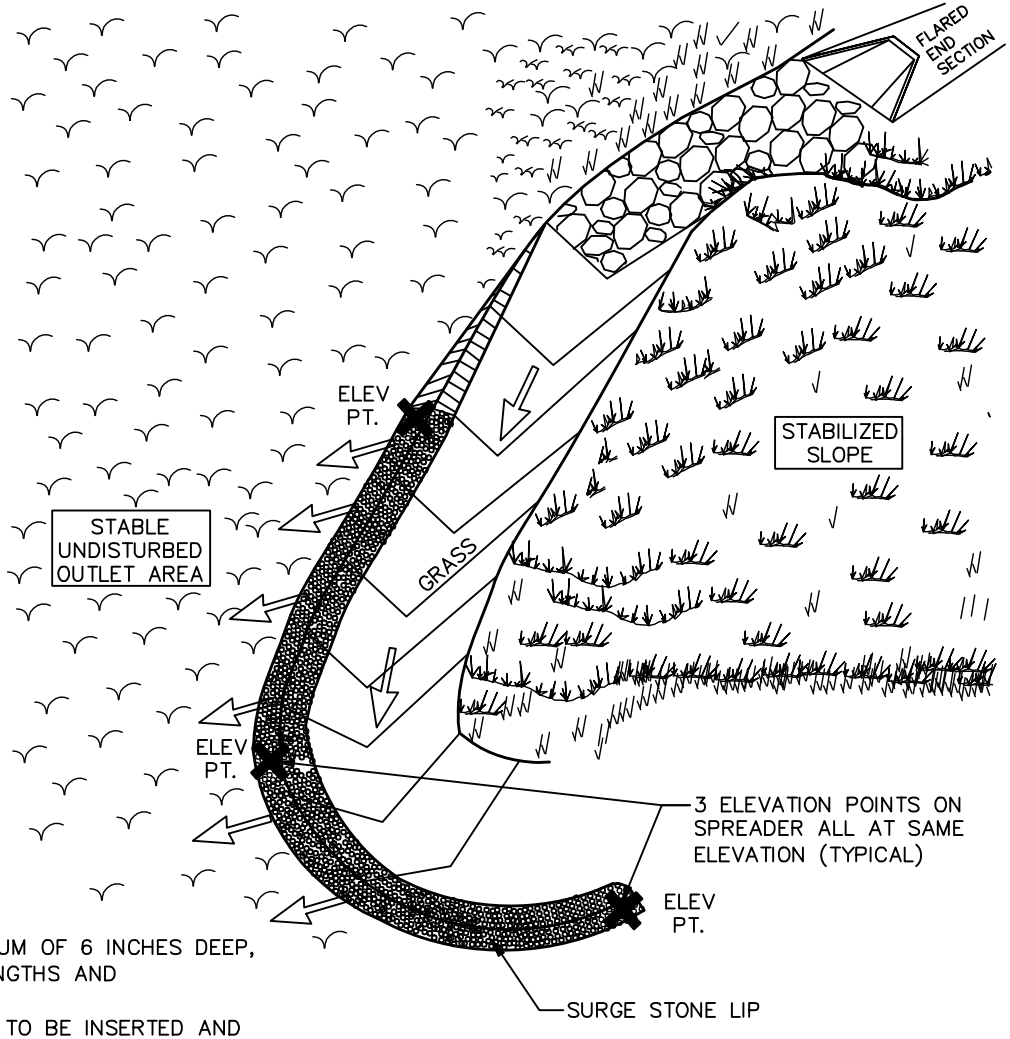
SPREADER LIP– CONSTRUCT THE LEVEL LIP ON UNDISTURBED SOIL TO UNIFORM HEIGHT AND ZERO GRADE OVER THE LENGTH OF THE SPREADER. PROTECT IT WITH AN EROSION RESISTANT MATERIAL SUCH AS SURGE STONE TO PREVENT EROSION, TO BECOME ESTABLISHED.

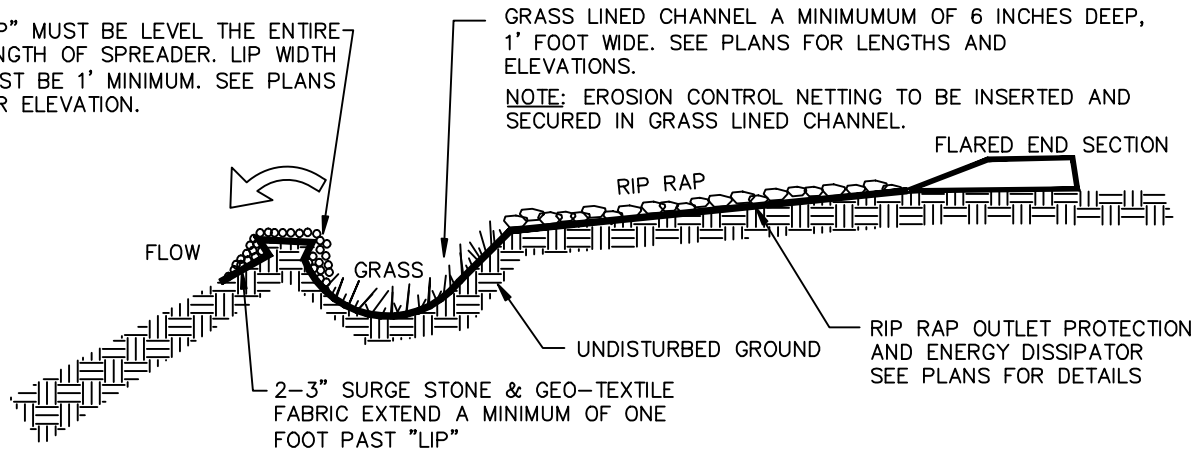
OUTLET AREA– THE OUTLET DISPOSAL AREA MUST BE GENERALLY SMOOTH AND WELL VEGETATED WITH A MAXIMUM SLOPE OF 10%.

VEGETATE ALL DISTURBED AREAS

CONSTRUCTION SPECIFICATIONS

1. THE MATTING SHOULD BE A MINIMUM OF 4 FEET WIDE EXTENDING 6 INCHES OVER THE LIP AND BURIED 6 INCHES DEEP IN A VERTICAL TRENCH ON THE LOWER EDGE. THE UPPER EDGE SHOULD BUTT AGAINST SMOOTHLY CUT SOD AND BE SECURELY HELD IN PLACE WITH CLOSELY SPACED HEAVY DUTY WIRE STAPLES AT LEAST 12 INCHES LONG.
2. ENSURE THAT THE SPREADER IS LEVEL, FOR UNIFORM SPREADING OF STORM RUNOFF.
3. CONSTRUCT THE LEVEL SPREADER ON UNDISTURBED SOIL. (NOT ON FILL)
4. CONSTRUCT A 20 FOOT TRANSITION SECTION FROM THE DIVERSION CHANNEL TO BLEND SMOOTHLY WITH THE WIDTH AND DEPTH OF THE LEVEL SPREADER.
5. DISPERSE RUNOFF FROM THE SPREADER ACROSS A PROPERLY STABILIZED SLOPE, NOT TO EXCEED 10%, MAKE SURE THAT THE SLOPE IS SUFFICIENTLY SMOOTH TO KEEP THE FLOW FROM CONCENTRATING.
6. IMMEDIATELY AFTER IT'S CONSTRUCTION, APPROPRIATELY SEED AND MULCH THE ENTIRE DISTURBED AREA OF THE LEVEL SPREADER.

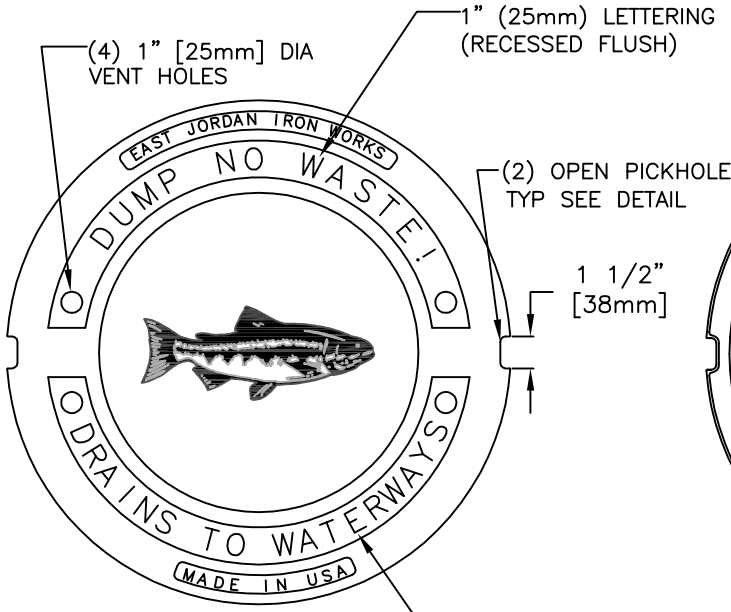


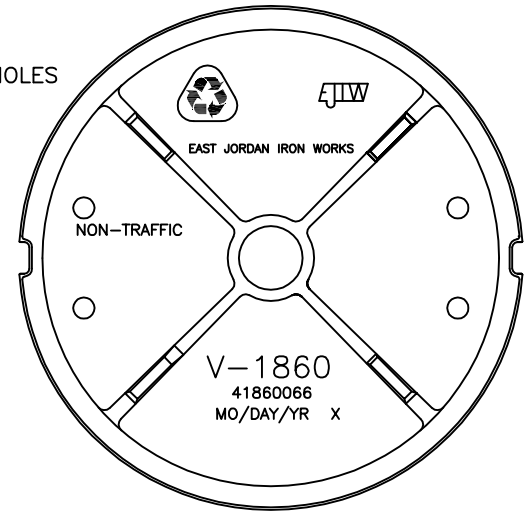




**LEXINGTON COUNTY**
**PUBLIC WORKS DEPARTMENT**

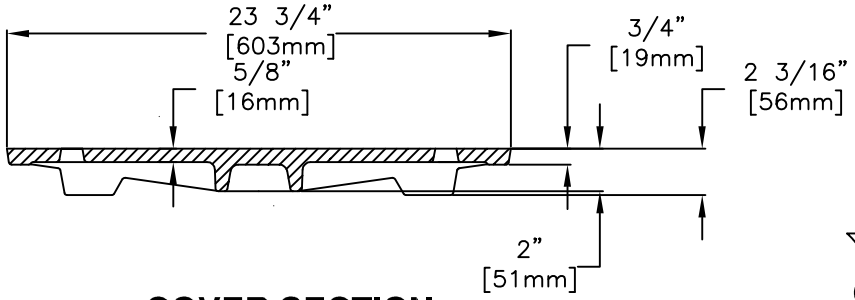
**LEVEL SPREADER DETAIL**

DRAWING NO: C–24
DATE: May 2008

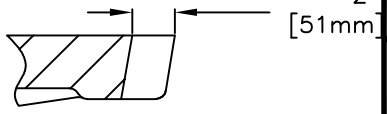



**BOTTOM VIEW**




**COVER SECTION**




**OPEN PICKHOLE DETAIL**


**EAST JORDAN IRON WORKS, INC.**
P.O. BOX 439
EAST JORDAN, MI. 49727
1-800-874-4100
FAX 231-536-4458


| DRAWN | DATE |
|---|---|
| SMH | 06/05/03 |
| APPROVED | DATE |

# COVER

PRODUCT NO.
**41860066**

CATALOG NO.
**V-1860**

REF. PRODUCT DRAWING
41860048

EST. WT.
COVER: 70 LBS 32kg

OPEN AREA
N/A

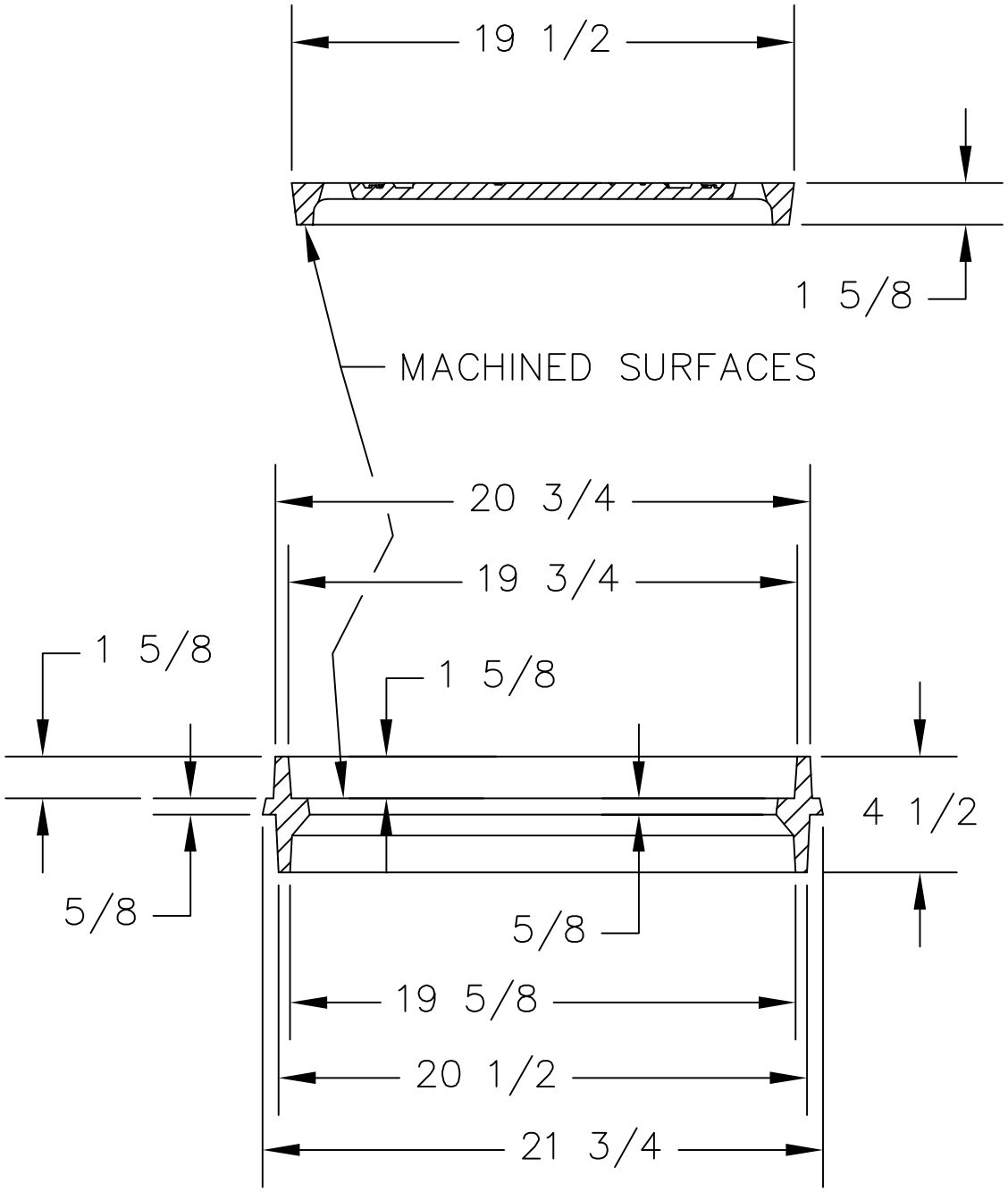
MAT'L SPEC.
COVER – GRAY IRON
ASTM A48 CL35B

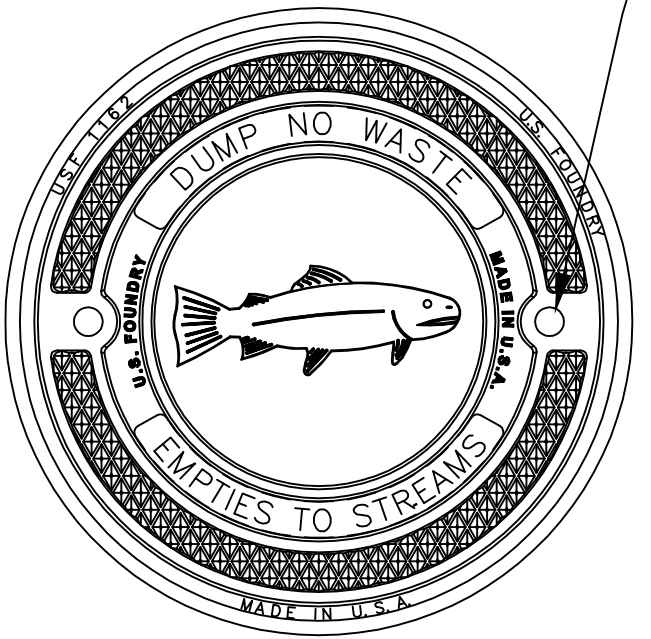
LOAD RATING
**NON TRAFFIC**

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

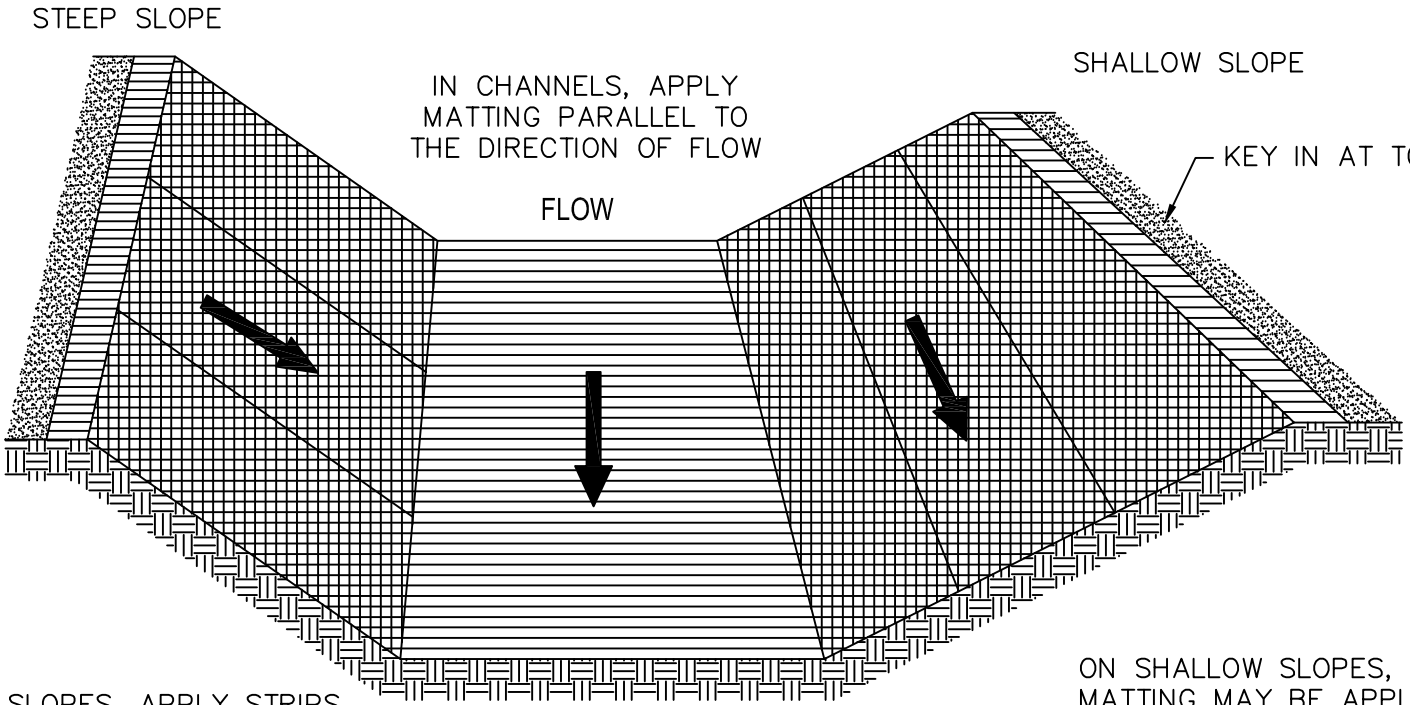
MANHOLE LID

DATE: October, 2008




| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| MANHOLE LID | |
| | |
| DATE: October 2008 | |

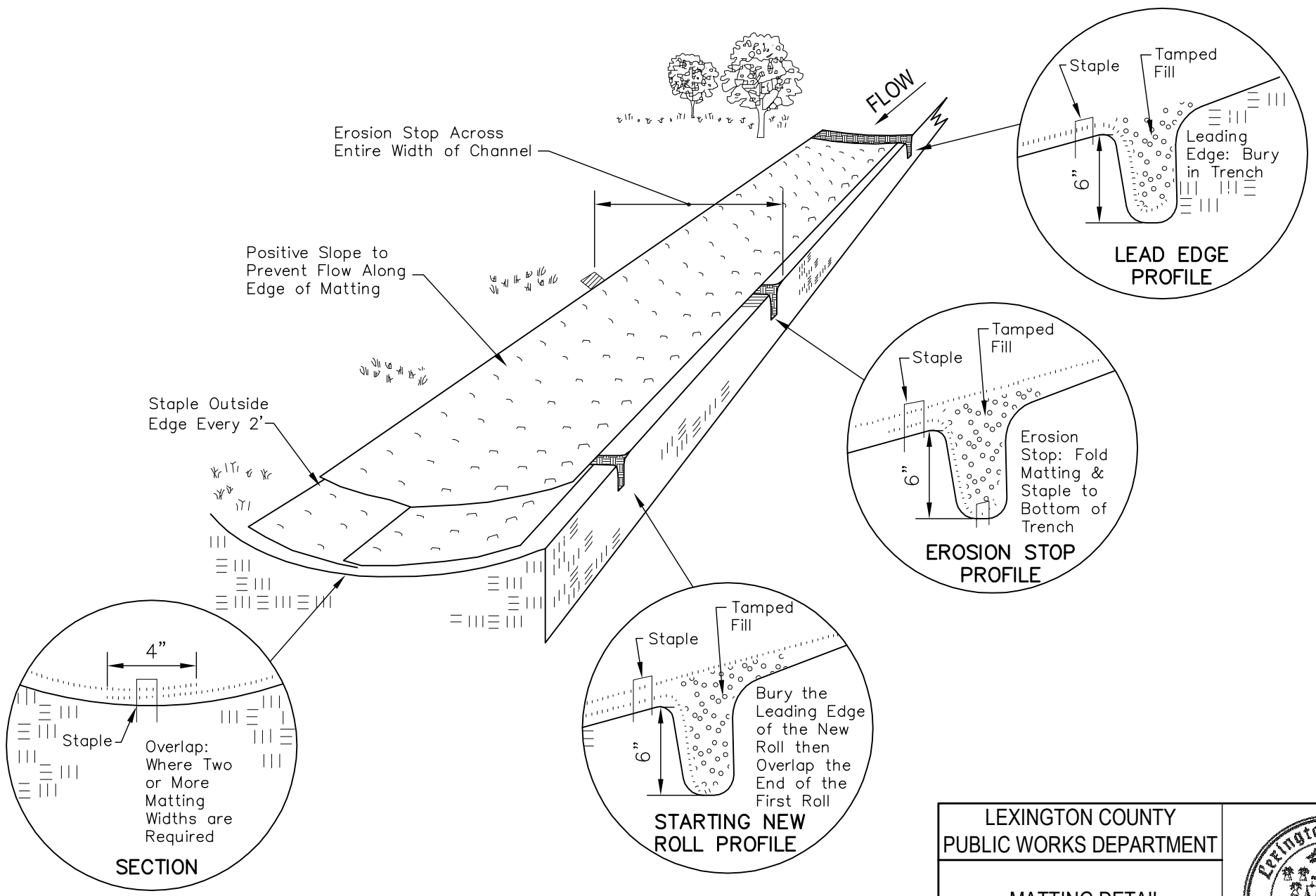



ON STEEP SLOPES, APPLY STRIPS OF MATTING PARALLEL TO THE DIRECTION OF FLOW, AS SHOWN ON DETAIL AND ANCHOR AS PER MANUFACTURER'S SPECIFICATIONS. (SLOPES GREATER THAN 2:1)

ON SHALLOW SLOPES, STRIPS OF MATTING MAY BE APPLIED ACROSS THE SLOPE. (SLOPES UP TO 2:1)

MATTING SHOULD BE LAPPED TOP OVER BOTTOM IN FLOW DIRECTION.

| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
|---|---|
| MATTING DETAIL CHANNEL INSTALLATION | |
| DRAWING NO: C–18 | |
| DATE: October 2007 | |

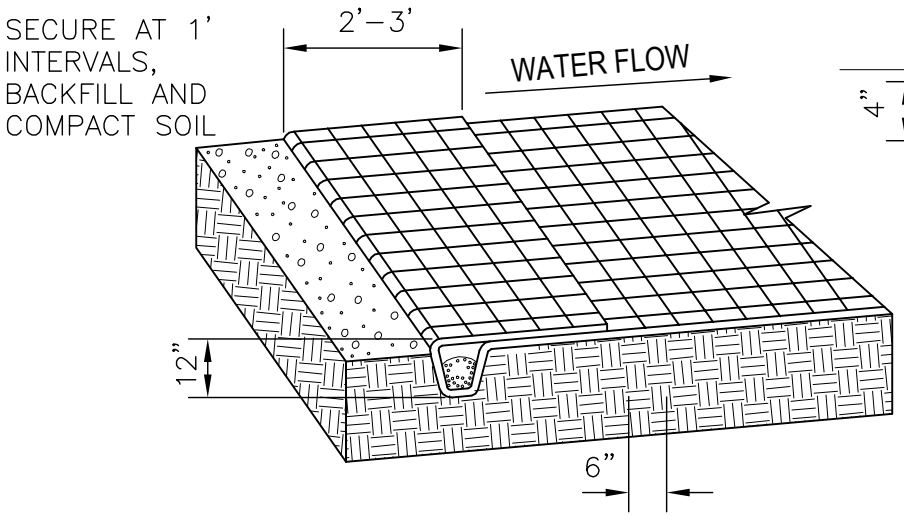



LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

# MATTING DETAIL
# CHANNEL INSTALLATION

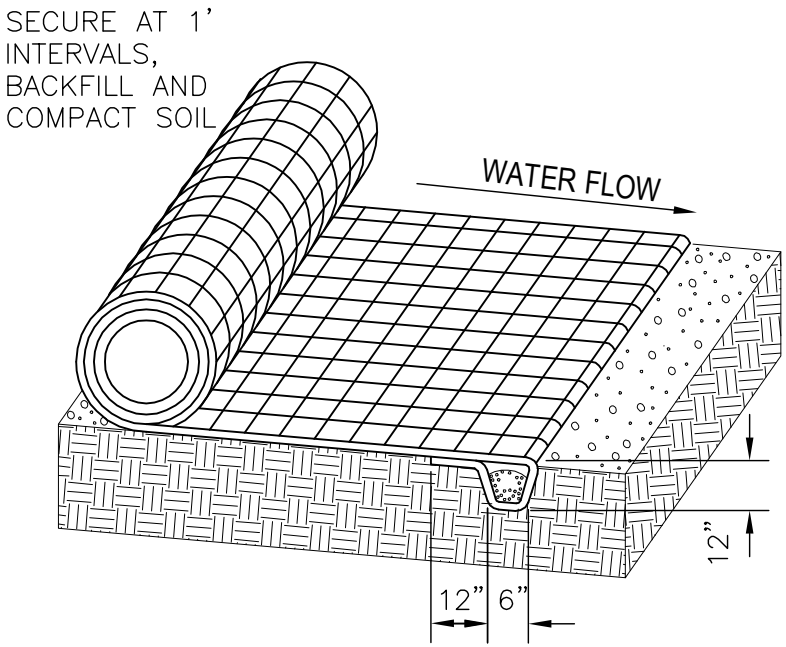
DRAWING NO: C–19

DATE: October 2007

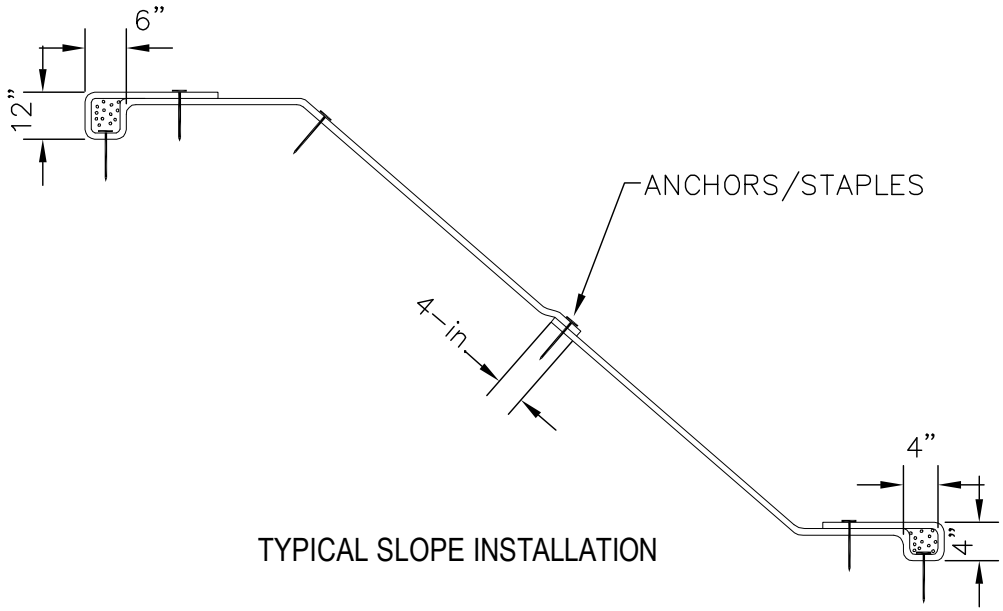



TERMINAL ANCHOR TRENCH APPLICATION


TYPICAL CHANNEL INSTALLATION

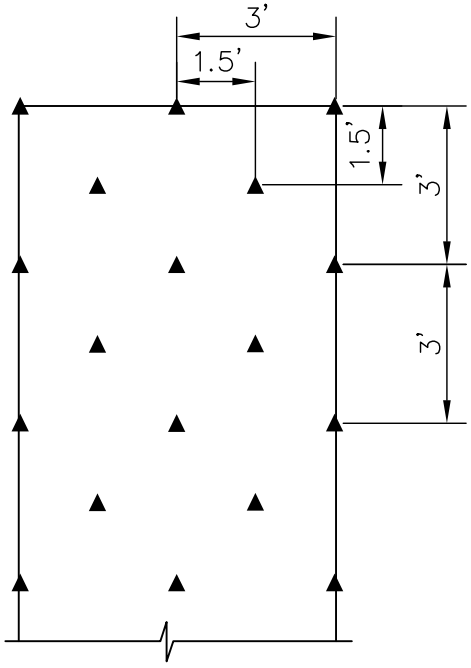



INITIAL ANCHOR TRENCH APPLICATION

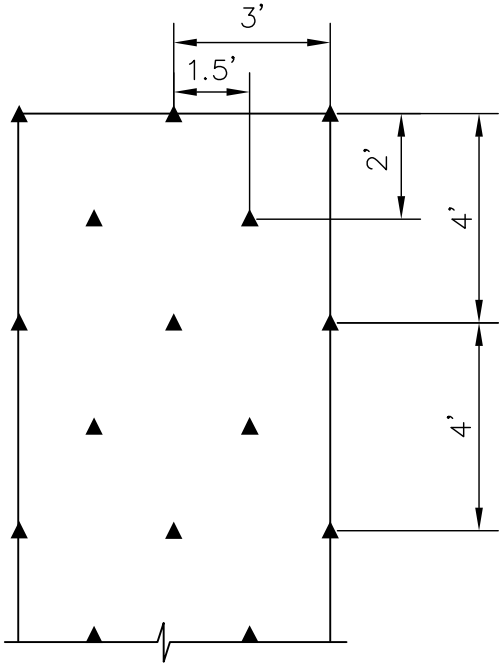



TYPICAL SLOPE INSTALLATION

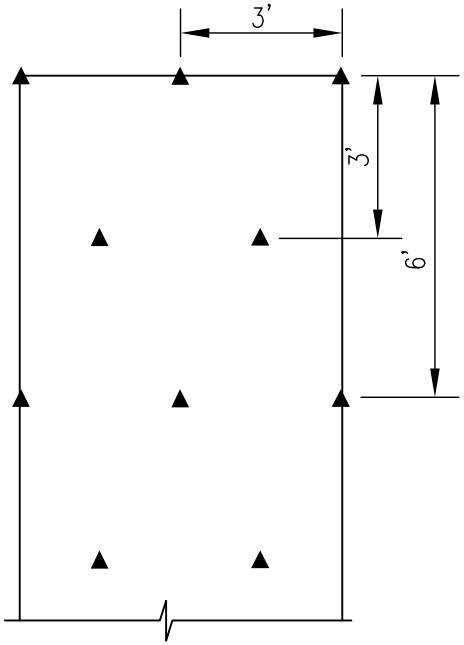
| | |
|---|---|
| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
| MATTING ORIENTATION | |
| DRAWING NO: C-21 | |
| DATE: October 2007 | |



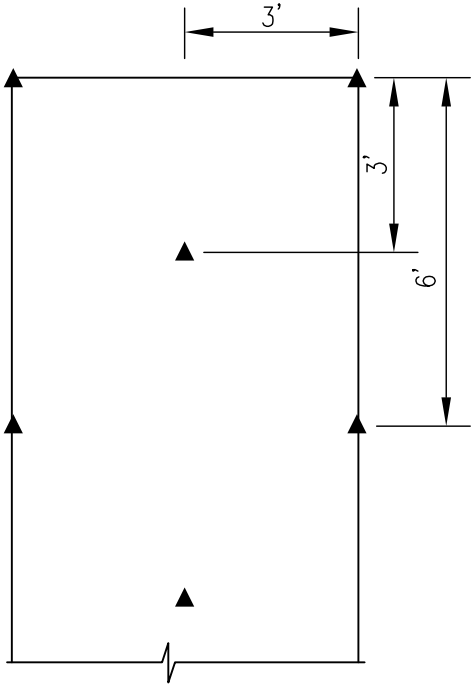

ANCHOR PATTERN FOR SLOPES GREATER THAN 1:1




ANCHOR PATTERN FOR SLOPES BETWEEN 2:1 AND 1:1




ANCHOR PATTERN FOR
SLOPES BETWEEN 3:1AND 2:1



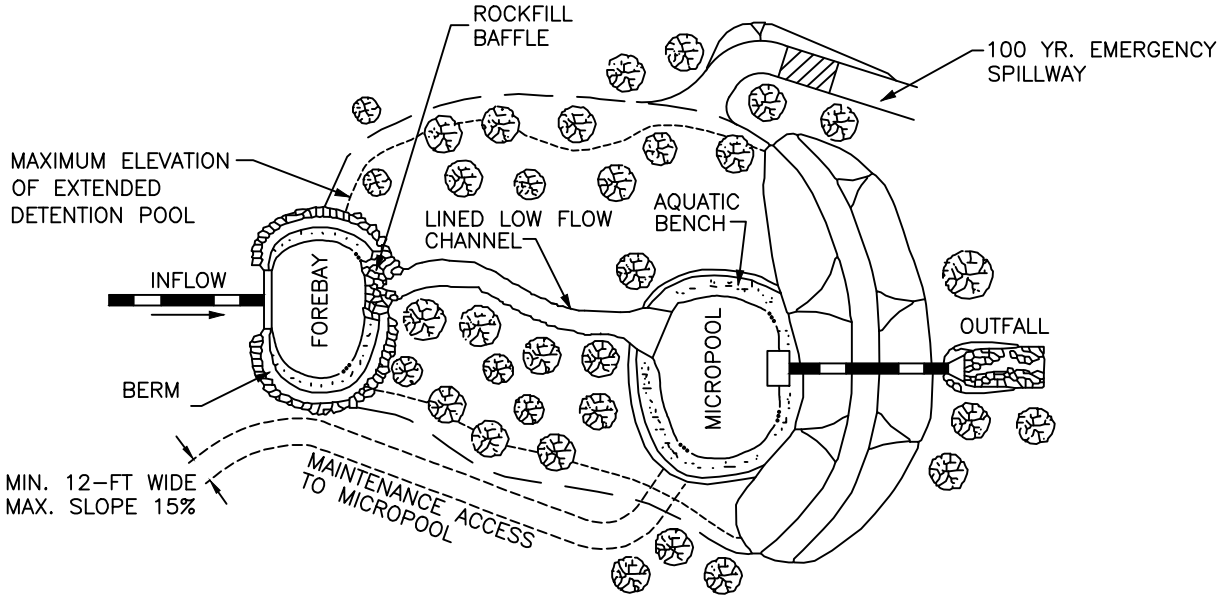

ANCHOR PATTERN FOR
SLOPES FLATTER THAN 3:1

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

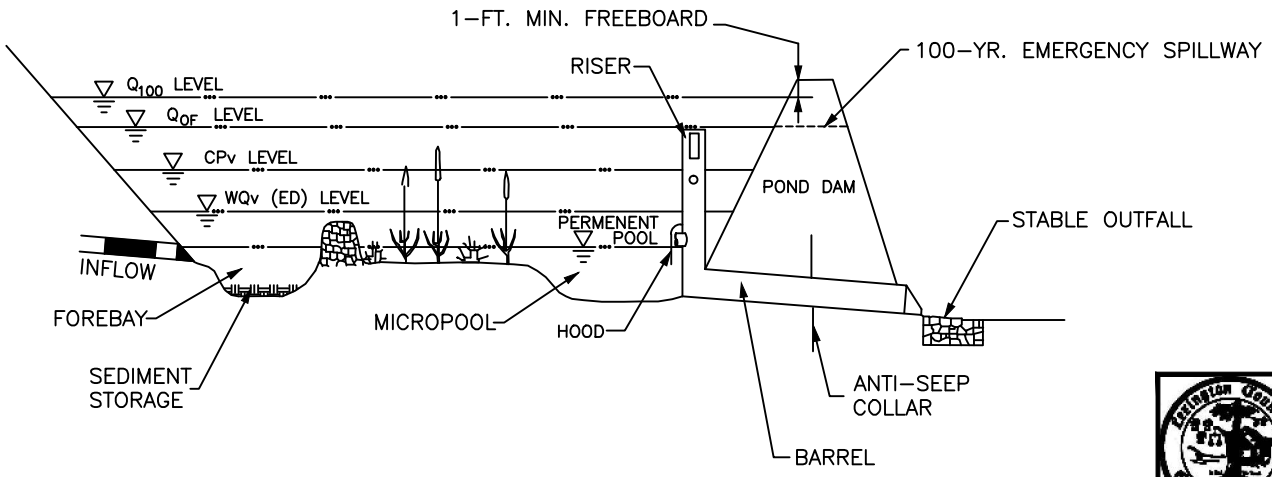
MATTING ORIENTATION

DRAWING NO: C–20
DATE: October 2007

## PLAN VIEW




## PROFILE




SOURCE: ADAPTED FROM GEORGIA STORMWATER MANAGEMENT MANUAL, VOLUME 2 2001 AND SCDHEC'S STORMWATER MANAGEMENT BMP HANDBOOK, 2005

Lexington County, South Carolina

REVISION DATE: AUGUST 2014

MICROPOOL EXTENDED DETENTION POND: pg 1 of 2

## MICROPOOL EXTENDED DETENTION POND

A FOREBAY SHALL BE PROVIDED FOR ALL INLETS TO A MICROPOOL EXTENDED DETENTION POND AND SHALL BE PLACED UPSTREAM OF THE MICROPOOL AREA. THE FOREBAY IS SEPARATED FROM THE MICROPOOL BY A BERM THAT MAY BE CONSTRUCTED OF EARTH, STONES, RIPRAP, GABIONS, OR GEOTEXTILES. THE TOP OF THE FOREBAY BARRIER SHALL BE EQUAL TO THE NORMAL POOL ELEVATION, AND MAY EXTEND ABOVE THE ELEVATION OF THE PERMANENT POOL.

THE MICROPOOL SHALL BE FOUR (4) TO SIX (6) FEET IN DEPTH.

DRY POND INSIDE SLOPES SHALL NOT BE MORE THAN 3:1 (4:1 PREFERRED)

THE POND FLOOR SHOULD HAVE A MINIMUM SLOPE OF 2% TOWARD THE OUTLET OR UNDERDRAIN SYSTEM.

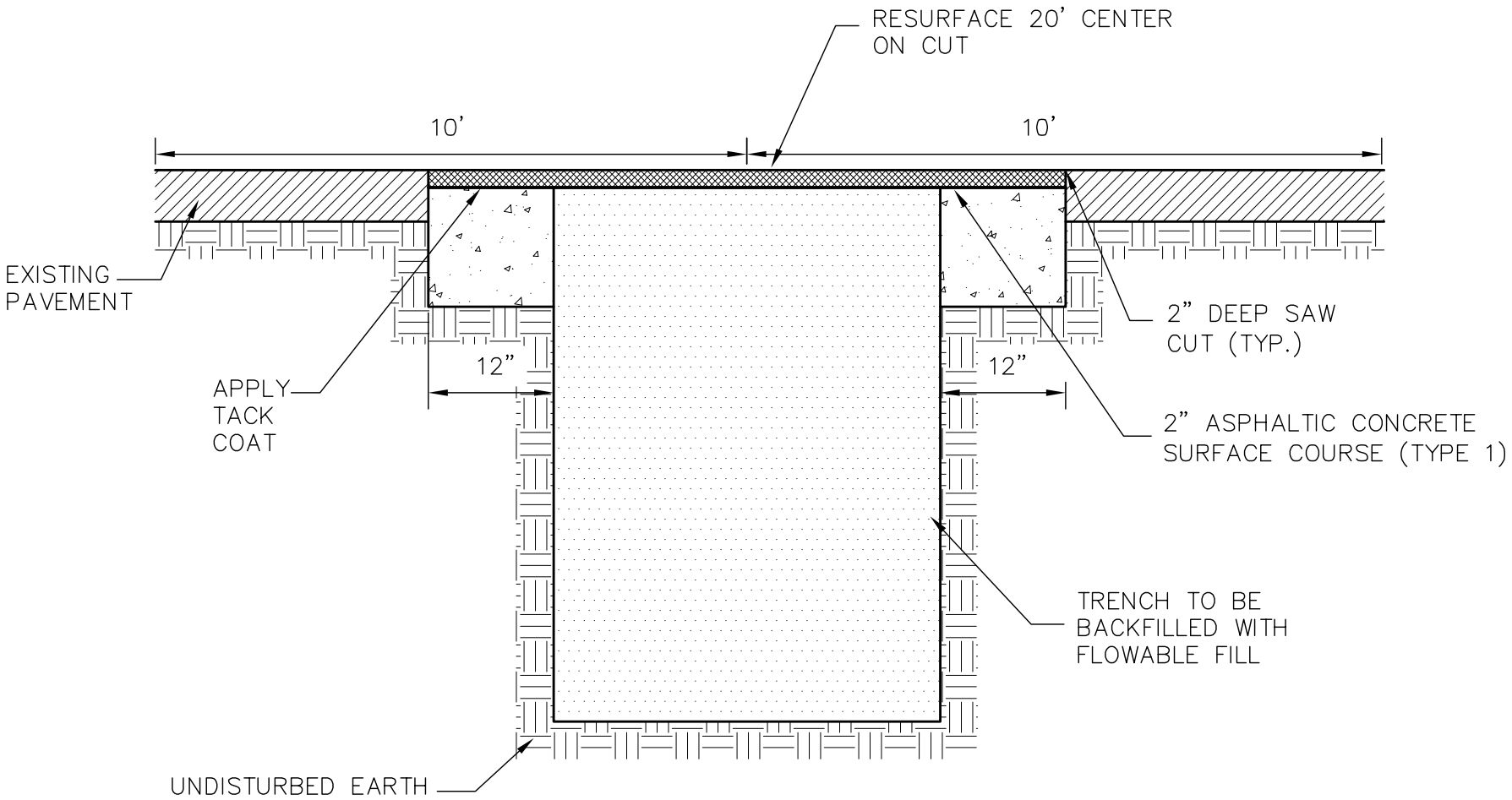
ADEQUATE MAINTENANCE ACCESS MUST BE PROVIDED FOR ALL DETENTION PONDS.

A LOW FLOW CHANNEL SHOULD BE PROVIDED TO CONVEY FLOW FROM THE FOREBAY TO THE MICROPOOL AREA. THIS CHANNEL SHOULD BE PROTECTED TO PREVENT EROSION. THE REMAINDER OF THE POND SHOULD DRAIN TOWARD THIS CHANNEL.

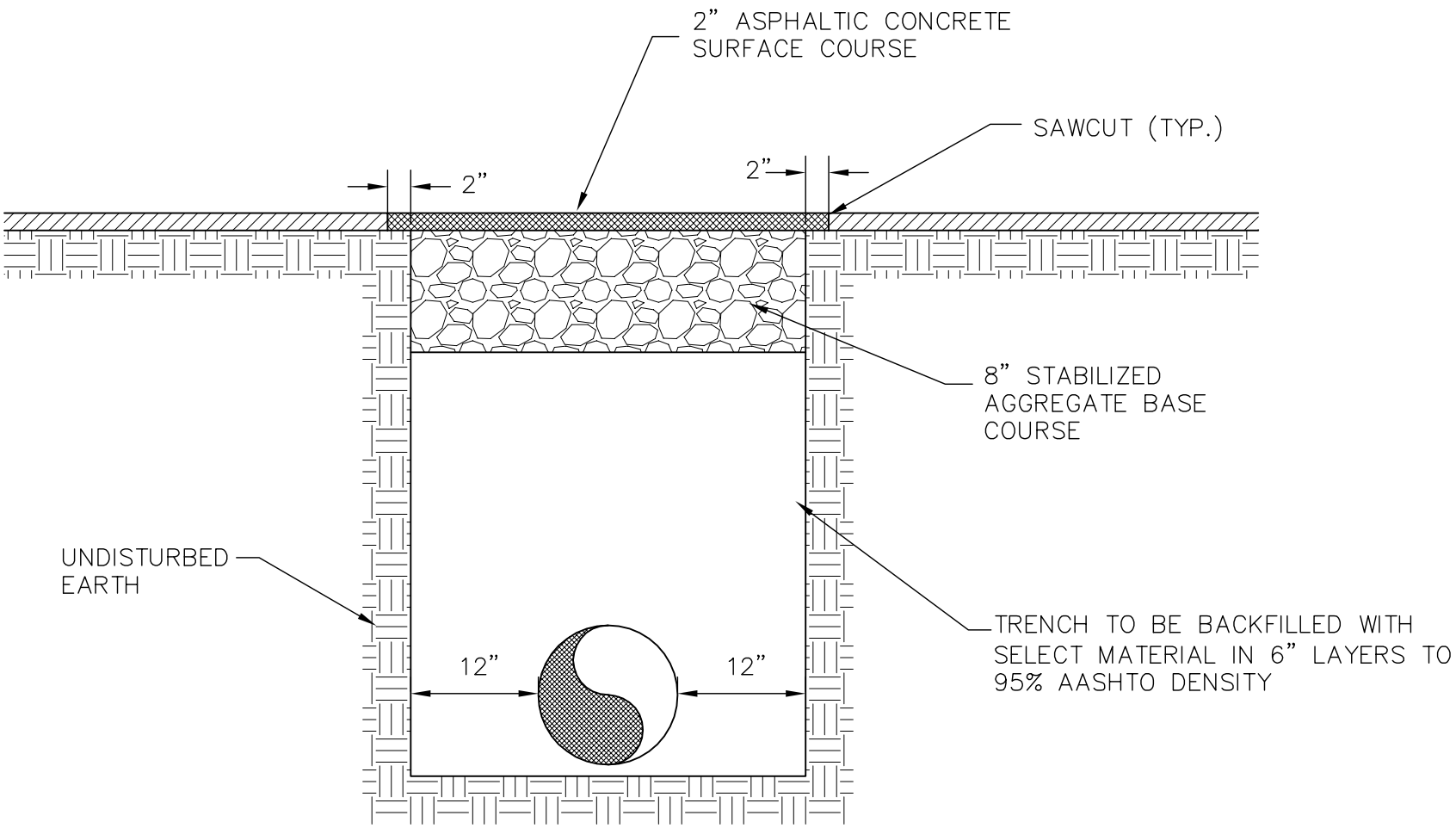
A LOW FLOW ORIFICE SHALL BE INSTALLED TO SLOWLY RELEASE THE WATER QUALITY VOLUME. THE LOW FLOW ORIFICE SHALL BE PROTECTED FROM CLOGGING BY DESIGNING APPROPRIATE METHODS. ACCEPTABLE ANTI–CLOGGING METHODS INCLUDE:

- HOODS THAT EXTEND AT LEAST 6–INCHES BELOW THE WATER QUALITY POOL WATER SURFACE ELEVATION.
- REVERSE FLOW PIPES WHERE THE OUTLET STRUCTURE INLET IS LOCATED AT LEAST 6–INCHES BELOW THE WATER QUALITY WATER SURFACE ELEVATION.

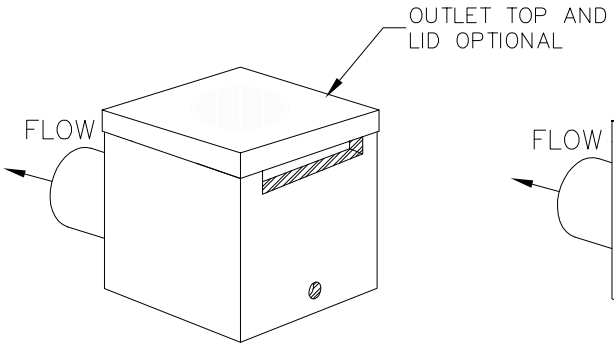
EMERGENCY SPILLWAYS SHALL BE INSTALLED TO SAFELY PASS THE POST–DEVELOPMENT 100–YEAR 24–HOUR STORM EVENT WITHOUT OVERTOPPING ANY DAM STRUCTURES.



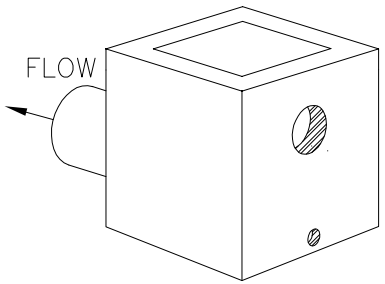

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT |
|---|
| OPEN CUT REPAIR FOR LIGHT COMMERCIAL / INDUSTRIAL & RESIDENTIAL COLLECTOR ASPHALT PAVEMENT |
| DRAWING NO: B-3 |
| DATE: October, 2007 |



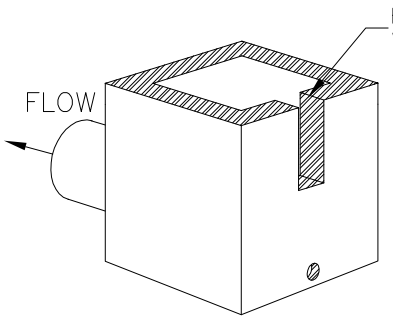

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| OPEN CUT REPAIR<br>FOR RESIDENTIAL LOCAL<br>ASPHALT PAVEMENT | |
| DRAWING NO: B-2 | |
| DATE: October, 2007 | |



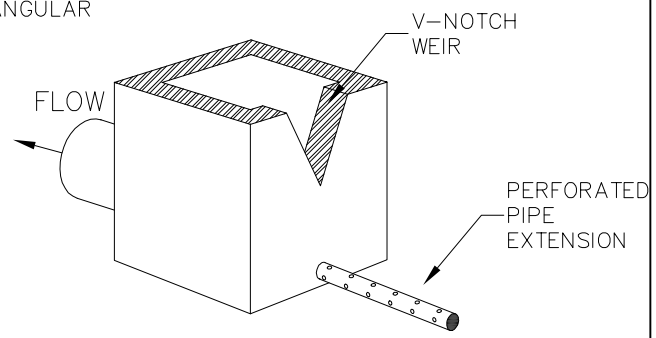

ISOMETRIC VIEW



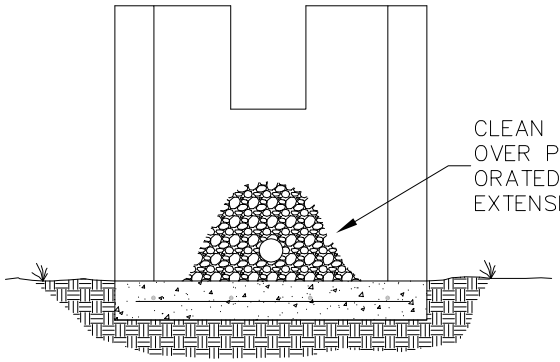

ISOMETRIC VIEW



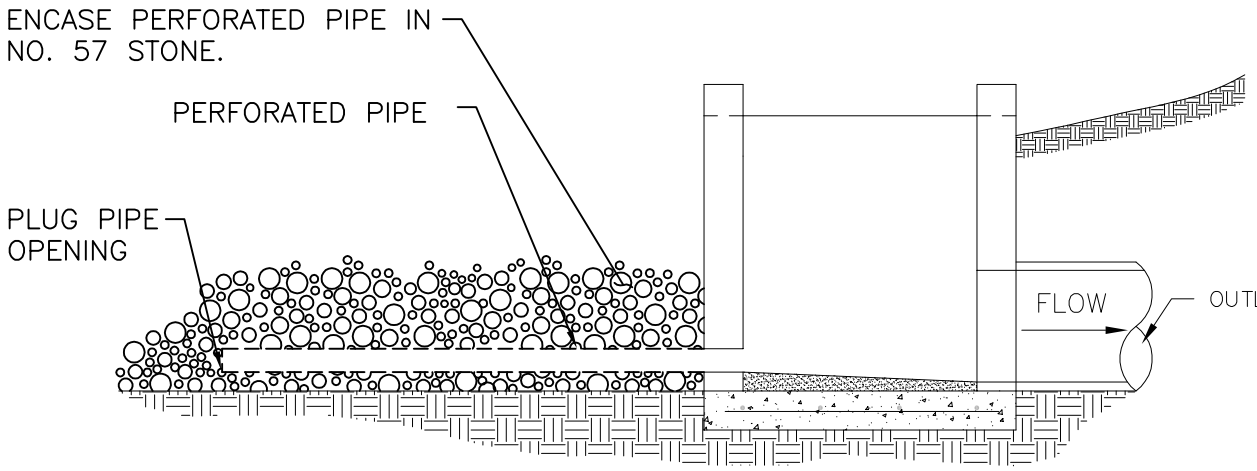

ISOMETRIC VIEW



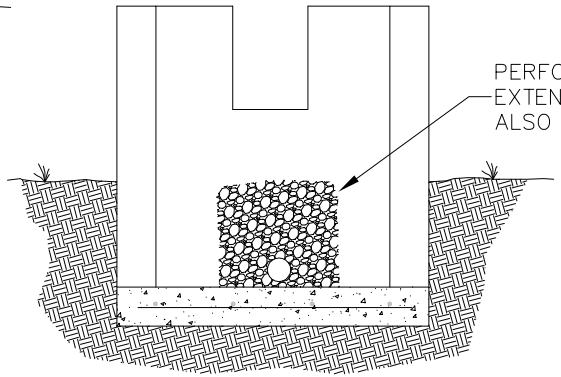

ISOMETRIC VIEW




FRONT




SIDE



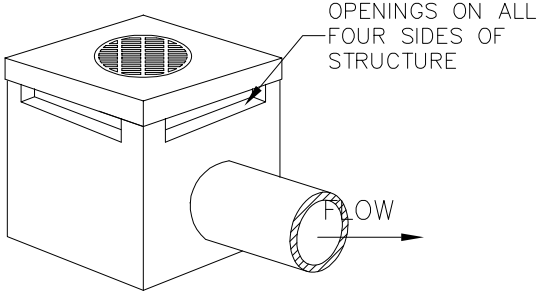

FRONT

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

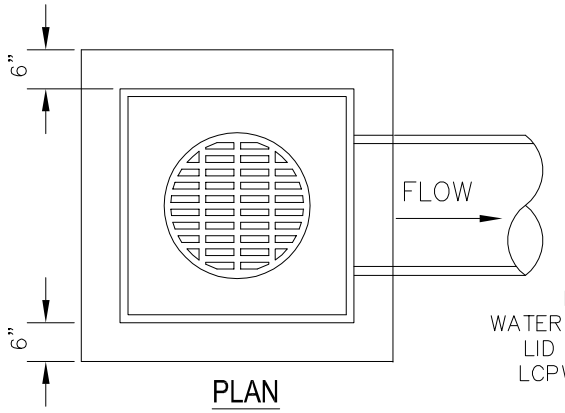
OUTLET STRUCTURE
(OTHER OPTIONS)

DRAWING NO: D–10A

DATE: MAY 2008




ISOMETRIC VIEW

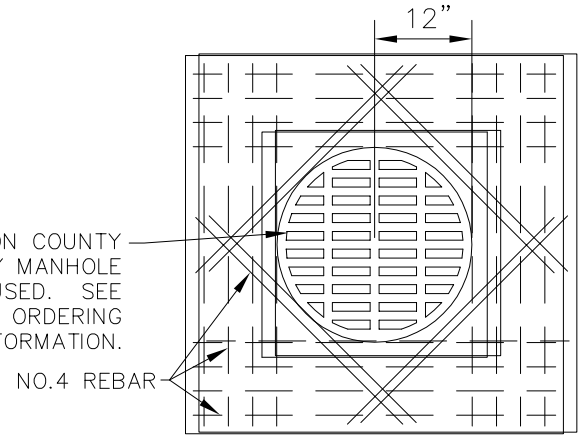



PLAN

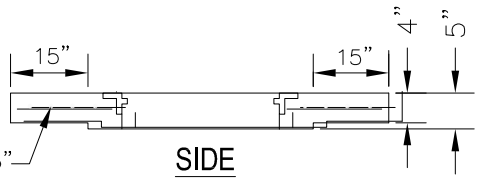
## NOTES:

1. CONCRETE SHALL BE 3,000 PSI MIN. 28–DAY COMPRESSIVE STRENGTH.
2. STEEL SHALL BE ASTM A–706, LOW–ALLOY DEFORMED BARS FOR CONCRETE REINFORCEMENT, GRADE 60.
3. ALL LIFT HOLES SHALL BE GROUTED WATER TIGHT PRIOR TO COMPLETION OF INSTALLATION.
4. METAL STEPS AS SUPPLIED BY NEENA R1900–C OR APPROVED EQUAL SHALL BE INSTALLED AT 16" O.C.

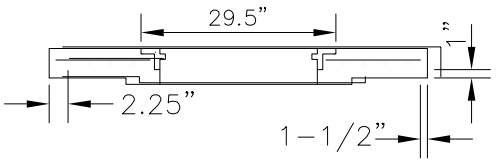
## DETAIL OF COVER




PLAN




SIDE

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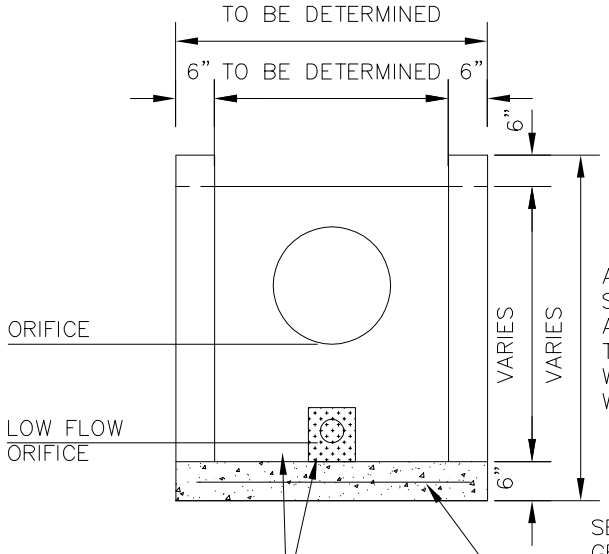


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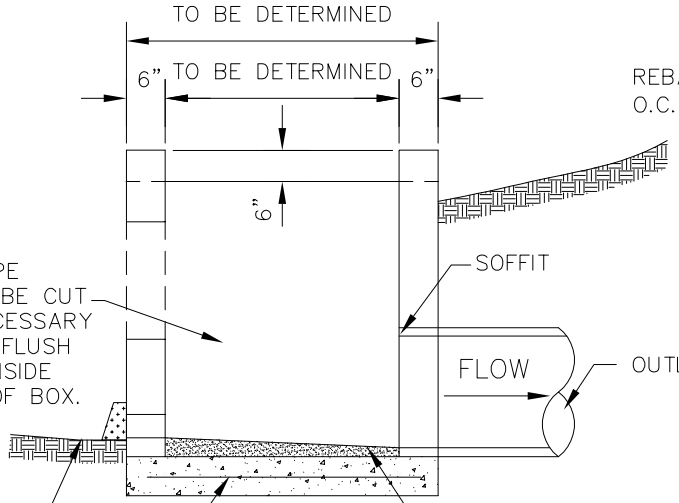



SIDE

LOW FLOW ORIFICE TO HAVE DEBRIS PLATE, STONE COVER, OR APPROVED EQUAL. SEE NEXT PAGE FOR OTHER OPTIONS

NO. 4 REBAR 12"OC WITH 1–1/2"MIN.COVER ALL DIRECTIONS MIN. 0.20 SQ. IN. STEEL AREA PER FT.

| | |
|---|---|
| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
| OUTLET STRUCTURE | |
| DRAWING NO: D–10 | |
| DATE: October 2007 | |

Plant Selection
Plant seed selection should be based on the type of soil, the season of the year in which the planting is to be done, and the needs and desires of the permanent land user. Tables 3.14 and 3.15 should be used to select the desired species to be planted. Failure to carefully follow agronomic recommendations often result in an inadequate stand of permanent vegetation that provides little or no erosion control. The rates in Tables 3.14 and 3.15 are based on purity and germination standards required for certification.

The following notes apply to Tables 3.14 and 3.15.

1. In mixtures with temporary cover, the full seeding rate of permanent cover shall be used.
2. Mix means 2 or more long term species plus short term species. For dates other than optimum, call the Lexington Soil and Water Conservation District, (803) 359–3165 ext. 3.
3. A legume, such as a clover, crown vetch, and serecia should be used where it is possible.
4. The appropriate inoculants should be used.

Topsoil
If the surface soil of the seedbed is not adequate for plant growth, topsoil should be applied.

Tillage
If the area has been recently plowed, no tillage is required other than raking or Surface Roughening to break any crust that has formed and to leave a textured surface. If the soil is compacted less than 6–inches, it should be disked for optimal germination. If the soil is compacted more than 6–inches, it should be sub–soiled and disked.

Soil Testing
Information and test provider is available from the PW/SWD and the Soil and Water Conservation District Office.

Lime
Unless a specific soil test indicates otherwise, apply 1« tons of ground course textured agricultural limestone per acre (70 pounds per 1000 square feet).

Fertilizer
A minimum of 1000 pounds per acre of a complete 10–10–10 fertilizer (23 pounds per 1000 square feet) or equivalent should be applied during permanent seeding of grasses unless a soil test indicates a different requirement. Fertilizer and lime (if used) should be incorporated into the top 4–6 inches of the soil by disking or other means where conditions allow. Do not mix the lime and the fertilizer prior to the field application.

Seeding
The surface of the soil should be loosened just before broadcasting the seed. Seed should be evenly applied by the most convenient method available for the type of seed to be applied. Typical application methods include but are not limited to cyclone seeders, rotary spreaders, drop spreaders, broadcast spreaders, hand spreaders, cultipacker seeder, and hydro–seeders. Cover applied seed by raking or dragging a chain or brush mat, and then lightly firm the area with a roller or cultipacker. Do not roll seed that is applied with a hydro–seeder and hydro–mulch.

Mulching
All permanent seeded areas should be covered with mulch immediately upon completion of the seeding application to retain soil moisture and reduce erosion during establishment of vegetation. The mulch should be applied evenly in such a manner that it provides a minimum of 75% coverage. Typical mulch applications include straw, wood chips, bark, wood fiber, and compost mulch. The most commonly accepted mulch used in conjunction with permanent seeding is small grain straw. This straw should be dry and free from mold damage and noxious weeds. The straw may need to be anchored with netting or asphalt emulsions to prevent it from being blown or washed away. The straw mulch may be applied by hand or machine at the rate 2 tons per acre (90 pounds per 1000 square feet). Frequent inspections are necessary to check that conditions for growth are good.

Irrigation
Permanent seeded areas should be kept adequately moist, especially late in the specific growing season. Irrigate the seeded area if normal rainfall is not adequate for the germination and growth of seedlings. Water seeded areas at controlled rates that are less than the rate at which the soil can absorb water to prevent runoff. Runoff of irrigation water wastes water and can cause erosion.

Re–seeding
Inspect permanently seeded areas for failure, make necessary repairs and re–seed or overseed within the same growing season if possible. If the grass cover is sparse or patchy, re–evaluate the choice of grass and quantities of lime and fertilizer applied. If the permanent seeding has less than 40% cover, have the soil tested to determine any acidity or nutrient deficiency problems. Final stabilization by permanent seeding of the site requires that it be covered by a 70% coverage rate.

Post–Stabilization
Once areas are stabilized they can be converted to native species or for establishing on non–critical, level sites. Table 3.16 lists some native species of Lexington County that can be used.

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

PERMANENT VEGETATION
NOTES & SCHEDULE
(Sheet 1 of 2)

DRAWING NO: D–11

DATE: October 2007

| TABLE 3.14 PERMANENT VEGETATION SCHEDULE | | | |
|---|---|---|---|
| Species | Rates (lbs/acr) | Optimum Dates to Plant | Remarks |
| Bahia Grass (Alone) | 40 | March 20 – June 15 | Slow to become established |
| Bahia Grass (Mix)* | 30 | March 20 – June 15 | Slow to become established |
| Bermuda Grass (Hulled) (Alone) | 8–12 | April – July 15 | Quick cover, Sod forming, partial winter kill |
| Bermuda Grass (Hulled) (Mix)* | 4–6 | April – July 15 | Quick cover, Sod forming, partial winter kill |
| Fescue, Tall (KY31) Alone | 40 | August 15 – October | Seldom seeded alone, not for dry or wet sites |
| Fescue, Tall (KY31) Mix* | 20 | August 15 – October | Seldom seeded alone, not for dry or wet sites |
| Sericea Lespedeza (Scarified) Alone or Mix*, (Innoculate with EL Innoculant) | 40 | April –June | Good for slopes, cuts, and fills that require low maintenance |
| Ladino Clover (Mix* only), (Innoculate with AB Innoculant) | 2 | August 20 – October | Naturally adds nitrogen |

* For details on mixes consult the Lexington Soil and Water Conservation District, (803) 359–3165 ext. 3.

| TABLE 3.15 PERMANENT VEGETATION SCHEDULE FOR STEEP SLOPES/CUT SLOPES | | | |
|---|---|---|---|
| Species | Rates (lbs/acr) | Optimum Dates to Plant | Remarks |
| Weeping Lovegrass (Alone) | 4 | April – July 20 | Quick cover, deep roots, likes dry sites, seldom used alone, clumps |
| Weeping Lovegrass (Mix)* | 2 | April – July 20 | Quick cover, deep roots, likes dry sites, seldom used alone, clumps |

| TABLE 3.16 NATIVE SPECIES THAT CAN BE USED ON NON-CRITICAL, LEVEL SITES IN LEXINGTON COUNTY, SC | | | |
|---|---|---|---|
| Species | Rates (lbs/acr) | Optimum Dates to Plant | Remarks |
| Switchgrass (Mix* with Legumes) | 10, PLS** | February 10 – April 20 | Mix with Serecia at 30 lbs/acre |
| Indian Grass (Mix)* | 8, PLS** | February – April 20 | Mix with Serecia at 30 lbs/acre |
| Little Bluestem, (Mix*) | 8, PLS** | February 10 – April | |

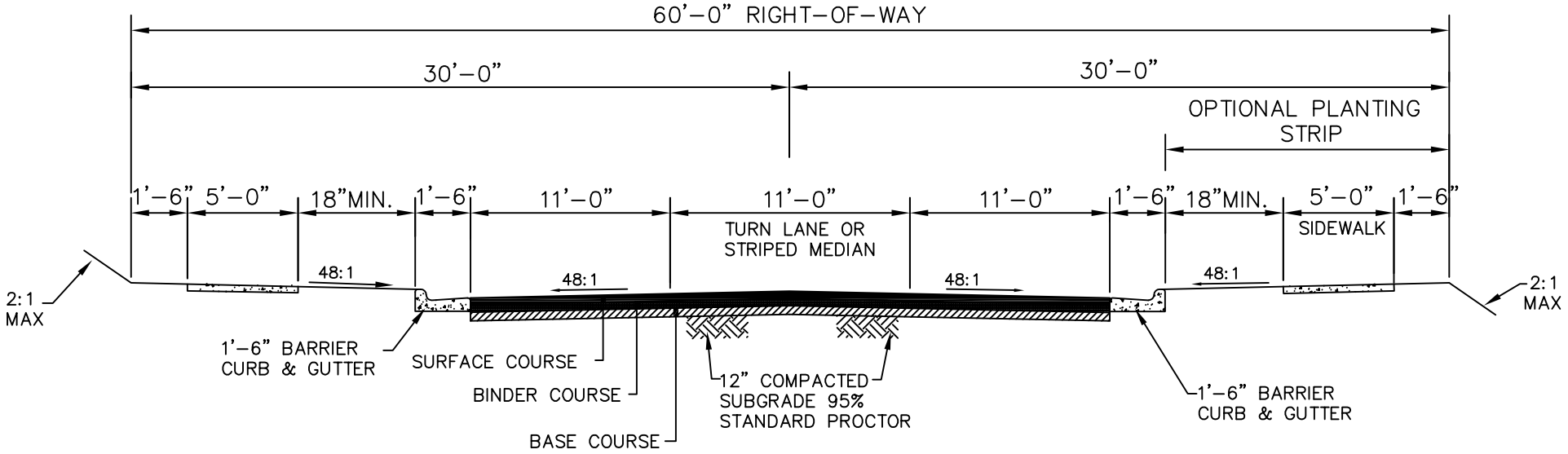
* Pure Live Seed

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

PERMANENT VEGETATION
NOTES & SCHEDULE
(Sheet 2 of 2)

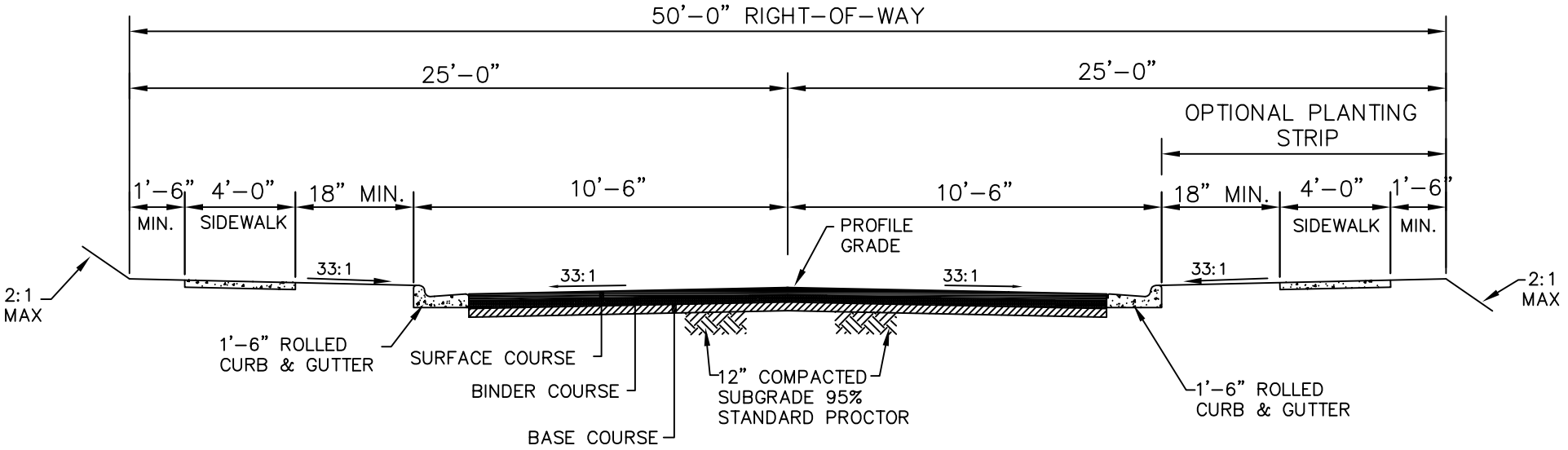
DRAWING NO: D–11A

DATE: October 2007



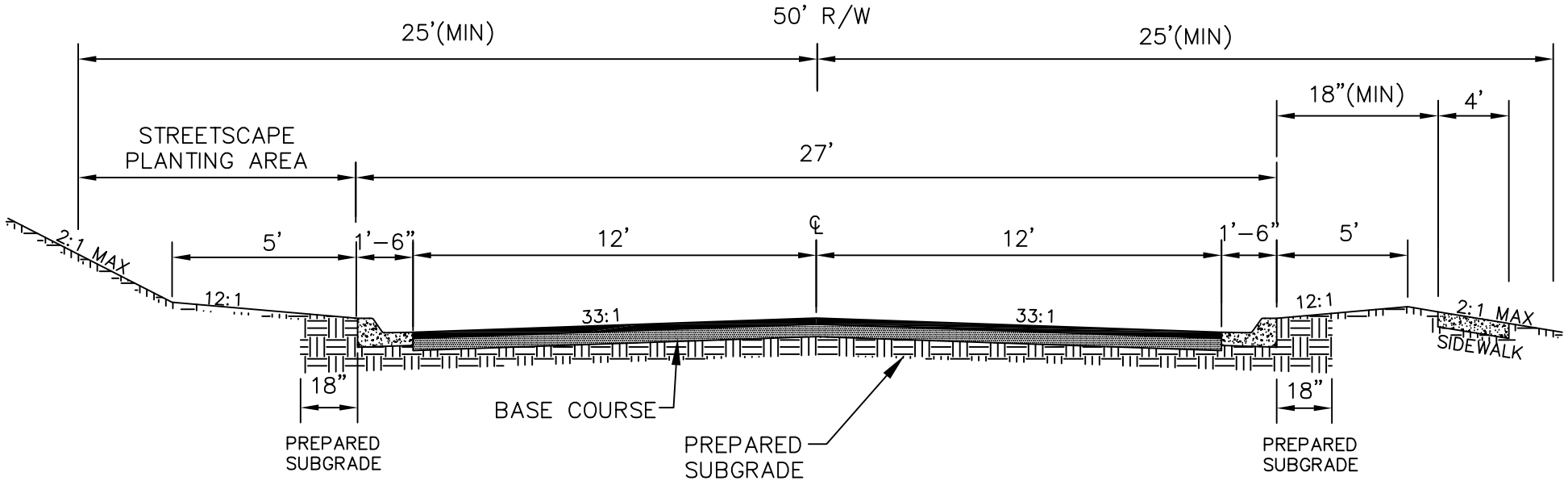

1. COMPACTION OF PREPARED SUBGRADE TO EXTEND 18" FROM B.O.C.
2. A MINIMUM OF 95% COMPACTION REQUIRED WITHIN R.O.W.

| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
|---|---|
| PRIVATE COMMERCIAL STREET | |
| DRAWING NO: A–11 | |
| DATE: October, 2007 | |




1. COMPACTION OF PREPARED SUBGRADE TO EXTEND 18" FROM B.O.C.
2. A MINIMUM OF 95% COMPACTION REQUIRED WITHIN R.O.W.

| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
|---|---|
| PRIVATE RESIDENTIAL STREET | |
| DRAWING NO: A–10 | |
| DATE: October 2007 | |




1. COMPACTION OF PREPARED SUBGRADE TO EXTEND 18" FROM B.O.C.
2. A MINIMUM OF 95% COMPACTION REQUIRED WITHIN R.O.W.

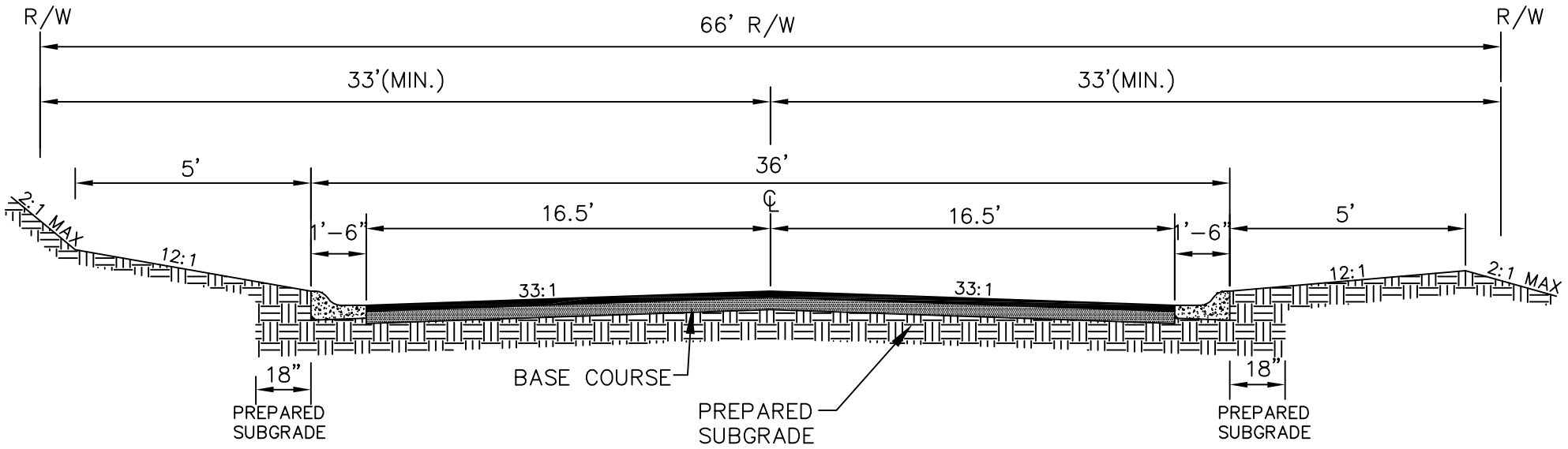
NOTES:

1. PREPARED SUBGRADE SHALL BE 30' WIDE.
2. PRIME BASE COURSE .25–.30 GALLONS PER SQUARE YARD, WHEN REQUIRED.
3. NO DRIVEWAYS ACCESSING COLLECTOR ROADWAY.

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

RESIDENTIAL COLLECTOR
18" Barrier Curb, 4' Sidewalk
(50' r/w)

DRAWING NO: A–7
DATE: October, 2007

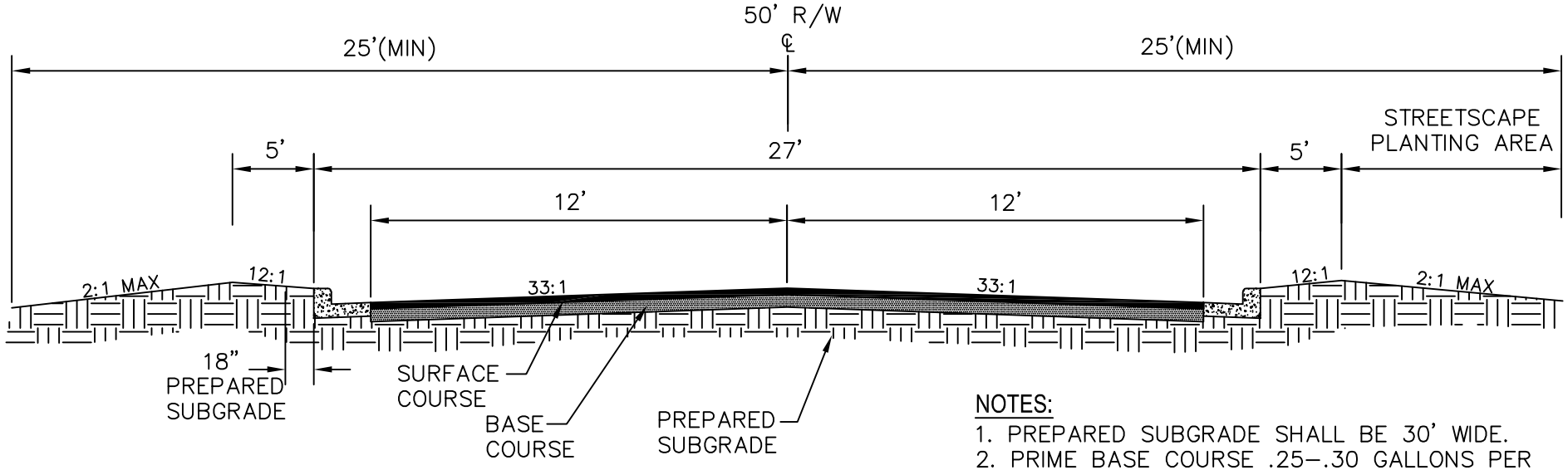



1. COMPACTION OF PREPARED SUBGRADE TO EXTEND 18" FROM B.O.C.
2. A MINIMUM OF 95% COMPACTION REQUIRED WITHIN R.O.W.

NOTES:

1. PREPARED SUBGRADE SHALL BE 39' WIDE.
2. PRIME BASE COURSE .25–.30 GALLONS PER SQUARE YARD, WHEN REQUIRED.

| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
|---|---|
| RESIDENTIAL COLLECTOR & LIGHT COMMERCIAL/ INDUSTRIAL w/18" Rolled Curb | |
| DRAWING NO: A–6 | |
| DATE: October, 2007 | |

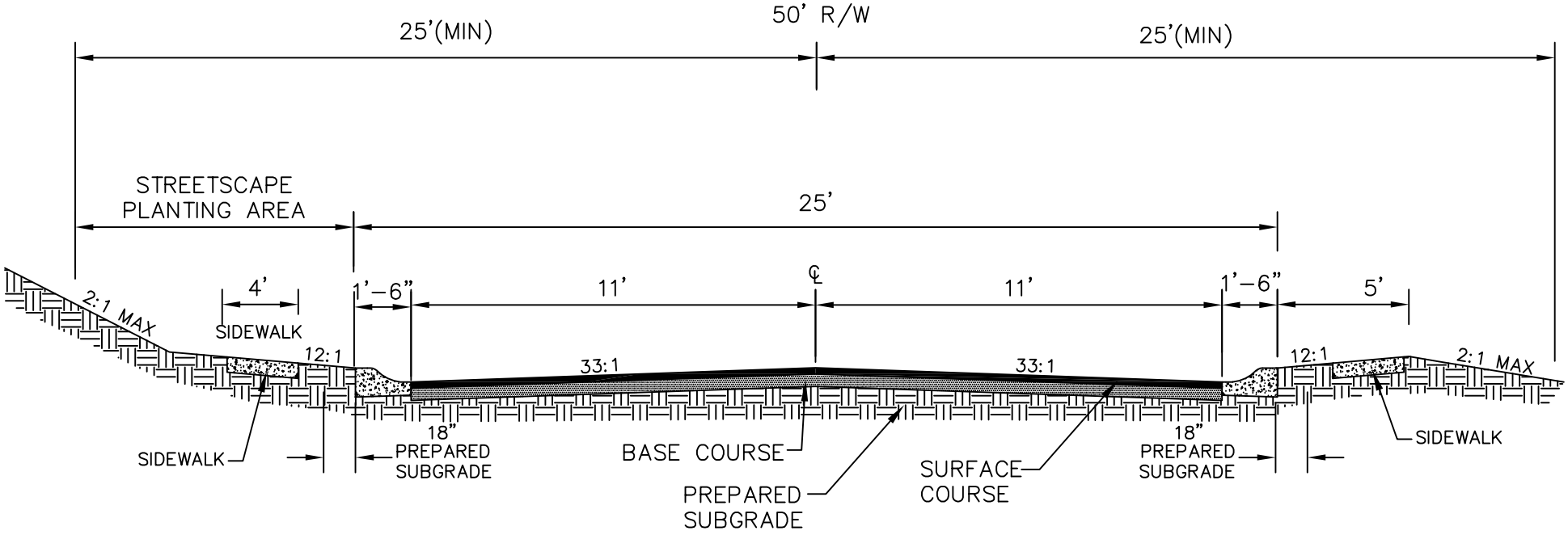



NOTES:

1. PREPARED SUBGRADE SHALL BE 30' WIDE.
2. PRIME BASE COURSE .25–.30 GALLONS PER SQUARE YARD, WHEN REQUIRED.
3. STREETSCAPE PLANTING AREA MAY BE SLOPED AWAY FROM ROAD.
4. NO DRIVEWAYS ACCESSING COLLECTOR ROADWAY.

1. COMPACTION OF PREPARED SUBGRADE TO EXTEND 18" FROM B.O.C.
2. A MINIMUM OF 95% COMPACTION REQUIRED WITHIN R.O.W.

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT |
|---|
| RESIDENTIAL COLLECTOR<br>ROAD SECTION<br>W/ BARRIER CURBING |
| DRAWING NO: A–4 |
| DATE: October, 2007 |

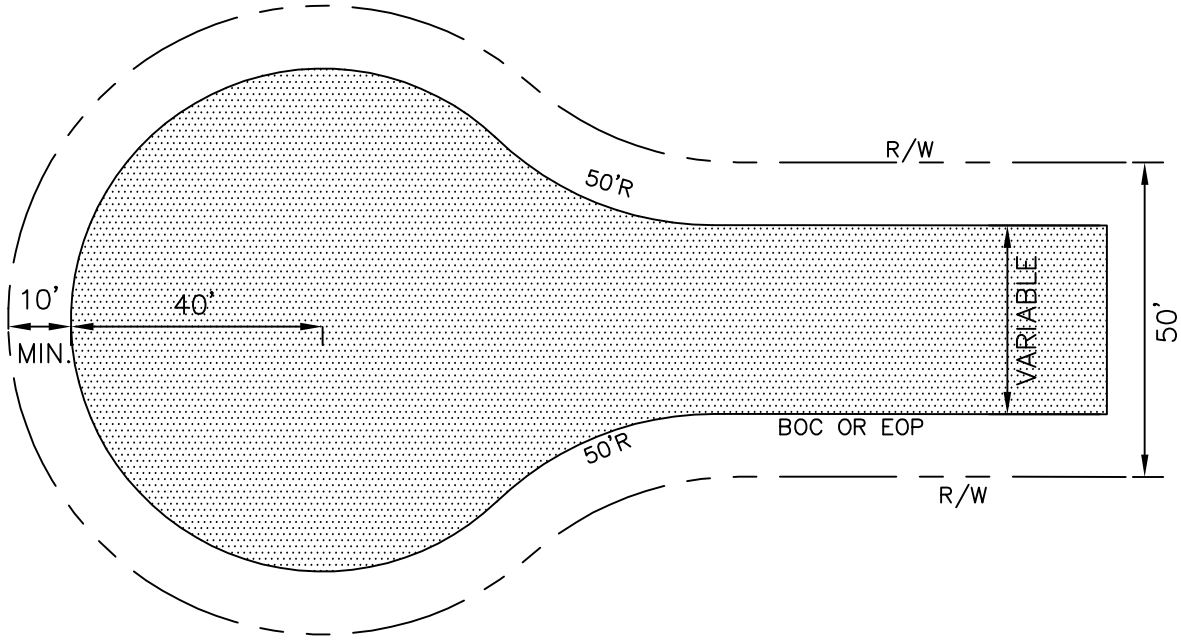


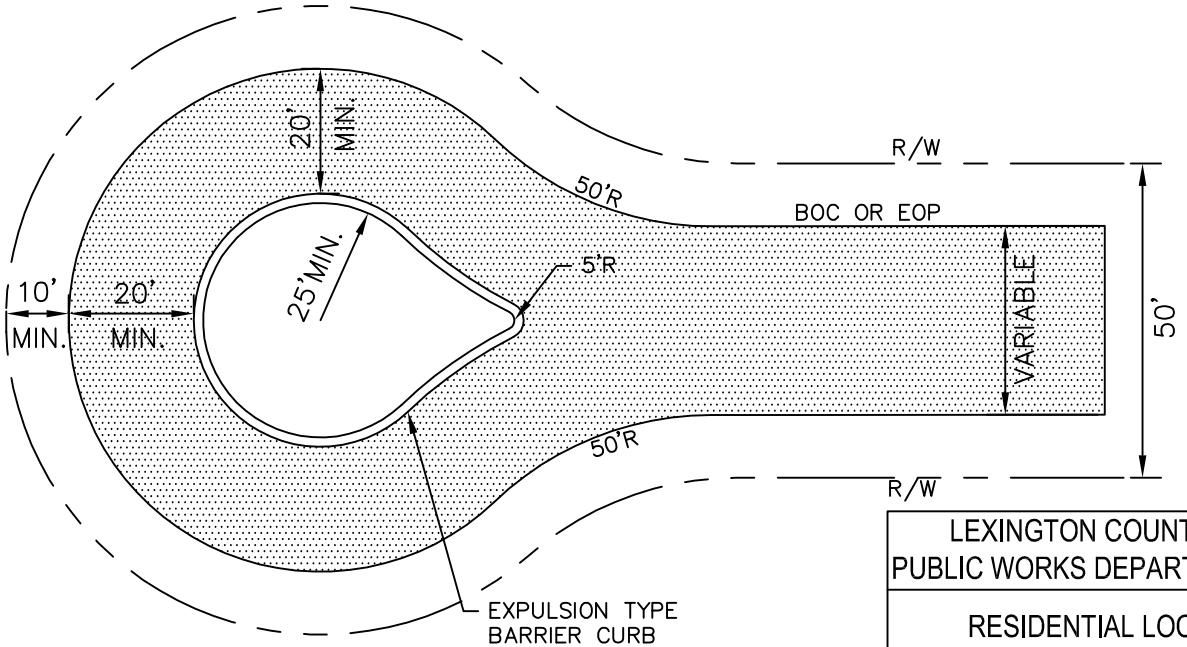

1. COMPACTION OF PREPARED SUBGRADE TO EXTEND 18" FROM B.O.C.
2. A MINIMUM OF 95% COMPACTION REQUIRED WITHIN R.O.W.

NOTES:

1. PREPARED SUBGRADE SHALL BE 28' WIDE.
2. PRIME BASE COURSE .25-.30 GALLONS PER SQUARE YARD, WHEN REQUIRED.

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| RESIDENTIAL LOCAL<br>18" Rolled Curb, 4' Sidewalk<br>(50' r/w) | |
| DRAWING NO: A-5 | |
| DATE: October, 2007 | |



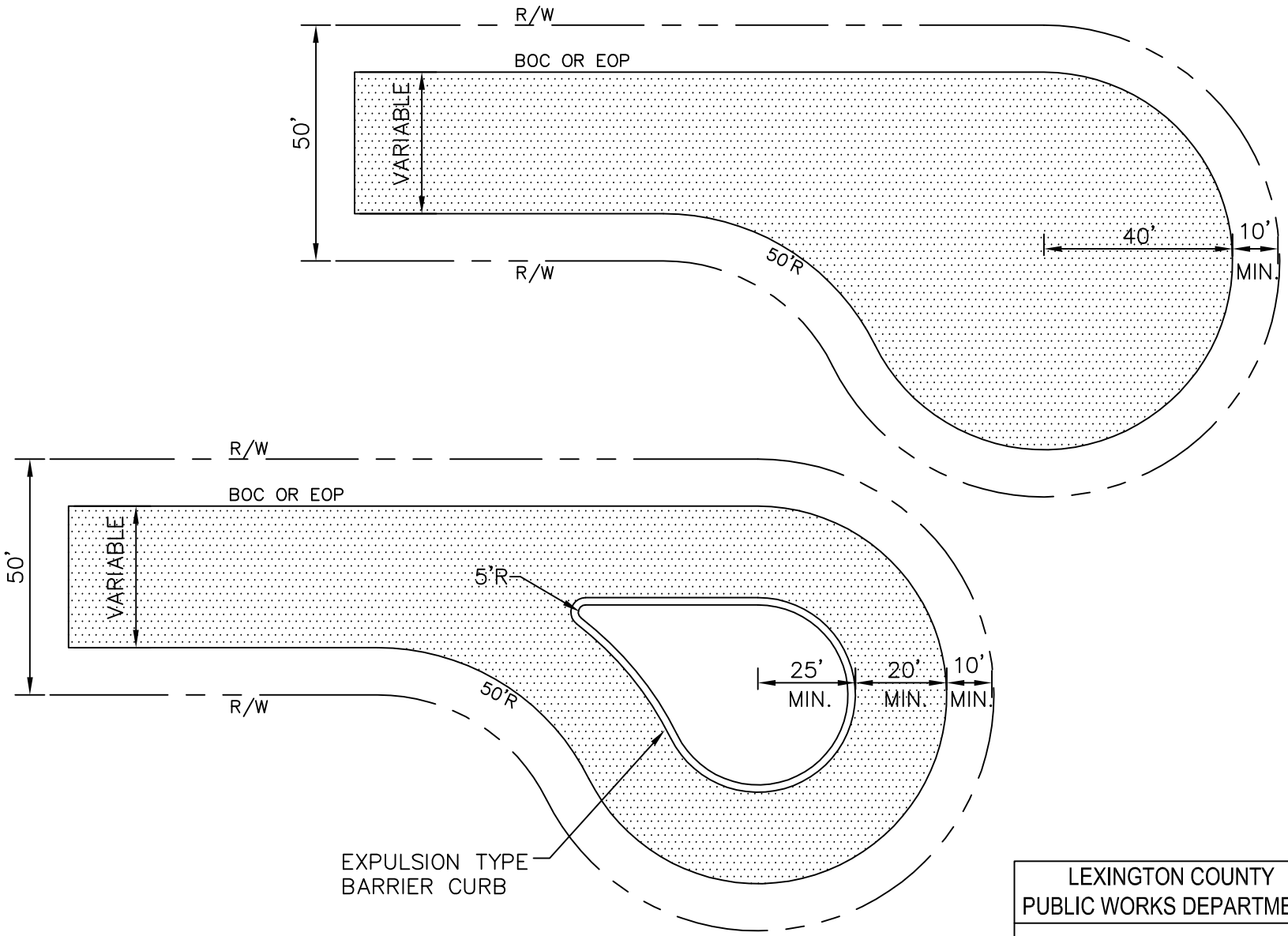




UNDERDRAIN TO BE PLACED B.O.C. IF ISLAND IS IRRIGATED.

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

RESIDENTIAL LOCAL
CUL-DE-SAC
(with and w/o island)

DRAWING NO: A–12
DATE: October, 2007

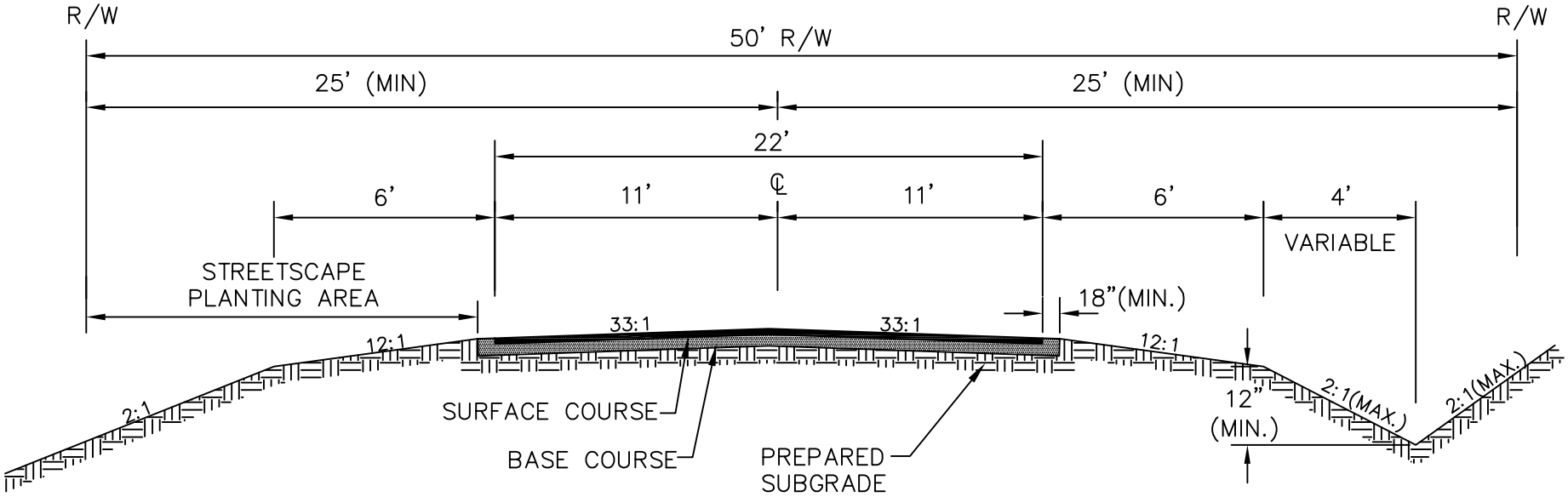



UNDERDRAIN TO BE PLACED B.O.C. IF ISLAND IS IRRIGATED.

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

RESIDENTIAL LOCAL
OFFSET CUL-DE-SAC
(with or w/o Island)

DRAWING NO: A–13
DATE: October, 2007

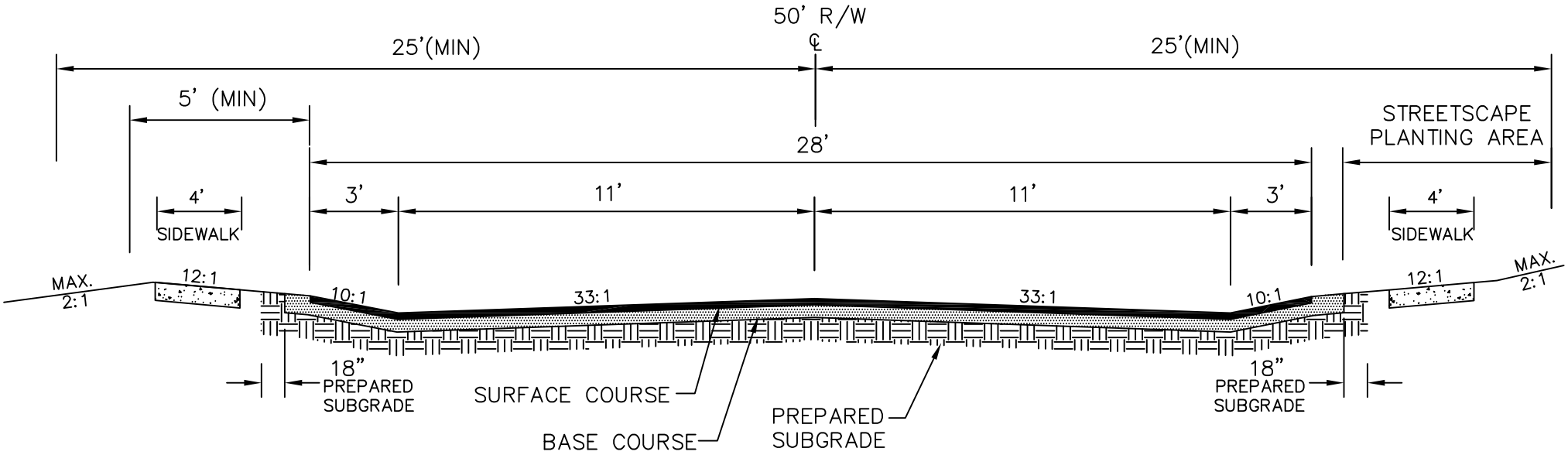



NOTES:

1. PREPARED SUBGRADE SHALL BE 25' WIDE.
2. PRIME BASE COURSE .25–.30 GALLONS PER SQUARE YARD, WHEN REQUIRED.
3. STREETSCAPE PLANTING ARE MAY BE SLOPED AWAY FROM ROAD.
4. USE THIS CROSS–SECTION ON A CASE–BY–CASE BASIS.

1. COMPACTION OF PREPARED SUBGRADE TO EXTEND 18" FROM B.O.C.
2. A MINIMUM OF 95% COMPACTION REQUIRED WITHIN R.O.W.

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT |
|---|
| RESIDENTIAL LOCAL<br>ROAD SECTION<br>w/ DITCH (50' R/W) |
| DRAWING NO: A–2 |
| DATE: October, 2007 |

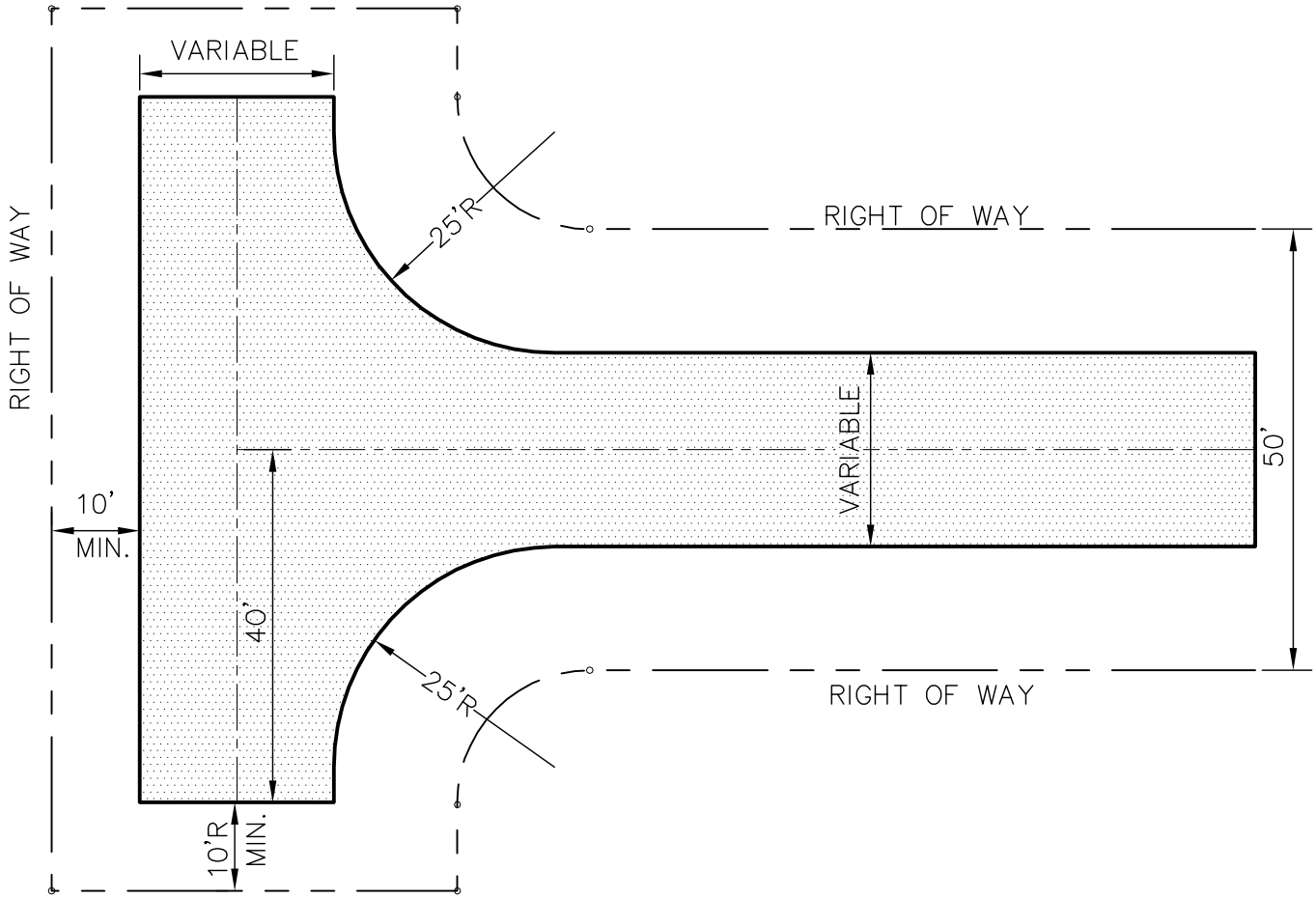



NOTES:

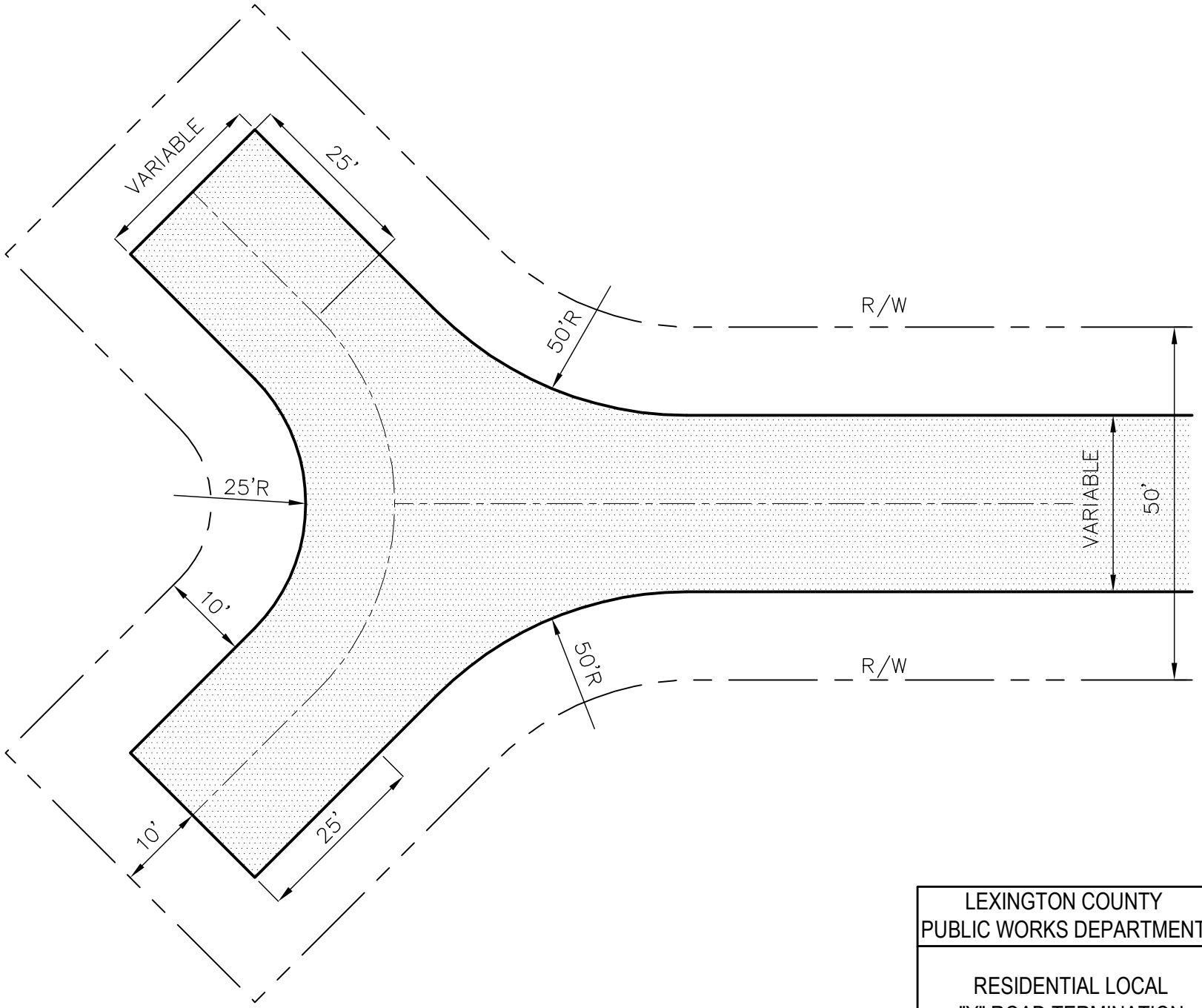
1. PREPARED SUBGRADE SHALL BE 31' WIDE.
2. PRIME BASE COURSE .25–.30 GALLONS PER SQUARE YARD, WHEN REQUIRED.
3. STREETSCAPE PLANTING AREA MAY BE SLOPED AWAY FROM ROAD.

1. COMPACTION OF PREPARED SUBGRADE TO EXTEND 18" FROM B.O.C.
2. A MINIMUM OF 95% COMPACTION REQUIRED WITHIN R.O.W.

| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT |
|---|
| RESIDENTIAL LOCAL ROAD SECTION W/ VALLEY GUTTER CURBING |
| DRAWING NO: A–1 |
| DATE: October 2007 |




| | |
|---|---|
| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
| RESIDENTIAL LOCAL<br>"T" ROAD TERMINATION | |
| DRAWING NO: A–15 | |
| DATE: October, 2007 | |

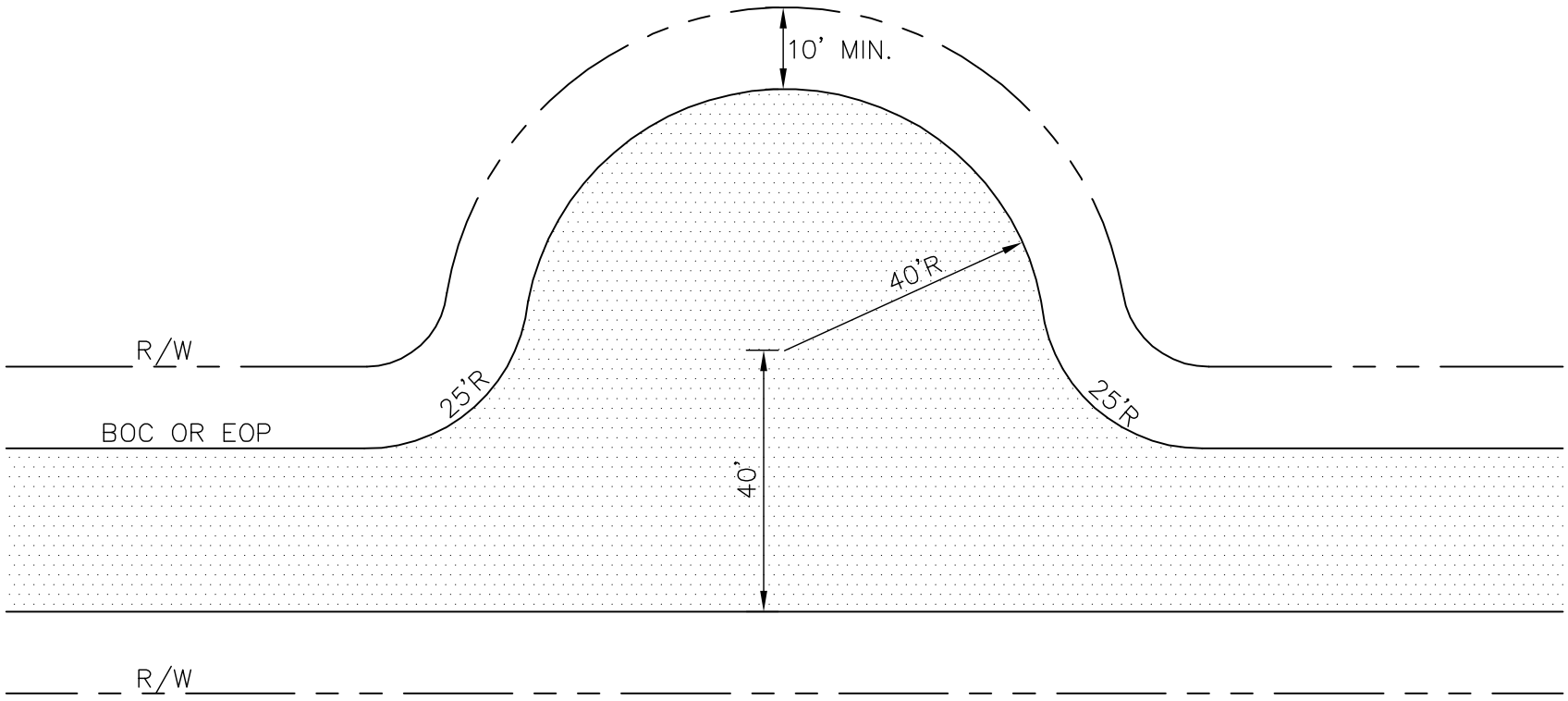



LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

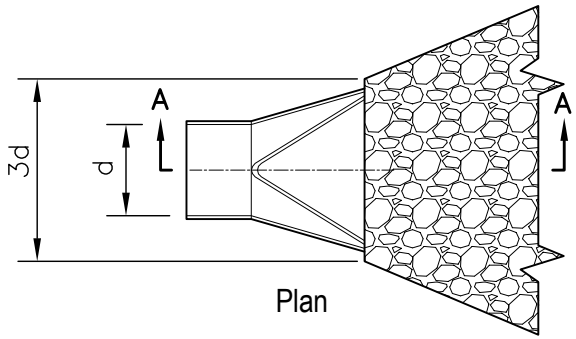
RESIDENTIAL LOCAL
"Y" ROAD TERMINATION

DRAWING NO: A-16

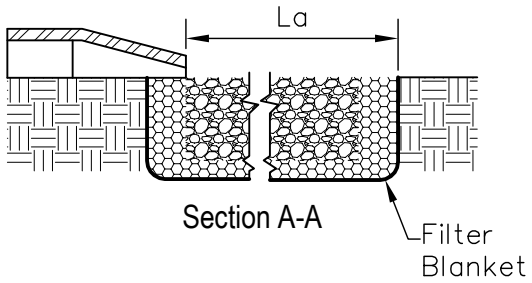
DATE: October, 2007




| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| RESIDENTIAL LOCAL /<br>RESIDENTIAL COLLECTOR<br>TURNAROUND | |
| DRAWING NO: A–14 | |
| DATE: October, 2007 | |




Plan




Section A-A

## Pipe Outlet to Flat Area - No Well-Defined Channel

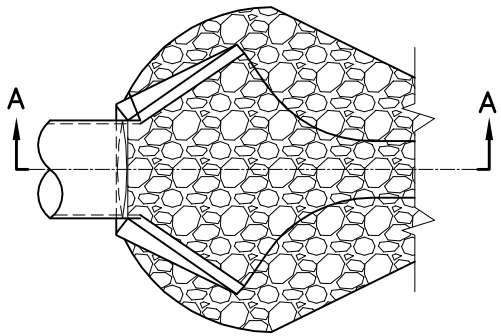
NOTES:

1. La IS THE LENGTH OF THE RIPRAP APRON.

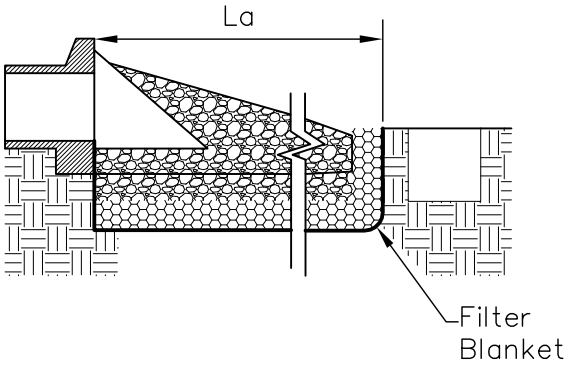
2. d = 1.5 TIMES THE MAXIUM STONE DIAMETER BUT NOT LESS THAN 6".

3. IN A WELL–DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.

4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.



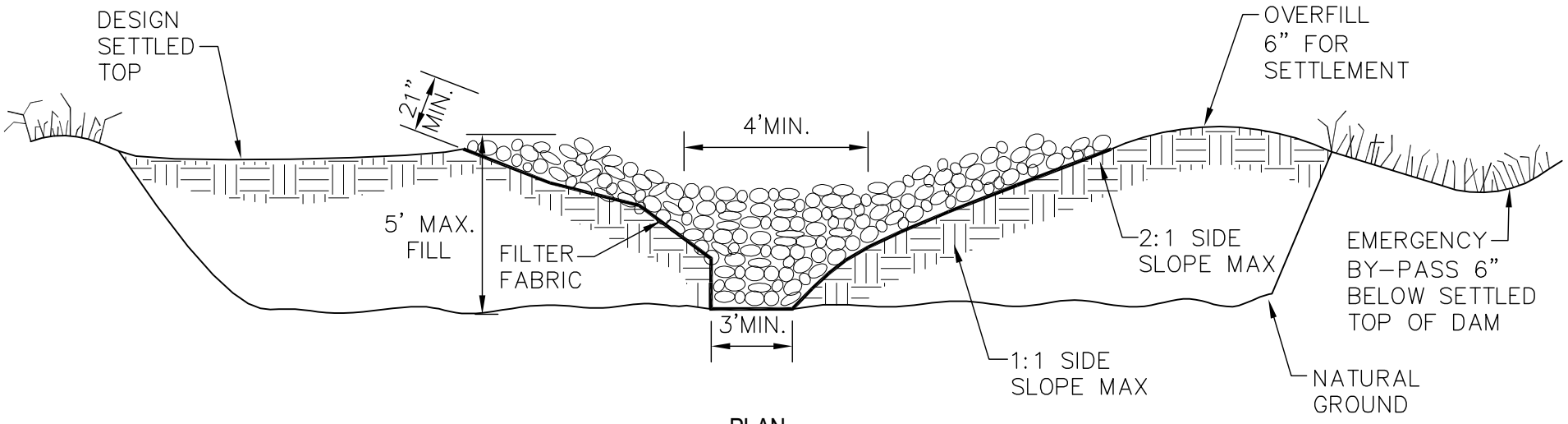

Plan



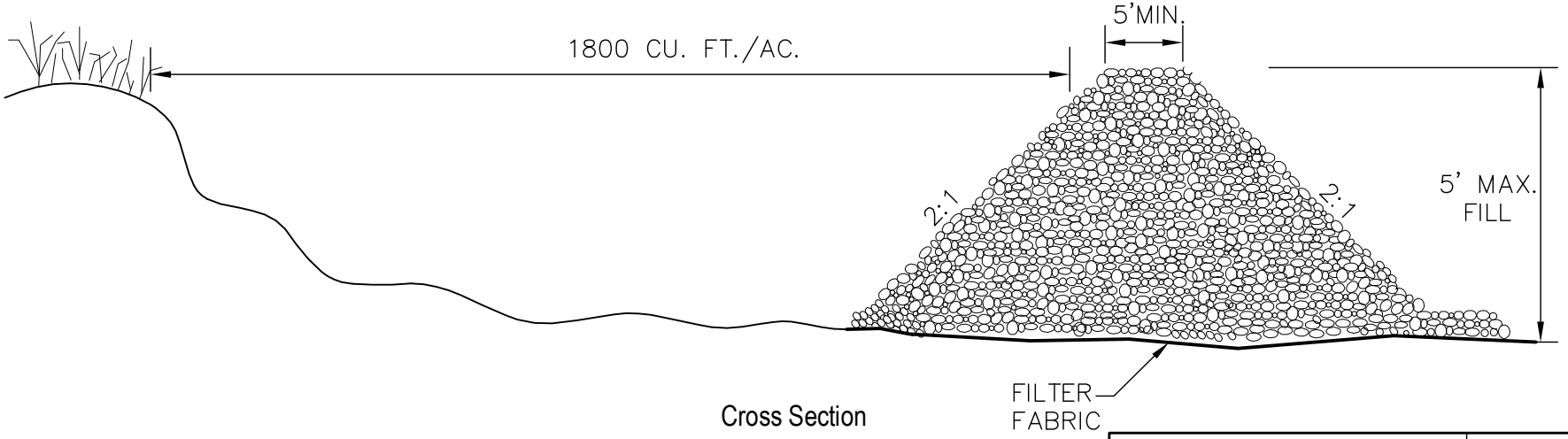

Section A-A

## Pipe Outlet to Well-Defined Channel

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| RIPRAP APRON | |
| DRAWING NO: C–6 | |
| DATE: October, 2007 | |

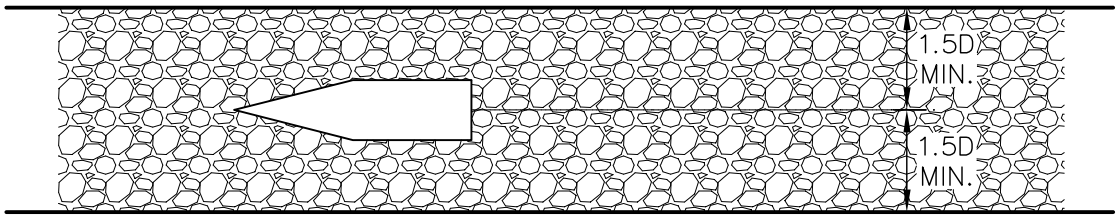



PLAN

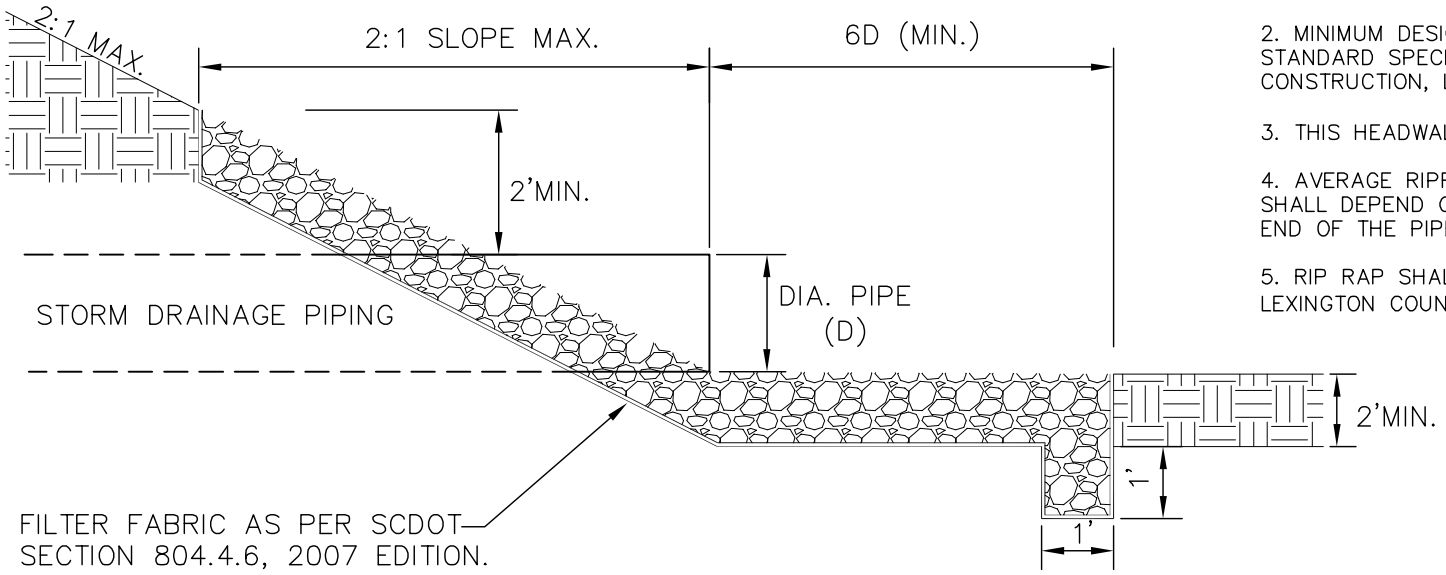



Cross Section

| | |
|---|---|
| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
| RIPRAP CHANNEL<br>PLAN & SECTION | |
| DRAWING NO: C-8 | |
| DATE: October, 2007 | |




PLAN




SECTION

NOTES:

1. WHEN PIPE EMPTIES INTO A DITCH OR SWALE THE RIPRAP WILL TAKE THE SHAPE OF THE DITCH OR SWALE.

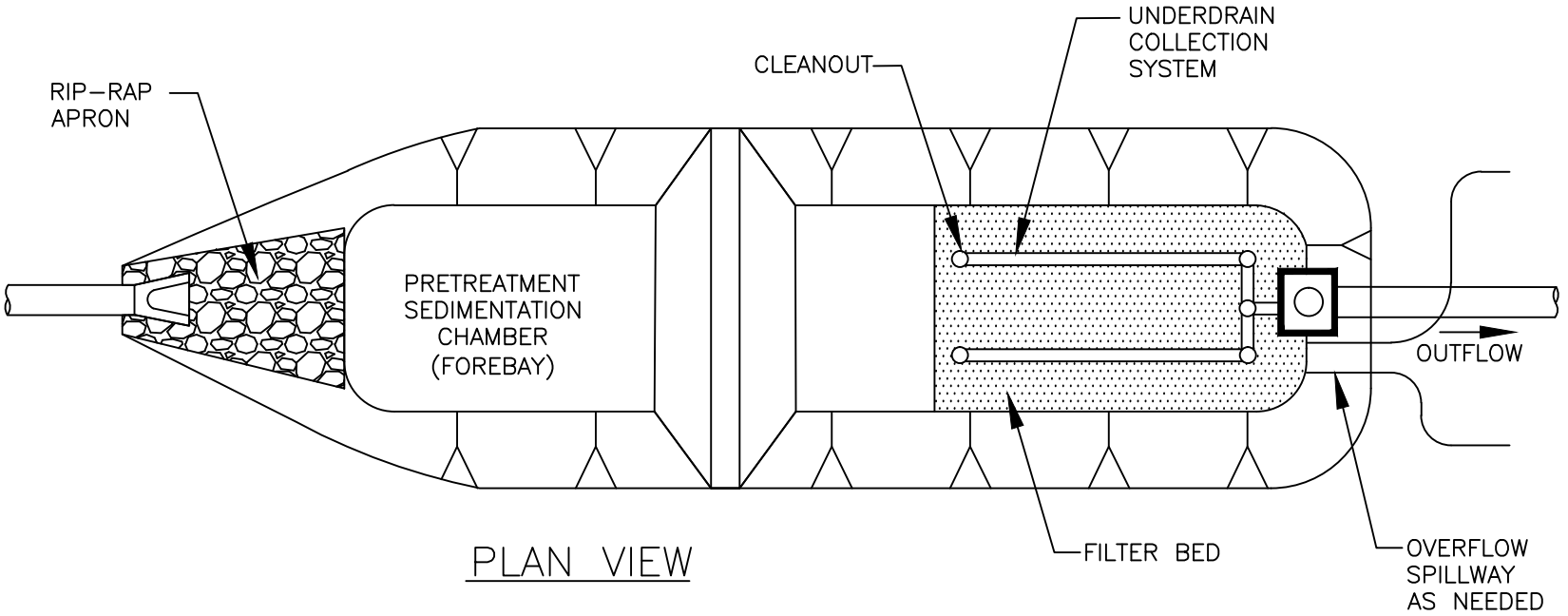
2. MINIMUM DESIGN SHOULD EQUAL SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION, SECTION 804.

3. THIS HEADWALL FOR 24" PIPES OR LESS.

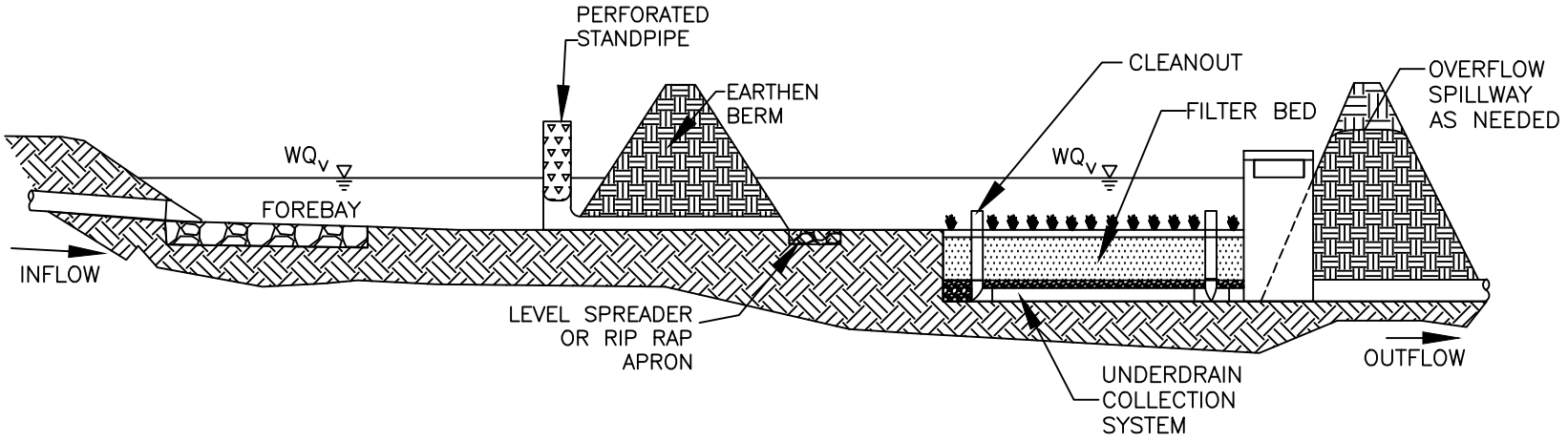
4. AVERAGE RIPRAP SIZE AND APRON LENGTH SHALL DEPEND ON THE VELOCITIES AT THE END OF THE PIPE.

5. RIP RAP SHALL BE GROUTED IN PLACE AT LEXINGTON COUNTY'S REQUEST.

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| RIPRAP HEADWALL | |
| DRAWING NO: C-7 | |
| DATE: October, 2007 | |




PLAN VIEW



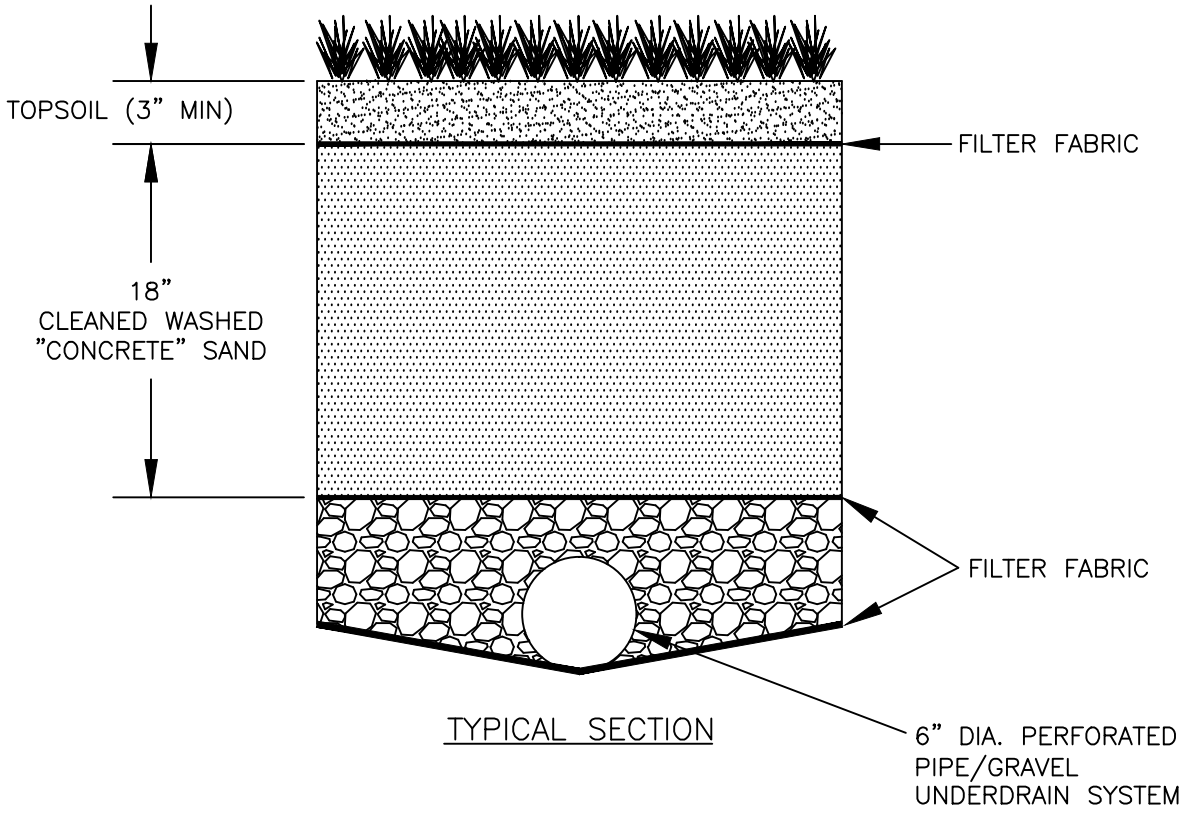

PROFILE VIEW

SOURCE: ADAPTED FROM CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS, REV 11, AND THE GEORGIA STORMWATER MANAGEMENT MANUAL, VOLUME 2, 2001..

Lexington County,
South Carolina

REVISION DATE: JUNE 2014

TYPICAL SURFACE SAND FILTER: pg 1 of 2



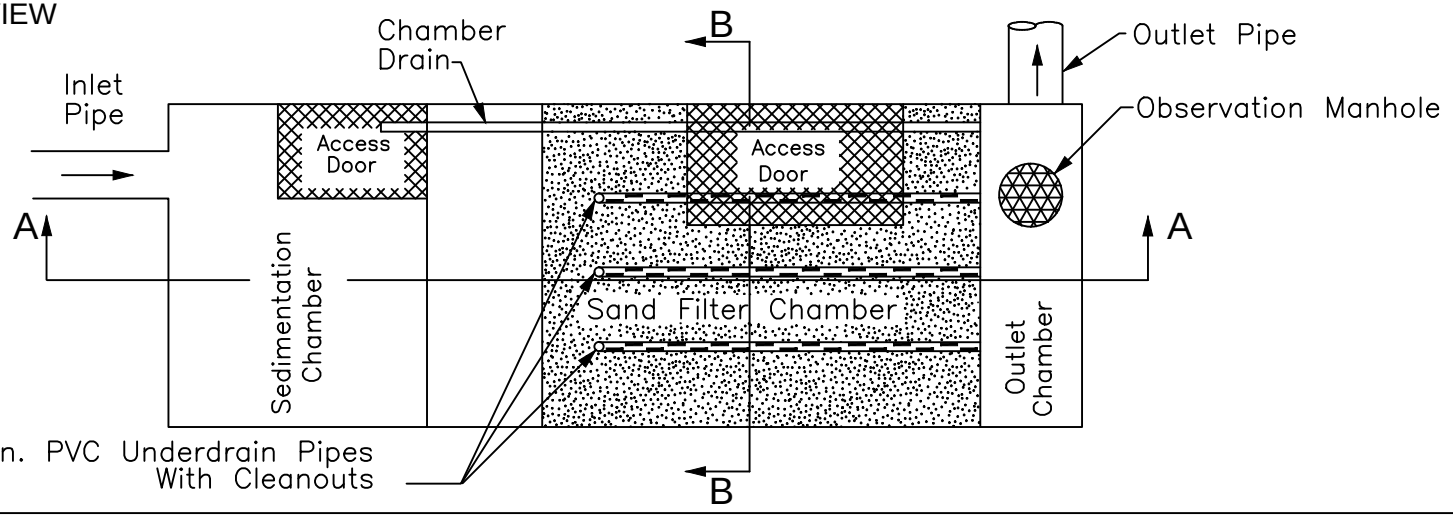

TYPICAL SECTION

Lexington County,
South Carolina

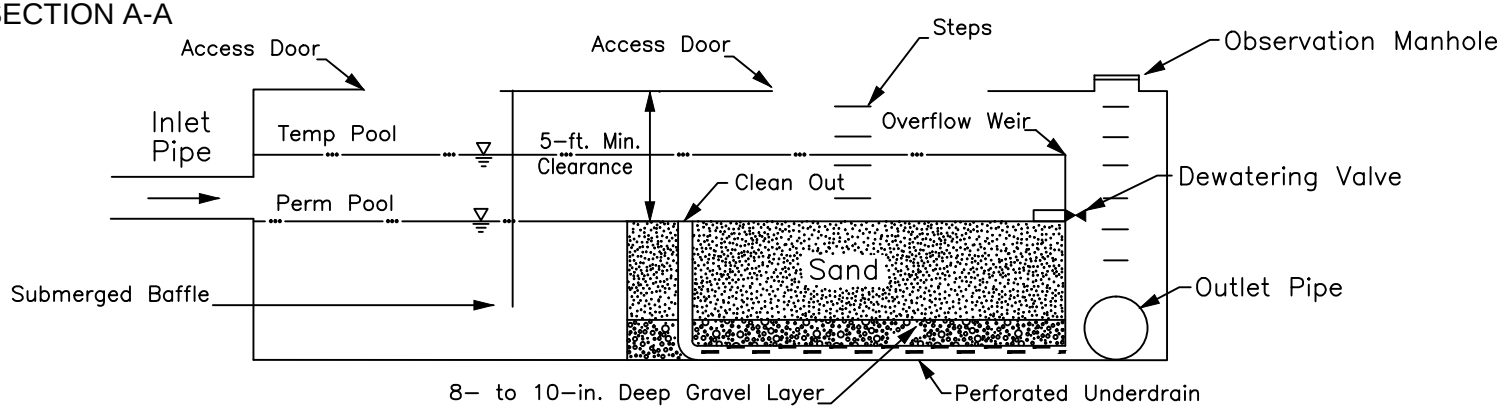
REVISION DATE: JUNE 2014

TYPICAL SURFACE SAND FILTER: pg 2 of 2

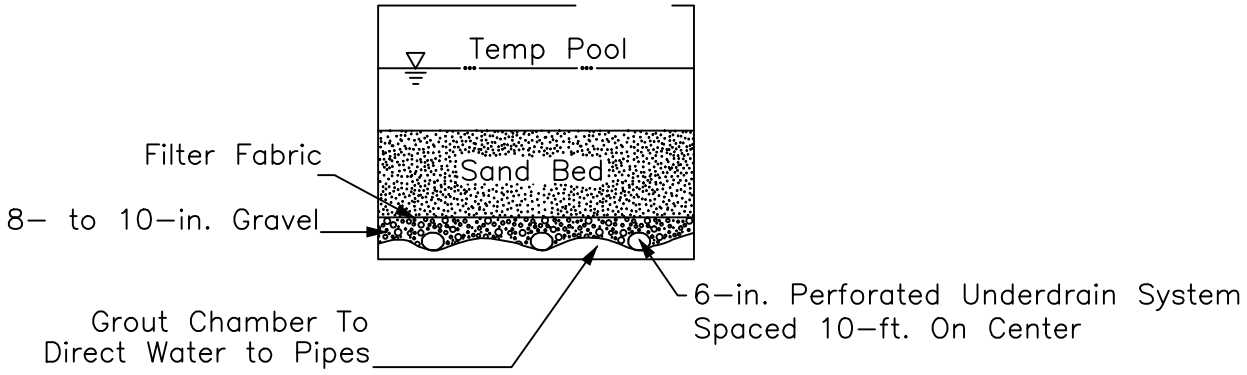
PLAN VIEW




SECTION A-A




SECTION B-B




Lexington County, South Carolina

REVISION DATE: JUNE 2014

TYPICAL UNDERGROUND SAND FILTER: pg 1 of 2

SAND FILTERS

WHEN AND WHERE TO USE IT

SAND FILTRATION FACILITIES ARE MOST APPLICABLE FOR SMALLER SITES OF 5 ACRES OR LESS WHERE THE PERCENT IMPERVIOUSNESS OF THE SITE IS VERY HIGH. SAND FILTERS SHALL BE USED ON SITES WHERE THE DRAINAGE AREA TO THE FACILITY WILL REMAIN WELL STABILIZED AFTER THE CONSTRUCTION PHASE TO PREVENT EXCESS SEDIMENT AND DEBRIS FROM PERMANENTLY CLOGGING THE FILTER.

IT IS RECOMMENDED THAT INDIVIDUAL SAND FILTERS BE SIZED TO TREAT RELATIVELY SMALL DRAINAGE AREA OF 1 TO 2 ACRES. THE IMPLEMENTATION OF SEVERAL FILTERS ON THE SITE WILL PREVENT THE ENTIRE SITE FROM BEING UNTREATED IF ONE OF THE FILTER FACILITIES BECOMES CLOGGED, REQUIRING MAINTENANCE.

INSTALLATION:

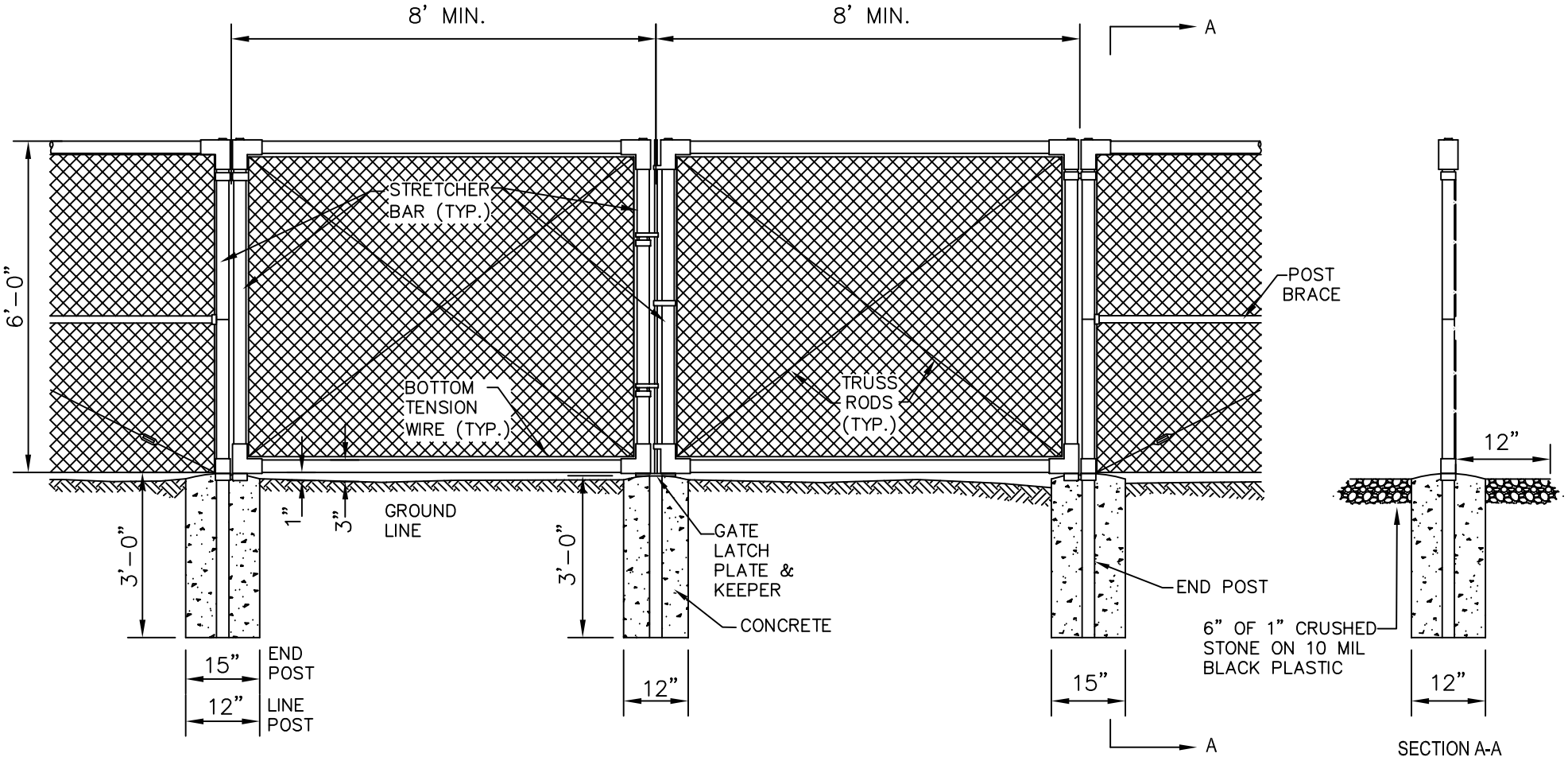
A 5–FOOT MINIMUM CLEARANCE HEIGHT SHALL BE PROVIDED BETWEEN THE TOP OF THE SAND BED AND THE BOTTOM OF THE CONCRETE SLAB TO PROVIDE CLEARANCE FOR MAINTENANCE. A DE–WATERING VALVE SHALL BE PLACED JUST ABOVE THE SAND BED LAYER TO DRAIN THE FACILITY IN SITUATION WHERE THE SAND FILTER BECOMES CLOGGED AND REQUIRES MAINTENANCE.

AN UNDER DRAIN SYSTEM SHALL BE USED TO COLLECT THE RUNOFF WATER THAT HAS PERCOLATED THROUGH THE SAND FILTER. THE PIPE SHALL BE 6–INCH PERFORATED SCHEDULE 40 PVC PIPING PLACED IN A 8– TO 10–INCH DEEP GRAVEL JACKET. A PERMEABLE GEOTEXTILE FILTER FABRIC LAYER SHALL BE PLACED BETWEEN THE SAND AND THE GRAVEL. TO ENSURE ADEQUATE DRAINAGE, THE BOTTOM CHAMBER SHALL BE SLOPED TOWARDS THE UNDER DRAIN PIPES THAT SHALL BE SPACED 10–FEET APART ALONG THE FILTER BED. THE UNDER DRAIN SYSTEM MAY DISCHARGE TO THE MAIN STORM SEWER SYSTEM OR MAY OUTFALL TO AN OUTLET CHAMBER.

INSPECTION AND MAINTENANCE:

REGULAR INSPECTION AND MAINTENANCE IS CRITICAL TO THE EFFECTIVE OPERATION OF SAND FILTER FACILITIES AS DESIGNED. MAINTENANCE RESPONSIBILITY FOR THE SAND FILTER SHALL BE VESTED WITH A RESPONSIBLE AUTHORITY BY MEANS OF A LEGALLY BINDING AND ENFORCEABLE MAINTENANCE AGREEMENT THAT IS EXECUTED AS A CONDITION OF PLAN APPROVAL. TYPICAL MAINTENANCE RESPONSIBILITIES INCLUDE CLEARING DEBRIS AND TRASH FROM ALL INLET AND OUTLET STRUCTURES MONTHLY, REMOVING TRASH AND DEBRIS FROM THE SEDIMENT CHAMBER MONTHLY, AND REMOVING ALL SEDIMENT FROM THE SEDIMENT CHAMBER ANNUALLY.

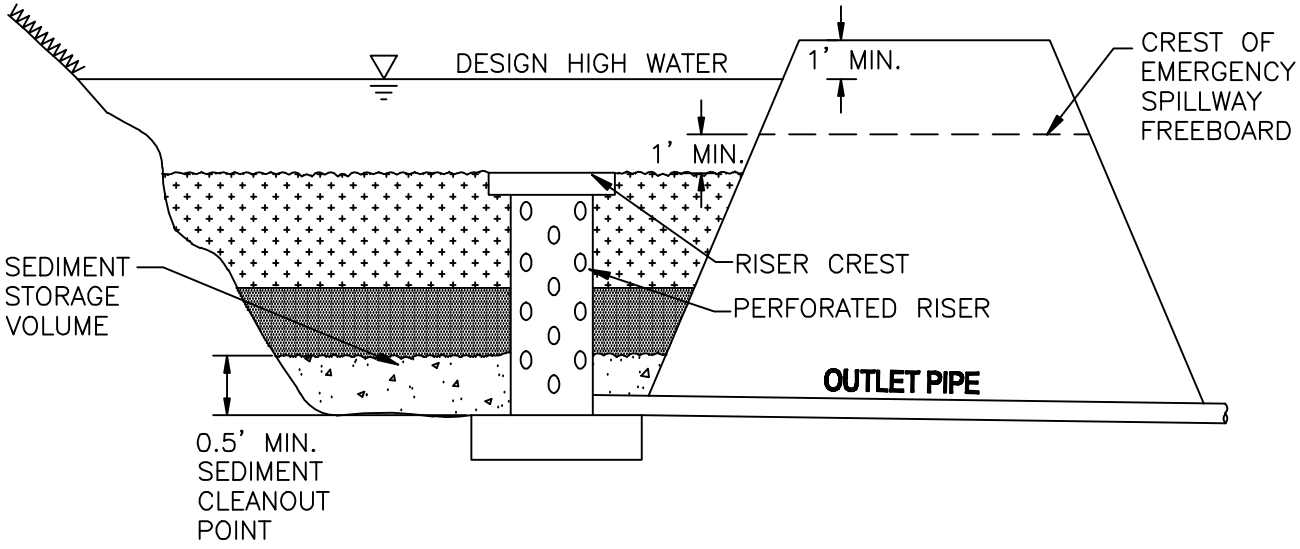
A RECORD SHALL BE KEPT OF THE AVERAGE DE–WATERING TIME OF THE SAND FILTER FACILITY TO DETERMINE IF MAINTENANCE IS REQUIRED. WHEN THE FILTERING CAPACITY OF THE SAND HAS DIMINISHED, THE TOP LAYERS OF THE SAND (2– TO 3–INCHES) SHALL BE REMOVED AND REPLACED. THIS TYPICALLY WILL NEED TO BE DONE EVERY 3– TO 5–YEARS.

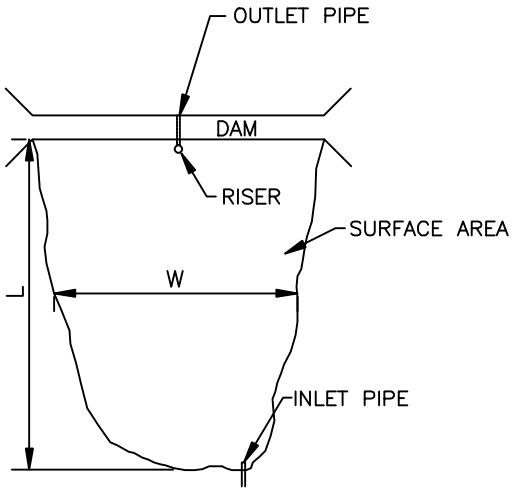



CHAIN LINK FENCE TO BE AS FOLLOWS:

A) SIX FOOT HIGH, NO. 9 FABRIC, 2" DIAMOND MESH– HOT DIP GALVANIZED
B) LINE POSTS TO BE 2 1/2" O.D., 3.65 LB/FT., GALVANIZED.
C) CORNER, PULL AND END POSTS TO BE 3" O.D.. 4 LB/FT., GALVANIZED.
D) GATE POSTS TO BE 4" O.D. 5.79 LF/FT. – GALVANIZED.
E) TOP RAIL TO BE 1 5/8" O.D., 2.27 LB/FT. – GALVANIZED.
F) POSTS TO BE 10' ON CENTER MAX. SET IN 36" DEEP CONCRETE BASES.
G) GATES TO AS SHOWN ON SITE PLAN AND FABRICATED FROM 2" OR GREATER TUBES, 2.72 LB/FT. – GALVANIZED – INCLUDING PIVOT HINGES, CATCHES, STOPS, CENTER VESTS AND LOCKING FACILITIES.
H) BOTTOM TENSION WIRE REQUIRED ON FENCE.

| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
|---|---|
| SECURITY FENCE | |
| DRAWING NO: E–3 | |
| DATE: December 2008 | |




L=(2*W) MIN.

**PLAN VIEW**

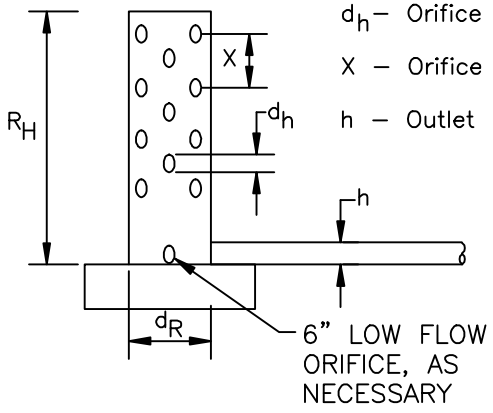
$R_H$– Riser Height

$d_R$– Riser Diameter

$d_h$– Orifice Diameter

X – Orifice Spacing

h – Outlet Pipe Diameter




**RISER PIPE DETAIL**

**LEXINGTON COUNTY**
**PUBLIC WORKS DEPARTMENT**

**SEDIMENT BASIN**
**W/ OPTIONAL SKIMMER**
**Sheet 1 of 2**

DRAWING NO: D–7

DATE: October, 2007

# SEDIMENT BASIN

## WHEN AND WHERE TO USE IT

SEDIMENT BASINS SHOULD NOT BE PLACED IN WATERS OF THE COMMONWEALTH OR USGS BLUE–LINE STREAMS (UNLESS APPROVED BY LEXINGTON COUNTY, STATE, OR FEDERAL AUTHORITIES).
MINIMUM DRAINAGE AREA=5 ACRES, MAXIMUM DRAINAGE AREA=150 ACRES
TRASH RACK IS REQUIRED

## INSPECTION AND MAINTENANCE:

THE KEY TO A FUNCTIONAL SEDIMENT BASIN IS CONTINUAL MONITORING, REGULAR MAINTENANCE AND REGULAR SEDIMENT REMOVAL.

ATTENTION TO SEDIMENT ACCUMULATIONS WITHIN THE POND IS EXTREMELY IMPORTANT. SEDIMENT DEPOSITION SHOULD BE CONTINUALLY MONITORED IN THE BASIN. OWNERS AND MAINTENANCE AUTHORITIES SHOULD BE AWARE THAT SIGNIFICANT CONCENTRATIONS OF HEAVY METALS (E.G., LEAD, ZINC, AND CADMIUM) AS WELL AS SOME ORGANICS SUCH AS PESTICIDES, MAY BE EXPECTED TO ACCUMULATE AT THE BOTTOM OF THESE TREATMENT FACILITIES.

REMOVE SEDIMENT WHEN IT REACHES 1/3 OF THE STORAGE VOLUME OR TOP OF THE CLEANOUT STAKE.

SINCE DECOMPOSING VEGETATION CAN RELEASE POLLUTANTS, ESPECIALLY NUTRIENTS, CAPTURED IN THE WETPOND, IT MAY BE NECESSARY TO HARVEST DEAD VEGETATION ANNUALLY. OTHERWISE THE DECAYING VEGETATION CAN EXPORT POLLUTANTS OUT OF THE POND AND CAN CAUSE NUISANCE CONDITIONS TO OCCUR.

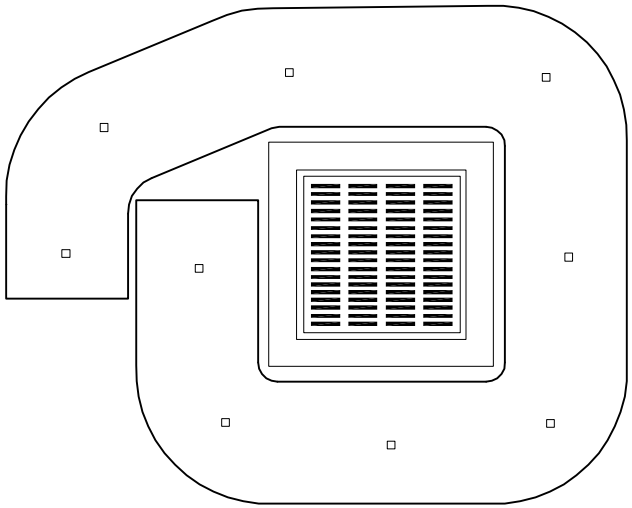
REGULAR INSPECTIONS SHOULD BE DONE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24–HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES ½–INCHES OR MORE OF PRECIPITATION.

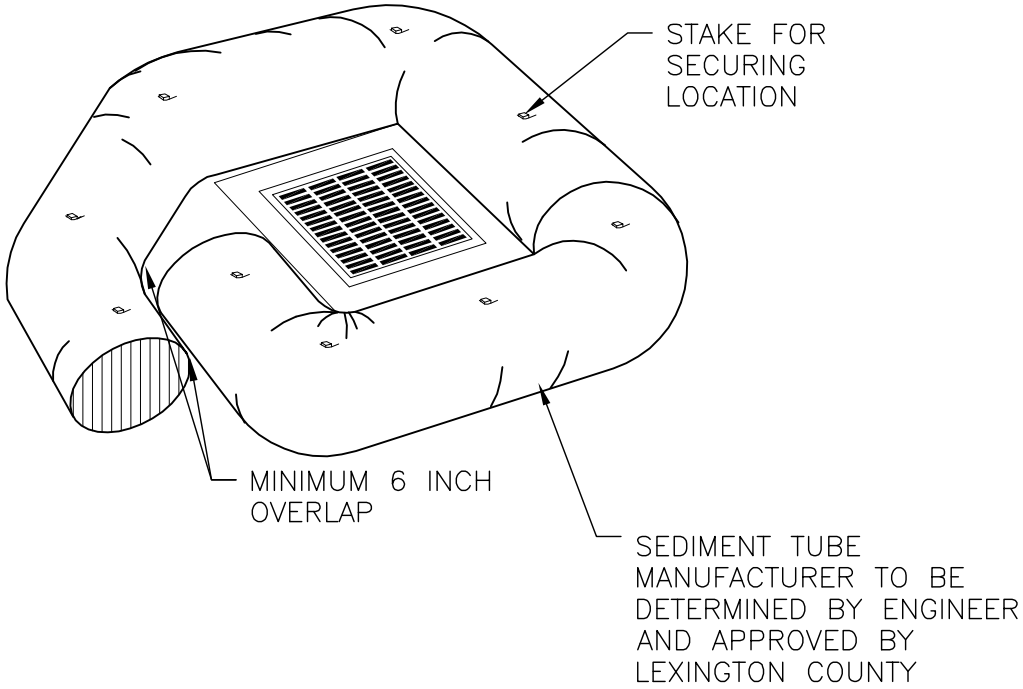
ALL TEMPORARY SEDIMENT BASINS SHOULD BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER IT IS NO LONGER NEEDED.

TRAPPED SEDIMENT SHOULD BE REMOVED FROM, OR STABILIZED ON SITE.

DISTURBED AREAS RESULTING FROM THE REMOVAL OF THE SEDIMENT BASIN SHOULD BE PERMANENTLY STABILIZED.

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| SEDIMENT BASIN<br>Sheet 2 of 2 | |
| DRAWING NO: D–7A | |
| DATE: October 2007 | |






## INSTALLATION:

1. INSTALL SEDIMENT TUBES BY LAYING THEM FLAT ON THE GROUND. CONSTRUCT A SMALL TRENCH TO A DEPTH THAT IS 20% OF THE SEDIMENT TUBE DIAMETER. LAY THE SEDIMENT TUBE IN THE TRENCH AND COMPACT THE UPSTREAM SEDIMENT TUBE SOIL INTERFACE. INSTALL ALL SEDIMENT TUBES SO NO GAPS EXIST BETWEEN THE SOIL AND THE BOTTOM OF THE SEDIMENT TUBE. LAP THE ENDS OF ADJACENT SEDIMENT TUBES A MINIMUM OF 6 INCHES TO PREVENT FLOW AND SEDIMENT FROM PASSING THROUGH THE FIELD JOINT. NEVER STACK SEDIMENT TUBES ON TOP OF ONE ANOTHER.

2. SHOULD SEDIMENT TUBE BECOME DAMAGED DURING INSTALLATION, PLACE A STAKE ON BOTH SIDES OF THE DAMAGED AREA TERMINATING THE TUBE SEGMENT AND INSTALL A NEW TUBE SEGMENT.

3. INSTALL SEDIMENT TUBES USING WOODEN STAKES (1 INCH X 1 INCH) OR STEEL POSTS ( STANDARD "U" OR "T" SECTIONS WITH A MINIMUM WEIGHT OF 1.25 POUNDS PER FOOT) A MINIMUM OF 4 FEET IN LENGTH PLACED ON 2 FOOT CENTERS. INTERTWINE THE STAKES WITH THE OUTER MESH ON THE DOWNSTREAM SIDE, AND DRIVE THE STAKES INTO THE GROUND TO A MINIMUM DEPTH OF 2.0 FEET LEAVING LESS THAN 1 FOOT OF STAKE ABOVE THE EXPOSED SEDIMENT TUBE.

## INSPECTION AND MAINTENANCE:

1. INSPECT SEDIMENT TUBES AFTER INSTALLATION FOR GAPS UNDER THE SEDIMENT TUBES AND FOR GAPS BETWEEN THE JOINTS OF ADJACENT ENDS OF SEDIMENT TUBES. REPAIR RILLS, GULLIES, AND ALL UNDERCUTTING NEAR SEDIMENT TUBES.

2. REMOVE AND/OR REPLACE INSTALLED SEDIMENT TUBES AS REQUIRED TO ADAPT TO CHANGING CONSTRUCTION SITE CONDITIONS.

3. REMOVE ALL SEDIMENT TUBES FROM THE SITE WHEN THE FUNCTIONAL LONGEVITY IS EXCEEDED AS DETERMINED BY THE ENGINEER, INSPECTOR, OR MANUFACTURER'S REPRESENTATIVE.

4. DISPOSE OF SEDIMENT TUBES IN REGULAR MEANS AS NON-HAZARDOUS, INERT MATERIAL.

5. THE PAY ITEMS SHALL BE:

INLET STRUCTURE FILTER TYPE A_____LF

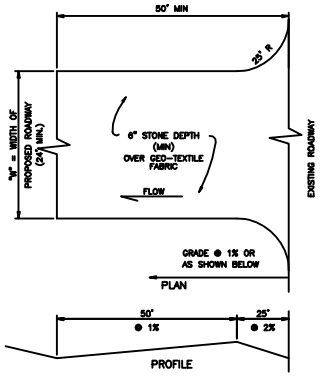
SILT BASINS_____CY

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

SEDIMENT TUBE
INLET PROTECTION

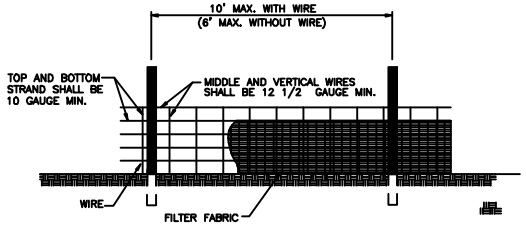
DRAWING NO: C-1A

DATE: October, 2007




NOTES:
1. STONE SIZE SHALL CONFORM TO ASTM D48 SIZE #1 (1 1/2" TO 3 1/2" DIA.).
2. PERIODIC 2" STONE TOP DRESSING & WASHING AS REQUESTED BY COUNTY/CITY.
3. GEO-TEXTILE FABRIC TO BE USED UNDER ENTIRE STONE AREA.

TEMPORARY CONSTRUCTION ENTRANCE



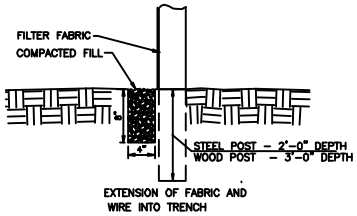

NOTES:
1. WIRE SHALL BE A MINIMUM OF 32" IN WIDTH AND SHALL HAVE A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.

2. FILTER FABRIC SHALL BE A MINIMUM OF 36" IN WIDTH AND SHALL BE FASTENED ADEQUATELY TO THE WIRE.

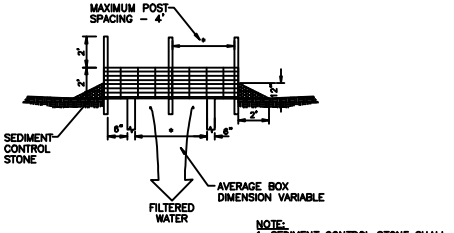
3. STEEL POST SHALL BE 5'-0" IN HEIGHT AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.

4. WOOD POST SHALL BE 6'-0" IN HEIGHT AND 3" IN DIAMETER.

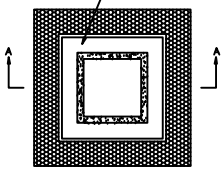
5. A DOUBLE ROW OF SILT FENCE (5' MAX SPACING) SHALL BE USED ALONG ALL WATERBODY'S, WETLANDS, OR OTHER AREAS AS DIRECTED BY LEXINGTON COUNTY.




SILT FENCE DETAIL

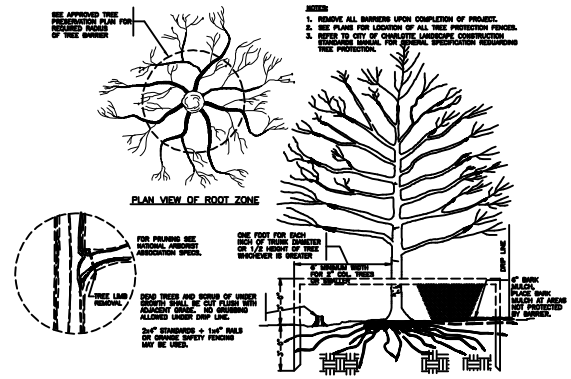



SECTION A-A
MULTI-DIRECTIONAL FLOW



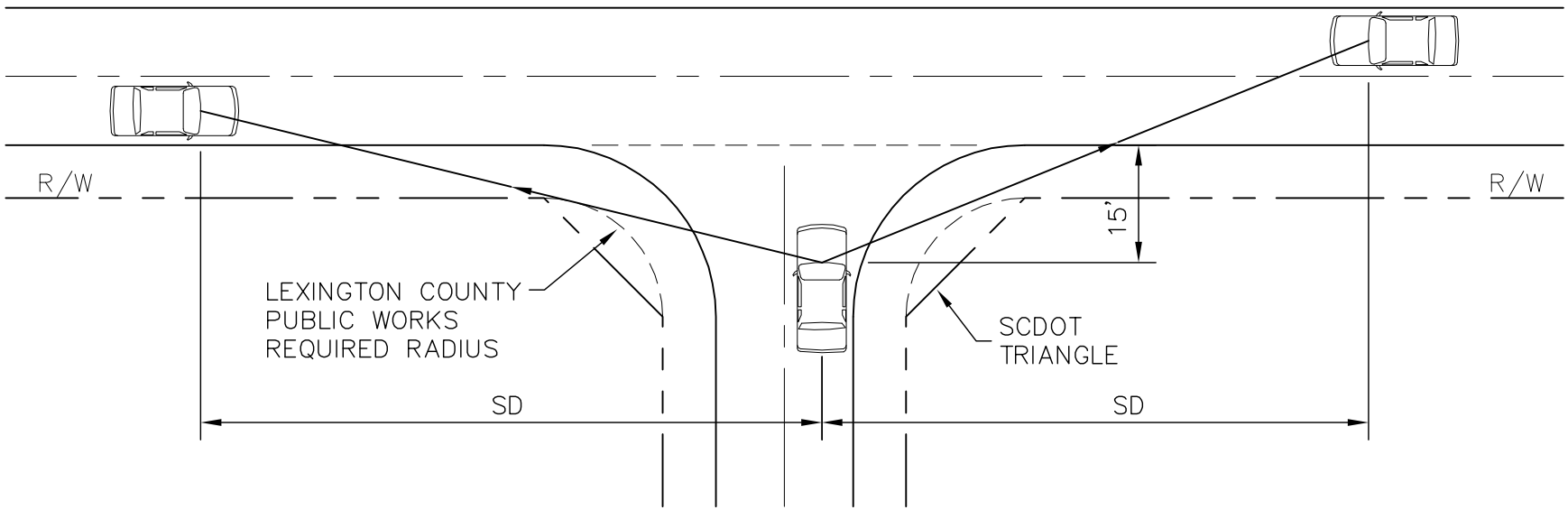

NOTE:
1. SEDIMENT CONTROL STONE SHALL BE NO. 5 OR NO. 57.
2. WIRE MESH SHALL BE HARDWARE CLOTH 23 GAUGE MIN. AND SHALL HAVE 1/4 INCH MESH OPENINGS.
3. TOP OF WIRE MESH SHALL BE A MINIMUM OF ONE FOOT BELOW THE SHOULDER OR ANY DIVERSION POINT. 4. STEEL POST SHALL BE 5 FT. IN HEIGHT, BE INSTALLED 1.5 FT. DEEP MINIMUM, AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
5. WOOD POST SHALL BE 6 FT. IN HEIGHT, BE INSTALLED TO 1.5 FT. DEEP MINIMUM, AND BE 3 INCHES IN DIAMETER.
6. POST SPACING SHALL BE A MAXIMUM OF 4 FT.

INLET PROTECTION




TREE PROTECTION DETAIL

| | |
|---|---|
| LEXINGTON COUNTY PLANNING & DEVELOPMENT | |
| Single Family Residential Erosion Control Measures | |
| SCALE: NTS | DRAWN BY: SSS |
| DATE: 3/07 | SHEET 1 OF 1 |




| VEHICLE TYPE | SIGHT DISTANCE (SD)* PER 10 MPH OF ARTERIAL SPEED FOR ARTERIAL WIDTH OF: | | |
|---|---|---|---|
| | 2 LANES | 4 LANES | 6 LANES |
| PASSENGER CAR<br>SINGLE UNIT TRUCK<br>TRACTOR TRAILER (WB–50) | 100 ft<br>130 ft<br>170 ft | 120 ft<br>150 ft<br>200 ft | 130 ft<br>170 ft<br>210 ft |

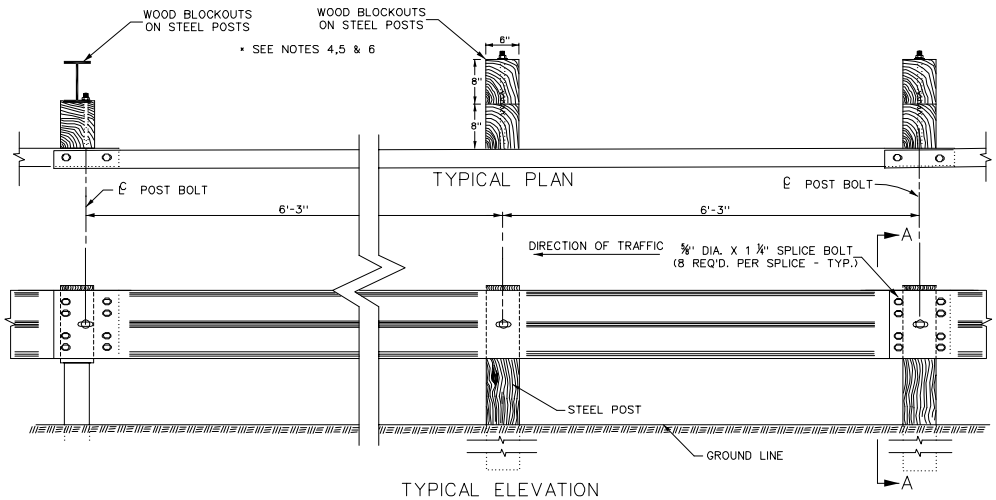
* Distances given are for flat grades; no vertical curves involved

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

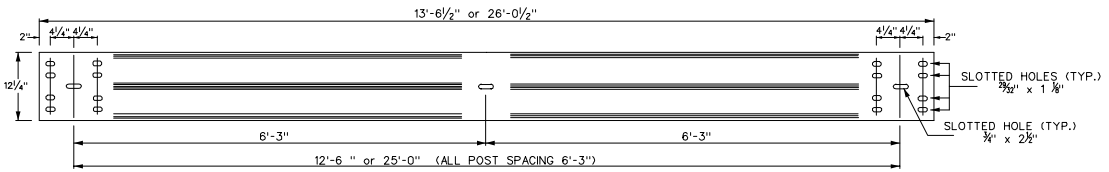
SIGHT DISTANCE

DRAWING NO: E–1

DATE: October 2007




TYPICAL ELEVATION
(INITIAL INSTALLATION)




FRONT VIEW OF STEEL BEAM RAIL

NOTES:

1. STEEL BEAM GUARDRAIL SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 805 OF THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION) AND CONFORM TO AASHTO M 180 FOR CLASS A, TYPE 2.

2. WHERE LAPS IN RAIL ARE NECESSARY, THEY SHALL BE PLACED IN THE SAME DIRECTION AS THE FLOW OF TRAFFIC. GUARDRAIL SECTIONS MAY BE FURNISHED AND INSTALLED IN STANDARD LENGTHS OF 12'-6" AND 25'-0" SECTIONS.

3. WHERE GUARDRAIL IS ERECTED ON CURVES OF 150 FT. RADIUS OR LESS, THE RAIL SHALL BE PRE-CURVED IN THE SHOP TO FIT THE REQUIRED RADIUS.

4. FOR HARDWARE SEE DRAWINGS 805-2 AND 805-2A.

5. STEEL POSTS SHALL CONFORM TO AASHTO M 270 (ASTM A709), GRADE 36, AND DIMENSIONS CONFORM TO AASHTO M 160 (ASTM 6A). STEEL POSTS SHALL BE GALVANIZED (ZINC-COATED) ACCORDING TO AASHTO M 111 (ASTM A123). WOOD POSTS SHALL BE 6"x8"x6'-0" NOMINAL DIMENSIONS.

6. NO STEEL BLOCKOUTS ARE ALLOWED. ONLY APPROVED WOOD, COMPOSITE, OR PLASTIC BLOCKOUTS MAY BE USED WITH STEEL POSTS. SEE APPROVAL SHEET 49 FOR A LIST OF APPROVED MANUFACTURERS OF PLASTIC/COMPOSITE BLOCKOUTS. BLOCKOUTS ARE TO BE INSTALLED ON THE TRAFFIC SIDE OF THE POSTS. ONLY ONE COMBINATION OF POST AND BLOCKOUT FINISH SHALL BE USED FOR ANY ONE CONTINUOUS LENGTH OF GUARDRAIL.

7. BLOCKOUTS SHALL MEET THE REQUIREMENTS OF SECTIONS 706 AND 805 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION). ALL TIMBER SHALL RECEIVE A PRESERVATION TREATMENT IN ACCORDANCE WITH SECTION 707 OF THE SCDOT STANDARD SPECIFICATIONS. BOTH POSTS AND BLOCKOUTS SHALL BE EITHER ROUGH SAWN (UN-PLANED) OR S4S WITH NOMINAL DIMENSIONS INDICATED.

8. DIMENSIONAL TOLERANCES NOT SHOWN OR IMPLIED ARE INTENDED TO BE THOSE CONSISTENT WITH THE PROPER FUNCTIONING OF THE PART, INCLUDING ITS APPEARANCE AND ACCEPTED MANUFACTURING PRACTICES. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKOUTS IN THE DIRECTION OF THE BOLT HOLES SHALL NOT BE MORE THAN ¼". THE DEPARTMENT RESERVES THE RIGHT TO REVISE THE BLOCKOUT DIMENSIONS AS IT DEEMS NECESSARY.

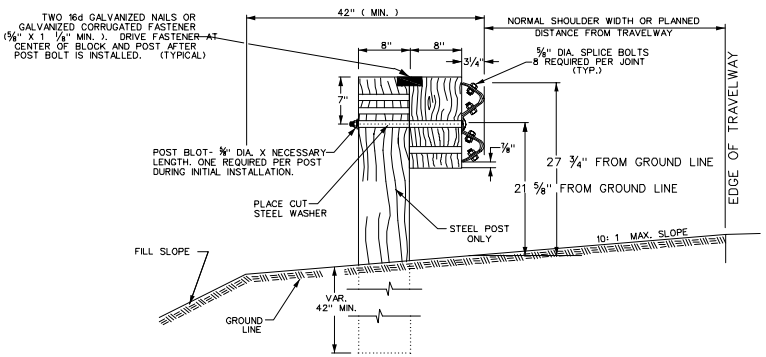
9. BACKUP PLATES ARE NOT REQUIRED WITH COMPOSITE, OR PLASTIC BLOCKOUTS.

10. THE UNIT PRICE BID FOR GUARDRAIL SHALL INCLUDE ALL COST OF FURNISHING AND PLACING POST, BLOCKS, AND ALSO OF FURNISHING, GALVANIZING, AND PLACING THE STEEL GUARDRAIL (INCLUDING POST BOLTS, NUTS, AND WASHERS NECESSARY FOR SPLICES AND FOR FASTENING RAIL TO POSTS) AS CALLED FOR ON PLANS.

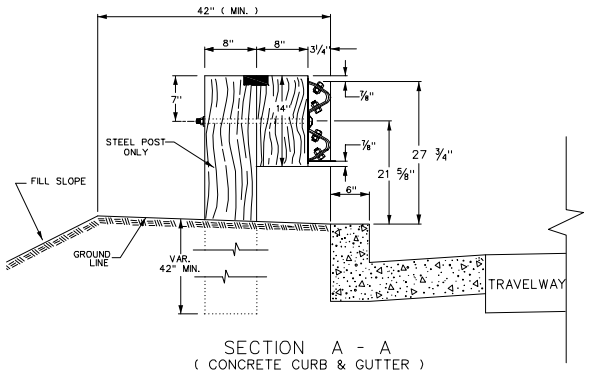
11. WHERE GEOSYNTHETIC REINFORCEMENT IN AN EMBANKMENT IS LESS THAN 4.0 FEET FROM THE TOP OF THE FINISHED GRADE, DIG THE POST HOLE DOWN TO THE GEOSYNTHETIC REINFORCEMENT. THEN CUT OR PUNCH THE GEOSYNTHETIC MATERIAL IN ORDER TO ERECT THE GUARDRAIL POST. THIS WORK IS INCLUDED IN THE BID PRICE OF THE ITEM OF WORK FOR WHICH THE POSTS ARE BEING INSTALLED. THE POST SHALL BE INCLUDED IN THE UNIT BID PRICE OF THE GUARDRAIL.

12. WHEN MOUNTING GUARDAIL, A TOLERANCE OF 3 INCHES ABOVE AND 1 INCH BELOW THE STANDARD MOUNTING HEIGHT IS PERMISSIBLE OVER NECESSARY SURFACE IRREGULARITIES.

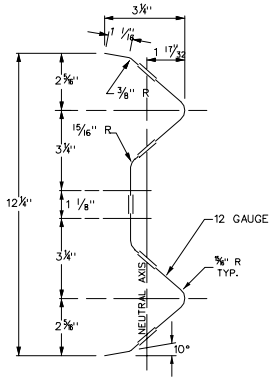
13. THE PAY ITEM SHALL BE:
STEEL BEAM GUARDRAIL ..... L.F.




SECTION A - A
(ADJUSTABLE GUARDRAIL SHOWN AT INITIAL INSTALLATION)




SECTION A - A
( CONCRETE CURB & GUTTER )
( STANDARD GUARDRAIL SHOWN )



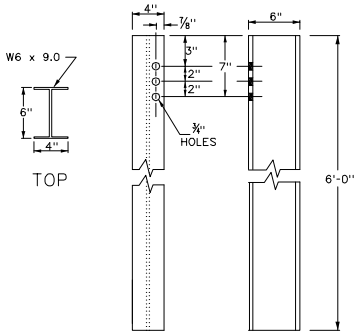

SECTION THROUGH
STEEL "W" BEAM GUARDRAIL

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

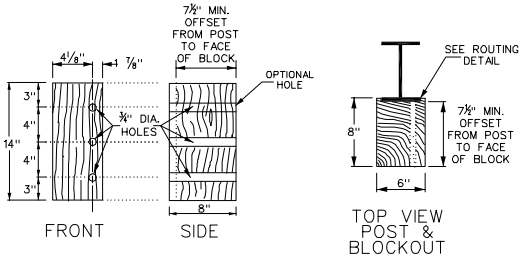
STEEL BEAM GUARDRAIL
(SCDOT DWG NO. 805-1
revised May 2007)

DRAWING NO: E-4

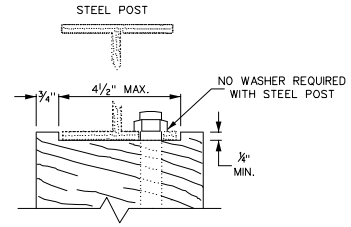
DATE: October 2007




ADJUSTABLE STEEL POST




ADJUSTABLE COMPOSITE BLOCKOUT FOR STEEL POST




¾" HOLES IN BOTH POST & BLOCK

BLOCKOUT ROUTING DETAIL FOR STEEL POST

NOTES:

1. STEEL BEAM GUARDRAIL SHALL COMPLY WITH THE REQUIREMENTS GIVEN ON STANDARD DRAWING NO. 805-1.

2. ALL HARDWARE SHALL COMPLY WITH THE REQUIREMENTS GIVEN ON STANDARD DRAWINGS NO. 805-2 & 805-2A.

3. BACKUP PLATES ARE NOT REQUIRED WITH WOOD, COMPOSITE, OR PLASTIC BLOCKOUTS.

4. NO STEEL BLOCKOUTS ARE ALLOWED. ONLY APPROVED WOOD, COMPOSITE, OR PLASTIC BLOCKOUTS MAY BE USED WITH STEEL OR WOOD POSTS. SEE APPROVAL SHEET 49 FOR A LIST OF APPROVED MANUFACTURERS OF PLASTIC/COMPOSITE BLOCKOUTS. BLOCKOUTS ARE TO BE INSTALLED ON THE TRAFFIC SIDE OF THE POSTS. ONLY ONE COMBINATION OF POST AND BLOCKOUT FINISH SHALL BE USED FOR ANY ONE CONTINUOUS USE OF GUARDRAIL.

5. ALL TIMBER SHALL RECEIVE A PRESERVATION TREATMENT IN ACCORDANCE WITH SECTION 707 OF THE SCDOT STANDARD SPECIFICATIONS. BOTH WOODEN POSTS AND BLOCKOUTS SHALL MEET THE REQUIREMENTS OF SECTIONS 706 AND 805 AND SHALL BE EITHER ROUGH SAWN (UN-PLANED) OR S4S WITH NOMINAL DIMENSIONS INDICATED AND MEET THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION).

6. HOLES IN COMPOSITE/PLASTIC BLOCKOUTS USED WITH STEEL POST MAY BE MANUFACTURED ON BOTH THE LEFT AND/OR RIGHT SIDE. HOLES IN WOODEN BLOCKOUTS USED WITH STEEL POSTS SHOULD BE LIMITED TO EITHER THE LEFT OR RIGHT SIDE OF THE BLOCKOUT. HOLES IN ALL BLOCKOUTS USED WITH WOODEN POSTS MUST HAVE HOLES DRILLED IN CENTER OF BLOCKOUT.

7. FOR LOCATIONS REQUIRING LESS THAN 1,000 LINEAR FEET OF GUARDRAIL, ADJUSTABLE GUARDRAIL IS NOT REQUIRED, BUT MAY BE USED. GENERALLY, ADJUSTABLE GUARDRAIL SHOULD BE PLACED IN RUNS OF 1,000 LINEAR FEET OR MORE IN ORDER TO BE COST EFFECTIVE. WHEN ADJUSTABLE GUARDRAIL IS ADJUSTED, END TREATMENTS AND BRIDGE CONNECTIONS MUST BE REPLACED.

8. STEEL POSTS SHALL CONFORM TO AASHTO M 270 (ASTM A709), GRADE 36, AND DIMENSIONS CONFORM TO AASHTO M 160 (ASTM 6A). STEEL POSTS SHALL BE GALVANIZED (ZINC-COATED) ACCORDING TO AASHTO M 111 (ASTM A123). HOLES IN STEEL POSTS MAY BE DRILLED ON BOTH LEFT AND RIGHT SIDE AND/OR FRONT AND BACK OF POST. HOLES IN WOODEN POSTS MUST BE DRILLED IN CENTER OF POST.

9. DIMENSIONAL TOLERANCES NOT SHOWN OR IMPLIED ARE INTENDED TO BE THOSE CONSISTENT WITH THE PROPER FUNCTIONING OF THE PART, INCLUDING ITS APPEARANCE AND ACCEPTED MANUFACTURING PRACTICES. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKOUTS IN THE DIRECTION OF THE BOLT HOLES SHALL NOT BE MORE THAN ¼". THE DEPARTMENT RESERVES THE RIGHT TO REVISE THE BLOCKOUT DIMENSIONS AS IT DEEMS NECESSARY.

10. THE UNIT PRICE BID FOR GUARDRAIL SHALL INCLUDE ALL COST OF FURNISHING AND PLACING POST, BLOCKOUTS, AND ALSO OF FURNISHING, GALVANIZING, AND PLACING THE STEEL GUARDRAIL (INCLUDING POST BOLTS, NUTS, AND WASHERS NECESSARY FOR SPLICES AND FOR FASTENING RAIL TO POSTS) AS CALLED FOR ON PLANS.

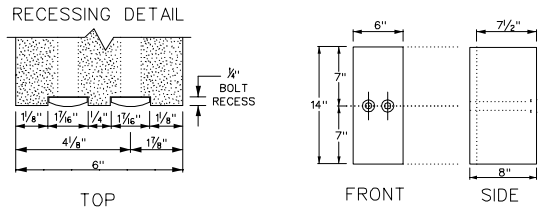
11. WHERE GEOSYNTHETIC REINFORCEMENT IN AN EMBANKMENT IS LESS THAN 4.0 FEET FROM THE TOP OF THE FINISHED GRADE, DIG THE POST HOLE DOWN TO THE GEOSYNTHETIC REINFORCEMENT. THEN CUT OR PUNCH THE GEOSYNTHETIC MATERIAL IN ORDER TO ERECT THE GUARDRAIL POST. THIS WORK IS INCLUDED IN THE BID PRICE OF THE ITEM OF WORK FOR WHICH THE POSTS ARE BEING INSTALLED. THE POST SHALL BE INCLUDED IN THE UNIT BID PRICE OF THE GUARDRAIL.

12. THE PAY ITEMS SHALL BE:

ADJUSTABLE HEIGHT S.B. GUARDRAIL (INITIAL INSTAL.)..... L.F.
ADJUSTABLE HEIGHT S.B. GUARDRAIL (2" ADJUST.)..... L.F.
ADJUSTABLE HEIGHT S.B. GUARDRAIL (FINAL ADJUST.)..... L.F.

HORIZONAL HOLE PATTERN FOR ADJUSTABLE BLOCKOUT

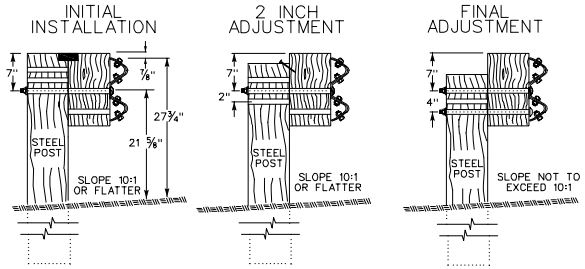
WHEN THIS HOLE PATTERN IS USED, HOLES MUST BE RECESSED




NOTE: NO WOOD POSTS ALLOWED

BLOCKOUT NOTE:

ONLY TWO HOLES IN THE BLOCKOUT ARE NECESSARY FOR STANDARD ADJUSTMENTS, AS SHOWN IN THE INSTALLATION PROCEDURE BELOW. HOWEVER, A THIRD HOLE MAY BE PLACED 3" FROM THE TOP OF THE BLOCKOUT IN ORDER TO ALLOW BLOCKOUTS TO ROTATE FOR PROPER INSTALLATION. ALSO, WITH COMPOSITE/PLASTIC BLOCKOUTS, HOLES MAY BE MANUFACTURED ON BOTH, OR EITHER THE LEFT OR RIGHT SIDE OF THE BLOCKOUT. IF THE TWO HOLES REQUIRED ARE PLACED SIDE BY SIDE IN THE CENTER OF THE BLOCKOUT, THEN THE HOLES MUST BE RECESSED ⅛" TO ALLOW BOLT HEAD TO BE FLUSH WITH BLOCKOUT. NO MORE THAN THREE HOLES SHOULD BE MADE IN THE WOODEN BLOCKOUTS.




SHOWN WITH VERTICAL HOLE ADJUSTMENTS

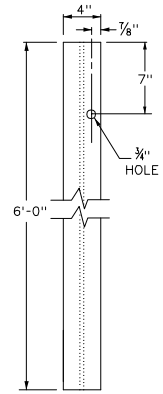
ADJUSTABLE GUARDRAIL INSTALLATIONS

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

STEEL BEAM GUARDRAIL
(ADJUSTABLE)
(SCDOT DWG NO. 805-1B
revised Nov. 2003)

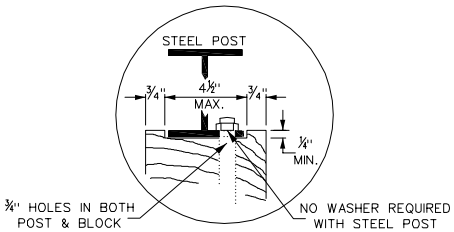
DRAWING NO: E-4B

DATE: October 2007




FRONT
(TRAFFIC SIDE)

STANDARD
STEEL POST
(SEE NOTE 6)




ROUTING DETAIL

NOTES:

1. STEEL BEAM GUARDRAIL SHALL COMPLY WITH THE REQUIREMENTS GIVEN ON STANDARD DRAWING NO. 805-1.
2. ALL HARDWARE SHALL COMPLY WITH THE REQUIREMENTS GIVEN ON STANDARD DRAWINGS NO. 805-2 & 805-2A.
3. BACKUP PLATES ARE NOT REQUIRED WITH WOOD, COMPOSITE, OR PLASTIC BLOCKOUTS.
4. NO STEEL BLOCKOUTS ARE ALLOWED. ONLY APPROVED COMPOSITE, OR PLASTIC BLOCKOUTS MAY BE USED WITH STEEL POSTS. SEE APPROVAL SHEET 49 FOR A LIST OF APPROVED MANUFACTURERS OF PLASTIC/COMPOSITE BLOCKOUTS. BLOCKOUTS ARE TO BE INSTALLED ON THE TRAFFIC SIDE OF THE POSTS. ONLY ONE COMBINATION OF POST AND BLOCKOUT FINISH SHALL BE USED FOR ANY ONE CONTINUOUS USE OF GUARDRAIL.
5. HOLES IN COMPOSITE/PLASTIC BLOCKOUTS USED WITH STEEL POST MAY BE MANUFACTURED ON BOTH THE LEFT AND/OR RIGHT SIDE. HOLES IN WOODEN BLOCKOUTS USED WITH STEEL POSTS SHOULD BE LIMITED TO EITHER THE LEFT OR RIGHT SIDE OF THE BLOCKOUT. HOLES IN ALL BLOCKOUTS USED WITH WOODEN POSTS MUST HAVE HOLES DRILLED IN CENTER OF BLOCKOUT.
6. STEEL POSTS SHALL CONFORM TO AASHTO M 270 (ASTM A709), GRADE 36, AND DIMENSIONS CONFORM TO AASHTO M 160 (ASTM 6A). STEEL POSTS SHALL BE GALVANIZED (ZINC-COATED) ACCORDING TO AASHTO M 111 (ASTM A123). HOLES IN STEEL POSTS MAY BE DRILLED ON BOTH LEFT AND RIGHT SIDE AND/OR FRONT AND BACK OF POST. HOLES IN WOODEN POSTS MUST BE DRILLED IN CENTER OF POST.
7. DIMENSIONAL TOLERANCES NOT SHOWN OR IMPLIED ARE INTENDED TO BE THOSE CONSISTENT WITH THE PROPER FUNCTIONING OF THE PART, INCLUDING ITS APPEARANCE AND ACCEPTED MANUFACTURING PRACTICES. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKOUTS IN THE DIRECTION OF THE BOLT HOLES SHALL NOT BE MORE THAN ¼". THE DEPARTMENT RESERVES THE RIGHT TO REVISE THE BLOCKOUT DIMENSIONS AS IT DEEMS NECESSARY.
8. THE UNIT PRICE BID FOR GUARDRAIL SHALL INCLUDE ALL COSTS OF FURNISHING AND PLACING POST, BLOCKOUTS, AND ALSO OF FURNISHING, GALVANIZING, AND PLACING THE STEEL GUARDRAIL (INCLUDING POST BOLTS, NUTS, AND WASHERS NECESSARY FOR SPLICES AND FOR FASTENING RAIL TO POSTS) AS CALLED FOR ON PLANS.
9. WHERE GEOSYNTHETIC REINFORCEMENT IN AN EMBANKMENT IS LESS THAN 4.0 FEET FROM THE TOP OF THE FINISHED GRADE, DIG THE POST HOLE DOWN TO THE GEOSYNTHETIC REINFORCEMENT. THEN CUT OR PUNCH THE GEOSYNTHETIC MATERIAL IN ORDER TO ERECT THE GUARDRAIL POST. THIS WORK IS INCLUDED IN THE BID PRICE OF THE ITEM OF WORK FOR WHICH THE POSTS ARE BEING INSTALLED. THE POST SHALL BE INCLUDED IN THE UNIT BID PRICE OF THE GUARDRAIL.
10. THE PAY ITEM SHALL BE:

STEEL BEAM GUARDRAIL ..... L.F.

## ADDITIONAL LENGTH GUARDRAIL POST

WHEN THE PROPER SHOULDER DISTANCE BEHIND THE GUARDRAIL CANNOT BE OBTAINED, ADDITIONAL LENGTH POSTS ARE REQUIRED.

| FILL SLOPE | TOTAL LENGTH W-BEAM | TOTAL LENGTH THRIE BEAM |
|---|---|---|
| 1.0 : 1.0 | 9'-0" | 9'-6" |
| 1.5 : 1.0 | 8'-0" | 8'-6" |
| 2.0 : 1.0 | 7'-6" | 8'-0" |
| 2.5 : 1.0 | 7'-6" | 8'-0" |
| 3.0 : 1.0 | 7'-0" | 7'-6" |
| *3.5 : 1.0 | 7'-0" | 7'-6" |
| 4.0 : 1.0 | A 4:1 SLOPE OR FLATTER DOES NOT REQUIRED GUARDRAIL | |

*SLOPES BETWEEN 3:1 AND 4:1 ARE NON-RECOVERABLE, BUT ARE CONSIDERED TRAVERSABLE.
IF THE FOLLOWING CONDITIONS ARE MET, GUARDRAIL MAY BE OMITTED: NO FIXED OBSTACLES ARE ON THE SLOPE AND THERE IS A FLAT CLEAR RUNOUT AREA AT THE BOTTOM OF THE SLOPE, AS REQUIRED BY THE ROADSIDE DESIGN GUIDE.

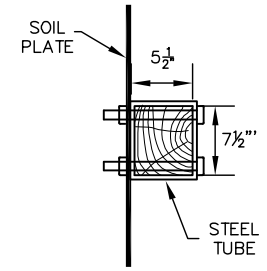
NOTE: NO WOOD POSTS ALLOWED

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

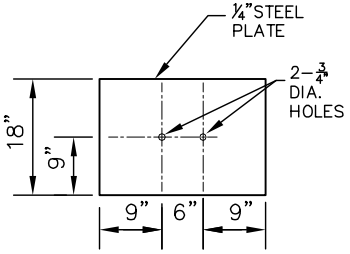
STEEL BEAM GUARDRAIL
(STANDARD)
(SCDOT DWG NO. 805-1A
revised May 2004)

DRAWING NO: E-4A
DATE: October 2007

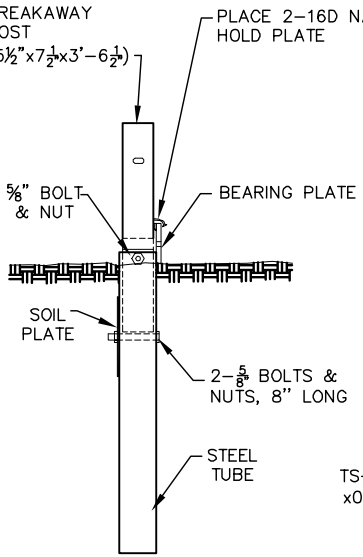
# ALTERNATE NO. 2
# STEEL TUBE FOOTING



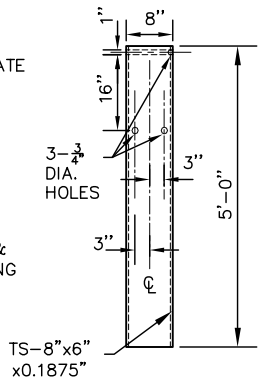

PLAN VIEW OF STEEL TUBE FOOTING



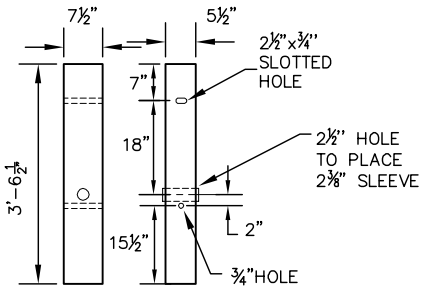

SOIL PLATE
(FOR STEEL TUBE FOOTING)




STEEL TUBE FOOTING AND BREAKAWAY POST




STEEL TUBE FOOTING DETAIL

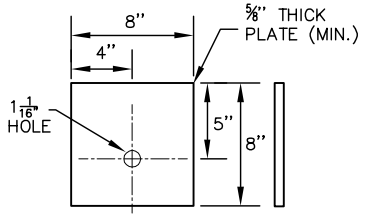



WOOD BREAKAWAY POST DETAIL
(FOR STEEL TUBE FOOTING)

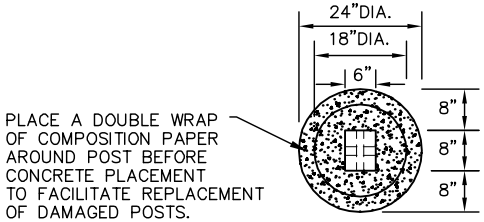
## NOTES:

1. THIS TERMINAL IS USED WITH GUARDRAIL SGR04a–b & SGM04a–b AS SHOWN IN THE AASHTO ROADSIDE DESIGN GUIDE (LATEST EDITION).
2. ALL STEEL HARDWARE, TUBES, AND PLATES SHALL BE GALVANIZED.
3. END POST SHALL BE A WOOD POST. ALL TIMBER SHALL RECEIVE A PRESERVATION TREATMENT IN ACCORDANCE WITH SECTION 707 IN THE SC DOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION).
4. ALTERNATE FOOTINGS SHALL BE ALLOWED FOR END ANCHORS TYPE B.
5. ALT. 1 (CONCRETE FOOTING) SHALL INCLUDE THE ROUNDED OR FLARED END SECTION, POSTS, CONCRETE, CONCRETE ANCHORS FOR POSTS, END PLATE, ¾" CABLE WITH SWAGED FITTING AND STUD, ANCHOR PLATE, BEARING PLATE AND NECESSARY HARDWARE AND LABOR TO COMPLETE END ANCHOR. CONCRETE SHALL BE CLASS 2500 OR BETTER.
6. ALT. 2(STEEL TUBE FOOTING) SHALL INCLUDE THE ROUNDED OR FLARED END SECTION, POSTS, STEEL TUBE, SOIL PLATE, END PLATE, ¾"CABLE WITH SWAGED FITTING AND STUD, ANCHOR PLATE, BEARING PLATE AND NECESSARY HARDWARE AND LABOR TO COMPLETE END ANCHOR.
7. THE LENGTH OF STEEL "W" BEAM GUARDRAIL USED, WILL NOT BE MEASURED OR PAID FOR AS END ANCHOR TYPE B, BUT WILL BE INCLUDED AND MEASURED IN THE COST FOR GUARDRAIL.
8. THE PAY ITEM SHALL BE:

END ANCHOR – TYPE B..... EA.

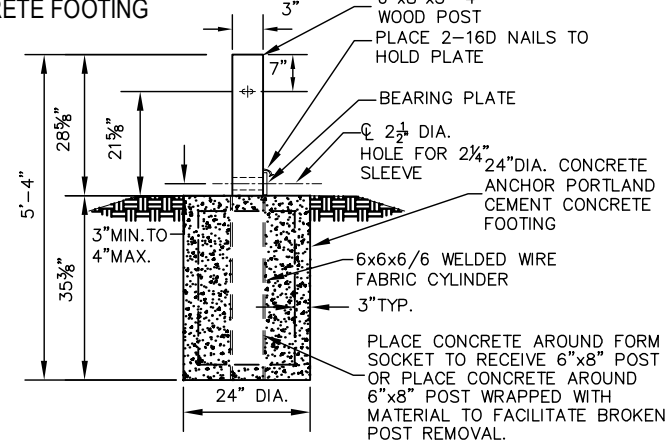



BEARING PLATE

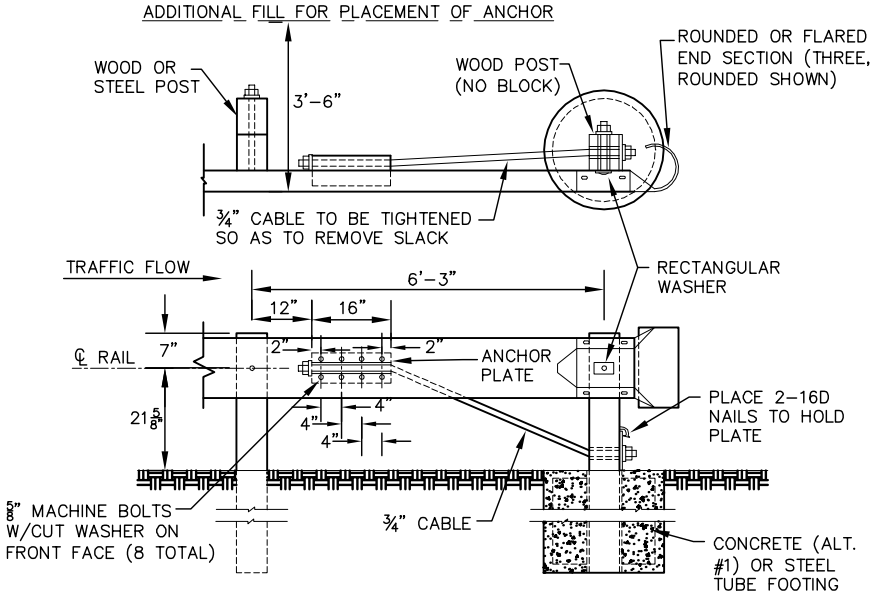



PLAN VIEW

ALTERNATE NO. 1
CONCRETE FOOTING




CONCRETE FOOTING AND BREAKAWAY POST DETAIL




END ANCHOR (TYPE B)

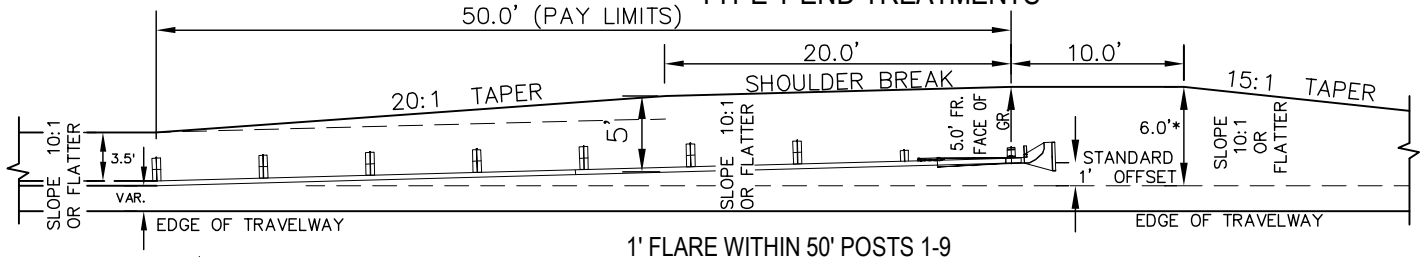
LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

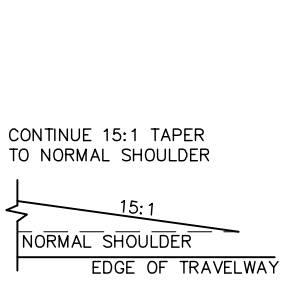
STEEL BEAM GUARDRAIL
END TREATMENT
TYPE B
(SCDOT DWG. NO. 805-3C)

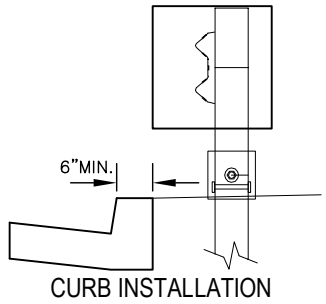
DRAWING NO: E–5A

DATE: October 2007

# STANDARD PLACEMENT AND GRADING SCHEME FOR TYPE T END TREATMENTS




CURB INSTALLATION

1' FLARE WITHIN 50' POSTS 1-9
50:1 MAX. FLARE RATE

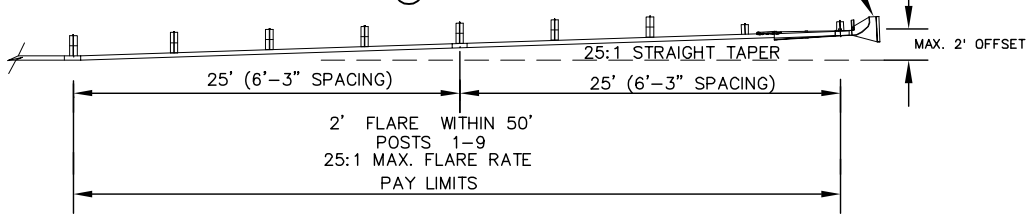
* WHEN USING OPTIONAL PLACEMENT 1, THE GRADING SCHEME WILL EXTEND FOR 7.0'.

WHEN USING OPTIONAL PLACEMENT 2, THE GRADING SCHEME WILL EXTEND FOR 6.0'

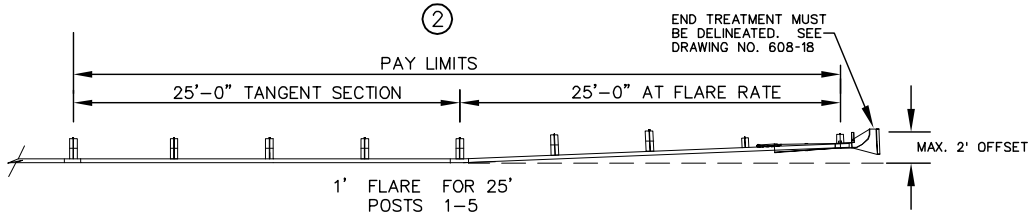
WHEN USING OPTIONAL PLACEMENT 3, THE GRADING SCHEME WILL EXTEND FOR 5.0'

## OPTIONAL PLACEMENTS

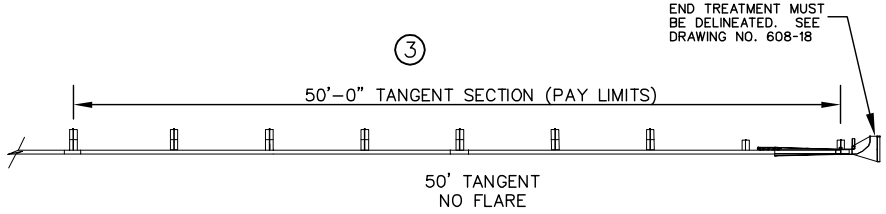
① END TREATMENT MUST BE DELINEATED. SEE DRAWING NO. 608-18




② END TREATMENT MUST BE DELINEATED. SEE DRAWING NO. 608-18




③ END TREATMENT MUST BE DELINEATED. SEE DRAWING NO. 608-18




NOTES:

1. THIS SHEET SHOWS FOUR ACCEPTABLE PLACEMENTS FOR THE TYPE T END TREATMENT, THE APPROPRIATE GRADING SCHEME, AND CURB INSTALLATION.

2. WHEN END TREATMENT TYPE T IS STATED ON THE PLANS, CONTRACTORS MUST USE AN END TREATMENT PROVIDED BY A SUPPLIER LISTED ON APPROVAL SHEET NO. 46 MAINTAINED BY THE RESEARCH AND MATERIALS ENGINEER. THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS. THE MANUFACTURER SHALL PROVIDE ALL MATERIALS FOR ENTIRE 50 FEET OF THE END TREATMENT, INCLUDING ALL HARDWARE AND RAIL.

3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CERTIFY THAT THE END TREATMENT PROVIDED MEETS ALL REQUIREMENTS OF THE SCDOT APPROVAL SHEET, THE MANUFACTURERS' SPECIFICATIONS, AND ANY DETAILS SET FORTH IN THE SCDOT STANDARD DRAWINGS FOR ROAD CONSTRUCTION (LATEST EDITION).

4. FOR SIGNING DETAIL OR INFORMATION, SEE SCDOT STANDARD DRAWING 608-18.

5. FOR WOOD POST SYSTEMS, POSTS 1 THROUGH 4 SHALL BE IN FOUNDATION (SOIL) TUBES. IF FOUNDATION TUBES FOR POSTS 1 AND 2 ARE SUPPLIED IN LENGTHS OF 4'-6" OR 5'-0", SOIL PLATES MUST BE USED. SOIL PLATES ARE NOT REQUIRED AT POSTS 1 AND 2 IF FOUNDATION TUBES ARE 6'-0". POSTS 3 AND 4 MAY BE OF EITHER LENGTH WITHOUT SOIL PLATES. SOIL PLATES, IF USED, SHOULD BE PLACED ON THE DOWNSTREAM SIDE OF THE POSTS.

6. THE RECOMMENDED STANDARD INSTALLATION FLARE RATE IS 50:1 OVER THE ENTIRE SYSTEM TO PREVENT THE IMPACT HEAD FROM ENCROACHING ON THE SHOULDER, BUT END TERMINALS MAY BE INSTALLED TANGENT TO THE ROADWAY WHEN NECESSARY. IN CURB SECTIONS, THE IMPACT HEAD MUST BE PLACED SO THAT IT DOES NOT EXTEND OVER THE CURB.

7. A SPECIAL SITE EVALUATION SHOULD BE CONSIDERED PRIOR TO INSTALLING END TREATMENTS. END TREATMENTS SHOULD HAVE 25 FEET BETWEEN THE OUTLET SIDE OF THE TERMINAL AND ANY TRAFFIC AREA.

8. WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12" DIAMETER POST HOLE 20" DEEP MAY BE USED. SEE MANUFACTURERS' RECOMMENDATIONS FOR DETAILS.

9. THE CONTRACT UNIT PRICE FOR END TREATMENTS SHALL INCLUDE THE COST OF ALL MATERIALS, ERECTION, AND WORK INCIDENTAL TO THE CONSTRUCTION WITHIN THE PAY LIMITS OF THE TERMINAL, COMPLETE AND IN PLACE.

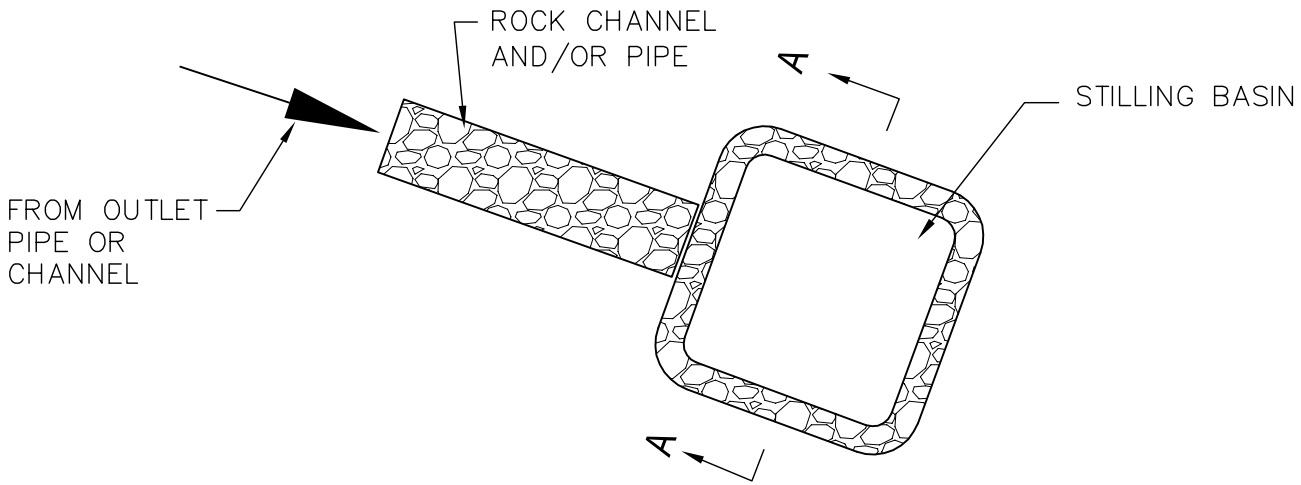
10. THE PAY ITEM SHALL BE:
END TREATMENT TYPE T _____ EA

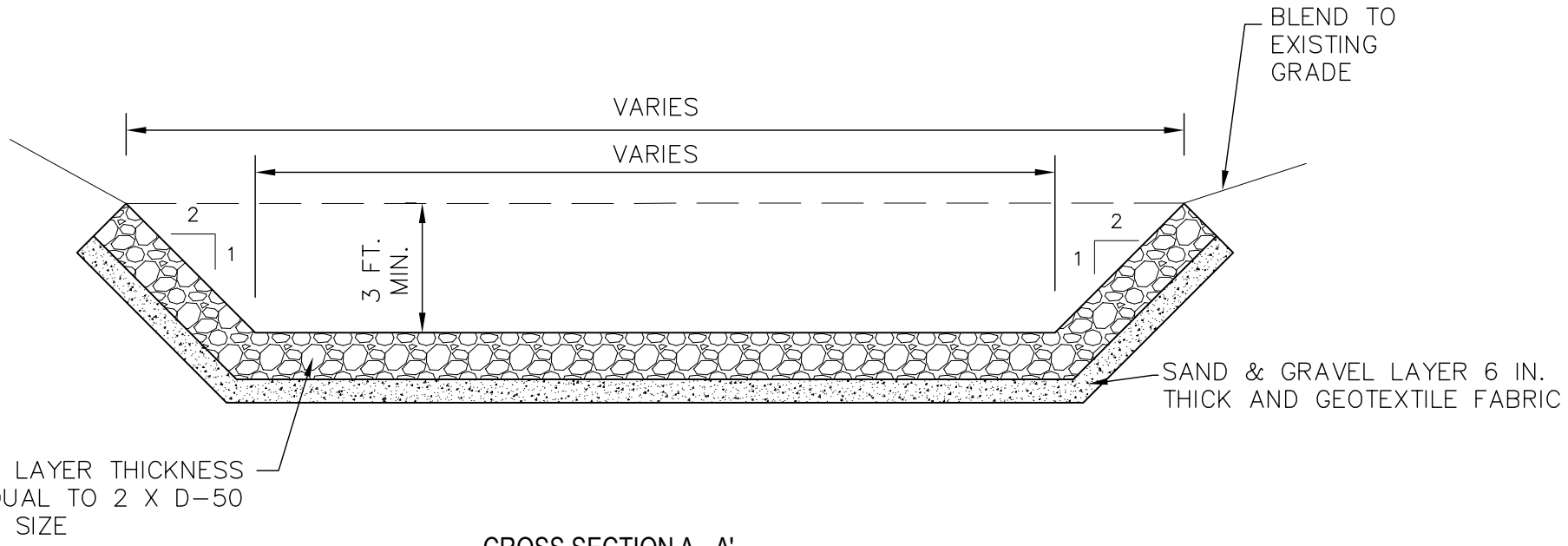
LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

STEEL BEAM GUARDRAIL
END TREATMENT - TYPE T
(SCDOT DWG NO. 805-3
revised Dec. 2006)

DRAWING NO: E-5

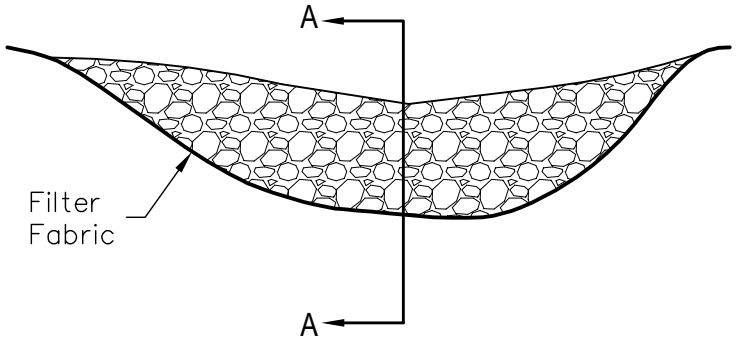
DATE: October 2007

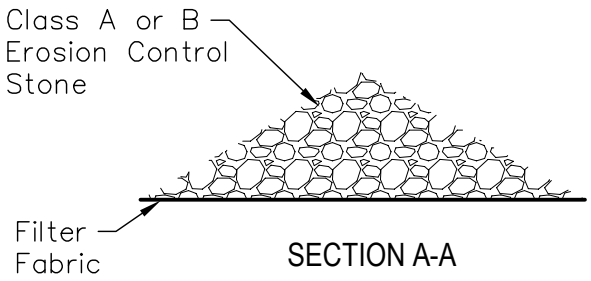


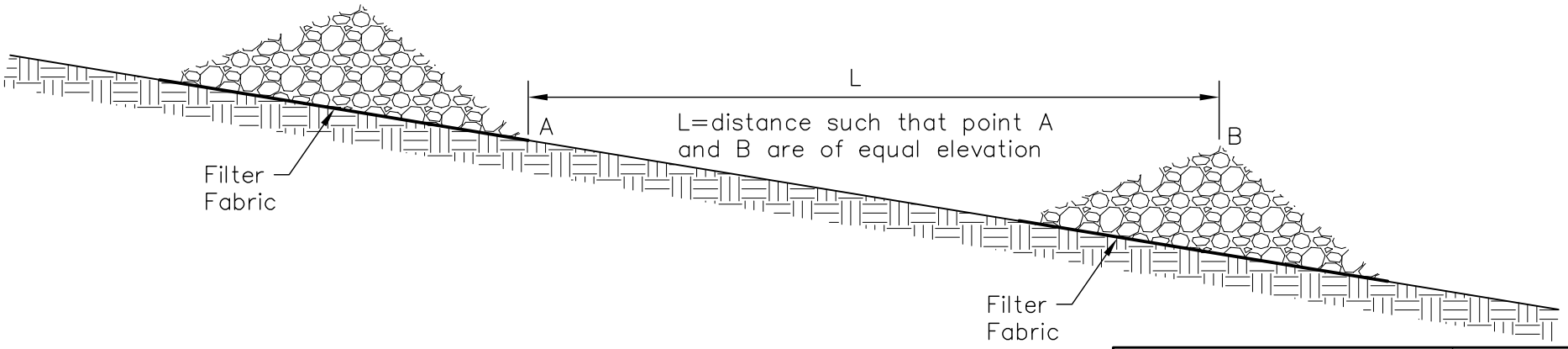

CROSS SECTION A - A'

| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
|---|---|
| STILLING BASIN | |
| DRAWING NO: D-12 | |
| DATE: October 2007 | |

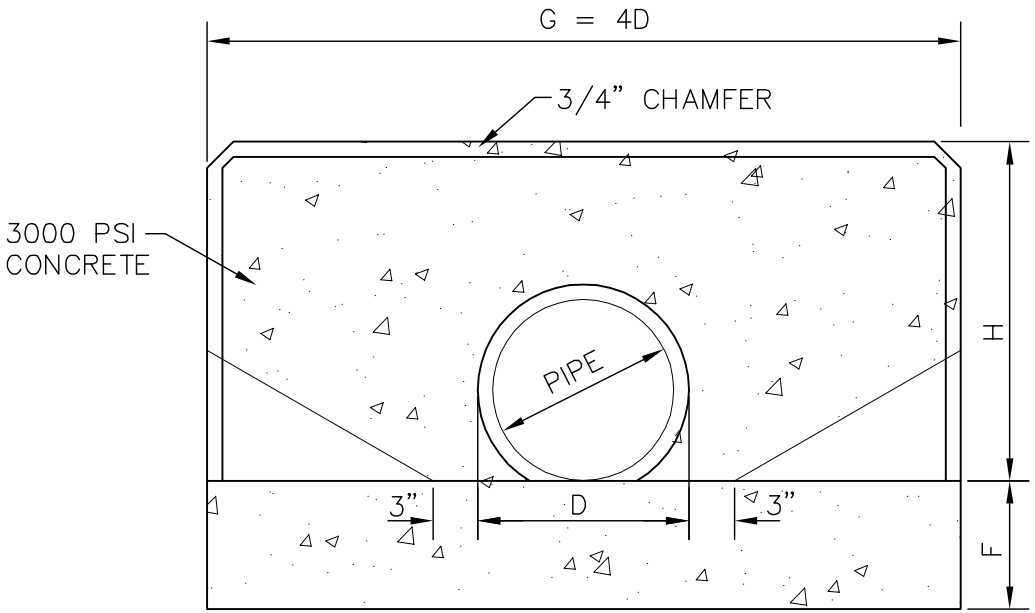


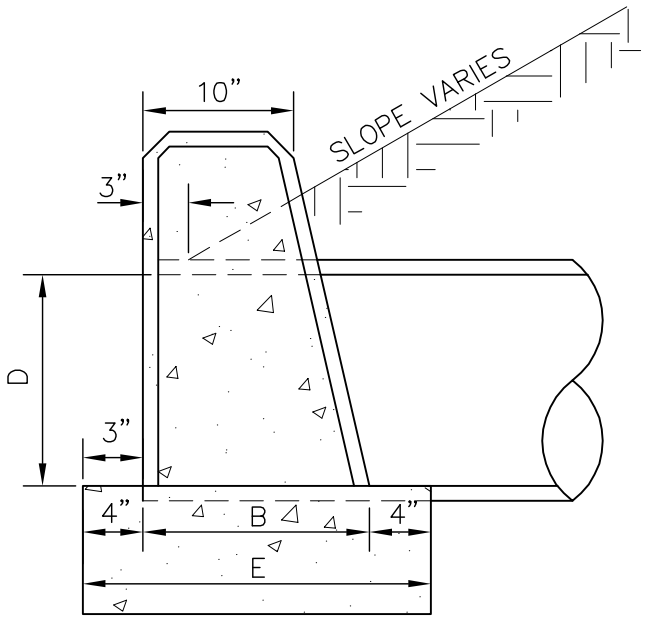

SECTION A-A




| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| STONE CHECK DAM | |
| DRAWING NO: C-9 | |
| DATE: October, 2007 | |




FRONT ELEVATION




SIDE ELEVATION

| DIMENSIONS | | | | | | | QUANTITIES FOR ONE CONCRETE PIPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| OPENING | | WALL | | | FOOTING | | CLASS "B" CONCRETE | | | |
| D | AREA SQ. FT. | * G | H | B | E | F | CUBIC FEET | | TOTAL | |
| | | | | | | | WALL | FOOT | CU. FT. | CU. YD. |
| 15" | 1.2 | 5'–0" | 2'–3" | 1'–2" | 1'–10" | 1'–2" | 9.0 | 10.7 | 19.7 | 0.73 |
| 18" | 1.8 | 6'–0" | 2'–6" | 1'–3" | 1'–11" | 1'–3" | 12.5 | 14.4 | 26.9 | 0.99 |
| 24" | 3.1 | 8'–0" | 3'–0" | 1'–4" | 2'–0" | 1'–4" | 20.2 | 21.3 | 41.5 | 1.54 |

* FOR EACH ADDITIONAL PIPE (15" TO 24") ADD 2'–0" + O.D. OF PIPE

NOTES:

1. 8" MASONARY CONSTRUCTION MAY BE USED.
2. WHEN DITCH PAVING IS SPECIFIED RECESS SURFACE OF FOOTING TO ACCOMODATE THICKNESS OF DITCH PAVING.

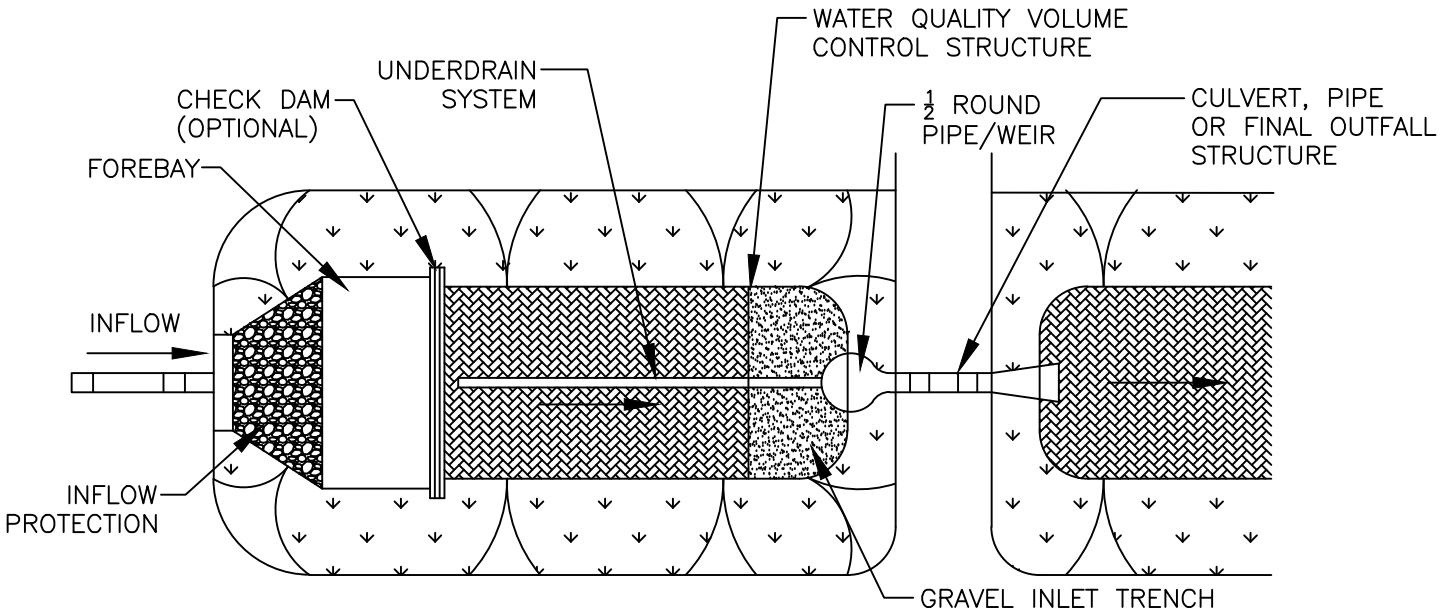
LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

STRAIGHT HEADWALL
(for 24" Ø pipe or less)

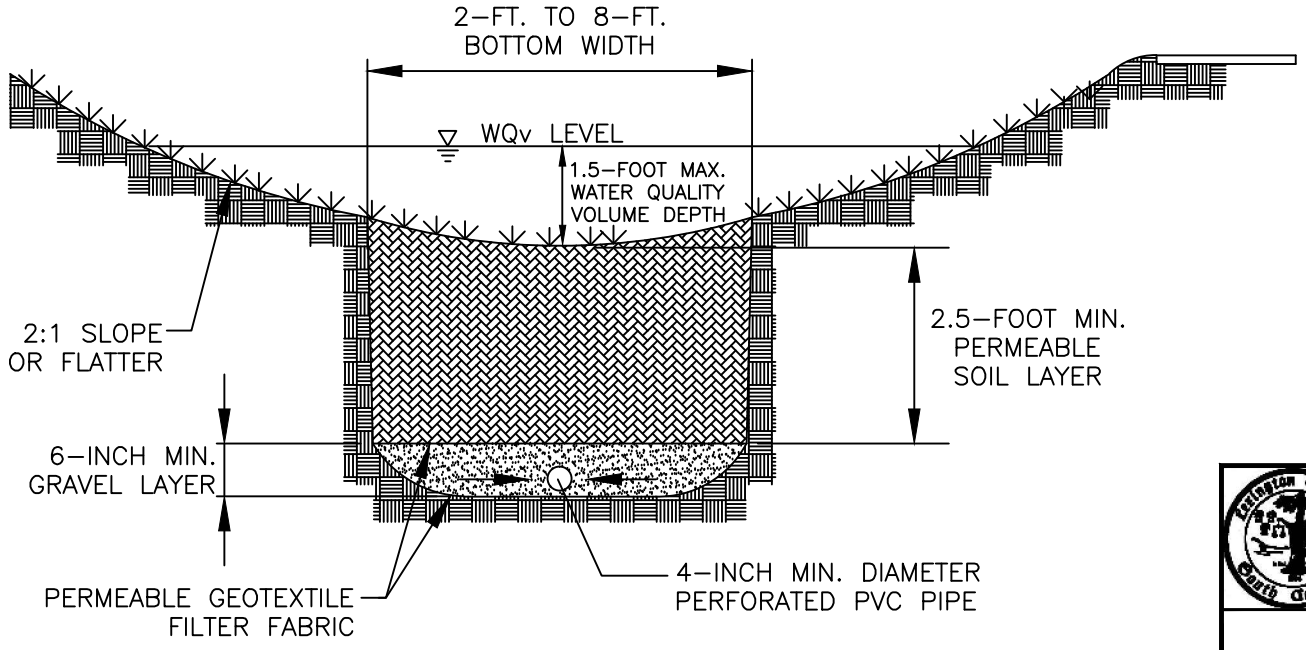
DRAWING NO: D–4
DATE: October, 2007

# TYPICAL ENHANCED SWALE: DRY SWALE

**PLAN VIEW**




**TYPICAL SECTION**




Lexington County,
South Carolina

REVISION DATE: AUGUST 2014

## ENHANCED DRY SWALE

SWALE SLOPES SHOULD BE LIMITED BETWEEN 1 AND 2 %, UNLESS SITE TOPOGRAPHY DICTATES LARGER SLOPES. IN THIS INSTANCE, DROP STRUCTURES (6–12 INCHES) MAY BE PLACED IN THE SWALE TO LIMIT THE SLOPE OF A PARTICULAR SECTION OF THE SWALE. SPACING BETWEEN DROP STRUCTURES SHOULD BE A MINIMUM OF 50–FEET AND ENERGY DISSIPATION TECHNIQUES MAY NEED TO BE ADDED ON THE DOWNSTREAM SIDE OF THE DROP STRUCTURES.

THE OVERALL DEPTH OF THE WATER QUALITY RUNOFF VOLUME DETAINED IN EACH CELL OF THE CHANNEL SHALL NOT EXCEED 1.5–FEET. EACH CELL IS SEPARATED BY A CHECK DAM.

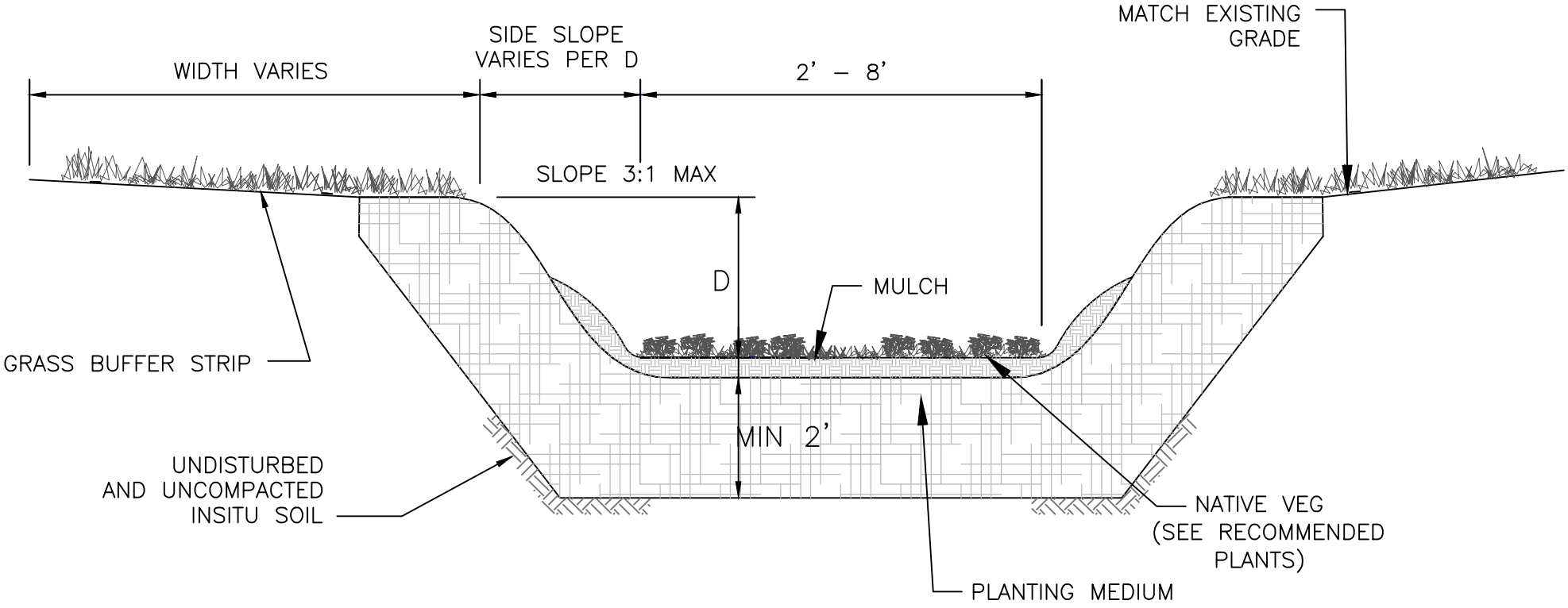
THE BOTTOM WIDTH OF THE SWALE SHOULD RANGE BETWEEN 2– AND 8–FEET WHERE APPLICABLE TO ENSURE AN ADEQUATE FILTRATION AREA

THE SIDE SLOPES OF THE SWALE SHALL NOT EXCEED 3H:1V, AND 4H:1V IS RECOMMENDED FOR EASE OF MAINTENANCE AND FOR SIDE INFLOW TO REMAIN AS SHEET FLOW.

THE FILTER BED FOR AN ENHANCED DRY SWALE SHALL CONSIST OF A PERMEABLE SOIL LAYER AT LEAST 2.5–FEET DEEP. THE DRAINAGE PIPE SHALL BE A MINIMUM 4–INCH DIAMETER PERFORATED PVC PIPE (AASHTO M 252) IN A 6–INCH GRAVEL LAYER.

# TYPICAL ENHANCED SWALE: WET SWALE

TYPICAL SECTION VIEW




Lexington County, South Carolina

REVISION DATE: JUNE 2014

## ENHANCED WET SWALE

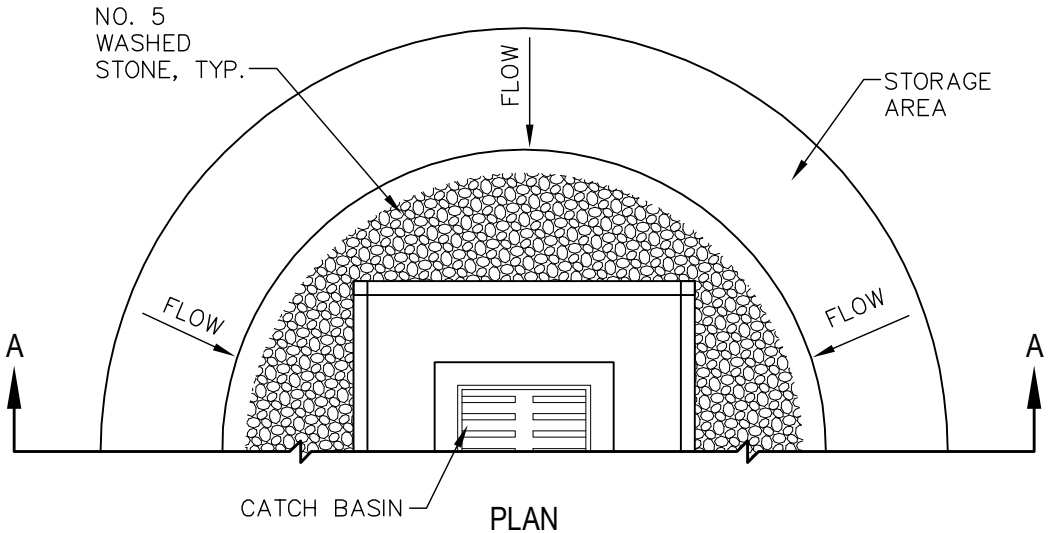
SWALE SLOPES SHOULD BE LIMITED BETWEEN 1 AND 2 %, UNLESS SITE TOPOGRAPHY DICTATES LARGER SLOPES. IN THIS INSTANCE, DROP STRUCTURES (6–12 INCHES) MAY BE PLACED IN THE SWALE TO LIMIT THE SLOPE OF A PARTICULAR SECTION OF THE SWALE. SPACING BETWEEN DROP STRUCTURES SHOULD BE A MINIMUM OF 50–FEET AND ENERGY DISSIPATION TECHNIQUES MAY NEED TO BE ADDED ON THE DOWNSTREAM SIDE OF THE DROP STRUCTURES.

THE OVERALL DEPTH OF THE WATER QUALITY RUNOFF VOLUME DETAINED IN EACH CELL OF THE CHANNEL SHALL NOT EXCEED 1.5–FEET. EACH CELL IS SEPARATED BY A CHECK DAM.

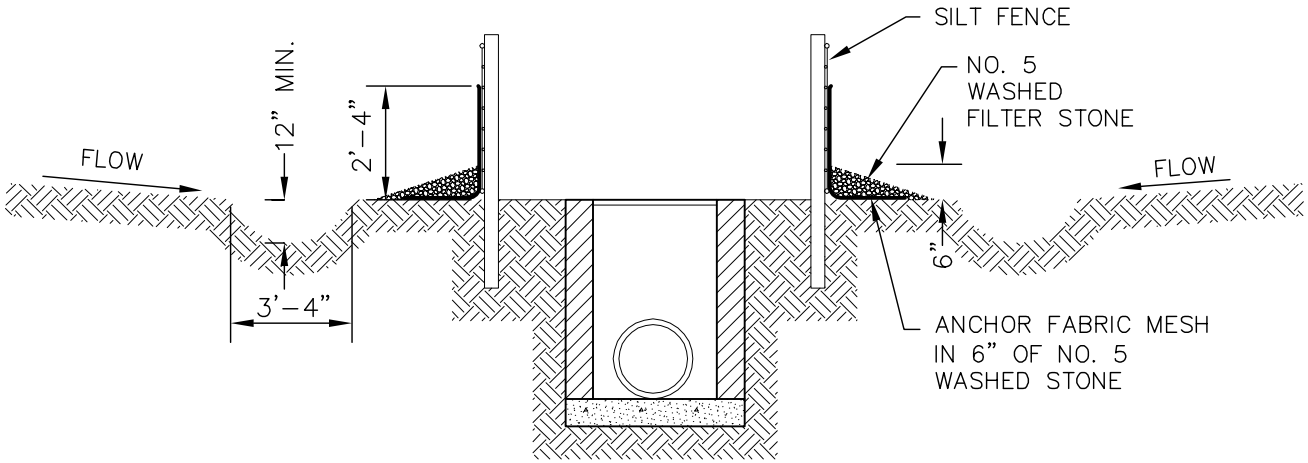
THE BOTTOM WIDTH OF THE SWALE SHOULD RANGE BETWEEN 2– AND 8–FEET WHERE APPLICABLE TO ENSURE AN ADEQUATE FILTRATION AREA

THE SIDE SLOPES OF THE SWALE SHALL NOT EXCEED 3H:1V, AND 4H:1V IS RECOMMENDED FOR EASE OF MAINTENANCE AND FOR SIDE INFLOW TO REMAIN AS SHEET FLOW.

OUTLET PROTECTION MUST BE USED AT ANY DISCHARGE POINT FROM A WET SWALE TO PREVENT SCOUR AND DOWNSTREAM EROSION.




PLAN




SECTION A-A

## NOTES:

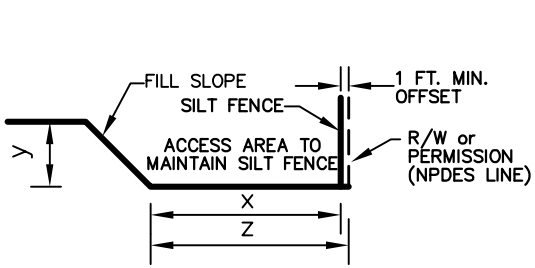
1. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
2. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
3. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION SHALL BE MINIMIZED.
4. THE SEDIMENT TRAP SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

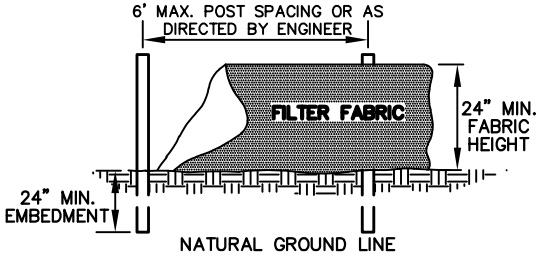
LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

TEMPORARY CATCH BASIN
SEDIMENT TRAP

DRAWING NO: C-3

DATE: October, 2007




NOTES:

1. SILT FENCE CHECKS MUST BE LOCATED EVERY 100 FT. MAXIMUM AND AT LOW POINTS. FILTER FABRICS SHALL CONFORM TO SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION).

2. STEEL POST MAY BE USED. POSTS SHALL BE A MINIMUM OF 5 FEET LONG AND INSTALLED TO A MINIMUM DEPTH OF 24 INCHES WITH NO MORE THAN 3 FEET OF THE POST ABOVE GROUND. AT LEAST 1 TO 2 INCHES OF THE POSTS SHALL EXTEND ABOVE THE TOP OF THE FABRIC.

3. STEEL POSTS SHALL BE 5 FEET AND WEIGH A MINIMUM OF 1.25 POUNDS PER FOOT AND HAVE PROJECTIONS FOR FASTENING THE FABRIC TO THE POST. STEEL POSTS SHALL ALSO HAVE A SOIL PLATE WELDED NEAR THE BOTTOM OF THE POST.

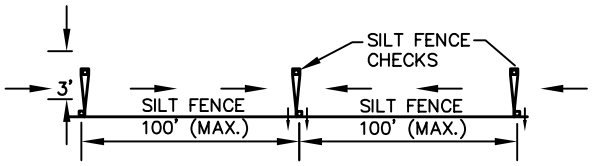
4. SILT SHALL BE REMOVED AND DISPOSED OF WHEN SILT ACCUMULATES TO 1/3 THE HEIGHT OF THE FENCE. MAINTENANCE OF SILT FENCE WILL BE MEASURED AND PAID FOR BY THE ITEM OF SILT BASIN.

5. THE PAY ITEMS SHALL BE: SILT FENCE_____L.F.
SILT BASIN_____C.Y.

| HEIGHT OF FILL (y) IN FEET | FILL SLOPE | MINIMUM SILT FENCE OFFSET FROM TOE OF SLOPE (x) IN FEET | MINIMUM RIGHT OF WAY OFFSET FROM TOE OF SLOPE (NPDES LINE) (z) IN FEET | CHECK LENGTH IN FEET** |
|---|---|---|---|---|
| <6 | 2:1<br>4:1<br>6:1 | 2 | 3 | 2 |
| 6–10 | 2:1 | 12* | 13* | 5 |
| | 4:1<br>6:1 | 3 | 4 | 3 |
| >10 | 2:1 | 12* | 13* | 5 |
| | 4:1<br>6:1 | 4 | 5 | 4 |

* THESE MINIMUM OFFSETS MAY BE REDUCED WHEN CURB AND GUTTER OR SOME OTHER FEATURE REDUCES THE FLOW OF WATER DOWN THE SLOPE. THE SMALL OFFSETS OF EACH GROUP OF HEIGHT OF FILL CANNOT BE REDUCED.

** SILT FENCE CHECKS WILL HAVE A MAXIMUM LENGTH OF FIVE (5) FEET OR UNTIL THEY TIE BACK INTO THE SLOPE.

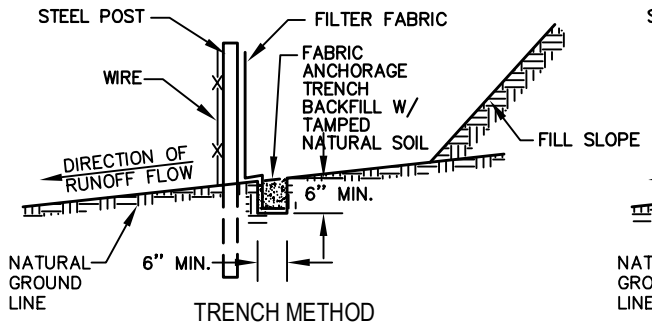



SILT FENCE CHECKS

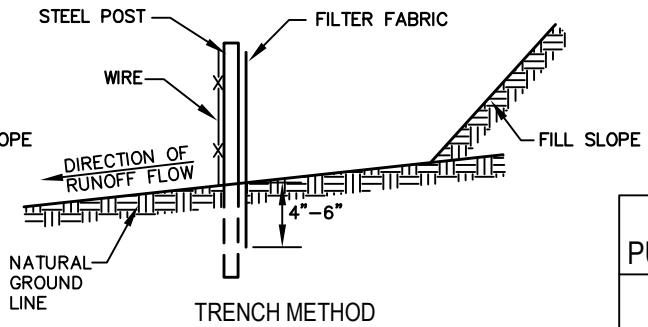
NOTES:

1. TYPICAL SILT FENCE APPLICATIONS REQUIRE 24 INCHES OF THE FABRIC TO BE ABOVE GROUND .WHEN NEEDED, THE HEIGHT OF SILT FENCE FABRIC ABOVE THE GROUND MAY BE GREATER THAN 24". SEE PLANS FOR APPLICATION OF HIGHER SILT FENCE, PAY ITEMS AND INSTALLATION METHODS.

2. IN TIDAL AREAS, SILT FENCE EXTRA HEIGHT MAY BE REQUIRED.THE LENGTH OF POST WILL BE TWICE THE EXPOSED POST HEIGHT. POST SPACING AND BURIED DEPTHS WILL REMAIN AS SHOWN HEREON. EXTRA HEIGHT FABRIC WILL BE 4, 5 OR 6 FEET TOTAL WIDTH.




TRENCH METHOD




TRENCH METHOD

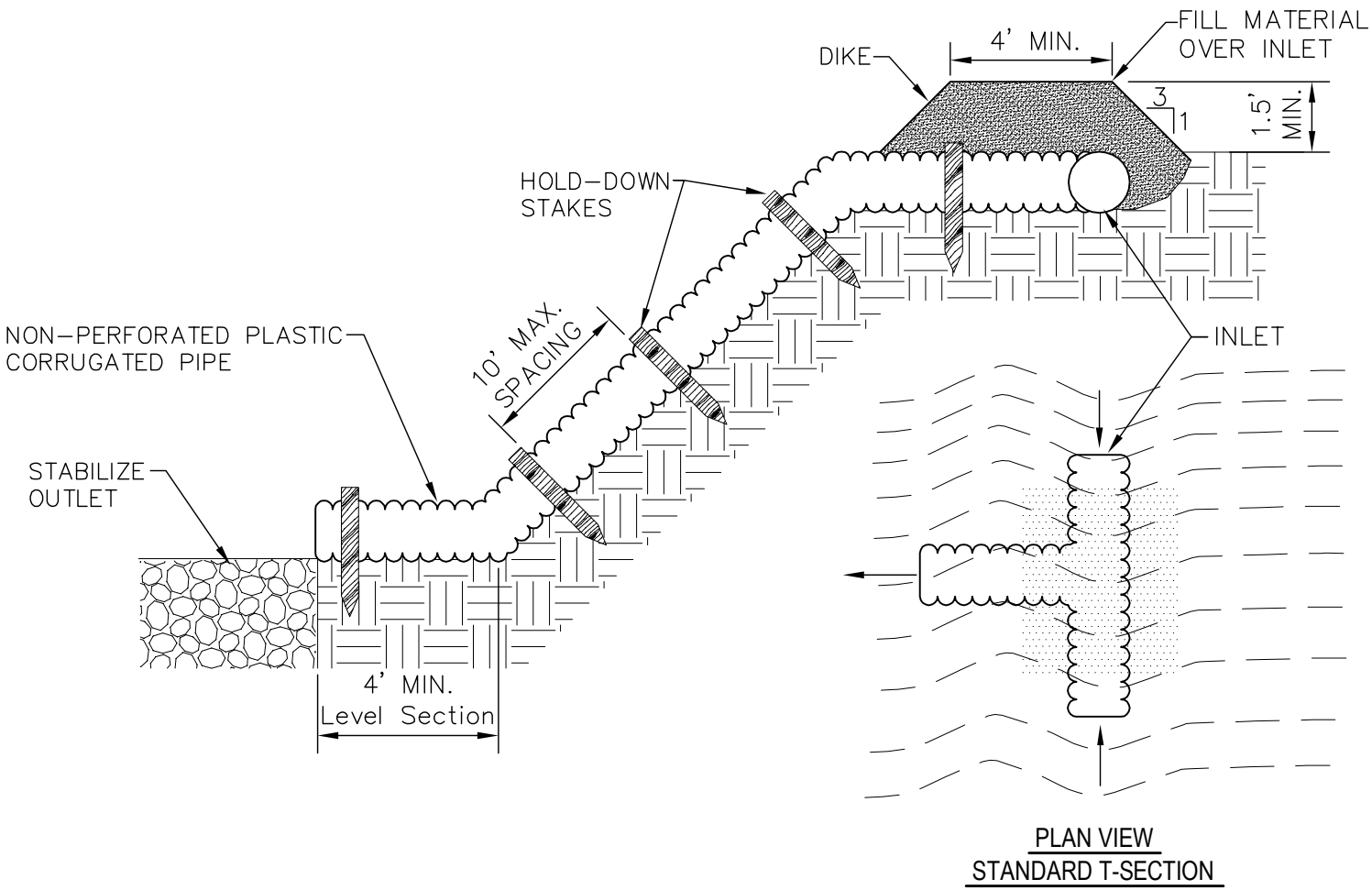
NOTE:
THE FABRIC SHALL BE BURIED REGARDLESS, IF PLACED PNEUMATICALLY OR BY HAND WITH A TRENCHER. BOTH METHODS SHOWN HERE ON.

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

# TEMPORARY SILT FENCE

DRAWING NO: C–11

DATE: October, 2007




PLAN VIEW
STANDARD T-SECTION

NOTE:
SEE EROSION CONTROL PLAN FOR PIPE SIZE

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| TEMPORARY SLOPE DRAIN | |
| DRAWING NO: D-8 | |
| DATE: October, 2007 | |

Plant Selection
Plant seed selection should be based on the type of soil and the season of the year in which the planting is to be done. Tables 3.12 and 3.13 should be used if you plan to use conventional tillage methods (plowing, seedbed preparation, hydroseeding, etc). If you need a fast growing crop to nurse your permanent specie or species, then use the mix rate. Failure to carefully follow agronomic recommendations often result in an inadequate stand of temporary vegetation that provides little or no erosion control.

Tillage
If the area has been recently plowed, no tillage is required other than raking or surface roughening to break any crust that has formed and to leave a textured surface. If the soil is compacted less than 6–inches, it should be disked for optimal germination.

Soil Testing
Information and test provider is available from the PW/SWD and the Soil and Water Conservation District Office.

Lime
Lime is not required for temporary seeding unless a soil test shows that the soil pH is below 5.0. It may be desirable to apply lime during the temporary seeding operation to benefit the long–term permanent seeding. Apply a minimum of 1.5 tons of Lime/acre (70 pounds per 1000 square feet) if it is to be used.

Fertilizer
A minimum of 500 pounds per acre of 10–10–10 fertilizer (11.5 pounds per 1000 square feet) or equivalent should be applied during temporary seeding unless a soil test indicates a different requirement. Fertilizer and lime (if used) should be incorporated into the top 4–6 inches of the soil by disking or other means where conditions allow.

Seeding
The surface of the soil should be loosened just before broadcasting the seed. Seed should be applied evenly by the most convenient method available for the type of seed to be used and the location of the temporary seeding. Typical application methods include but are not limited to cyclone seeders, rotary spreaders, drop spreaders, broadcast spreaders, hand spreaders, cultipacker seeder, and hydro–seeders. Cover applied seed by raking or dragging a chain, and then lightly firm the area with a roller or cultipacker.

Mulching
Mulch should be used in all permanently seeded areas to retain soil moisture and reduce erosion during establishment of vegetation. The mulch should be applied evenly in such a manner that it provides a minimum of 75% coverage. Typical mulch applications include straw, wood chips, bark, wood fibers, compost much or hydro–mulches. The most commonly accepted mulch used in conjunction with temporary seeding is small grain straw. This straw should be dry and free from mold damage and noxious weeds. The straw may need to be anchored with netting or emulsions to prevent it from being blown or washed away. The straw mulch may be applied by hand or machine at the rate 1.5 – 2 tons per acre (90 pounds per 1000 square feet). Frequent inspections are necessary to check that conditions for growth are good.

Irrigation
Seeded areas should be kept adequately moist. Irrigate the seeded area if normal rainfall is not adequate for the germination and growth of seedlings. Water seeded areas at controlled rates that are less than the rate at which the soil can absorb water to prevent runoff. Runoff of irrigation water wastes water and can cause erosion.

Re–seeding
Areas where the plants do not grow quickly, thick enough, or adequately to prevent erosion should be re–seeded with temporary grasses as soon as such areas are identified.

| LEXINGTON COUNTY<br>PUBLIC WORKS DEPARTMENT | |
|---|---|
| TEMPORARY VEGETATION<br>NOTES & SCHEDULE<br>(Sheet 1 of 2) | |
| DRAWING NO: D–14 | |
| DATE: October 2007 | |

| TABLE 3.12 TEMPORARY VEGETATION SCHEDULE | | | |
|---|---|---|---|
| Species | Rates (lbs/acr) | Optimum Dates to Plant | Remarks |
| Browntop Millet (Alone) | 40 | April 20 – August 15 | Quick, Dense Cover |
| Browntop Millet (Mix)* | 10 | April 20 – August 15 | Quick, Dense Cover |
| Rye Grain (Alone) | 56 | February – March, August 15 – November 20 | Quick Cover |
| Rye Grain (Mix)* | 10 | February – March, August 15 – November 20 | Quick Cover |
| Rye Grass (Alone) | 50 | August 10 – October 10 | Competitive, Dense |
| Rye Grass (Mix)* | 8 | August 10 – October 10 | Competitive, Dense |

| TABLE 3.13 TEMPORARY VEGETATION FOR STEEP SLOPES/CUT SLOPES | | | |
|---|---|---|---|
| Species | Rates (lbs/acr) | Optimum Dates to Plant | Remarks |
| Weeping Lovegrass (Alone) | 4 | April – July 20 | Quick cover, deep roots, likes dry sites, seldom used alone, clumps |
| Weeping Lovegrass (Mix)* | 2 | April – July 20 | Quick cover, deep roots, likes dry sites, seldom used alone, clumps |

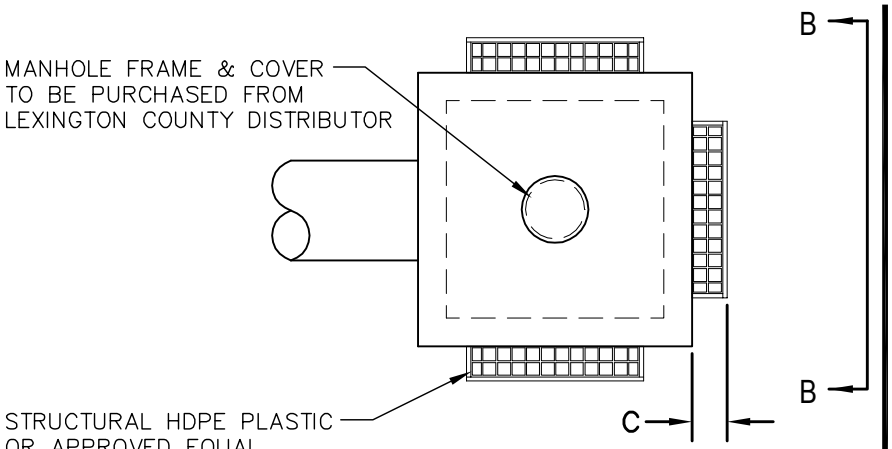
* For details on mixes consult the Lexington Soil and Water Conservation District, (803) 359–3165 ext. 3.

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

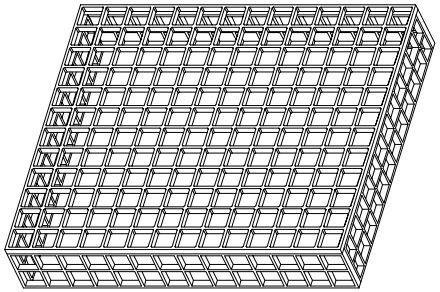
TEMPORARY VEGETATION
NOTES & SCHEDULE
(Sheet 2 of 2)

DRAWING NO: D–14A

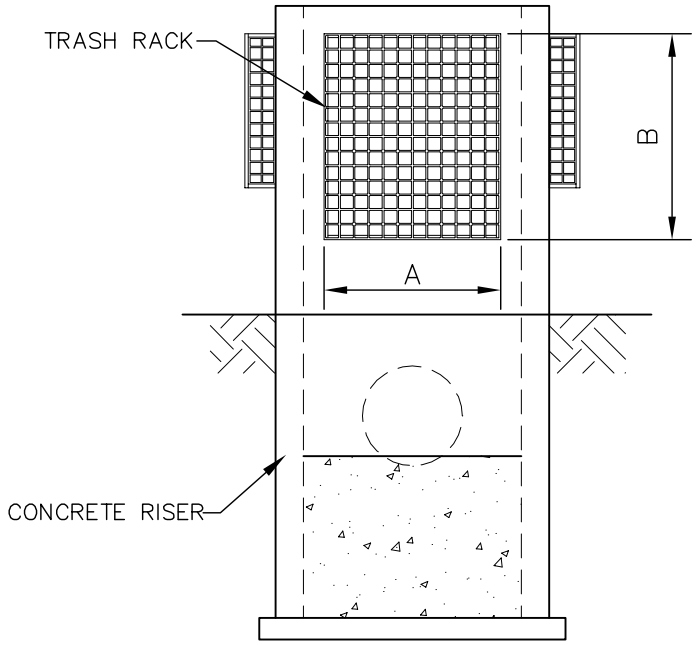
DATE: October 2007




Top View



Trash Rack Assembly




ELEV. B–B

| A | 11 3/8 | 16 3/4 | 22 1/8 | 27 1/2 | 32 7/8 | 38 1/4 | 43 5/8 | 49 | 54 3/8 | 59 3/4 | 65 1/8 | 71 1/8 | 76 1/2 | 81 7/8 | 87 1/4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WIDTH CODE | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| B | 11 3/8 | 16 3/4 | 22 1/8 | 27 1/2 | 32 7/8 | 38 1/4 | 43 5/8 | 49 | 54 3/8 | 59 3/4 | 65 1/8 | 70 1/2 | 75 7/8 | 81 7/8 | 87 1/4 |
| LENGTH CODE | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

| C | 7 1/2 | 12 7/8 |
|---|---|---|
| HEIGHT CODE | 01 | 02 |

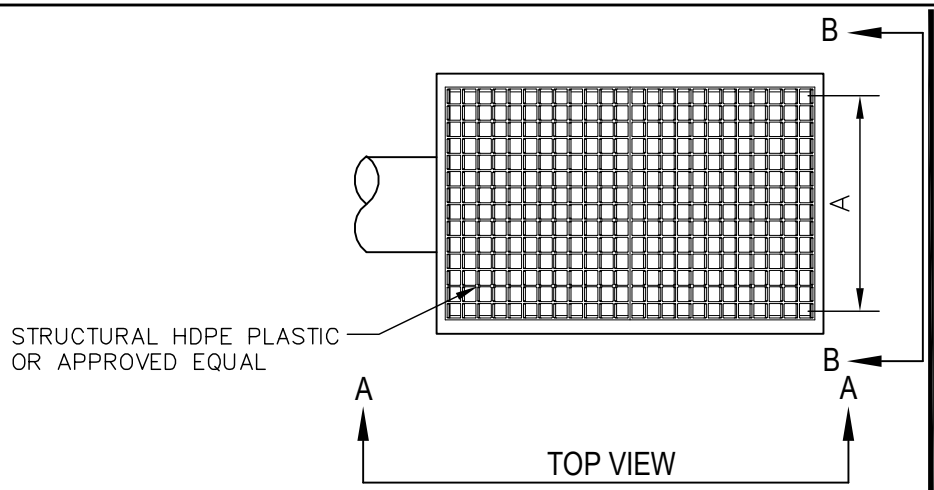
PART CODE= FR + WIDTH CODE +LENGTH CODE + HEIGHT CODE
(EX. FR080802)

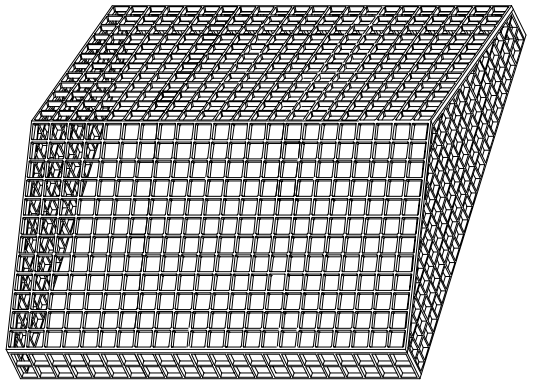
LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

TRASH RACK

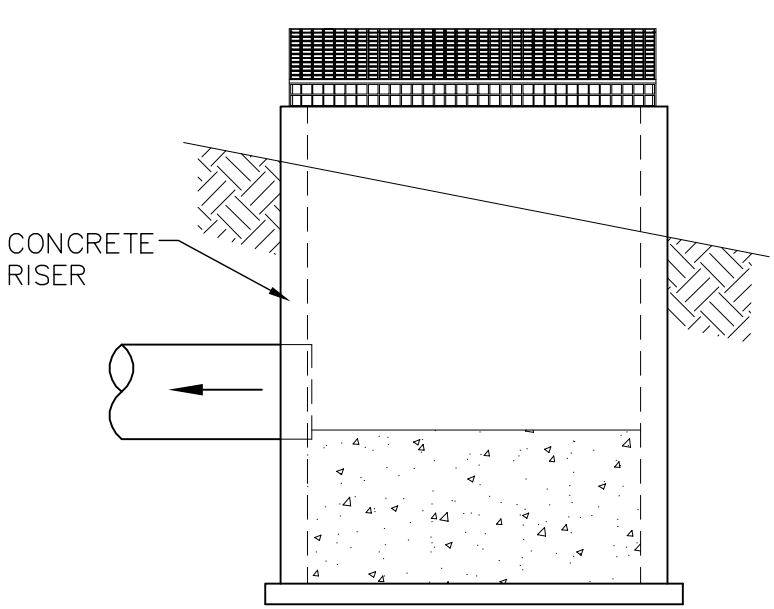
DRAWING NO: D–15

DATE: October 2007

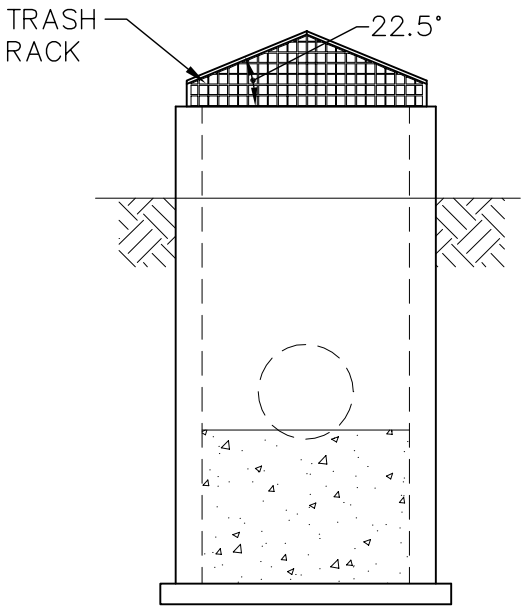


TRASH RACK ASSEMBLY




ELEV. A-A




ELEV. B-B

| A | 49 3/4 | 59 3/4 | 69 1/2 | 79 1/2 | 89 1/2 | 99 1/2 | 109 1/4 | 120 1/2 |
|---|---|---|---|---|---|---|---|---|
| WIDTH CODE | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| C | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 |

| B | 49 | 54 1/2 | 59 3/4 | 65 1/4 | 70 1/2 | 76 | 82 | 87 1/4 |
|---|---|---|---|---|---|---|---|---|
| LENGTH CODE | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

NUMBERS ROUNDED TO 1/4"

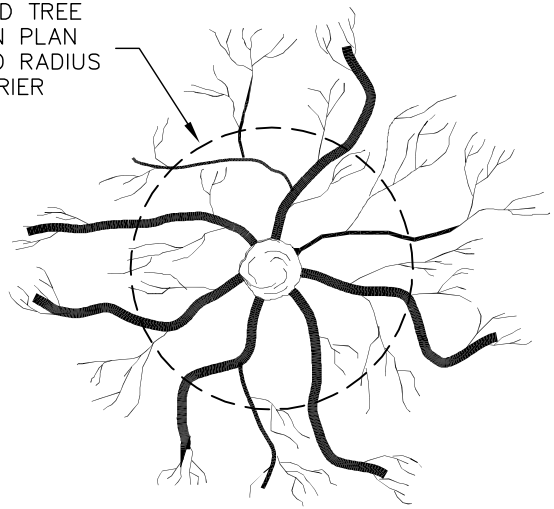
PART CODE= PR + WIDTH CODE +LENGTH CODE
(EX. PR1213)

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

TRASH RACK

DRAWING NO: D-15A
DATE: October 2007

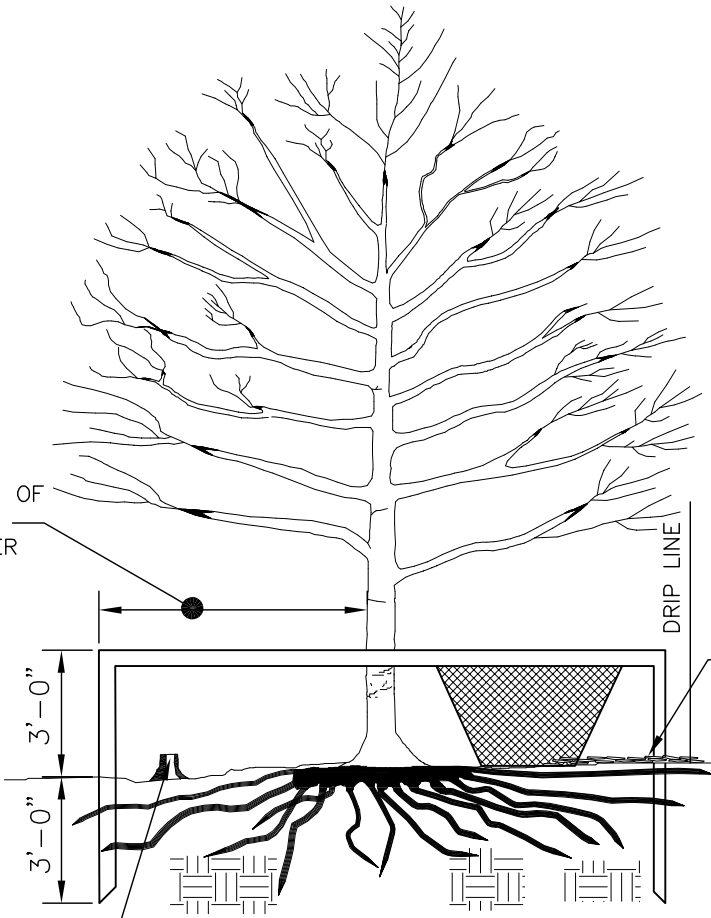
SEE APPROVED TREE PRESERVATION PLAN FOR REQUIRED RADIUS OF TREE BARRIER

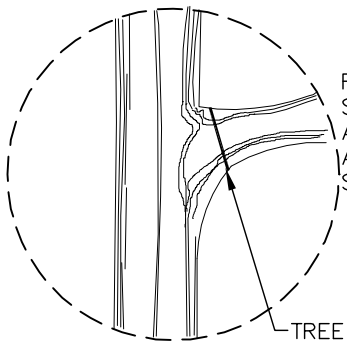


PLAN VIEW OF ROOT ZONE

NOTES:

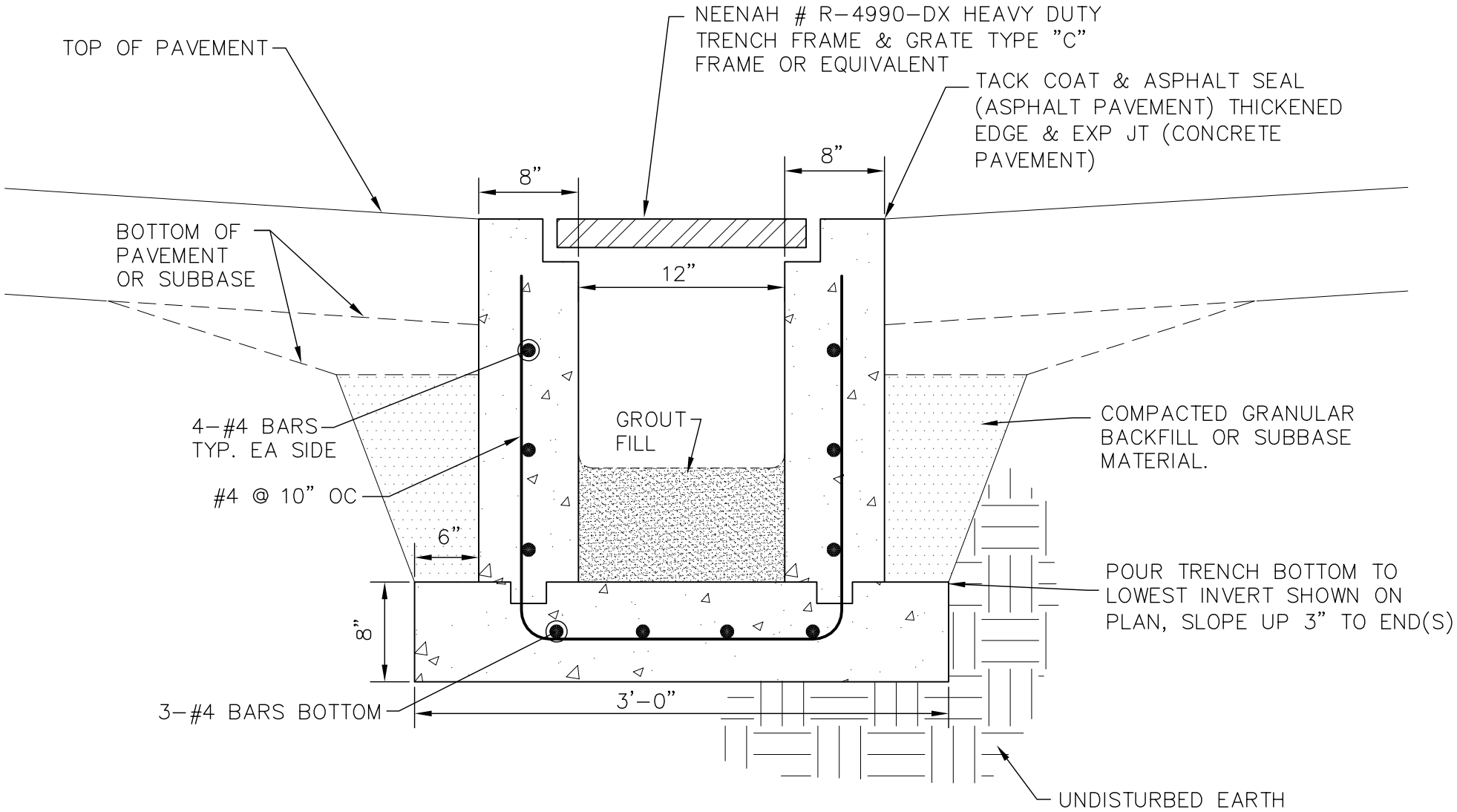
1. REMOVE ALL BARRIERS UPON COMPLETION OF PROJECT.
2. SEE PLANS FOR LOCATION OF ALL TREE PROTECTION FENCES.



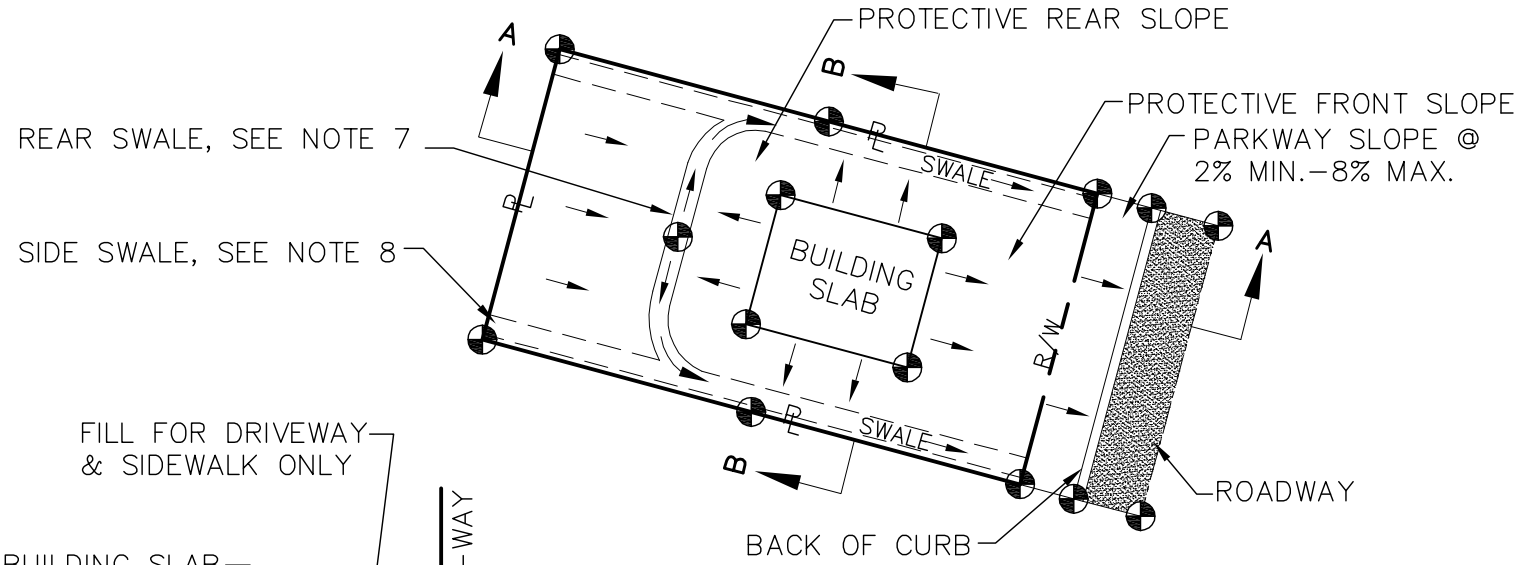

2x4" STANDARDS + 1x4" RAILS OR ORANGE SAFETY FENCING MAY BE USED.

| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
|---|---|
| TREE PROTECTION DETAIL | |
| DRAWING NO: E-6 | |
| DATE: October, 2007 | |

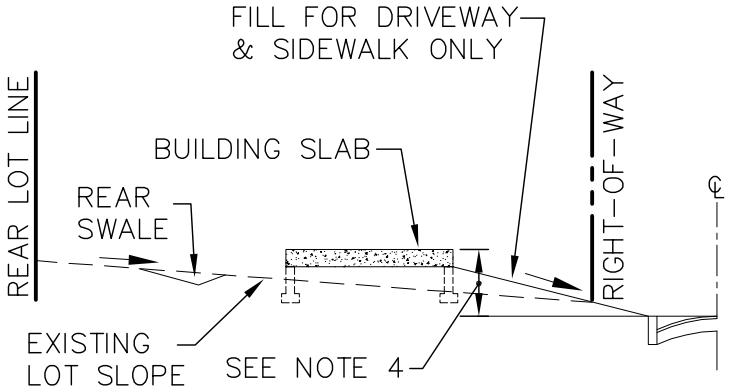



NOTE: TIE TO DRAINAGE SYSTEM

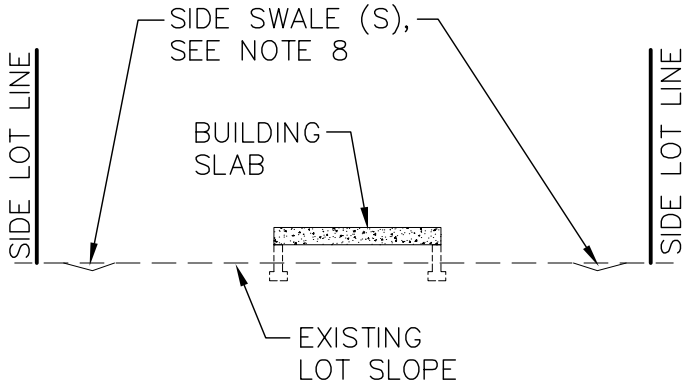
| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
|---|---|
| TRENCH DRAIN | |
| DRAWING NO: D-6 | |
| DATE: October, 2007 | |




PLAN VIEW
TYPICAL GRADING




TYPICAL SECTION A-A




TYPICAL SECTION B-B
(DOUBLE SCALE)

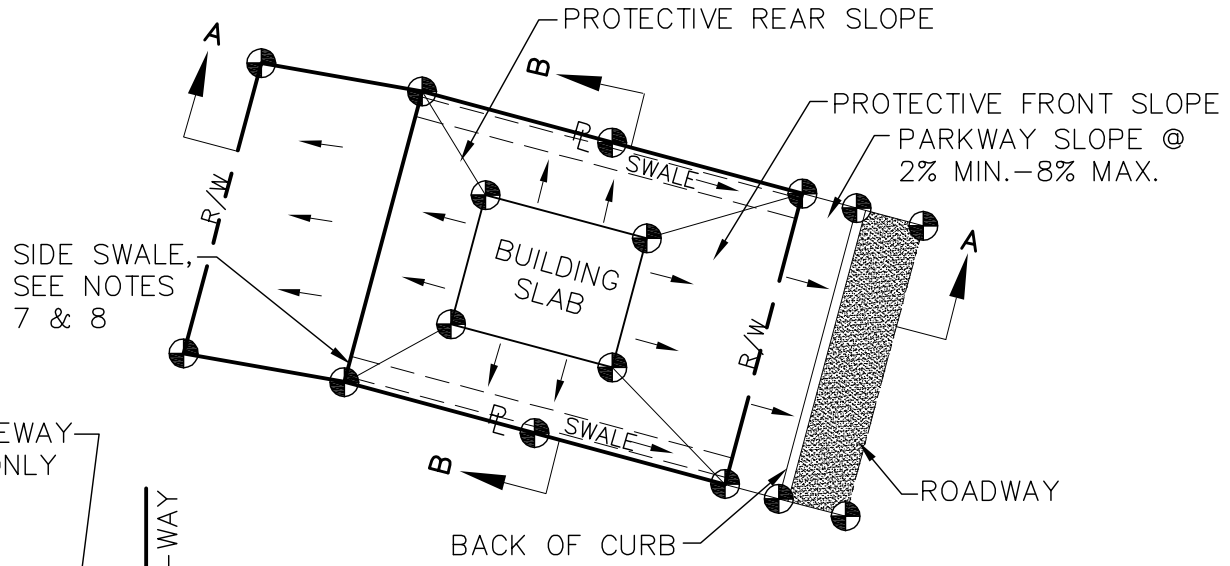
NOTES:

1. FILL IN FEMA FLOOD ZONES A AND AE IS LIMITED PER COUNTY CODE. A SEPARATE SITE PLAN SHOWING EXISTING AND PROPOSED ELEVATIONS AND DRAINAGE PLAN IS REQUIRED IN FEMA FLOOD AREAS. THESE PLANS SHALL BE SIGNED AND SEALED BY A SOUTH CAROLINA REGISTERED ENGINEER.
2. EXISTING AND DESIGN ELEVATIONS ARE REQUIRED FOR POINTS IDENTIFIED BY THIS SYMBOL: ⊕
3. BUILDING SLAB SHALL BE 1' MINIMUM ABOVE THE CENTERLINE OF THE ROADWAY AS DICTATED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA).
4. LOT GRADING SHALL MAINTAIN HISTORICAL FLOW PATHS AND PREVENT THE ACCUMULATION OF WATER OR EXCESSIVE RUNOFF ONTO ADJACVENT PROPERTIES.
5. LOTS IN EXISTING SUBDIVISIONS REQUIRE EXISTING ELEVATIONS 5' INTO ADJOINING PROPERTIES OR EXISTING SWALE (S).
6. REAR SWALE SHALL DRAIN TO SIDE SWALES AND TO ROADWAY ON EACH LOT SIDE AND SHALL FUNCTION INDEPENDENTLY FROM ALL ADJOINING LOTS.
7. SIDE SWALES SHALL BE SIZED TO ACCOMMODATE A MINIMUM OF A 10 YEAR, 1 HOUR RAIN EVENT, MINIMUM SWALE SIZE SHALL BE 6" DEEP WITH 4:1 SIDE SLOPES.
8. ROOF GUTTERS AND LEADERS IN CONJUNCTION WITH YARD DRAINS AND INLETS ARE REQUIRED WHERE NECESSARY FOR ADEQUATE DRAINAGE.
9. WHEN SILT FENCING IS REQUIRED, SEE DETAIL "TEMPORARY SILT FENCE", DWG NO. C–11.
10. FINAL AS–BUILT ELEVATIONS SHALL BE CERTIFIED BY A REGISTERED SOUTH CAROLINA LAND SURVEYOR TO CONFIRM COMPLIANCE WITH THE PROPOSED DESIGN ELEVATIONS.

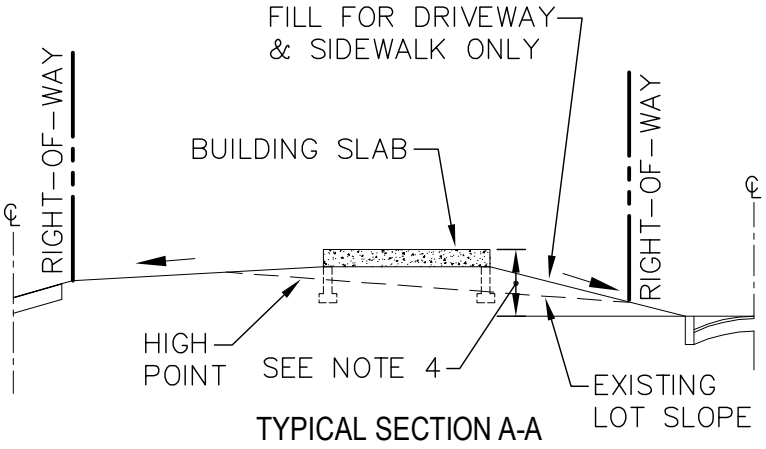
LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

# TYPE 'A' LOT GRADING
(all drainage to road)

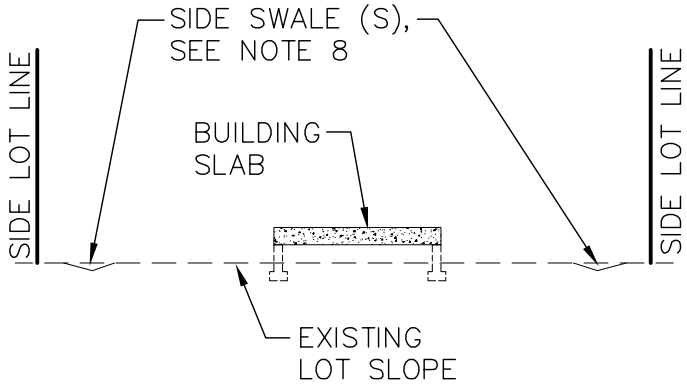
DRAWING NO: C–14
DATE: October, 2007




PLAN VIEW
TYPICAL GRADING




TYPICAL SECTION A-A




TYPICAL SECTION B-B
(DOUBLE SCALE)

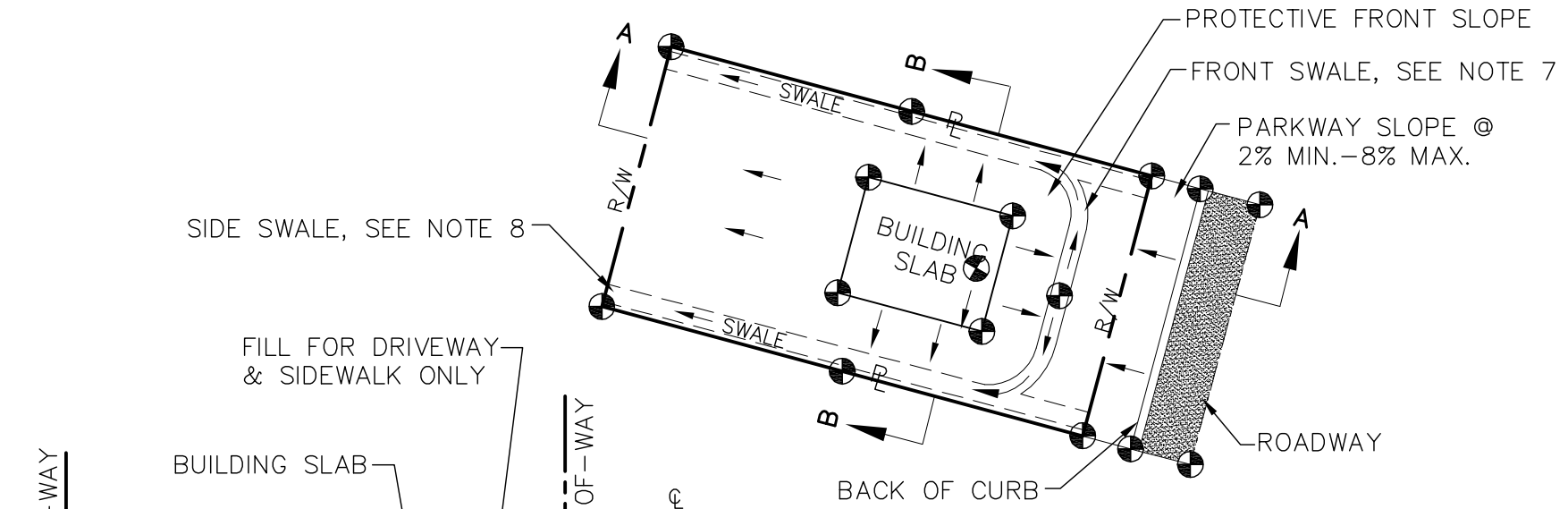
## NOTES:

1. FILL IN FEMA FLOOD ZONES A AND AE IS LIMITED PER COUNTY CODE. A SEPARATE SITE PLAN SHOWING EXISTING AND PROPOSED ELEVATIONS AND DRAINAGE PLAN IS REQUIRED IN FEMA FLOOD AREAS. THESE PLANS SHALL BE SIGNED AND SEALED BY A SOUTH CAROLINA REGISTERED ENGINEER.
2. EXISTING AND DESIGN ELEVATIONS ARE REQUIRED FOR POINTS IDENTIFIED BY THIS SYMBOL: ⊕
3. BUILDING SLAB SHALL BE 1' MINIMUM ABOVE THE CENTERLINE OF THE ROADWAY OR AS DICTATED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA).
4. LOT GRADING SHALL MAINTAIN HISTORICAL FLOW PATHS AND PREVENT THE ACCUMULATION OF WATER OR EXCESSIVE RUNOFF ONTO ADJACVENT PROPERTIES.
5. LOTS IN EXISTING SUBDIVISIONS REQUIRE EXISTING ELEVATIONS 5' INTO ADJOINING PROPERTIES OR EXISTING SWALE(S).
6. SIDE SWALES SHALL DRAIN TO ROADWAY ON EACH LOT SIDE AND SHALL FUNCTION INDEPENDENTLY FROM ALL ADJOINING LOTS.
7. SIDE SWALES SHALL BE SIZED TO ACCOMMODATE A MINIMUM OF A 10 YEAR, 1 HOUR RAIN EVENT, MINIMUM SWALE SIZE SHALL BE 6" DEEP WITH 4:1 SIDE SLOPES.
8. ROOF GUTTERS AND LEADERS IN CONJUNCTION WITH YARD DRAINS AND INLETS ARE REQUIRED WHERE NECESSARY FOR ADEQUATE DRAINAGE.
9. WHEN SILT FENCING IS REQUIRED, SEE DETAIL "TEMPORARY SILT FENCE", DWG NO. C–11.
10. FINAL AS–BUILT ELEVATIONS SHALL BE CERTIFIED BY A REGISTERED SOUTH CAROLINA LAND SURVEYOR TO CONFIRM COMPLIANCE WITH THE PROPOSED DESIGN ELEVATIONS.

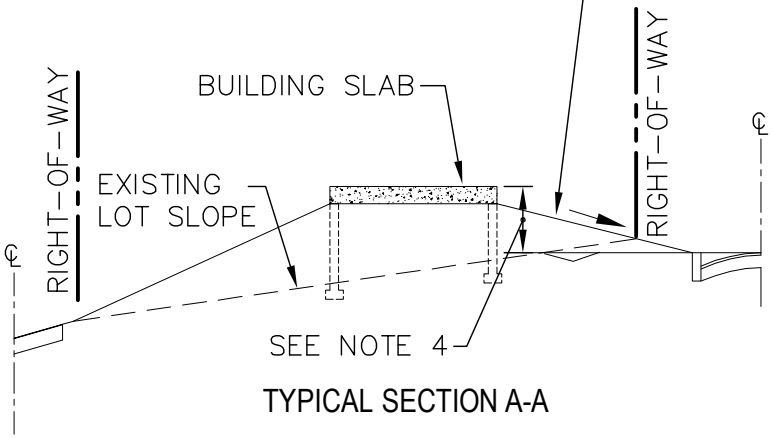
LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

TYPE 'B' LOT GRADING
(all drainage to road & alley)

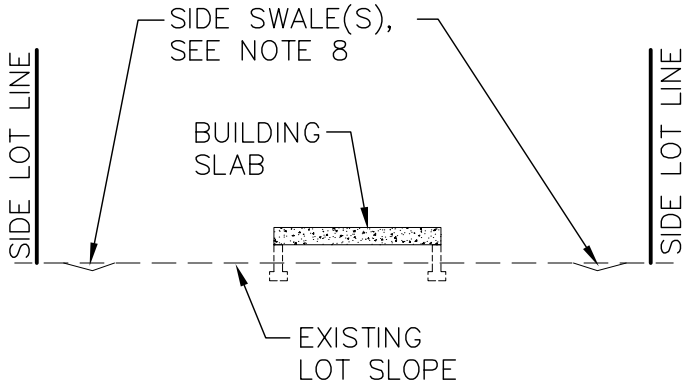
DRAWING NO: C–15
DATE: October, 2007




PLAN VIEW
TYPICAL GRADING




TYPICAL SECTION A-A




TYPICAL SECTION B-B
(DOUBLE SCALE)

NOTES:

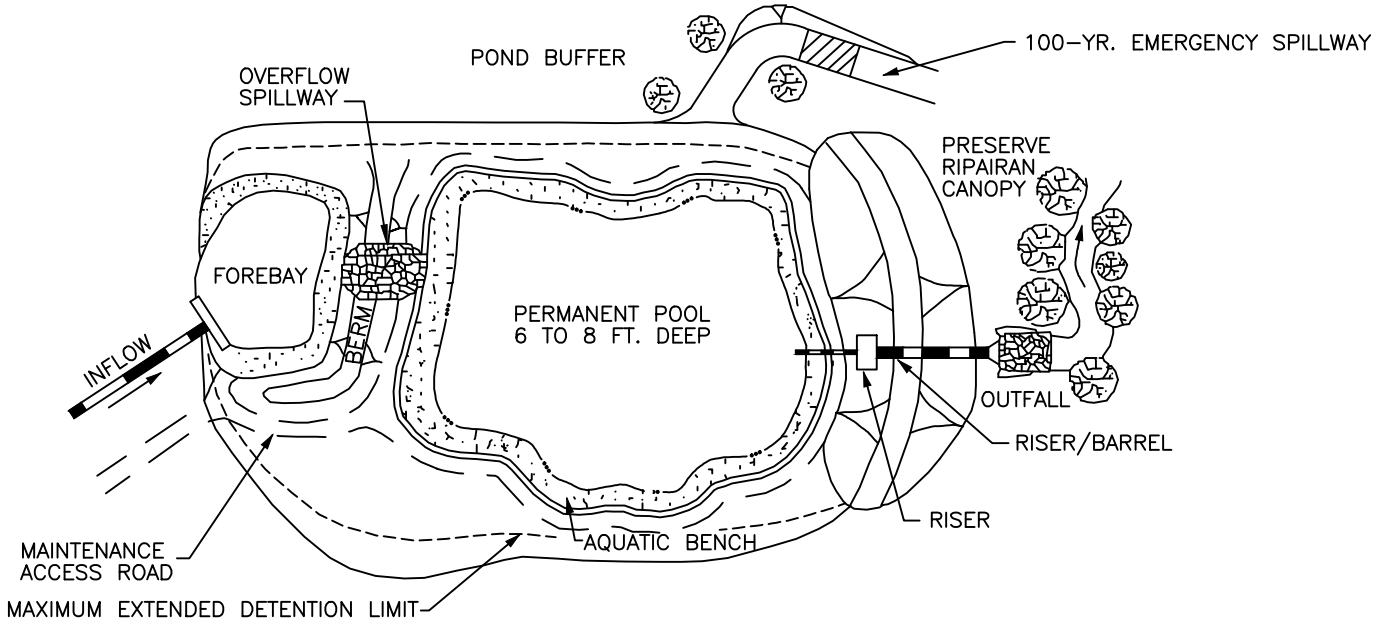
1. FILL IN FEMA FLOOD ZONES A AND AE IS LIMITED PER COUNTY CODE. A SEPARATE SITE PLAN SHOWING EXISTING AND PROPOSED ELEVATIONS AND DRAINAGE PLAN IS REQUIRED IN FEMA FLOOD AREAS. THESE PLANS SHALL BE SIGNED AND SEALED BY A SOUTH CAROLINA REGISTERED ENGINEER.
2. EXISTING AND DESIGN ELEVATIONS ARE REQUIRED FOR POINTS IDENTIFIED BY THIS SYMBOL: ⊕
3. BUILDING SLAB SHALL BE 1' MINIMUM ABOVE THE CENTERLINE OF THE ROADWAY OR AS DICTATED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA).
4. LOT GRADING SHALL MAINTAIN HISTORICAL FLOW PATHS AND PREVENT THE ACCUMULATION OF WATER OR EXCESSIVE RUNOFF ONTO ADJACVENT PROPERTIES.
5. LOTS IN EXISTING SUBDIVISIONS REQUIRE EXISTING ELEVATIONS 5' INTO ADJOINING PROPERTIES OR EXISTING SWALE(S).
6. FRONT SWALE SHALL DRAIN TO SIDE SWALES AND TO ROADWAY ON EACH LOT SIDE AND SHALL FUNCTION INDEPENDENTLY FROM ALL ADJOINING LOTS.
7. SIDE SWALES SHALL BE SIZED TO ACCOMMODATE A MINIMUM OF A 10 YEAR, 1 HOUR RAIN EVENT, MINIMUM SWALE SIZE SHALL BE 6" DEEP WITH 4:1 SIDE SLOPES.
8. ROOF GUTTERS AND LEADERS IN CONJUNCTION WITH YARD DRAINS AND INLETS ARE REQUIRED WHERE NECESSARY FOR ADEQUATE DRAINAGE.
9. WHEN SILT FENCING IS REQUIRED, SEE DETAIL "TEMPORARY SILT FENCE", DWG NO. C–11
10. FINAL AS–BUILT ELEVATIONS SHALL BE CERTIFIED BY A REGISTERED SOUTH CAROLINA LAND SURVEYOR TO CONFIRM COMPLIANCE WITH THE PROPOSED DESIGN ELEVATIONS.

LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

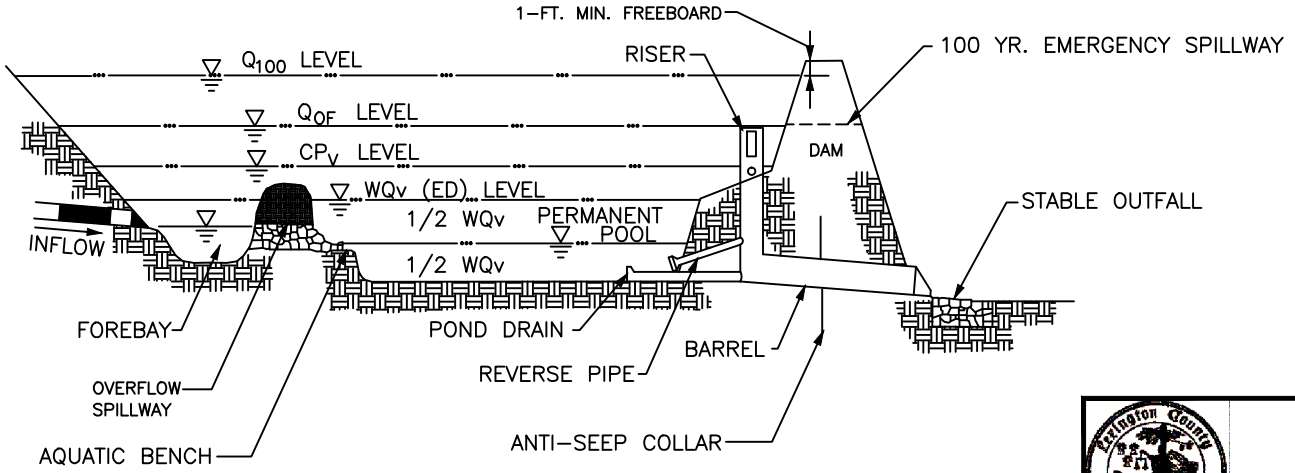
TYPE 'C' LOT GRADING
(all drainage to alley)

DRAWING NO: C–16
DATE: October, 2007

PLAN VIEW




PROFILE




# Lexington County, South Carolina

REVISION DATE: AUGUST 2014

TYPICAL WET EXTENDED DETENTION POND: pg 1 of 2

## WET EXTENDED DETENTION POND

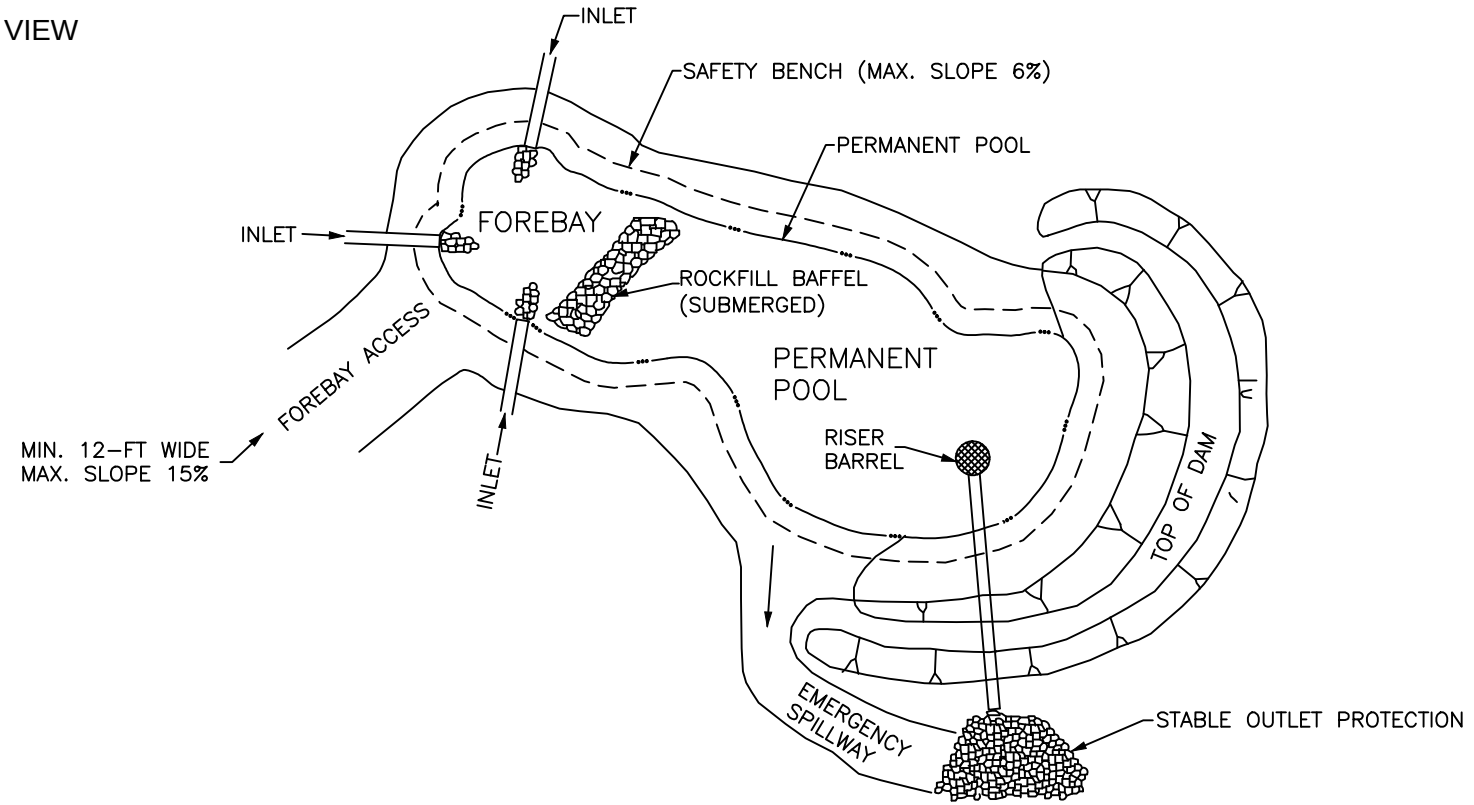
A FOREBAY SHALL BE PROVIDED FOR ALL INLETS TO A WET EXTENDED WATER QUALITY POND AND SHALL BE PLACED UPSTREAM OF THE MAIN WET POND AREA. THE FOREBAY IS SEPARATED FROM THE LARGER WET DETENTION POND AREA BY A BERM THAT MAY BE CONSTRUCTED OF EARTH, STONES, RIPRAP, GABIONS, OR GEOTEXTILES. THE TOP OF THE FOREBAY BARRIER SHALL BE EQUAL TO THE NORMAL POOL ELEVATION, AND MAY EXTEND ABOVE THE ELEVATION OF THE PERMANENT POOL. A SPILLWAY SHALL BE CONSTRUCTED TO CONVEY FLOW FROM THE FOREBAY TO THE WET DETENTION POND AREA.

A LOW FLOW ORIFICE SHALL BE INSTALLED TO SLOWLY RELEASE THE WATER QUALITY VOLUME. THE LOW FLOW ORIFICE SHALL BE PROTECTED FROM CLOGGING BY DESIGNING APPROPRIATE METHODS. ACCEPTABLE ANTI–CLOGGING METHODS INCLUDE:

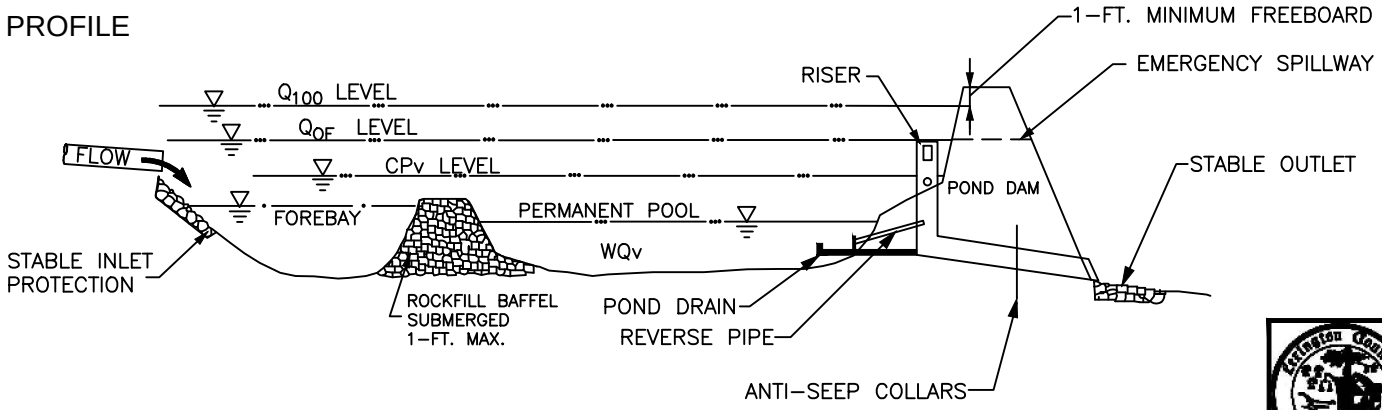
- HOODS THAT EXTEND AT LEAST 6–INCHES BELOW THE WATER QUALITY POOL WATER SURFACE ELEVATION.
- REVERSE FLOW PIPES WHERE THE OUTLET STRUCTURE INLET IS LOCATED AT LEAST 6–INCHES BELOW THE WATER QUALITY WATER SURFACE ELEVATION.

EMERGENCY SPILLWAYS SHALL BE INSTALLED TO SAFELY PASS THE POST–DEVELOPMENT 100–YEAR 24–HOUR STORM EVENT WITHOUT OVERTOPPING ANY DAM STRUCTURES.

PLAN VIEW




PROFILE




SOURCE: ADAPTED FROM GEORGIA STORMWATER MANAGEMENT MANUAL, VOLUME 2 2001 AND SCDHEC'S STORMWATER MANAGEMENT BMP HANDBOOK, 2005

Lexington County,
South Carolina

REVISION DATE: AUGUST 2014

TYPICAL WET DETENTION POND: pg 1 of 2

## WET DETENTION POND

A FOREBAY SHALL BE PROVIDED FOR ALL INLETS TO A WET WATER QUALITY POND AND SHALL BE PLACED UPSTREAM OF THE MAIN WET POND AREA. THE FOREBAY IS SEPARATED FROM THE LARGER WET DETENTION POND AREA BY BARRIERS OR BAFFLES THAT MAY BE CONSTRUCTED OF EARTH, STONES, RIPRAP, GABIONS, OR GEOTEXTILES. THE TOP OF THE FOREBAY BARRIER SHALL BE A MAXIMUM OF ONE (1)–FOOT BELOW THE NORMAL POOL ELEVATION, AND MAY EXTEND ABOVE THE ELEVATION OF THE PERMANENT POOL.

THE PERMANENT POOL SHALL BE SIX (6) TO EIGHT (8) FEET IN DEPTH.

SAFETY BENCH WITH RECOMMENDED WIDTH OF TEN (10) TO FIFTEEN (15) FEET, UNLESS POND SIDE SLOPES ARE 4:1 OR GENTLER

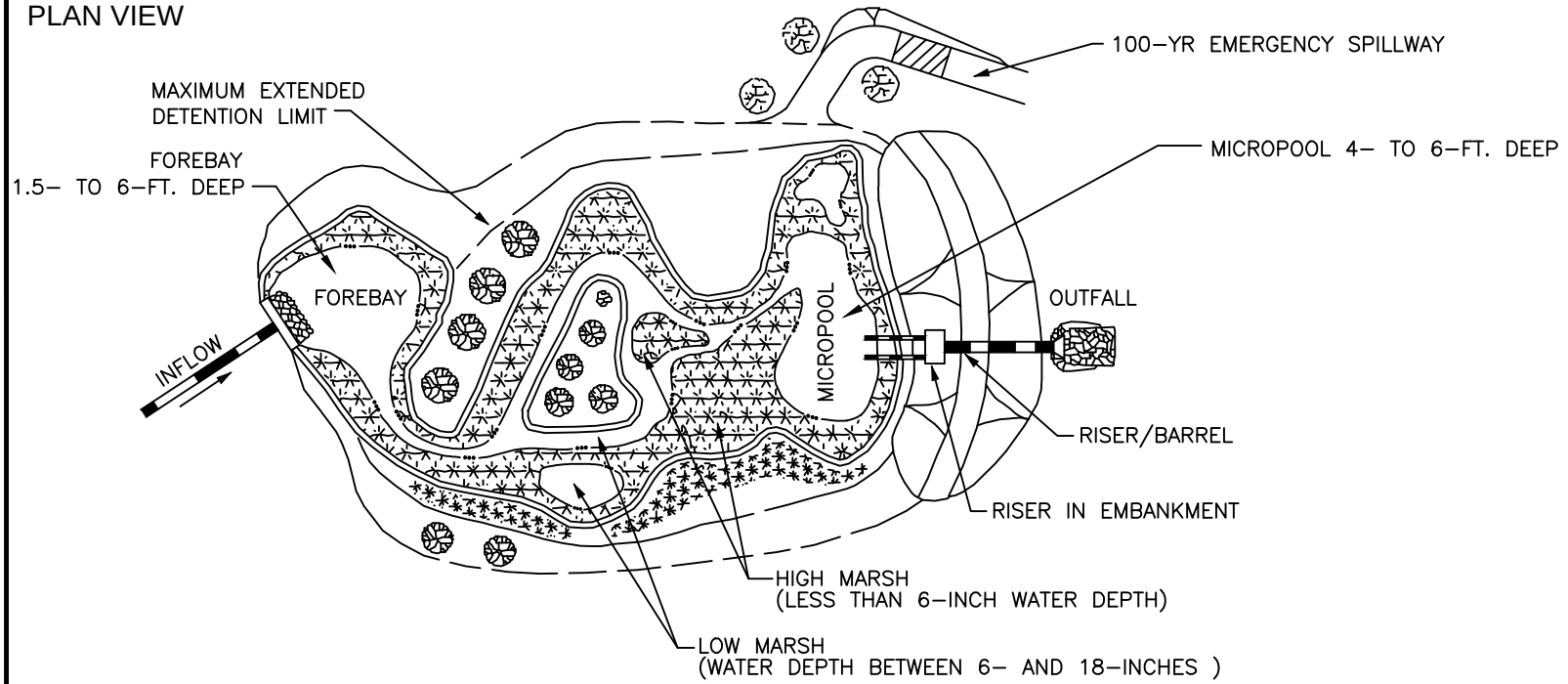
POND SIDE SLOPE OF 3:1 PREFERRED

A LOW FLOW ORIFICE SHALL BE INSTALLED TO SLOWLY RELEASE THE WATER QUALITY VOLUME. THE LOW FLOW ORIFICE SHALL BE PROTECTED FROM CLOGGING BY DESIGNING APPROPRIATE METHODS. ACCEPTABLE ANTI–CLOGGING METHODS INCLUDE:

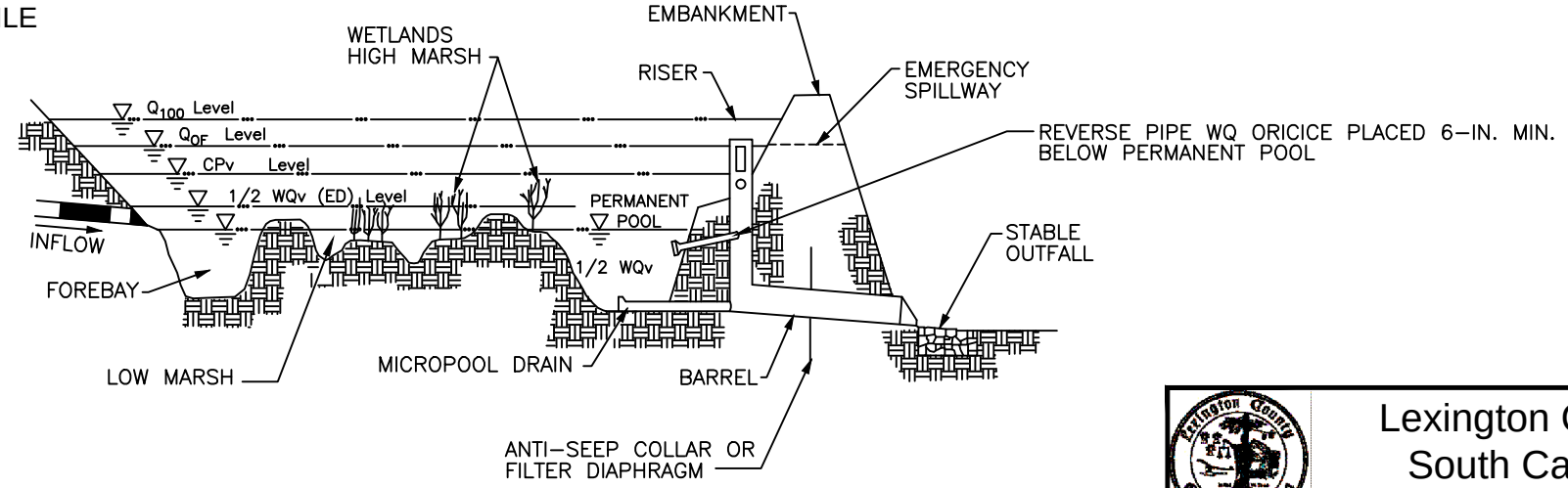
- HOODS THAT EXTEND AT LEAST 6–INCHES BELOW THE WATER QUALITY POOL WATER SURFACE ELEVATION.
- REVERSE FLOW PIPES WHERE THE OUTLET STRUCTURE INLET IS LOCATED AT LEAST 6–INCHES BELOW THE WATER QUALITY WATER SURFACE ELEVATION.

EMERGENCY SPILLWAYS SHALL BE INSTALLED TO SAFELY PASS THE POST–DEVELOPMENT 100–YEAR 24–HOUR STORM EVENT WITHOUT OVERTOPPING ANY DAM STRUCTURES.

PLAN VIEW




PROFILE




SOURCE: ADAPTED FROM SCDHEC'S STORMWATER MANAGEMENT BMP HANDBOOK, 2005 AND THE GEORGIA STORMWATER MANAGEMENT MANUAL, VOLUME 2, 2001

Lexington County, South Carolina

REVISION DATE: AUGUST 2014

EXTENDED DETENTION SHALLOW WETLAND: pg 1 of 2

## EXTENDED DETENTION SHALLOW WETLAND

THE ALLOCATION OF WETLAND SURFACE AREA SHOULD BE AS FOLLOWS:

DEEPWATER ZONE: 10%
FROM 1.5 TO 6 FEET DEEP. INCLUDES THE OUTLET MICROPOOL AND DEEPWATER CHANNELS THROUGH THE WETLAND FACILITY. THIS ZONE SUPPORTS LITTLE EMERGENT WETLAND VEGETATION, BUT MAY SUPPORT SUBMERGED OR FLOATING VEGETATION.

LOW MARSH ZONE: 35%
FROM 6 TO 18 INCHES BELOW THE NORMAL PERMANENT POOL OR WATER SURFACE ELEVATION. THIS ZONE IS SUITABLE FOR THE GROWTH OF SEVERAL EMERGENT WETLAND PLANT SPECIES.

HIGH MARSH ZONE: 45%
FROM 6 INCHES BELOW THE PERMANENT POOL TO THE NORMAL POOL ELEVATION. THIS ZONE WILL SUPPORT A GREATER DENSITY AND DIVERSITY OF WETLAND SPECIES THAN THE LOW MARSH ZONE. THE HIGH MARSH ZONE SHOULD HAVE A HIGHER SURFACE AREA TO VOLUME RATIO THAN THE LOW MARSH ZONE.

SEMI-WET ZONE: 10%
THOSE AREAS ABOVE THE PERMANENT POOL THAT ARE INUNDATED DURING LARGER STORM EVENTS. THIS ZONE SUPPORTS A NUMBER OF SPECIES THAT CAN SURVIVE FLOODING.

ALL INLETS SHALL DISCHARGE TO THE FOREBAY, AND BE PROTECTED AGAINST EROSION. THE FOREBAY SHALL BE CONSTRUCTED OF AN EARTHEN BERM THAT SHALL BE NO LOWER THAN THE NORMAL PERMANENT POOL DEPTH.

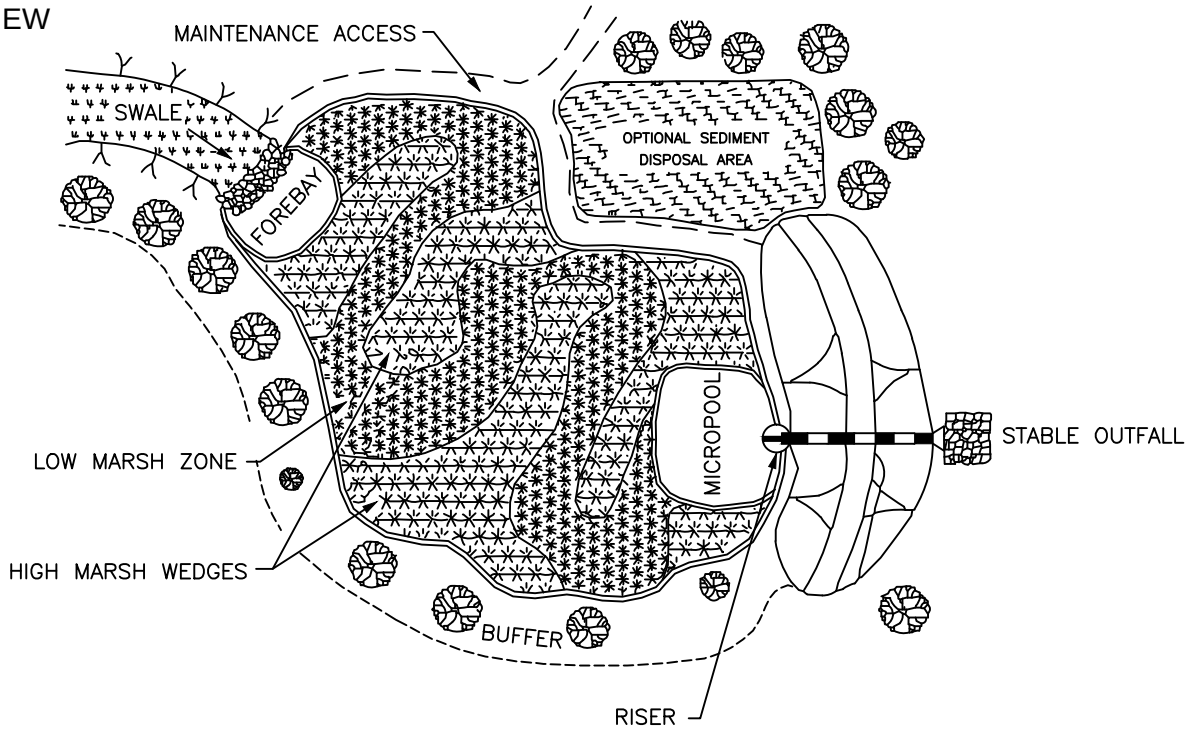
THE OUTLET MICROPOOL SHALL BE REQUIRED TO ALLOW ADEQUATE DEPTH FOR THE EXTENDED DETENTION RELEASE OUTLET TO FUNCTION PROPERLY AND ALLOW A DRAIN TO BE INSTALLED TO DRAIN THE WETLAND WHEN NEEDED. THE OUTLET MICROPOOL SHALL BE 4-6 FEET DEEP.

A LOW FLOW ORIFICE SHALL BE INSTALLED TO SLOWLY RELEASE THE WATER QUALITY VOLUME. THE LOW FLOW ORIFICE SHALL BE PROTECTED FROM CLOGGING BY DESIGNING APPROPRIATE METHODS. ACCEPTABLE ANTI-CLOGGING METHODS INCLUDE:

- HOODS THAT EXTEND AT LEAST 6-INCHES BELOW THE WATER QUALITY POOL WATER SURFACE ELEVATION.
- REVERSE FLOW PIPES WHERE THE OUTLET STRUCTURE INLET IS LOCATED AT LEAST 6-INCHES BELOW THE WATER QUALITY WATER SURFACE ELEVATION.

EMERGENCY SPILLWAYS SHALL BE INSTALLED TO SAFELY PASS THE POST-DEVELOPMENT 100-YEAR 24-HOUR STORM EVENT WITHOUT OVERTOPPING ANY DAM STRUCTURES.

PLAN VIEW

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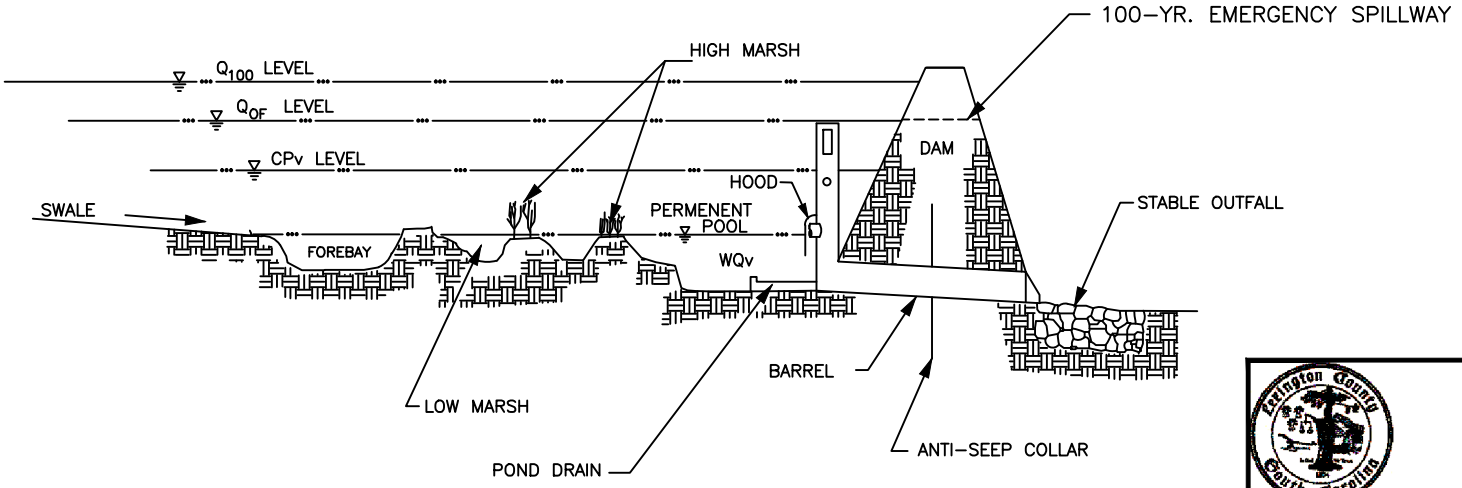



# Lexington County, South Carolina

REVISION DATE: JUNE 2014

POCKET WETLAND: pg 1 of 2

## POCKET WETLAND

THE ALLOCATION OF WETLAND SURFACE AREA SHOULD BE AS FOLLOWS:

DEEPWATER ZONE: 10%
FROM 1.5 TO 6 FEET DEEP. INCLUDES THE OUTLET MICROPOOL AND DEEPWATER CHANNELS THROUGH THE WETLAND FACILITY. THIS ZONE SUPPORTS LITTLE EMERGENT WETLAND VEGETATION, BUT MAY SUPPORT SUBMERGED OR FLOATING VEGETATION.

LOW MARSH ZONE: 45%
FROM 6 TO 18 INCHES BELOW THE NORMAL PERMANENT POOL OR WATER SURFACE ELEVATION. THIS ZONE IS SUITABLE FOR THE GROWTH OF SEVERAL EMERGENT WETLAND PLANT SPECIES.

HIGH MARSH ZONE: 40%
FROM 6 INCHES BELOW THE PERMANENT POOL TO THE NORMAL POOL ELEVATION. THIS ZONE WILL SUPPORT A GREATER DENSITY AND DIVERSITY OF WETLAND SPECIES THAN THE LOW MARSH ZONE. THE HIGH MARSH ZONE SHOULD HAVE A HIGHER SURFACE AREA TO VOLUME RATIO THAN THE LOW MARSH ZONE.

SEMI–WET ZONE: 5%
THOSE AREAS ABOVE THE PERMANENT POOL THAT ARE INUNDATED DURING LARGER STORM EVENTS. THIS ZONE SUPPORTS A NUMBER OF SPECIES THAT CAN SURVIVE FLOODING.

ALL INLETS SHALL DISCHARGE TO FOREBAY. THE FOREBAY IS SEPARATED FROM THE POCKET WETLAND AREA BY BARRIERS OR BAFFLES THAT MAY BE CONSTRUCTED OF EARTH, STONES, RIPRAP, GABIONS, OR GEOTEXTILES. THE TOP OF THE FOREBAY SHALL BE EQUAL TO OR MAY EXTEND ABOVE THE WATER QUALITY PERMANENT POOL ELEVATION.

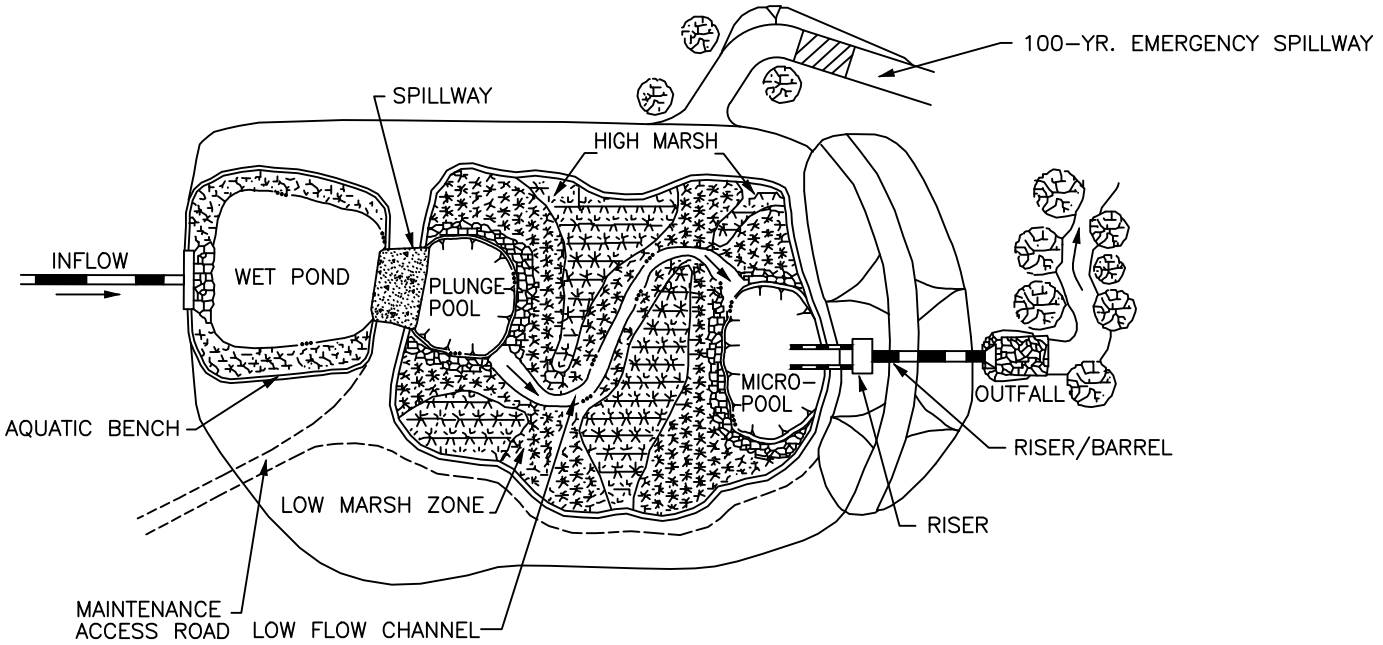
THE OUTLET MICROPOOL SHALL BE OF ADEQUATE DEPTH FOR THE EXTENDED DETENTION RELEASE OUTLET TO FUNCTION PROPERLY AND ALLOW A DRAIN TO BE INSTALLED TO DRAIN THE WETLAND WHEN NEEDED. THE OUTLET MICROPOOL SHALL BE 4– TO 6–FEET DEEP.

A LOW FLOW ORIFICE SHALL BE INSTALLED TO SLOWLY RELEASE THE WATER QUALITY VOLUME. THE LOW FLOW ORIFICE SHALL BE PROTECTED FROM CLOGGING BY DESIGNING APPROPRIATE METHODS. ACCEPTABLE ANTI–CLOGGING METHODS INCLUDE:

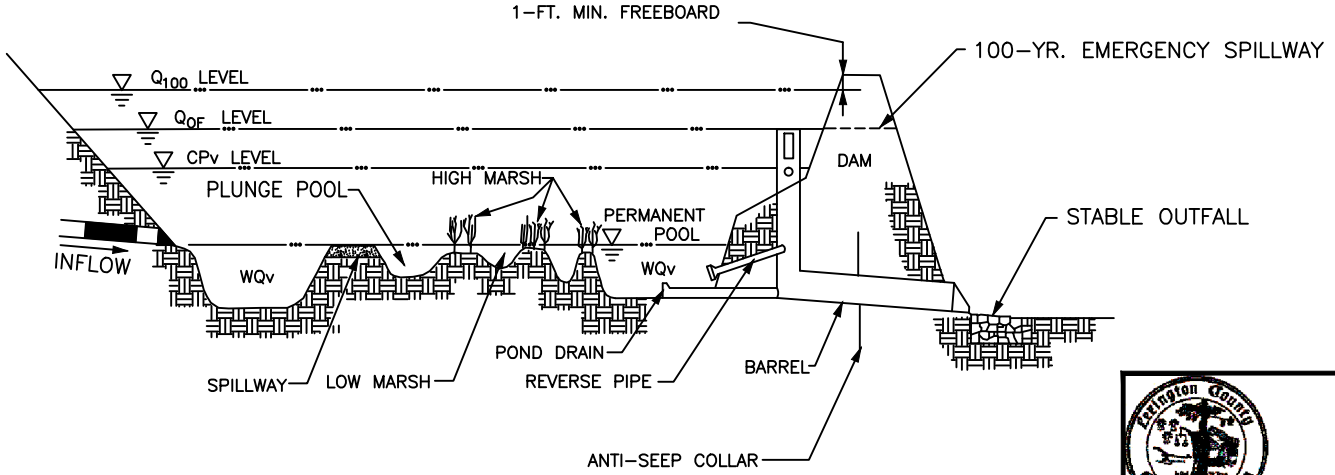
- HOODS THAT EXTEND AT LEAST 6–INCHES BELOW THE WATER QUALITY POOL WATER SURFACE ELEVATION.
- REVERSE FLOW PIPES WHERE THE OUTLET STRUCTURE INLET IS LOCATED AT LEAST 6–INCHES BELOW THE WATER QUALITY WATER SURFACE ELEVATION.

EMERGENCY SPILLWAYS SHALL BE INSTALLED TO SAFELY PASS THE POST–DEVELOPMENT 100–YEAR 24–HOUR STORM EVENT WITHOUT OVERTOPPING ANY DAM STRUCTURES.

PLAN VIEW




PROFILE




# Lexington County, South Carolina

REVISION DATE: JUNE 2014

## POND/WETLAND SYSTEM

THE ALLOCATION OF WETLAND SURFACE AREA SHOULD BE AS FOLLOWS:

DEEPWATER ZONE: 45%
FROM 1.5 TO 6 FEET DEEP. INCLUDES THE OUTLET MICROPOOL AND DEEPWATER CHANNELS THROUGH THE WETLAND FACILITY. THIS ZONE SUPPORTS LITTLE EMERGENT WETLAND VEGETATION, BUT MAY SUPPORT SUBMERGED OR FLOATING VEGETATION.

LOW MARSH ZONE: 25%
FROM 6 TO 18 INCHES BELOW THE NORMAL PERMANENT POOL OR WATER SURFACE ELEVATION. THIS ZONE IS SUITABLE FOR THE GROWTH OF SEVERAL EMERGENT WETLAND PLANT SPECIES.

HIGH MARSH ZONE: 20%
FROM 6 INCHES BELOW THE PERMANENT POOL TO THE NORMAL POOL ELEVATION. THIS ZONE WILL SUPPORT A GREATER DENSITY AND DIVERSITY OF WETLAND SPECIES THAN THE LOW MARSH ZONE. THE HIGH MARSH ZONE SHOULD HAVE A HIGHER SURFACE AREA TO VOLUME RATIO THAN THE LOW MARSH ZONE.

SEMI–WET ZONE: 5%
THOSE AREAS ABOVE THE PERMANENT POOL THAT ARE INUNDATED DURING LARGER STORM EVENTS. THIS ZONE SUPPORTS A NUMBER OF SPECIES THAT CAN SURVIVE FLOODING.

ALL INLETS SHALL DISCHARGE TO WET POND FOREBAY AREA, AND BE PROTECTED AGAINST EROSION. THE WET POND SHALL BE 4– TO 6–FEET DEEP AND HAVE A DESIGNED OVERFLOW SPILLWAY THAT DISCHARGES TO A PLUNGE POOL. THE PLUNGE POOL SHALL DISCHARGE THROUGH A WETLAND CHANNEL TO THE MICROPOOL.

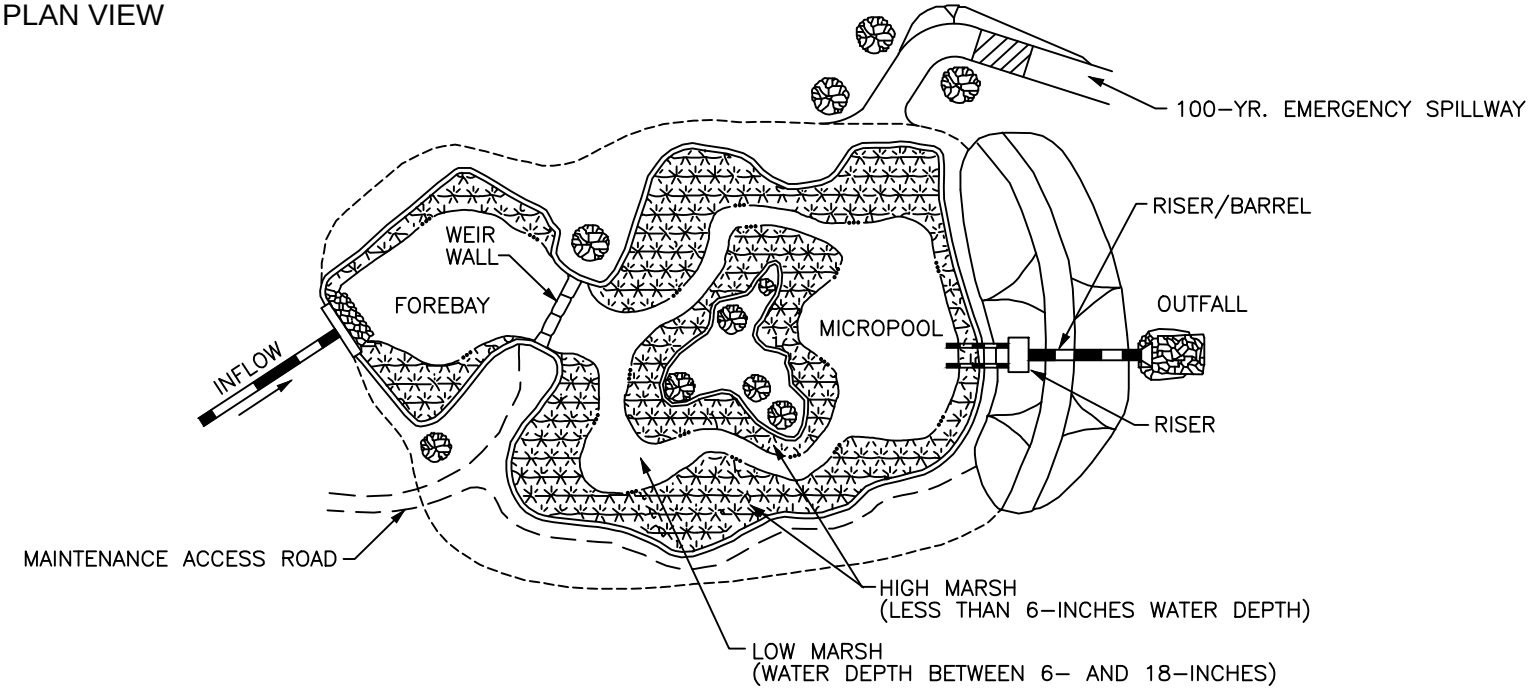
THE OUTLET MICROPOOL SHALL BE OF ADEQUATE DEPTH FOR THE EXTENDED DETENTION RELEASE OUTLET TO FUNCTION PROPERLY AND ALLOW A DRAIN TO BE INSTALLED TO DRAIN THE WETLAND WHEN NEEDED. THE OUTLET MICROPOOL SHALL BE 4–6 FEET DEEP.

A LOW FLOW ORIFICE SHALL BE INSTALLED TO SLOWLY RELEASE THE WATER QUALITY VOLUME. THE LOW FLOW ORIFICE SHALL BE PROTECTED FROM CLOGGING BY DESIGNING APPROPRIATE METHODS. ACCEPTABLE ANTI–CLOGGING METHODS INCLUDE:

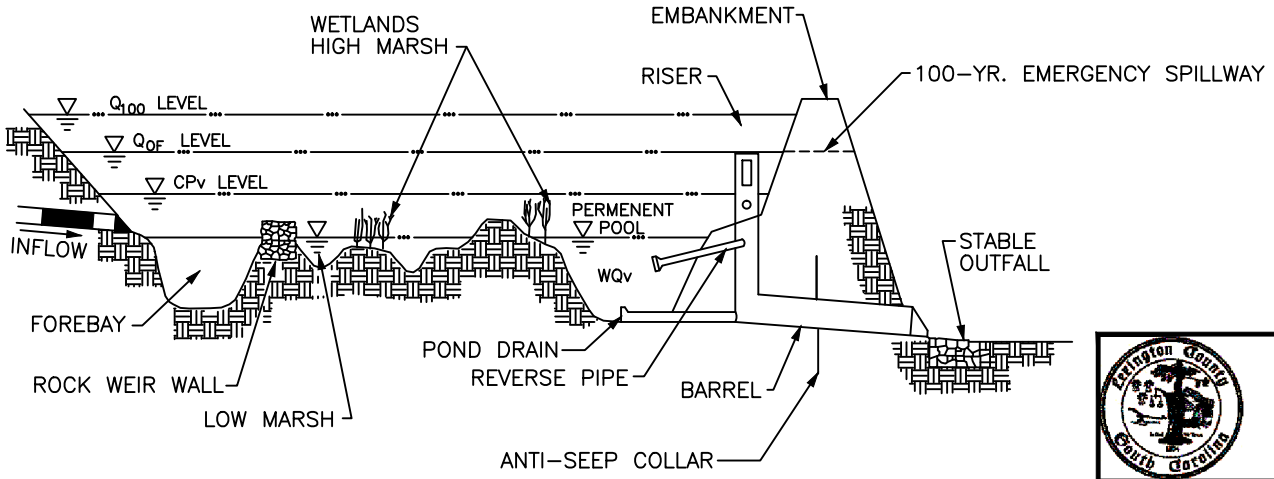
- HOODS THAT EXTEND AT LEAST 6–INCHES BELOW THE WATER QUALITY POOL WATER SURFACE ELEVATION.
- REVERSE FLOW PIPES WHERE THE OUTLET STRUCTURE INLET IS LOCATED AT LEAST 6–INCHES BELOW THE WATER QUALITY WATER SURFACE ELEVATION.

EMERGENCY SPILLWAYS SHALL BE INSTALLED TO SAFELY PASS THE POST–DEVELOPMENT 100–YEAR 24–HOUR STORM EVENT WITHOUT OVERTOPPING ANY DAM STRUCTURES.

PLAN VIEW




PROFILE




Lexington County, South Carolina

REVISION DATE: JUNE 2014

TYPICAL SHALLOW WETLAND: pg 1 of 2

## SHALLOW WETLAND

THE ALLOCATION OF WETLAND SURFACE AREA SHOULD BE AS FOLLOWS:

DEEPWATER ZONE: 20%
FROM 1.5 TO 6 FEET DEEP. INCLUDES THE OUTLET MICROPOOL AND DEEPWATER CHANNELS THROUGH THE WETLAND FACILITY. THIS ZONE SUPPORTS LITTLE EMERGENT WETLAND VEGETATION, BUT MAY SUPPORT SUBMERGED OR FLOATING VEGETATION.

LOW MARSH ZONE: 35%
FROM 6 TO 18 INCHES BELOW THE NORMAL PERMANENT POOL OR WATER SURFACE ELEVATION. THIS ZONE IS SUITABLE FOR THE GROWTH OF SEVERAL EMERGENT WETLAND PLANT SPECIES.

HIGH MARSH ZONE: 40%
FROM 6 INCHES BELOW THE PERMANENT POOL TO THE NORMAL POOL ELEVATION. THIS ZONE WILL SUPPORT A GREATER DENSITY AND DIVERSITY OF WETLAND SPECIES THAN THE LOW MARSH ZONE. THE HIGH MARSH ZONE SHOULD HAVE A HIGHER SURFACE AREA TO VOLUME RATIO THAN THE LOW MARSH ZONE.

SEMI–WET ZONE: 5%
THOSE AREAS ABOVE THE PERMANENT POOL THAT ARE INUNDATED DURING LARGER STORM EVENTS. THIS ZONE SUPPORTS A NUMBER OF SPECIES THAT CAN SURVIVE FLOODING.

ALL INLETS SHALL DISCHARGE TO THE FOREBAY, AND BE PROTECTED AGAINST EROSION. THE FOREBAY SHALL BE CONSTRUCTED OF A ROCK BERM THAT SHALL BE NO LOWER THAN THE WATER QUALITY POOL DEPTH.

THE OUTLET MICROPOOL SHALL BE REQUIRED TO ALLOW THE EXTENDED DETENTION RELEASE OUTLET TO FUNCTION PROPERLY AND ALLOW A DRAIN TO BE INSTALLED TO DRAIN THE WETLAND WHEN NEEDED. THE OUTLET MICROPOOL SHALL BE 4–6 FEET DEEP.

A LOW FLOW ORIFICE SHALL BE INSTALLED TO SLOWLY RELEASE THE WATER QUALITY VOLUME. THE LOW FLOW ORIFICE SHALL BE PROTECTED FROM CLOGGING BY DESIGNING APPROPRIATE METHODS. ACCEPTABLE ANTI–CLOGGING METHODS INCLUDE:

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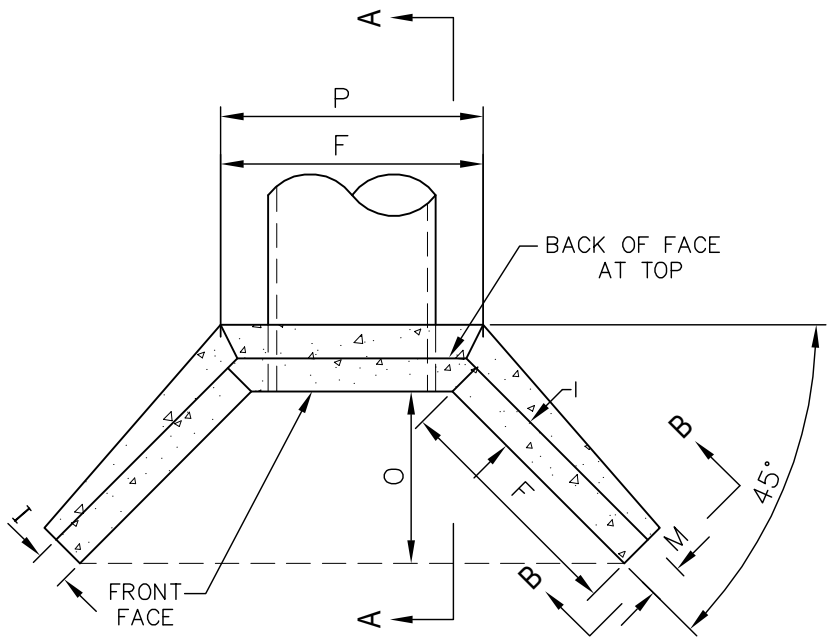
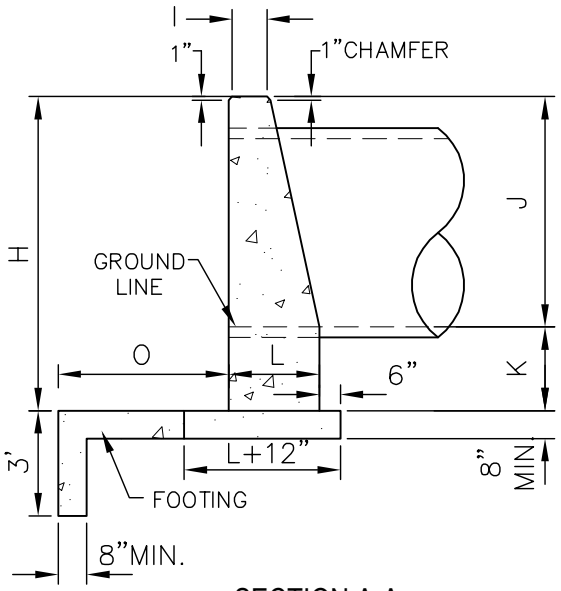
- REVERSE FLOW PIPES WHERE THE OUTLET STRUCTURE INLET IS LOCATED AT LEAST 6–INCHES BELOW THE WATER QUALITY WATER SURFACE ELEVATION.

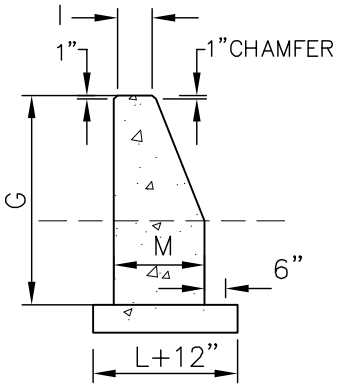
EMERGENCY SPILLWAYS SHALL BE INSTALLED TO SAFELY PASS THE POST–DEVELOPMENT 100–YEAR 24–HOUR STORM EVENT WITHOUT OVERTOPPING ANY DAM STRUCTURES.



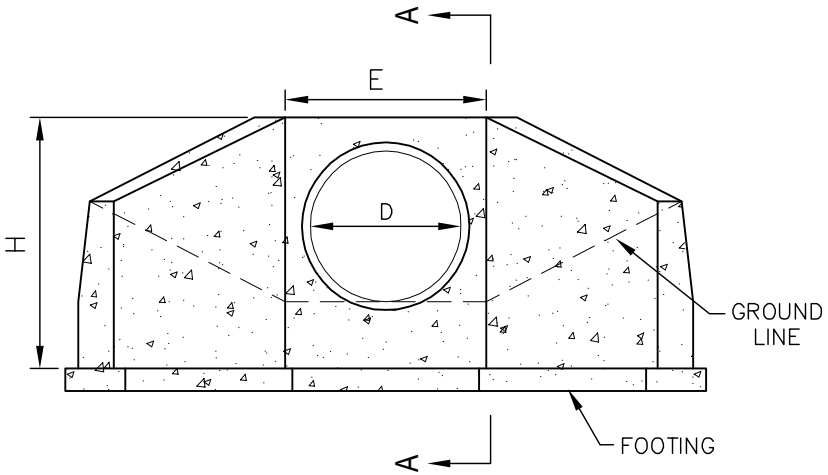

PLAN




SECTION A-A




SECTION B-B




FRONT ELEVATION

| 2 : 1 SLOPE | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | E | F | G | H | I | J | K | L | M | N | O | P |
| 30" | 4'–0" | 4'–3" | 4'–0" | 5'–6" | 12" | 3'–6" | 24" | 1'–6" | 18" | 2'–0" | 3'–0" | 5'–4" |
| 36" | 4'–6" | 5'–0" | 4'–3" | 6'–0" | 12" | 4'–0" | 24" | 1'–8" | 18" | 2'–3" | 3'–6" | 5'–11" |
| 42" | 5'–0" | 5'–9" | 4'–6" | 6'–6" | 12" | 4'–6" | 24" | 1'–10" | 18" | 2'–6" | 4'–0" | 6'–6" |
| 48" | 5'–6" | 6'–6" | 4'–9" | 7'–0" | 12" | 5'–0" | 24" | 2'–0" | 18" | 2'–9" | 4'–6" | 7'–2" |
| 54" | 6'–0" | 7'–3" | 5'–0" | 7'–6" | 12" | 5'–6" | 24" | 2'–2" | 18" | 3'–0" | 5'–0" | 7'–10" |
| 60" | 6'–6" | 8'–0" | 5'–3" | 8'–0" | 12" | 6'–0" | 24" | 2'–4" | 18" | 3'–3" | 5'–8" | 8'–5" |
| 72" | 7'–6" | 9'–6" | 5'–9" | 9'–10" | 12" | 7'–0" | 24" | 2'–8" | 18" | 3'–9" | 6'–9" | 9'–9" |
| 84" | 8'–6" | 11'–0" | 6'–3" | 10'–0" | 12" | 8'–0" | 24" | 3'–0" | 18" | 4'–3" | 7'–9" | 11'–0" |

## NOTES:

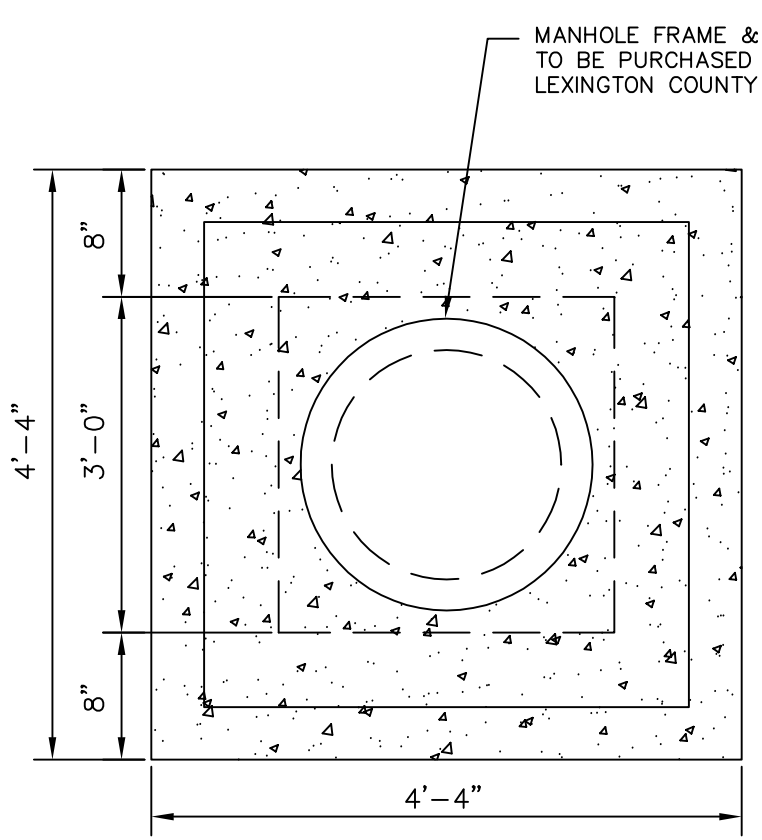
1. FOR EACH ADDITIONAL PIPE LINE, ADD 2'–0" (OR ONE–HALF DIAMETER OF PIPE. WHICHEVER IS GREATER) + O.D.

2. ALL CONCRETE SHALL BE 3000 PSI

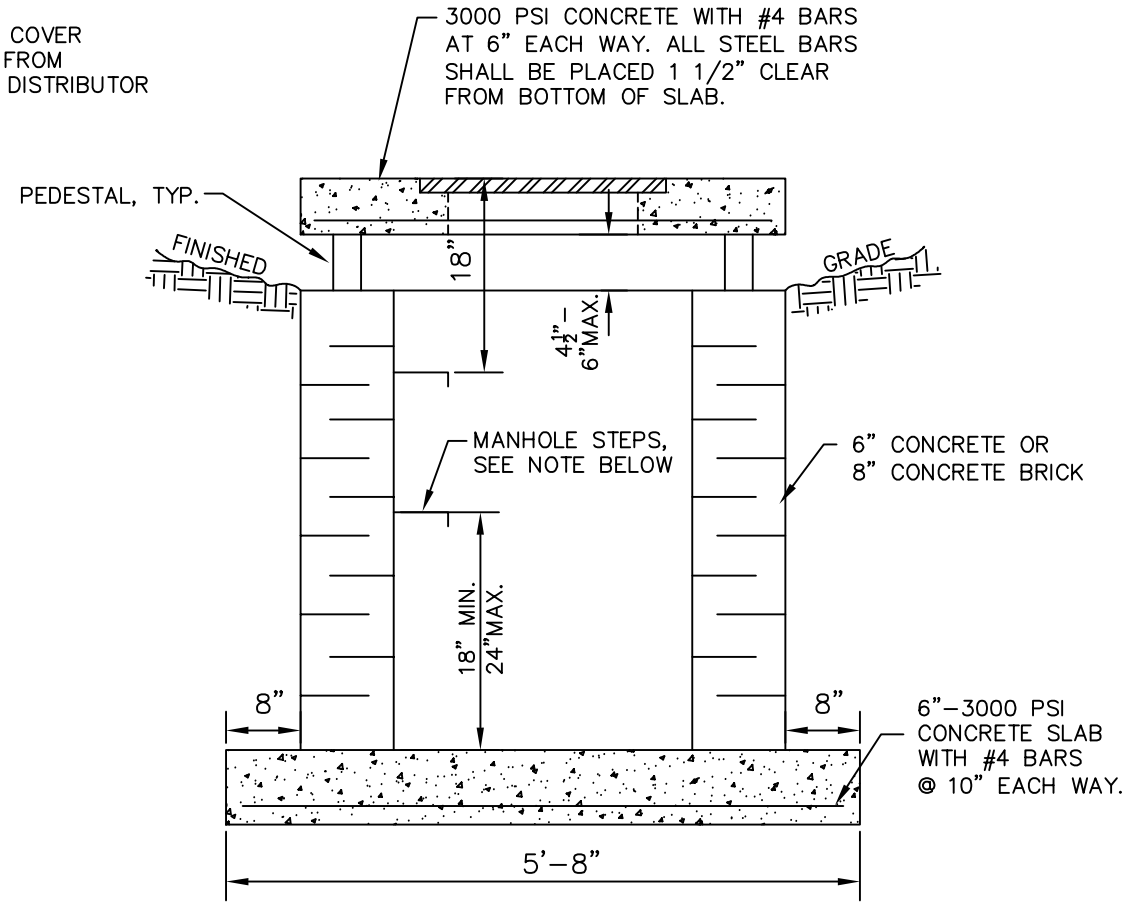
LEXINGTON COUNTY
PUBLIC WORKS DEPARTMENT

WINGWALL HEADWALL
(for 30" Ø pipe or larger)

DRAWING NO: D–3
DATE: October, 2007




PLAN VIEW



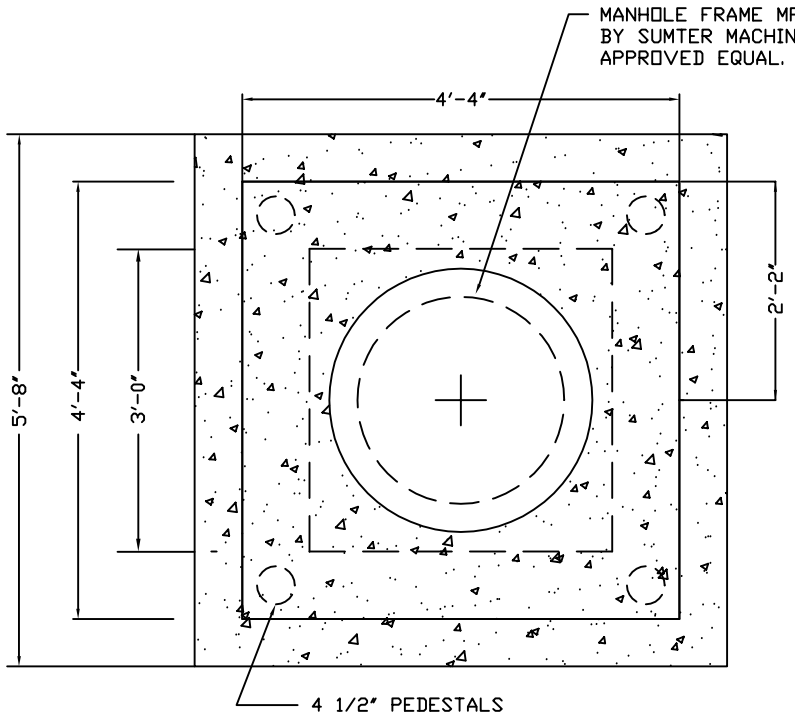

SECTION

**NOTE:**

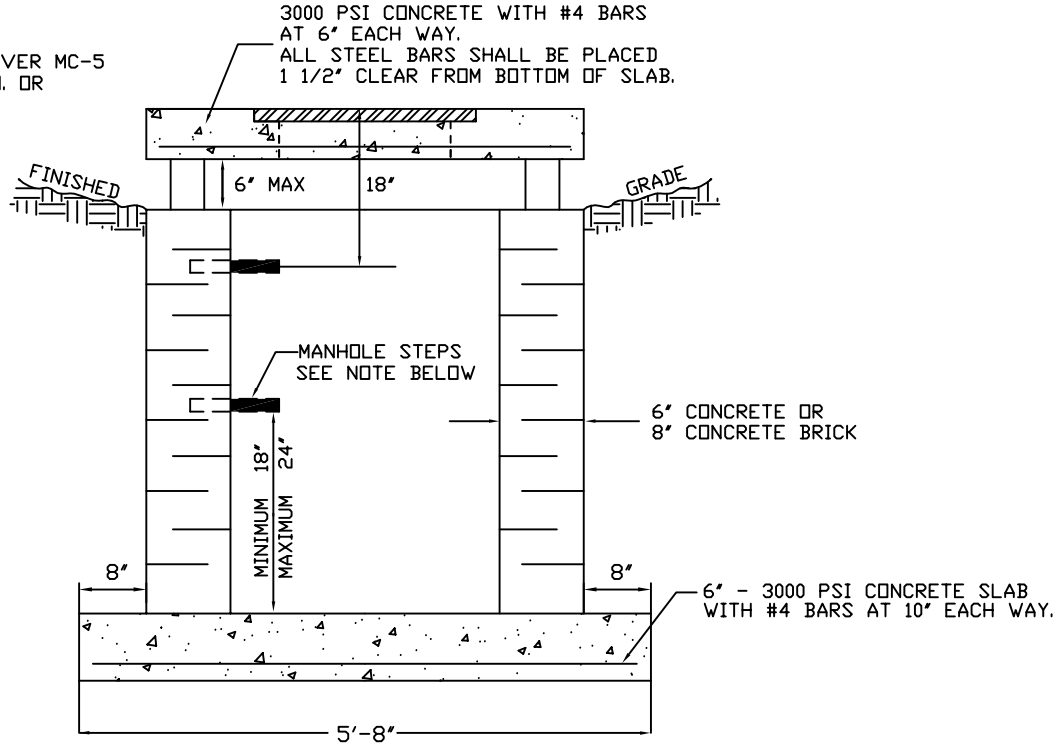
MANHOLE STEPS SHALL BE 18" OR 12" OC ON BOXES 4' DEEP OR DEEPER. (STEPS MUST CONFORM TO ASTM-C-478 OR EQUIVALENT)

PROVIDE 95% COMPACTION DURING BACKFILLING.

| LEXINGTON COUNTY PUBLIC WORKS DEPARTMENT | |
|---|---|
| YARD INLET | |
| DRAWING NO: D-2 | |
| DATE: October, 2007 | |




PLAN VIEW




SECTION

NOTE: MANHOLE STEPS SHALL BE 18" OC ON BOXES 4' DEEP OR DEEPER. (STEPS MUST CONFORM TO ASTM-C-478 OR EQUIVALENT)

# YARD INLET

| | |
|---|---|
| LEXINGTON COUNTY PLANNING & DEVELOPMENT | |
| YARD INLET | |
| SCALE: NTS | DWG: YI.DWG |
| DATE: 4/9/99 | L.R. NONE |

## Appendix D – Unified Sizing Criteria (USC) Design Spreadsheets

- Option B – USC Comprehensive Stormwater Design Summary
- Bioretention Design Summary
- Enhanced Swale Design Summary
- Infiltration Trench Design Summary

# Option B - Unified Sizing Criteria
# Comprehensive Stormwater Design Summary

**Project Name:** _____
**Project Number:** _____
**Date:** _____
**Site Location:** _____
**Drainage Area:** _____

| | |
|---|---|
| | Data input cells |
| | Project input sheet cells |

## Site Hydrology

| | Site Area [ac] | Drainage Area [ac] | Imperv. Area [ac] | CN | tc [min] |
|---|---|---|---|---|---|
| Pre-Development | | | | | |
| Post-Development | | | | | |

## Pre vs. Post Peak Flow Summary

| | 1yr [cfs] | 2yr [cfs] | 10yr [cfs] | 25yr [cfs] | 100yr [cfs] |
|---|---|---|---|---|---|
| Pre-Development | | | | | |
| Post-Development | | | | | |

## Pre vs. Post Volume Summary

| | WQv [cf] | CPv [cf] | 2yr [cf] | 10yr [cf] | 25yr [cf] | 100yr [cf] |
|---|---|---|---|---|---|---|
| Pre-Development | - | - | - | - | - | - |
| Post-Development | | | | | | |

## Water Quality Volume Treatment Credits

| Credits | Area Draining to Treatment Credit [ac] | WQv Credit [cf] |
|---|---|---|
| Natural Area Conservation | | |
| Stream Buffer | | |
| Vegetated Channel | | |
| Overland Flow Filtration/Infiltration Zone | | |
| **Total WQv treated** | | **-** |

* Be sure to review Chapter 3 of LDM for minimum criteria for WQv Credits

| Applicable WQv Treatment Credits to Adjust Site's CN: | | |
|---|---|---|
| Natural Area Conservation | | cf |
| Stream Buffer | | cf |
| Infiltration Zone | | cf |
| **Adjustment to Runoff from Treatment Credits** | **-** | **cf** |
| **Adjusted CN'$_{post}$** | | |

Adjusted CN'post is based off runoff modfication from the 100-yr event (most conservative)

## Post-Dev. Drainage Area Summary (w/ and w/o WQv Credit)

| | Drainage Area [ac] | Imperv. Area [ac] | CN | tc [min] |
|---|---|---|---|---|
| Post-Development | | | | |
| Post-Dev. with WQv Credit | | | | |

## Post-Dev. Peak Flow Summary (w/ and w/o WQv Credit)

| | 1yr [cfs] | 2yr [cfs] | 10yr [cfs] | 25yr [cfs] | 100yr [cfs] |
|---|---|---|---|---|---|
| Post-Development | | | | | |
| Post-Dev. with WQv Credit | | | | | |

## Post-Dev. Volume Summary (w/ and w/o WQv Credit)

| | WQv [cf] | CPv [cf] | 2yr [cf] | 10yr [cf] | 25yr [cf] | 100yr [cf] |
|---|---|---|---|---|---|---|
| Post-Development | | | | | | |
| Post-Dev. with WQv Credit | | | | | | |
| % Reduction with WQv Credit | | | | | | |

# Option B - Unified Sizing Criteria
# Comprehensive Stormwater Design Summary

| | |
|---|---|
| | Data input cells |
| | Project input sheet cells |

## Structural BMPs

See the LDM and the BMP Design Aid Worksheets for minimum criteria for the acceptable structural BMPs

| Credited Practices in Lex Co's LDM | WQv Treated [cf] |
|---|---|
| Stormwater Wetlands** | |
| Bioretention Areas* | |
| Infiltration Trench* | |
| Dry Enhanced Swale* | |
| Wet Enhanced Swale** | |
| Sand Filter** | |
| Gavity Oil-Grit Separator** | |

*Retrive WQ Volumes from BMP Design Aid Worksheets
**Provide supporting calculations for WQ Volumes

| Total WQv treated with BMPs [cf] | - |
|---|---|

| Applicable WQv Treatment Credits to Adjust Site's CN (from Page 1): | | |
|---|---|---|
| Natural Area Conservation | | cf |
| Stream Buffers | | cf |
| Infiltration Zones | | cf |

| Infiltrating Structural BMPs to Reduce Site's CN: | | |
|---|---|---|
| Bioretention | - | cf |
| Infiltration Trench | - | cf |
| Dry Enhanced Swale | - | cf |
| **Adjustment to Runoff from WQv Treatment Credits and BMPs** | - | cf |
| **Adjusted CN"$_{post}$** | | |

Adjusted CN"post is based off runoff modification from the 100-yr event (most conservative)

## Post-Dev. Drainage Area Summary (w/ and w/o WQv Credits & BMPs)

| | Drainage Area [ac] | Imperv. Area [ac] | CN | tc [min] |
|---|---|---|---|---|
| Post-Development | | | | |
| Post-Dev. w/ WQv Credits | | | | |
| Post-Dev. w/ WQv Credits & BMPs | | | | |

## Post-Dev. Peak Flow Summary (w/ and w/o WQv Credits & BMPs)

| | 1yr [cfs] | 2yr [cfs] | 10yr [cfs] | 25yr [cfs] | 100yr [cfs] |
|---|---|---|---|---|---|
| Post-Development | | | | | |
| Post-Dev. w/ WQv Credits | | | | | |
| Post-Dev. w/ WQv Credits & BMPs | | | | | |

## Post-Dev. Volume Summary (w/ and w/o WQv Credits & BMPs)

| | WQv [cf] | CPv [cf] | 2yr [cf] | 10yr [cf] | 25yr [cf] | 100yr [cf] |
|---|---|---|---|---|---|---|
| Post-Development | | | | | | |
| Post-Dev. w/ WQv Credits | | | | | | |
| Post-Dev. w/ WQv Credits & BMPs | | | | | | |
| % Reduction with WQv Credits & BMPs | | | | | | |

# BIORETENTION AREA

**Drainage Area** _____

**BMP Name** _____

Data input cells

text — Cell is flagged because it does not meet BMP criteria

## 1) Site Suitability & Characteristics

***for contributing BMP area***

| Parameter | Targeted Value | Value, if applicable | Units | Y/N : Criteria Met | If NO, provide justification for variance in design criteria |
|---|---|---|---|---|---|
| Drainage Area | preferred 0.5 to 2 acres; max= 5 acres: If online structure, max drainage area = 0.5 acres | | acres | - | |
| Space Required | appox. 5% of the tributary impervious area is required. Minimum 200ft$^2$ area for small sites (10' x 20') | | % | - | |
| Site Slope | no more than 6% | | % | - | |
| Minimum Head (for underdrain systems only) | elevation difference needed at a site from the inflow to outflow: 5 feet | | feet | - | |
| Minimum Depth to Water Table | recommended: separation distance of 2 ft | | feet | - | |
| Soils | No restrictions; engineered media required | | | | |
| Aquifer Protection | Do not allow exfiltration of filtered hotspot runoff into groundwater | | | | |

## 2) Water Quality Peak Discharge, Qwq

***for contributing BMP area***

| | | |
|---|---|---|
| Drainage Area | | acres |
| Impervious Area | | acres |
| Rv | | |
| **WQv** | | **cu.ft** |
| Qwv | | inches |
| $CN_{post}$' | | |
| tc | | min |
| Ia | | inches |
| Ia/P | | |
| Qu | | csm/in |
| **Qwq** | **-** | **cfs** |

***Can size bioretention cell to capture this volume (enter value in Step 3 below)*

## 3) Size of bioretention ponding/filter area

$$Af = (WQv * df)/[k*(hf + df)*tf]$$

*where:*

| | | | | |
|---|---|---|---|---|
| *Af* | = | *surface area of ponding area* | sq.ft | |
| *WQv* | = | *water quality volume (or total vol. to be captured)* | cu.ft | |
| *df* | = | *filter depth* | feet | **4 feet minimum** |
| *k* | = | *coefficient of permeability of filter media* | ft/day | **use 0.5ft/day for silt-loam** |
| *hf* | = | *average height of water above filter bed* | feet | **~3 inches (=half of the max. 6" ponding depth)** |
| *tf* | = | *design filter bed drain time* | days | **2 days (48 hours) is recommended maximum** |

**Solve:**

| Parameter | | Known | Unknown |
|---|---|---|---|
| *Af [sq.ft]* | = | | |
| *WQv [cu.ft]* | = | | |
| *df [ft]* | = | | |
| *k [ft/day]* | = | | |
| *hf [ft]* | = | | |
| *tf [days]* | = | | |

***Note: Calculator can only compute ONE unknown per computation (for either Af, WQv or df)*

***QC:*** ***Size Bioretention Cell Dimensions (approximate)***

| Recommended 2L:W | | |
|---|---|---|
| Width, W | | ft |
| Length, L | | ft |

******WQv stored for the Bioretention Area can be subtracted from the site's total WQv. Use Volume Calculation Workbook for volume reduction crediting (and possible runoff reduction credits)***

# ENHANCED DRY SWALE

**Drainage Area** _____

**BMP Name** _____

Data input cells
text — Cell is flagged because it does not meet BMP criteria

## 1) Site Suitability & Characteristics

***for contributing BMP area***

| Parameter | Criteria | Value, if applicable | Units | Y/N : Criteria Met | If NO, provide justification for variance in design criteria |
|---|---|---|---|---|---|
| Drainage Area | Max. 5 acres | | acres | - | |
| Space Required | ~10 to 20% of the tributary impervious area | | % | - | |
| Site Slope | typically no more than 4% channel slope. Recommended 1-2% | | % | - | |
| Minimum Head | elevation difference needed at a site from the inflow to outflow: **3 to 5 ft** | | ft | - | |
| Minimum Depth to Water Table | recommended: separation distance of **2 ft** between bottom of a dry swale and elev. of seasonally high water table | | ft | - | |
| Soil Infiltration Rate | Engineered media for dry swale: Infiltration rate of at least 1.0 ft/day, max of 1.5 ft/day | | ft/day | - | |
| Drain Time | Max ponding time = 48 hours (24 hours is more desirable) | | hours | - | |
| Aquifer Protection | Exfiltration should not be allowed for hotspots | | | | |
| Inlet to Swale | Inlets to enhanced swales must be provided with energy dissipators, such as riprap | | | | |
| Pretreatment | Typically provided by a sediment forebay at the inlet. **Pretreatment Vol. should be equal to 0.1 inches per impervious acre** (this storage is usually obtained by check dams at pipe inlets and/or driveway crossings) | | | | |
| Pretreatment | Pea gravel diaphragm and gentle side slopes should be provided along the top channels for pretreatment and lateral sheet flow | | | | |
| Site Runoff | Swales systems that receive direct concentrated runoff may have a 6" drop to a pea gravel diaphragm flow spreader at the upstream end of the control | | | | |

## 2) Water Quality Peak Discharge, Qwq

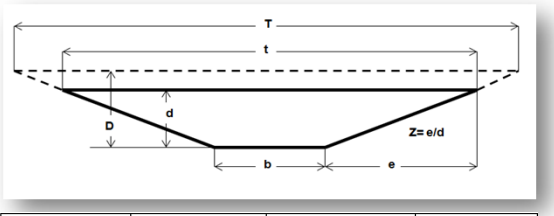
***for contributing BMP area***

| | | |
|---|---|---|
| Drainage Area | | acres |
| Impervious Area | | acres |
| Rv | | |
| **WQv** | | **cu.ft** |
| Qwv | | inches |
| $CN_{post}$' | | |
| tc | | min |
| Ia | | inches |
| Ia/P | | |
| Qu | | csm/in |
| **Qwq** | | **cfs** |

## 3) Size of the dry swale

| | | |
|---|---|---|
| Existing Ground Elev. | | feet |
| Seasonally High Water Table Elev. | | feet |
| Max. WQv ponding depth | | inches |
| Proposed channel Length | | feet |
| Outlet control Elev. | | feet |
| Separation | | feet |
| Slope | | % |
| Bottom width, b | | feet |
| Average ponding depth, d | | inches |
| Max ponding depth, D | | inches |
| Channel Side slopes, Z | | ft/ft |
| Top width, t | | feet |
| Max top width, T | | feet |
| Cross Sectional Area, A | | sq.ft |
| **Swale Storage Volume** | | **cu.ft** |
| WQv | | cu.ft |

**Trapezoidal Cross Sectional Shape**




| Cross Sectional Area, A | Wetted Perimeter, P | Hydraulic Radius, R = A/P | Top Width |
|---|---|---|---|
| $bd + Zd^2$ | $b + 2d\sqrt{Z^2 + 1}$ | $\frac{bd + Zd^2}{b + 2d\sqrt{Z^2 + 1}}$ | $t = b + 2dZ$<br>$T = b + 2DZ$ |

## 4) Calculate number of check dams to detain WQv

| | | |
|---|---|---|
| Swale Length | | feet |
| Swale Slope | | ft/ft |
| Maximum Depth, D | | inches |
| Check Dam Spacing | | feet |
| Number of Check Dams | | per check dam spacing length |

## 5) Check Drain Time

| | | |
|---|---|---|
| Maximum Depth, D | | inches |
| Percolation, K | | ft/day |
| **Drain Time** | | **hours** |

***WQv stored for the dry swale can be subtracted from the site's total WQv.***
***Use Volume Calculation Workbook for volume reduction crediting (and possible runoff reduction credits)***

# INFILTRATION TRENCH

**Drainage Area** _____

**BMP Name** _____

Data input cells
text — Cell is flagged because it does not meet BMP criteria

## 1) Site Suitability & Characteristics

***for contributing BMP area***

| Parameter | Criteria | Value, if applicable | Units | Y/N : Criteria Met | If NO, provide justification for variance in design criteria |
|---|---|---|---|---|---|
| Drainage Area | Max. 5 acres | | acres | - | |
| Space Required | Will vary depending on depth of the facility | | | | |
| Site Slope | no more than 6% (for preconstruction facility footprint) | | % | - | |
| Minimum Head | elevation difference needed at a site from the inflow to outflow: **1 foot** | | ft | - | |
| Minimum Depth to Water Table | recommended: separation distance of **4 ft** between bottom of trench and elev. of seasonally high water table | | ft | - | |
| Soil Infiltration Rate | Infiltration rate equal to or greater than 0.5 in/hour (typically A or B soils) | | in/hour | - | |
| Reservoir Layer Draw Down time | min: 24 hours, max: 48 hours | | hours | - | |
| Aquifer Protection | Not hotspot runoff allowed | | | | |
| Pretreatment | Must have forebay and grass channel (or filter strip), or other appropriate measures to prevent clogging and failure | | | | |
| Runoff to BMP | Runoff must not contain high levels of fine particulates (clay/silt soils). Soils from BMP's drainage area should have a clay content of <20% and a silt/clay content of <40% | | | | |
| Site Runoff | Trench cannot treat runoff where there is a potential for high concentrations of soluble pollutants and heavy metals | | | | |
| Site Geology | Infiltration is prohibited in karst topography | | | | |

## 2) Water Quality Peak Discharge, Qwq

***for contributing BMP area***

| | | |
|---|---|---|
| Drainage Area | | acres |
| Impervious Area | | acres |
| Rv | | |
| **WQv** | | **cu.ft** |
| Qwv | | inches |
| $CN_{post}$' | | |
| tc | | min |
| Ia | | inches |
| Ia/P | | |
| qu | | csm/in |
| **Qwq** | | **cfs** |

***can size infiltration trench to capture this volume (enter value in Step 3 below)*

## 3) Size of the infiltration trench

$$A = WQv/ (nd + kT/12)$$

*where:*

| | | | | |
|---|---|---|---|---|
| *A* | = | *surface area of infiltration trench* | sq.ft | |
| *WQv* | = | *water quality volume (or total volume to be infiltrated)* | cu.ft | |
| *n* | = | *porosity* | | **value of 0.32 should be used** |
| *d* | = | *trench depth* | feet | **should be between 3 and 8 ft.** |
| *K* | = | *percolation* | inches/hour | **0.5 in/hr or greater** |
| *T* | = | *fill time (time for the BMP to fill with water)* | hours | **2 hours can be used for most designs** |

**Solve:**

| Parameter | | Known | Unknown |
|---|---|---|---|
| *A [sq.ft]* | = | | |
| *WQv [cu.ft]* | = | | - |
| *d [ft]* | = | | |
| *n* | = | | |
| *K [in/hr]* | = | | |
| *T [hrs]* | = | | |

***Note: Calculator can only compute ONE unknown per computation (for either A, WQv or d)*

***QC:***

***Size Trench Dimensions***

| Recommended, W= 25' | | |
|---|---|---|
| Width, W | 25 | ft |
| Length, L | | ft |

***Check Reservoir Drain Time***

| | | |
|---|---|---|
| Trench Depth, d | | ft |
| Percolation, K | | in/hr |
| **Drain Time** | | **hours** |

***WQv stored for the Infiltration Trench can be subtracted from the site's total WQv.***
***Use Volume Calculation Workbook for volume reduction crediting (and possible runoff reduction credits)***

# Appendix D – Option A and B – Comprehensive Stormwater Design Summary Tables

# Comprehensive Stormwater Design Summary Tables for Options A and B

**Project Name:** _____
**Project Number:** _____
**Date:** _____
**Site Location:** _____
**Drainage Area:** _____

## Watershed Information

| Curve Number | Pre | Post | Page No. |
|---|---|---|---|
| | | | |

## Stormwater Design Option:

(check one)

☐ **A**
☐ **B**

## Pond Information Tables

*For each Stormwater Detention Pond, enter the following data from H&H Calculations*

| | Bottom Elev. (ft) | Emer. Spillway Elev. (ft) | Orifice Size (in) / Elev. (ft) | | Weir Size (in) / Elev. (ft) | |
|---|---|---|---|---|---|---|
| **Result** | | | | | | |
| **Page No.** | | | | | | |
| **Result** | | | | | | |
| **Page No.** | | | | | | |
| **Result** | | | | | | |
| **Page No.** | | | | | | |
| **Result** | | | | | | |
| **Page No.** | | | | | | |

| | De-Watering Time for 1yr Storm (hrs) | De-Watering Time for 10yr Storm (hrs) | Treated WQv (cf) | Total Storage Volume (cf) |
|---|---|---|---|---|
| **Result** | | | | |
| **Page No.** | | | | |

| Design Storm Event | Water Surface Elev. (ft) | Pre-Develop. Peak (cfs) | Peak in (cfs) | Peak Out (cfs) | Outlet Structure Rating |
|---|---|---|---|---|---|
| **2 yr** | | | | | |
| **Page No.** | | | | | |
| **10 yr** | | | | | |
| **Page No.** | | | | | |
| **25 yr** | | | | | |
| **Page No.** | | | | | |
| **100 yr** | | | | | |
| **Page No.** | | | | | |

| Discharge Velocity (fps) | Pre | Post | Page No. |
|---|---|---|---|
| **10 yr** | | | |

## Ditch/Swale Information

| 25 yr, 24 hr Storm | Ditch - Swale 1 | Ditch - Swale 2 | Ditch - Swale 3 | Ditch - Swale 4 | Ditch - Swale 5 | Ditch - Swale 6 |
|---|---|---|---|---|---|---|
| **Ditch/Swale Flow (cfs)** | | | | | | |
| **Page No.** | | | | | | |
| **Ditch/Swale Velocity (fps)** | | | | | | |
| **Page No.** | | | | | | |

# Appendix D – SWPPP Requirements

# COUNTY OF LEXINGTON, SOUTH CAROLINA

## Public Works Stormwater Division

440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201 Fax: (803) 785-8593


## STORMWATER POLLUTION PREVENTION PLAN REQUIREMENTS

When a Primary Permittee is seeking coverage under the 2012 Construction General Permit (CGP) and a Land Development Permit with the County, a Comprehensive SWPPP (C-SWPPP) must be developed and submitted to PW/SWD for approval before coverage may be granted and prior to initiating construction on land disturbing activities as follows:

- Development that disturbs greater than one acre or that disturbs less than one acre and is part of a larger common plant of development; or
- As otherwise directed by Lexington County's Public Works and Stormwater Department (PW/SWD).

The C-SWPPP must address all applicable requirements found in Section 3.2 of the 2012 CGP and the Land Development Manual.

Once construction begins, inspection reports and updates to the SWPPP become part of the OS-SWPPP. The OS-SWPPP must be kept on site or a nearby location easily accessible during normal business hours, from the date of commencement of construction activities to the date that the Notice of Termination has been submitted.

For projects that disturb more than 2 acres the preparer of the SWPPP must be a registered professional engineer. More information concerning the requirements of the SWPPP (both C-SWPPP and OS-SWPPP) can be found in the **2012 NPDES General Permit for Stormwater Discharges from Large and Small Construction Activities (CGP).** This can be found on the SCDHEC website at:
http://www.scdhec.gov/Environment/WaterQuality/Stormwater/TechnicalDocuments/

Information on preparing a SWPPP can be found on the Environmental Protection Agency's website at:
http://water.epa.gov/polwaste/npdes/stormwater/Stormwater-Pollution-Prevention-Plans-for-Construction-Activities.cfm

Templates for SWPPPs are provided by SCDHEC and are found on their website at:
http://www.scdhec.gov/Environment/WaterQuality/Stormwater/TechnicalDocuments/

Listed below are the contents of a SWPPP. This is **not** intended to be a comprehensive list. A more inclusive listing of the requirements can be found in the 2012 CGP and the Land Development Manual.

### SWPPP Components:

1. **Phased Plan Requirement.** For non-liner construction sites disturbing more than 5 acres, the Construction Site Plans must include a phased stormwater management plan. This phased plan identifies all BMPs and grading work implemented during a specific portion of a site's construction sequence (e.g., initial grading and perimeter controls, interim land disturbances through final grading, post-construction and final stabilization). Each phase must be addressed and identified on at least one separate plan sheet

as indicated below. One sheet showing all BMPs and grading work for the entire course of the construction project will not be considered a complete phased plan.

a. For site disturbances less than 10 acres, at least two (2) separate plan phases shall be developed. Each plan phase shall be identified and must be addressed separately on at least one single plan sheet, with each sheet reflecting the conditions and the BMPs necessary to manage Stormwater runoff, erosion and sediment during the phases, at a minimum, listed below:

    i. **Initial Land Disturbance Phase.** This includes but is not limited to the perimeter BMPs, the necessary sediment and erosion control BMPs to be installed prior to initial/mass grading, and any additional BMPs necessary to keep the construction site in compliance with this permit. Also, buffers and any areas to be left undisturbed must be identified clearly on the plan.

    ii. **Stabilization Phase.** This includes but is not limited to all stormwater quality and quantity BMPs required to be installed, maintained, and/or retrofitted during the time required to begin the majority of all construction and grading activities, and the time required to bring the construction site into compliance with permanent water quality requirements and into final stabilization.

    **The scope of the land-disturbing activities and BMPs to be included in each of the phases identified in this section should be evaluated on a site-to-site basis and selected based on what the SWPPP preparer and reviewer deems to be the most appropriate for each construction site.**

b. For site disturbances greater than or equal to 10 acres, at least three (3) separate plan phases shall be developed. Each plan phase shall be identified and must be addressed separately on at least one single plan sheet, with each sheet reflecting the conditions and the BMPs necessary to manage Stormwater runoff, erosion and sediment during the phases, at a minimum, listed below:

    i. **Initial Land Disturbance Phase.** This includes but is not limited to the perimeter BMPs, the necessary sediment and erosion control BMPs to be installed prior to initial/mass grading, and any additional BMPs necessary to keep the construction site in compliance with this permit. Areas to be left undisturbed must be clearly shown on the plan as well.

    ii. **Construction Phase.** This includes but is not limited to all sediment and erosion control BMPs necessary to be installed, maintained and designed to prevent sediment-laden stormwater from discharging off-site during construction. Examples of such BMP control measures to include in this phase are all temporary BMPs used to convey, manage, and treat stormwater runoff including additional sediment traps and sediments basins, rock check dams, silt fence, sediment tubes, inlet protection, temporary conveyance channels and any other sediment control measure. All areas to be left undisturbed must be clearly shown as well.

    iii. **Stabilization Phase.** This includes but is not limited to all stormwater quality and quantity BMP control measures required to be installed, maintained, and/or retrofitted during the time required to bring a construction site into compliance with permanent water quality requirements and into final stabilization.

**The scope of the land-disturbing activities and BMPs to be included in each of the phases identified in this section should be evaluated on a site-to-site basis and chosen based on what the SWPPP preparer and reviewer deems to be the most appropriate for each construction site.**

2. Identify all buffers as follows:
    a. Construction buffers. For sites disturbing from 1 to 5 acres, construction buffers must be applied as required by SCR10000 Section 3.2.4.C.
    b. Permanent water quality buffers. For sites disturbing 5 acres or more, permanent water quality buffers must be provided as required by Chapter 7 of the LDM.
    c. All buffers must be marked as areas not to be disturbed on the plans and identified in the field prior to land disturbance

3. Identify all potential sources of pollution which may negatively impact the quality of stormwater discharges.

4. Provide descriptions of the following site activities:
    a. Scope of project
    b. Sequence of major activities
    c. Estimate of total disturbed area
    d. Location map
    e. Direction of stormwater flow
    f. Slope/grade after major grading
    g. Temporary and permanent BMP locations (structural and non-structural)
    h. Locations of off-site materials storage
    i. Equipment storage areas
    j. Location of Waters of the State
    k. Discharge points to local surface waters

5. Controls to Reduce Pollutants
    a. Description of pollution control measures used to control pollutants in stormwater discharges (for both construction and post-construction)
    b. Description of all interim and permanent stabilization practices
    c. Ensure preservation of existing vegetation where feasible
    d. Discharges to impaired waters including TMDLs. Ensure selected BMPs will not impact or contribute to water quality impairments.

6. Description of temporary erosion and sediment controls, permanent stormwater quality and quantity control measures, and water quality treatment credits, including design of all measures per the Land Development Manual.

7. Indicate which areas on site that operators and operators with “day-to-day” control are responsible for.

8. Operators with “day-to-day” control of activities must ensure compliance with the portion of the site they have control over. They must ensure implementation of BMPs and other controls required by the SWPPP. Make sure their activities do not render another party’s pollution control ineffective.

9. Records that must be kept with the SWPPP
    a. Dates of major grading
    b. Dates of temporary or permanent stopping of work
    c. Dates of stabilization methods
    d. Copies of the NOI, NPDES Coverage letter, NPDES Construction General Permit, approved plans and specifications, LDP approval, Corps of Engineers and/or SCDHEC approvals for streams/wetland impacts, inspector certifications, and inspection and rainfall documentation.

10. Permanent stormwater management practices must be shown on the plans, and supporting documentation as described in the Land Development Manual must be provided.

## INSPECTIONS

After construction activities begin, inspections must be conducted by the permit holder or his/her designated representative at a minimum of at least once every calendar week and must be conducted until final stabilization is reached on all areas of the construction site. An inspection is recommended within 24 hours of the end of a storm event of 0.5 inches or greater. A record of each inspection along with records of any subsequent maintenance required after an inspection must be retained as part of the OS-SWPPP.

For projects larger than 2 acres inspections must be conducted by the SWPPP preparer, someone under the direct supervision of the SWPPP preparer or by a certified sediment and erosion control inspector.

Permittees shall either maintain an on-site rain gauge or use data from a certified weather record located within a reasonable proximity of the construction site, to record rainfall records from any significant rainfall event, 0.5 inches or greater. These rainfall records must be maintained in a Rain Log located in the OS-SWPPP.

SCDHEC may require on a case-by-case basis that the Permittee submit monthly report summarizing the inspections at the site and any associated maintenance activity.

# Appendix D – No Discharge Pond Design Guidance

# COUNTY OF LEXINGTON, SOUTH CAROLINA

## Public Works Stormwater Division

440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201 Fax: (803) 785-8593


## NO DISCHARGE POND DESIGN GUIDANCE

**Criteria for No Discharge Ponds:**

1. All no discharge retention ponds are to be sized for the 100-yr storm event with no discharge.
2. Do not use the pond bottom for infiltration; use only the side slopes.
3. Side slopes are to be 3:1 (preferred) or 2:1 or 5:1 (range).
4. Bottom width of the pond must be at least twenty (20) feet, or four (4) times the depth of the pond, whichever is the larger.
5. Infiltration rates may be obtained from the Soil Survey Book of Lexington County, South Carolina. The permeability of subject soils are given as a range. Determine the lowest number for the range then take half of the lowest number for the infiltration rate. A second option is to have an acceptable infiltration test (Double Ring Method, etc.) performed by a soils testing lab. The borings for the proposed retention pond will need to be excavated to the determined depth of the bottom of the pond and then the infiltration test shall be performed. Use one-half (1/2) of the results determined by a soils testing lab as a Factor of Safety.
6. Show calculations that pond will dewater within a 72 hour period.

*Example shown on the following pages.*

**Example**

GIVEN: Pond in sandy soil with 3:1 side slopes and 10 ft. top width

GIVEN: Infiltration rate = 10 in/hr, therefore use 5 in/hr

| | Elevation (ft.) | Contour Area (sq. ft) | Incremental Volume (cub. ft.) | Summed Volume (cub. ft.) | Allowable Infiltration Area (sq. ft) | Discharge (cfs) |
|---|---|---|---|---|---|---|
| Bottom Elevation → | 100.00 | 5000.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 101.00 | 5936.00 | 5468.00 | 5468.00 | 936.00 | 0.11 |
| | 102.00 | 6944.00 | 6440.00 | 11908.00 | 1944.00 | 0.26 |
| | 103.00 | 8024.00 | 7484.00 | 19392.00 | 3024.00 | 0.35 |
| | 104.00 | 9176.00 | 8600.00 | 27992.00 | 4176.00 | 0.48 |
| | 105.00 | 10400.00 | 9788.00 | 37780.00 | 5400.00 | 0.63 |
| | 106.00 | 11696.00 | 11048.00 | 48828.00 | 6696.00 | 0.77 |
| | 107.00 | 13064.00 | 12380.00 | 61208.00 | 8064.00 | 0.93 |

For example:

$$At\ Elevation = 105.00\ ft$$

$$Incremental\ Volume = \left(\frac{9{,}176\ ft^2 + 10{,}400 ft^2}{2}\right)(1\ ft) = 9{,}788\ ft^3$$

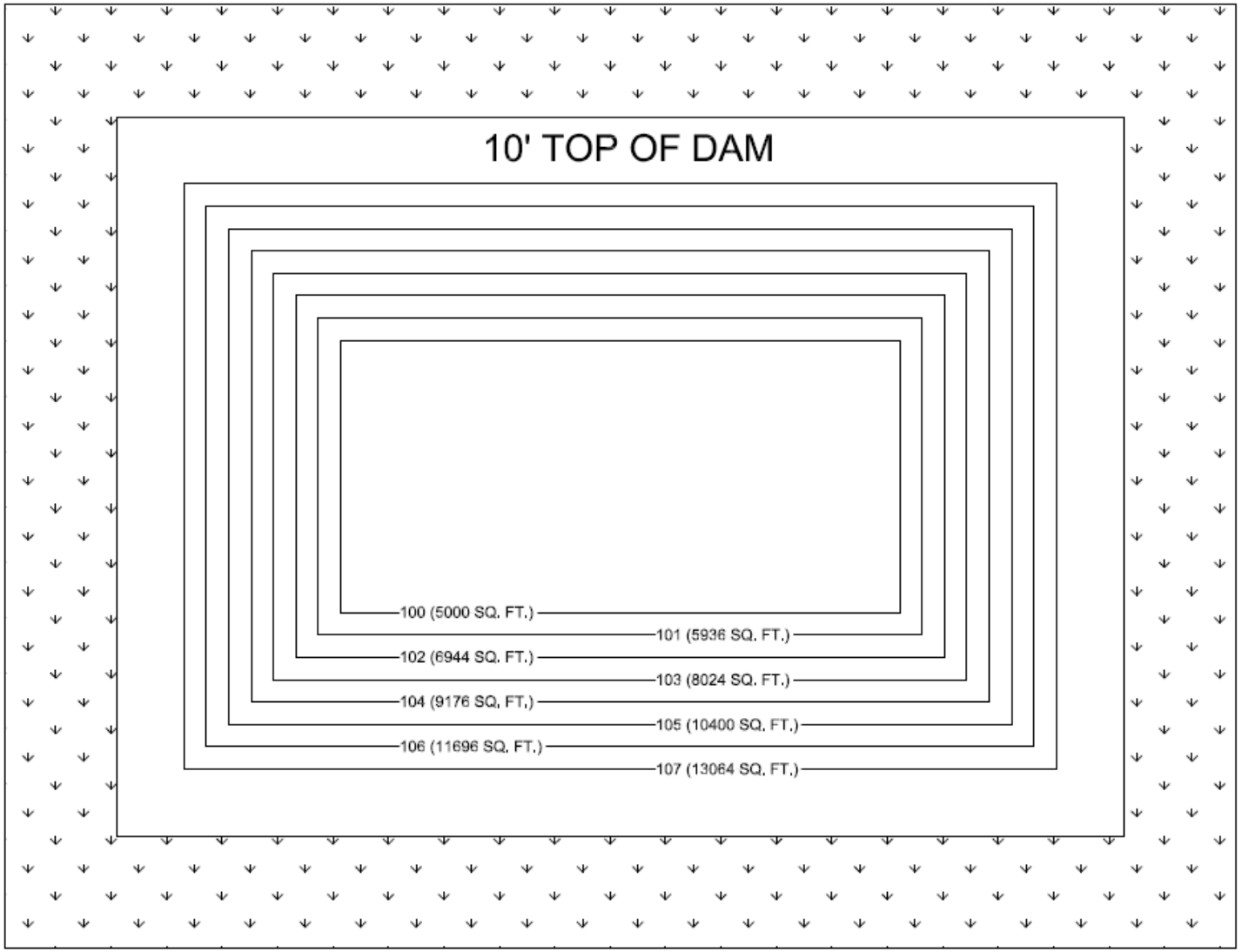
$$Summed\ Volume = 27{,}992\ ft^3 + 9{,}788 ft^3 = 37{,}780\ ft^3$$

$$Allowable\ Infilatraion\ Area = 10{,}400 ft^2 - 5{,}000 ft^2 = 5{,}400 ft^2$$

$$Discharge = \left(5\ {}^{in}/_{hr}\right)\left({}^{1\ ft}/_{12\ in}\right)\left({}^{1\ hr}/_{3600\ sec}\right)(5{,}400\ ft^2) = 0.63\ cfs$$

See the following page for the example's pond schematic.

# SAMPLE NO DISCHARGE POND



# Appendix D – Vegetation Specifications

# COUNTY OF LEXINGTON, SOUTH CAROLINA

## Public Works Stormwater Division

440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201 Fax: (803) 785-8593


**VEGETATION SPECIFICATIONS**

Part 1: Temporary and Permanent Vegetation
Part 2: Reestablishing Buffers

## Part 1: Temporary and Permanent Vegetation (grasses)

### Temporary Vegetation

#### Plant Selection

Plant seed selection should be based on the type of soil and the season of the year in which the planting is to be done. Tables 1 and 2 should be used if you plan to use conventional tillage methods (plowing, seedbed preparation, hydroseeding, etc). If you need a fast growing crop to nurse your permanent species, then use the mix rate. Failure to carefully follow agronomic recommendations often result in an inadequate stand of temporary vegetation that provides little or no erosion control.

#### Tillage

If the area has been recently plowed, no tillage is required other than raking or surface roughening to break any crust that has formed and to leave a textured surface. If the soil is compacted less than 6-inches, it should be disked for optimal germination.

#### Soil Testing

Information and test provider is available from the Soil and Water Conservation District Office.

#### Lime

Lime is not required for temporary seeding unless a soil test shows that the soil pH is below 5.0. It may be desirable to apply lime during the temporary seeding operation to benefit the long-term permanent seeding. Apply a minimum of 1.5 tons of Lime/acre (70 pounds per 1000 square feet) if it is to be used.

#### Fertilizer

A minimum of 500 pounds per acre of 10-10-10 fertilizer (11.5 pounds per 1000 square feet) or equivalent should be applied during temporary seeding unless a soil test indicates a different 90 requirement. Fertilizer and lime (if used) should be incorporated into the top 4-6 inches of the soil by disking or other means where conditions allow.

#### Seeding

The surface of the soil should be loosened just before broadcasting the seed. Seed should be applied evenly by the most convenient method available for the type of seed to be used and the location of the temporary seeding. Typical application methods include but are not limited to cyclone seeders, rotary

spreaders, drop spreaders, broadcast spreaders, hand spreaders, cultipacker seeder, and hydro-seeders. Cover applied seed by raking or dragging a chain, and then lightly firm the area with a roller or cultipacker.

**Mulching**

Mulch should be used in all permanently seeded areas to retain soil moisture and reduce erosion during establishment of vegetation. The mulch should be applied evenly in such a manner that it provides a minimum of 75% coverage. Typical mulch applications include straw, wood fibers, compost much or hydro-mulches. The most commonly accepted mulch used in conjunction with temporary seeding is small grain straw. This straw should be dry and free from mold damage and noxious weeds. The straw may need to be anchored with netting or emulsions to prevent it from being blown or washed away. The straw mulch may be applied by hand or machine at the rate 1.5 - 2 tons per acre (90 pounds per 1000 square feet). Frequent inspections are necessary to check that conditions for growth are good.

**Irrigation**

Seeded areas should be kept adequately moist. Irrigate the seeded area if normal rainfall is not adequate for the germination and growth of seedlings. Water seeded areas at controlled rates that are less than the rate at which the soil can absorb water to prevent runoff. Runoff of irrigation water wastes water and can cause erosion.

**Re-seeding**

Areas where the plants do not grow quickly, thick enough, or adequately to prevent erosion should be re-seeded with temporary grasses as soon as such areas are identified.

**Table 1. Temporary Vegetation Schedule**

| Species | Rates (lbs/acre) | Optimum Dates to Plant | Remarks |
|---|---|---|---|
| Browntop Millet (Alone) | 40 | April 20 – August 15 | Quick, Dense Cover |
| Browntop Millet (Mix)* | 10 | April 20 – August 15 | Quick, Dense Cover |
| Rye Grain (Alone) | 56 | February – March,<br>August 15 – November 20 | Quick Cover |
| Rye Grain (Mix)* | 10 | February – March,<br>August 15 – November 20 | Quick Cover |
| Rye Grass (Alone) | 50 | August 10 – October 10 | Competitive, Dense |
| Rye Grass (Mix)* | 8 | August 10 – October 10 | Competitive, Dense |

* For details on mixes, consult the Lexington County Soil and Water Conservation District

**Table 2. Temporary Vegetation for Steep Slopes/Cut Slopes**

| Species | Rates (lbs/acre) | Optimum Dates to Plant | Remarks |
|---|---|---|---|
| Weeping Lovegrass (Alone) | 4 | April – July 20 | Quick cover, deep roots, likes dry sites, seldom used alone, clumps |
| Weeping Lovegrass (Mix)* | 2 | April – July 20 | Quick cover, deep roots, likes dry sites, seldom used alone, clumps |

* For details on mixes, consult the Lexington County Soil and Water Conservation District

## Permanent Vegetation

### Plant Selection

Plant seed selection should be based on the type of soil, the season of the year in which the planting is to be done, and the needs and desires of the permanent land user. Tables 3 and 4 should be used to select the desired species to be planted. Failure to carefully follow agronomic recommendations often result in an inadequate stand of permanent vegetation that provides little or no erosion control. The rates in Tables 3 and 4 are based on purity and germination standards required for certification.

The following notes apply to Tables 3 and 4:

1. In mixtures with temporary cover, the full seeding rate of permanent cover shall be used.
2. Mix means two (2) or more long term species plus short term species. For dates other than optimum, call Lexington Soil and Water Conservation District.
3. A legume, such as a clover, crown vetch, and serecia should be used where it is possible.
4. The appropriate inoculants should be used.

### Topsoil

If the surface soil of the seedbed is not adequate for plant growth, topsoil should be applied.

### Tillage

If the area has been recently plowed, no tillage is required other than raking or Surface Roughening to break any crust that has formed and to leave a textured surface. If the soil is compacted less than 6-inches, it should be disked for optimal germination. If the soil is compacted more than 6-inches, it should be sub-soiled and disked.

### Soil Testing

Information and test provider is available from the Soil and Water Conservation District Office.

### Lime

Unless a specific soil test indicates otherwise, apply 1½ tons of ground course textured agricultural limestone per acre (70 pounds per 1000 square feet).

### Fertilizer

A minimum of 1000 pounds per acre of a complete 10-10-10 fertilizer (23 pounds per 1000 square feet) or equivalent should be applied during permanent seeding of grasses unless a soil test indicates a different requirement. Fertilizer and lime (if used) should be incorporated into the top 4-6 inches of the soil by disking or other means where conditions allow. Do not mix the lime and the fertilizer prior to the field application.

### Seeding

The surface of the soil should be loosened just before broadcasting the seed. Seed should be evenly applied by the most convenient method available for the type of seed to be applied. Typical application methods include but are not limited to cyclone seeders, rotary spreaders, drop spreaders, broadcast spreaders, hand spreaders, cultipacker seeder, and hydro-seeders. Cover applied seed by raking or dragging a chain or brush mat, and then lightly firm the area with a roller or cultipacker. Do not roll seed that is applied with a hydro-seeder and hydro-mulch.

**Mulching**

All permanent seeded areas should be covered with mulch immediately upon completion of the seeding application to retain soil moisture and reduce erosion during establishment of vegetation. 93 The mulch should be applied evenly in such a manner that it provides a minimum of 75% coverage. Typical mulch applications include straw, wood fiber, and compost mulch. The most commonly accepted mulch used in conjunction with permanent seeding is small grain straw. This straw should be dry and free from mold damage and noxious weeds. The straw may need to be anchored with netting or asphalt emulsions to prevent it from being blown or washed away. The straw mulch may be applied by hand or machine at the rate 2 tons per acre (90 pounds per 1000 square feet). Frequent inspections are necessary to check that conditions for growth are good.

**Irrigation**

Permanent seeded areas should be kept adequately moist, especially late in the specific growing season. Irrigate the seeded area if normal rainfall is not adequate for the germination and growth of seedlings. Water seeded areas at controlled rates that are less than the rate at which the soil can absorb water to prevent runoff. Runoff of irrigation water wastes water and can cause erosion.

**Re-seeding**

Inspect permanently seeded areas for failure, make necessary repairs and re-seed or overseed within the same growing season if possible. If the grass cover is sparse or patchy, re-evaluate the choice of grass and quantities of lime and fertilizer applied. If the permanent seeding has less than 40% cover, have the soil tested to determine any acidity or nutrient deficiency problems.

Final stabilization by permanent seeding of the site requires that it be covered by a 70% coverage rate.

**Post-Stabilization**

Once areas are stabilized they can be converted to native species or for establishing on non-critical, level sites. Table 5 lists some native species of Lexington County that can be used.

**Table 3. Permanent Vegetation Schedule**

| Species | Rates (lbs/acre) | Optimum Dates to Plant | Remarks |
|---|---|---|---|
| Bahia Grass (Alone) | 40 | March 20 – June 15 | Slow to become established |
| Bahia Grass (Mix)* | 30 | March 20 – June 15 | Slow to become established |
| Bermuda Grass (Hulled) (Alone) | 8 – 12 | April – July 15 | Quick cover, sod forming, partial winter kill |
| Bermuda Grass (Hulled) (Mix)* | 4 – 6 | April – July 15 | Quick cover, sod forming, partial winter kill |
| Fescue, Tall (KY31) Alone | 40 | August 15 – October | Seldom seeded alone, not for dry or wet sites |
| Fescue, Tall (KY31) Mix* | 20 | August 15 – October | Seldom seeded alone, not for dry or wet sites |
| Sericea Lespedeza (Scarified) Alone or Mix*, (Inoculate with EL Inoculant) | 40 | April – June | Good for slopes, cuts, and fills that require low maintenance |
| Ladino Clover (Mix* only), (Inoculate with AB inoculant) | 2 | August 20 – October | Naturally adds nitrogen |

* For details on mixes, consult the Lexington County Soil and Water Conservation District

**Table 4. Permanent Vegetation Schedule for Steep Slopes/Cut Slopes**

| Species | Rates (lbs/acre) | Optimum Dates to Plant | Remarks |
|---|---|---|---|
| Weeping Lovegrass (Alone) | 4 | April – July 20 | Quick cover, deep roots, likes dry sites, seldom used alone, clumps |
| Weeping Lovegrass (Mix)* | 2 | April – July 20 | Quick cover, deep roots, likes dry sites, seldom used alone, clumps |
| Crownvetch (Mix)* | 8 – 10 | March – April | 2 years to establish, no mowing, green all year, 20" maximum height |

* For details on mixes, consult the Lexington County Soil and Water Conservation District

**Table 5. Native Species That Can Be Used on Non-Critical, Level Sites in Lexington County, SC**

| Species | Rates (lbs/acre) | Optimum Dates to Plant | Remarks |
|---|---|---|---|
| Switchgrass (Mix* with Legumes) | 10, PLS** | February 10 – April 20 | Mix with Serecia at 30 lbs/acre |
| Indian Grass (Mix)* | 8, PLS** | February 10 – April 20 | Mix with Serecia at 30 lbs/acre |
| Little Bluestem, (Mix)* | 8, PLS** | February 10 – April | - |

* For details on mixes, consult the Lexington County Soil and Water Conservation District
** PLS - Pure Live Seed

## Part 2 Re-establishing Buffers

| Recommended Plant Species | | | |
|---|---|---|---|
| **Trees** | | **Shrubs** | **Grass & Forbs** |
| American Elm | Sugarberry | Buttonbush | Miadencane |
| American Holly | Swamp Chestnut Oak | Silky Dogwood | Switchgrass (Alamo) |
| Baldcypress | Swamp Tupelo | Swamp Azalea | Bushy Bluestem |
| Bigleaf Magnolia | Sweetgum | Wax Myrtle | Switchcane |
| Bitternut Hickory | Black Willow | Alder | Hibiscus |
| Boxelder | Cottonwood | American Stawberry Bush | Water Willow |
| Chastetree | Cypress, Pond | American Beautyberry | Big Bluestem |
| Cherrybark Oak | River Birch | American Holly | Broomsedge |
| Chinese Parasoltree | Swamp Tupelo | Carolina Rose | Eastern Gamagrass |
| Common Persimmon | Willow Oak | Native Azaleas | Little Bluestem |
| Deciduous Holly | Water Oak | | Indiangrass |
| Green Ash | Crabapple | | Purpletop |
| Laurel Oak | Dogwood | | Switchgrass |
| Loblolly Pine | Eastern Redbud | | Illinois Bundleflower |
| Oriental Arborvitae | Eastern Redcedar | | Partridge Pea |
| Overcup Oak1 | Hackberry | | Purple Coneflower |
| Overcup Oak2 | Red Maple | | |
| Pawpaw | Red Mulberry | | |
| Pin Oak | Sycamore | | |
| Red Maple1 | White Ash | | |
| Red Maple2 | Yellow Poplar | | |
| Sawtooth Oak | Turkey Oak | | |
| Shumard Oak | Water Elm | | |
| Silver Maple | Water Hickory | | |
| Southern Magnolia | Water Tupelo | | |

# Appendix D – Commercial Designer Checklist

# COUNTY OF LEXINGTON, SOUTH CAROLINA

## Public Works Stormwater Division

440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201 Fax: (803) 785-8593


## LEXINGTON COUNTY CHECKLIST FOR DESIGN OF COMMERCIAL DEVELOPMENTS

A pre-submittal and/or DRM meeting is required for all sites before plans are submitted for review.

Please indicate the location and page number(s) where each item below can be found in your SWPPP or supporting calculations. If an item is not applicable, put N/A. Lexington County reserves the right to modify this checklist at any time.

All items required for a design are not included on this checklist. You must refer to the Lexington County Land Development Manual for information on all design requirements**.**

Project Name: _____

Checklist Completed by:
Printed
Name_____ Signature _____Date:_____

## GENERAL

1. CURRENT COMPLETED APPLICATION FORM/DHEC NOI
   - Original Signature of individual with signatory authority for the applicant according to requirements set forth in R. 61-9.122.22 (see Appendix C)
   - All Commercial Land Disturbance Submittals must be submitted to the Community Development Division (803-785-8121).

2. ONE SET OF COMPLETED SITE PLANS, CALCUATIONS, AND C-SWPPP FOR INITIAL REVIEW. IF A PROJECT IS IN A MUNICIPALITY IT MUST GO TO THE MUNICIPALITY BEFORE IT IS SUBMITTED TO LEXINGTON COUNTY.

3. FEES
   All fees must be paid before the review process will begin.
   Plan review fees can be found on the Public Works Stormwater Division website:
   (http://www.lex-co.com/Departments/publicworks/index.html)

4. COVER SHEET
   - Project Name
   - Engineer's Contact Information (name, mailing address, telephone, fax, email)
   - Developer's Contact Information (name, mailing address, telephone, fax, email)
   - Table of Contents
   - Location Map
   - Room in the Lower Right Corner for Approval Stamp
   - Applicant and design certification

5. VICINITY MAP
- Include North arrow and scale
- Outlined project location
- Labeled road names

6. PROJECT NARRATIVE
- Scope of project outlined, including a brief description of pre- and post-development conditions.
- Statement regarding stormwater design option being used (Option A or Option B)
- Summary table to include:
    - Pre- and post-development flows for the 1, 2, 10, 25 and 100 year storm events
    - WQv and CPv treatment volumes
    - Post-development discharge velocities
    - Downstream analysis finding
    - Pollutant reduction provided (80% TSS reduction is baseline goal)
- Information on pond performance
- Overview of structural and non-structural post construction BMPs being used on site
- Discussion of long term operation and maintenance responsibilities for structural and non-structural post construction BMPs
- Existing flooding problems in the surrounding area described.

6. SITE PLAN CHECKLIST
- Size of plans shall be 24" x 36"
- Engineer stamp and signature
- Engineering Firm's Certificate of Authorization seal
- Location map
- Correct Scale and North Arrow
- Contours are to be tied to a known datum, no assumed elevations,
- Lot Layout
- Property lines, adjacent landowners' names, and land use conditions.
- Existing and proposed contours for entire disturbed area.
- Limits of disturbed area outlined on the plans.
- Locations of all areas NOT to be disturbed clearly outlined on plans
- Locations of off-site material, waste, borrow, or construction equipment storage areas, excluding roll-off containers (*Note: Some off-site disturbed areas may require a separate application for NPDES coverage*)
- Location and identification of any stormwater discharges associated with industrial activity (not construction)
- Location of Concrete Washout , materials storage, and other Pollution Prevention Measures
- Easements
- Road profiles with existing and proposed ground elevations (if no contours are shown on the plans).
- Construction sequence (see Item #14).
- Time schedule for each activity on the construction sequence
- Locations of all temporary and permanent control measures (erosion and sediment controls and post construction stormwater BMPs)
- Details for all temporary and permanent control measures
- Grassing and stabilization specifications
- Maintenance requirements (for temporary and permanent controls, grassing, etc.)
- Construction entrance/exit
- Standard notes. SCDHEC standard notes can be found on their website:
- Individual lot erosion control plan (applicable to commercial subdivisions)

9. USGS TOPOGRAPHIC MAP
- Project boundary outlined

- Route of runoff from site to nearest waterbody shown
- Critical areas downstream of site indicated
- Road names adjacent to site labeled

10. SOILS INFORMATION
- Project boundary outlined
- Predominate soil types found at the site identified on the plans or on a separate map
- *Note: Soils information is available from the Natural Resource Conservation Service through their website: http://websoilsurvey.nrcs.usda.gov/app/*

11. FLOODWAY MAPS/FEMA FLOOD INSURANCE MAP
- Project boundary outlined, if in close proximity of floodplain/floodway
- 100-yr floodplain contour line associated with FEMA and County floodway and floodplain
- Contact must be made with the Lexington County Floodplain Manager (803-785-8121).

12. NAVIGABLE WATERS
- Extra plan sheet showing impacts to navigable water and description of activity included if S.C. Navigable Waters (SCNW) crossing and separate SCNW permit has not been obtained for all activities
- *Note: For NOI's initially submitted to delegated entities, if project has SCNW crossing and if separate SCNW permit has not been obtained for this crossing, then this item will be reviewed by S.C. DHEC before NPDES coverage will be granted.*

13. WETLANDS/WATERS-OF-THE-STATE (WOS)
- Show and label on plans delineation of all waters of the State (WoS), including wetlands, verified by Army Corps of Engineers. Where impacts to WoS are to occur, show the areas to be impacted with a description of the activity(s), whether it is permanent or temporary, and any other relevant information.
- If impacts to WoS are to occur, outline areas of impacts on the plans and include labels indicating that no work can begin in this area until all necessary USACOE permits and SCDHEC 401 certifications have been obtained.
- Minimum 10' maintenance buffer provided between last row of silt fence and WoS; or, if buffer not provided, then statement from P.E. on plans indicating how silt fence will be installed and maintained without impacts to WoS
- *Note: If there are proposed impacts to WoS, then it is advised that you contact the UCACOE (866-329-8187) and/or S.C. DHEC Water Quality Certification, Standards & Wetlands Programs Section (803-898-4300) to determine additional requirements before submitting this NOI.*
- *Note: If WoS are to be impacted, work cannot be performed in these designated areas until all necessary permits have been acquired.*
- *Note: If USACOE permit is required for construction of a permanent stormwater management structure, NPDES permit coverage cannot be granted until the USACOE permits and S.C. DHEC 401 Section certificates are obtained.*
- *Note: SCDHEC recommends a 20-foot buffer between a sediment trap/basin and waters of the State and wetland areas.*

14. CONSTRUCTION SEQUENCE

- Construction Sequence should accurately reflect the nature and timing of construction activities for the site
- The sequence should begin with the installation of perimeter controls and end with the removal of sediment and erosion control measures once the site has been finally stabilized
- Address the timing of conversion of any temporary sediment control structures to permanent measures (i.e., conversion of a sediment basin to a permanent detention basin)
- The sequence should reflect implementation and transition between each phased plan (see item 15 below)

15. PHASED SEDIMENT & EROSION CONTROL PLANS

- Phased Sediment and Erosion Control Plans are not required when land-disturbance is 5 acres or less
- For land-disturbance between 5 and 10 acres, a two-phased stormwater management and sediment and erosion control plan is required for all non-linear projects. Each phase must be shown on a separate plan sheet. Plans should address the transition between phases.
    - Phase 1 – Initial Land Disturbance – Must include perimeter sediment and erosion control BMPs required prior to initial/mass clearing and other appropriate BMPs needed to maintain compliance with the permit. On some sites, this may include appropriate BMPs for demolition of existing structures
    - Phase 2 – Stabilization – Sediment and erosion control BMPs required during the remainder of grading and construction. Must also include appropriate BMPs at final grade and for stabilization – grassing, inlet protection, etc.
- For land-disturbance greater than 10 acres, a three-phased stormwater management and sediment and erosion control plan is required for all non-linear projects. Each phase must be shown on a separate plan sheet. Plans should address the transition between phases.
    - Phase 1 – Initial Land Disturbance – Must include perimeter sediment and erosion control BMPs required prior to initial/mass clearing and other appropriate BMPs needed to maintain compliance with the permit. On some sites, this may include appropriate BMPs for demolition of existing structures
    - Phase 2 – Construction – Sediment and erosion control BMPs required during the majority of grading and construction activities
    - Phase 3 – Stabilization – Sediment and erosion control BMPs required near the completion of the construction project. Must also include appropriate BMPs at final grade and for stabilization – grassing, inlet protection, etc.

16. LAND DISTURBANCE BUFFERS

- For sites disturbing from 1 to 5 acres
- Select Compliance Option A, B, or C in Section 3.2.4.C of the CGP and provide appropriate documentation
    - Double row silt fence provided in all areas where a 50’ undisturbed buffer cannot be maintained between the disturbed area and the WoS
    - Minimum 10’ maintenance buffer provided between last row of silt fence and WoS; or, if buffer not provided, then statement from P.E. on plans indicating how silt fence will be installed and maintained without impacts to WoS
- Ensure discharges into a buffer zone are non-channelized and non-concentrated to prevent erosion, and first treated by the construction site’s sediment and erosion controls
- Ensure any velocity dissipation measures implemented within a buffer zone comply with 3.2.4.C.III (d)
- See Item 17 for more information on permanent water quality buffers.

17. PERMANENT WATER QUALITY BUFFERS

- For sites disturbing 5 acres or more
- Lexington County requires a 100 ft water quality buffer on all perennial streams and a 50 ft water quality buffer on all intermittent streams as identified on a 7.5 USGS quad map, US Army Corp of Engineers of the Public Works Stormwater Division. Water quality buffers cannot be disturbed during project construction and must be left in the existing condition upon completion of construction activities.
- Lexington County requires a 50 ft water quality buffer on all wetlands delineated outside of perennial or intermittent streams.
- Submit a Buffer Plan in conjunction with the erosion prevention and sediment control plan, SWPPP Document, and all applicable calculations for a land disturbance permit (as required by PW/SWD in Chapter 7 of the Land Development Manual). Plans should include access to buffer areas for maintenance.
- Water quality buffers must be clearly identified on all stormwater management plans and construction drawings and marked with the statement "Water Quality Buffer. Do Not Disturb"
- Water quality buffers must be marked in the field prior to construction beginning. The locations of signage must be clearly shown on plans.
- A narrative stating the extent of the buffer areas, including any allowed disturbance in the buffer areas (this should be in the narrative as well as in the SWPPP Document) must be included with the plans.
- A double row of silt fence (with metal posts and wire backing) shall be shown on the upstream side of the applicable buffer area(s).
- Concentrated stormwater discharges cannot be conveyed through the section of the buffer with the minimal width

18. WATER QUALITY CREDIT AREAS

- Identify water quality credit areas on the site plan.
- Where a water quality credit requires that the credit area not be disturbed, clearly mark the areas on the plans as Water Quality Credit Area – DO NOT DISTURB
- Provide BMPs around the water quality credit areas to ensure protection
- See item #31 for further details on Site Design Credit Areas.

19. FLOW CONTROL

- Control stormwater volume and velocity within the site during construction to minimize erosion within the site
- Control stormwater rates and volume at outlets during and after construction to minimize erosion to downstream properties and streambanks

20. SEDIMENTOLOGY

- Provide a drainage area map outlining the area contributing to sediment basins, traps, and rock sediment dikes.
- Sediment basins. Provide trapping efficiency calculations showing that all sediment basins/ traps are capable of achieving a sediment trapping efficiency of at least 80% for the 10-year, 24-hour storm event, if more than 10 disturbed acres drain to a common point (stream, lake, etc.). Include calculations to show that sediment basins provide storage for the 10-year, 24-hour storm event for disturbed conditions or 3600 $ft^3$/ acre draining to the basin, if more than 10 disturbed acres drain to a common point (stream, lake, property line, etc.)
- Sediment traps. Sediment traps can only be used for drainage areas of less than 5 acres. Provide sediment trap storage calculations, showing that 1800 $ft^3$/ total acre draining to each trap is provided below the spillway. If trapping efficiency calculations are required for sediment traps, then provide peak outflow, $q_{po}$, calculations; the 10-year, 24-hour storm event for construction conditions cannot overtop the trap's spillway
- Sediment basins and traps must be designed for total area draining to them
- Curve Number for construction analysis needs to reflect construction/disturbed conditions. Curve Numbers for newly graded areas are:

  - Hydrologic Soil Group "A": 77
  - Hydrologic Soil Group "B": 86
  - Hydrologic Soil Group "C": 91
  - Hydrologic Soil Group "D": 94
- Copies of figures used to determine $V_{15}$ (SV-1) and trapping efficiency (ST-1, SB-1, SB-2), if Design Aids from BMP manual are used to determine trapping efficiencies.
- When multiple $D_{15}$ values exist for an area, use the soil type with the smallest $D_{15}$ for the appropriate depth to determine the settling velocity, $V_{15}$. Do not use an average $D_{15}$.
- Sediment basins must dewater via an outlet structure that pulls water from the surface. Options for this include skimmers and flash board risers. Surface dewatering is not required for traps.
- Porous baffles must be provided in sediment basins
- Forebays must be installed, unless infeasible
- Public safety should be taken into consideration as a factor in design of sediment basin. Alternative BMPs must be utilized where a construction site limitations would preclude a safe design
- Silt fence only used in areas with drainage areas of less than ¼ acre per 100 LF of fence and not used in areas with concentrated flows
- Clean-out stake, marked at 1/3 the designed sediment storage depth, provided in all sediment basins/ sediment traps
- Indicate the placement of all BMPs (silt fence, inlet protection, construction entrance, rip-rap at outfalls, check dams etc.) on the site plan
- Include notes on the site plan that disturbed areas must be stabilized within 14 days (for all disturbed areas)
- Note stating "temporary sediment pond shall be eliminated after 80% of the site is stabilized"
- *Note: Consult the SC DHEC BMP Handbook for information on the design of these and other devices.*
- *Note: The Design Aids in the SC DHEC BMP Handbook cannot be used to determine trapping efficiencies for structures in series. If the flow for the10-year, 24-hour storm for construction conditions overtops the structure or the structure's spillway, then the Design Aids cannot be used. If multiple soil types are in the area draining to the structure, then the soil type with the smallest $D_{15}$ for the appropriate depth should be used to determine the settling velocity, $V_{15}$; an average $D_{15}$ should not be used.*

21. CONVEYANCE MESAURES AND STABLE CHANNEL CALCULATIONS
- All channels and diversion ditches must be able to handle the 25 year storm event with non-erosive velocities of less than 5 feet per second during construction and post-construction
- Stabilization of conveyance channels is to be completed within 7 days of channel construction
- Rock check dams must be provided in temporary diversion channels
- Include installation details for erosion control blanket (ECB) or turn reinforcement matting (TRM) if ECBs or TRMs are to be used.
- All ditches/swales must be double seeded.
- Temporary conveyance channels should be utilized to divert concentrated stormwater flows from running onto and within the disturbed area

22. INLET PROTECTION
- Inlet protection must be provided at all inlets (existing and proposed) and shown on the site plans.
- Hay bales are not allowed
- Steel posts and buried fabric must be shown on the details for filter fabric inlet protection. Wood posts are not allowed.
- Inlet protection provided for pre-paving and after roadways have been paved.
- Include construction details for each type of inlet protection to be installed on the site.
- *Note: SC DHEC recommends that an inlet not have more than one (1) acre draining to it.*

23. ENERGY DISSIPATORS/OUTLET PROTECTION
- All outlets shall be stabilized against erosion, and construction details provided.
- Calculations for riprap aprons must be provided and dimensions (including stone sizes) shown on the

plans or in a table. Filter fabric must be installed beneath all riprap
- Note that appropriate outlet protection and energy dissipation is also required for post-construction

24. FILL SLOPES AND/OR EMBANKMENTS
- All slopes shall be provided with permanent stabilization.
- All slopes within 20' of the property line must be adequately protected
- Minimize disturbance to Slopes that are 3H:1V or steeper
- Divert concentrated flows around steep slopes using slope drains or temporary diversions
- Utilize appropriate measures to prevent erosion (erosion blankets, surface roughening, terracing, etc.)
- Provide slope drains where concentrated flows discharge onto fill slopes. Slope drains must be designed in accordance with the South Carolina DHEC Storm Water Management BMP Handbook

- For all slopes steeper than 1.5:1, identify the stabilization practice (e.g., ECB, TRM)
- Measures, in addition to grassing or hydroseeding, include synthetic or vegetative matting, diversion berms, temporary slope drains, etc.
- If retaining walls or fill slopes are to be constructed at the downstream property line, a 10'buffer must be shown to allow for construction and maintenance. If a 10' buffer is not provided, then provide permission from the adjacent property owner for possible land-disturbing activities on his property.

25. UTILITY LINES
- Limits of disturbance include areas disturbed for installation of all utilities (cable, electrical, natural gas, water and sewer), as appropriate.
- For instances where the location of cable, electric, and natural gas has not been determined at the time the SWPPP is developed, SWPPP preparer may include a note that the installation of these is to be within the permitted limits of disturbance and that installation outside of these areas will require a modification to the permit
- Inlet protection shall be provided at all existing inlets that receive flows from the disturbed areas; also add this as a note on the plans.
- For all utility lines crossing WoS, a narrative and detail showing sediment and erosion control measures shall be provided on plans.
- Include a note on the plans that construction entrances are to be provided at all locations where construction traffic accesses a paved roadway.

26. STAKING AND GRADING PLAN
- Entire Boundaries of property
- Existing conditions
- 2' contours
- Time schedule for each activity on the construction sequence (see item #14 for further detail).
- Sight Distances
- Show existing roads and/or commercial drives across the road from the proposed access entrance.
- Entrance Islands (12' from the edge of pavement of existing street. Signs are to be 5' from back of curb, minor drainage system.)
- Call out expulsion curb to be used at islands.
- On storm drain lines show inverts (in and out), diameter, length and slope of pipe, and cfs.

27. CONSTRUCTION DETAILS
Provide construction details for all BMPs to be installed during active construction and when the site has been stabilized. The construction details must show dimensions as appropriate, as well as maintenance requirements for construction site BMPs.

28. TMDL/ 303d IMPAIRED WATERBODIES (CONSTRUCTION)

- Provide a qualitative and quantitative assessment (described in Section 3.4C of SCR100000), if the nearest WQMS is listed on the 303(d) List of Impaired Waters and if the site's stormwater construction discharges contain the pollutant of impairment and if the site disturbs 25 or more acres
- Provide an evaluation of selected BMPs if the nearest WQMS is listed on the 303(d) List of Impaired Waters and if the site's stormwater construction discharges contain the pollutant of impairment and if the site disturbs less than 25 acres
- Construction pollutants of concern include TURBIDITY, BIO (Macroinvertebrate), TP (Total Phosphorus), TN (Total Nitrogen), and Chlorophyll-A.
- Link to Water Quality Information Tool and Instructions: http://gisweb01.dhec.sc.gov/water/Stormwater.html?mode=0
- If an approved TMDL has been developed for the nearest WQMS and if the site's stormwater construction discharges contain the pollutant of impairment, show that measures and controls on the SWPPP meet assumptions and requirements of the TMDL (may need to contact DHEC's Watershed Manager for assistance)
- For TURBIDITY, BIO (Macroinvertebrate) TMDLs, consider inclusion of BMPs to reduce sediment load such as: sediment traps and basin designed to meet 80% sediment removal efficiency (regardless of size), additional measures to stabilize site, limited clearing and grading
- For TP (Total Phosphorous), TN (Total Nitrogen), and Chlorophyll-A TMDLs, consider inclusion of BMPs to reduce nutrient load. This could include limited clearing and grading, soil samples to determine nutrient requirements during grassing

# POST-CONSTRUCTION

Two options are available to meet the post-construction stormwater management requirements. Please check the option selected for this project:

- ☐ Option A –Traditional method outlined in Section 3.5 of the Land Development Manual. (Note that this design method was adopted in the 2007 version of the Land Development Manual). This option is only allowed where ponds and other BMPs installed on the project are to be privately maintained perpetually.
- ☐ Option B –Unified Sizing Criteria Method outlined Section 3.6 of the Land Development Manual. All BMPs that are to be maintained by the County shall be designed using this design methodology.

29. OPTION A – TRADITIONAL METHOD

- Post-development discharge rates shall not exceed pre-development discharge rates for the 2, 5, 10, and 25-year frequency 24-hour duration storm events. The same hydrologic procedures shall be used in determining both the pre-development and post-development peak flow rates.
- Detain the pre-developed runoff volume for the 2 and 10-year 24-hour storm events for a period of 24-hours.
- Permanent water quality ponds and water quality structures having a permanent pool elevation shall be designed to store the first ½-inch of runoff from the contributing area of the site and release the accumulated water quality volume (WQv) over a minimum period of 24-hours.
- Permanent water quality structures not having a permanent pool elevation shall be designed to store the first 1-inch of runoff from the contributing area of the site and release the WQv over a minimum period of 24-hours.
- Pretreatment devices such as forebays, vaults, or other devices that remove debris and coarser sediments from the drainage system are required.

30. OPTION B - UNIFIED SIZING CRITERIA (USC)

- Water Quality (WQv): Provide calculations to show that post-construction BMPs and water quality credits are used to treat WQv for each discharge point.
- Channel Protection (CPv): Provide calculations to show extended detention of the 1-year, 24-hour storm event released over a period of 24 hours for each discharge point.
- Overbank Flood Protection ($Q_{FP}$): Provide peak discharge control of the 2-year, 10-year and 25-year storm events such that the post-development peak rate does not exceed the predevelopment rate (see item #29 for appropriate rainfall data to use for calculations) for each discharge point.
- Extreme Flood Protection ($Q_{100}$): Provide a downstream analysis to evaluate the effects of the 100-year storm on the stormwater management system, adjacent property, and downstream facilities and properties. Where the downstream analysis shows that runoff from the site has a negative downstream impact such as flooding structures and/or causing overtopping of a roadway, provide the stormwater mitigation efforts to reduce the impact such as:
  - Additional onsite stormwater controls –
  - Upgrading downstream conveyance system components (such as undersized culverts) and/or
  - Obtaining flow or drainage easements from downstream landowners of land impacted by increased runoff.
- *Note: See the attached Volume Calculation Summary Sheet for guidance.*
-
- *Note: Orifice diameters for CPv control of less than 3 inches are not recommended without adequate clogging protection.*
- *Note: Flows can be conveyed without retention or detention to a receiving floodplain if it can be shown that the floodplain is sufficiently sized to account for extreme flow increases from the site without causing damage or negative impacts such as flooding of structures or roadway overtopping.*

31. HYDROLOGIC ANALYSIS

- Provide calculations supporting post-development discharge velocities will not cause erosion to the project outlet or downstream properties.

- Drainage area maps that clearly correspond to the calculations (see item #35 for further details).
- Analysis performed at the same points and with the same drainage area for both pre- and post-development.
- Post-development discharges less than pre-development discharges for each outfall point.
- Analysis performed using SCS 24-hour, Type II Storm (Rational method not acceptable)
- Used rainfall data from South Carolina DHEC Storm Water Management BMP Handbook

| 1-Year | 2-Year | 10-Year | 25-Year | 100-Year |
|---|---|---|---|---|
| 3.1" | 3.6" | 5.3" | 6.4" | 8.3" |

32. DETENTION ANALYSIS/DESIGN ANALYSIS

- Pond routing using a volume based hydrograph for the 1(USC only)-, 2-, 10-, 25-, and 100 year SCS 24-hour rainfall event (Drain:Edge, ICPR, HEC-1, SedCAD, HYDRAFLOW, etc. perform full pond routings: TR55 does not perform a full pond routing; rational method cannot be used)
- Hydrologic and hydraulic calculations necessary to determine the impact of hydrograph timing modifications of the proposed development, with and without the pond (results of analysis will determine the need to modify the pond design or eliminate the pond requirement-see note in item 10)
- Inputs and outputs from the routing analysis program
- Summary table of the peak inflows, peak outflows, and maximum water surface elevations (WSE) for the 2, 10, 25 and 100-year storm events for each pond
- Include dimensions for all components of each pond.
- Stage-storage-discharge relationship for the outlet structure of each detention structure
- If a rating curve for the outlet structure must be generated externally from the analysis program (Drain:Edge, HEC-1, HydroCAD), provide the data and equations used to rate the outlet structure.
- Include an as-built detail of the existing detention pond if the site drains to an existing detention pond (see below).
- *Note: SedCAD users please refer to the memo regarding the input of the outlet structures on the DHEC website.*

Pond Design

Include the following details and calculations:

- Detail of outlet structure and cross-section of the dam, including elevations and dimensions that correspond to the calculations.
- Orifice constructability considered (do not specify orifice diameters with increments of less than ¼").
- *Note: small orifices (those less than 3") are prone to clogging*
- Maximum WSE for the 100-year storm event below the embankment with 1-ft of freeboard between maximum WSE for the 100-year storm embankment.
- Dewatering time calculations for the 10-year storm event (dry ponds must drain completely within 72 hours, wet ponds must drain to normal pool elevation within 72 hours).
- Bottom of all detention and retention ponds graded to have a slope of not less than 0.5%.
- If the pond is to be used for sediment control during construction, skimmers, baffles, and forebays must be used during construction and shown on the pond detail. In addition, the construction sequence must include the steps to be taken by the contractor to ensure that the final contours of the detention pond are restored to the contours in the design.
- Permanent maintenance access must be provided to all permanent detention structures.
- Emergency spillways should not be built on fill slopes.
- Installation of a trash rack or other debris-screening device on all pond risers.
- *Note: SC DHEC recommends a maximum slope of 3:1 on pond embankments to allow for ease of maintenance.*
- *Note: SC DHEC recommends installation of sediment forebays at each outfall into the detention/ sediment basin. This is a requirement during construction*

Other BMPs

- Where infiltration systems are included, they must be designed in accordance with section

3.8.7 of the Land Development Manual.

- Low Impact Development measures, bioretention cells, infiltration, and other post-construction practices should be installed only after the drainage area to these practices has been stabilized.

33. WATER QUALITY CREDITS (OPTION B ONLY)

- Water quality credits (i.e. natural conservation areas, stream buffers, vegetated channels, overland flow/infiltration zones, and environmentally sensitive large lot subdivisions) must meet all the minimum requirements outlined in Section 3.8 of the LDM.
- All credit areas must be identified on final plans, including temporary controls installed to protect credit areas that are to be left undisturbed or that rely on infiltration.
- Ensure correct final construction of water quality credit areas needed for credits.
- Develop maintenance requirements and documents (i.e. easement documents). Ensure long term protection and maintenance for credit areas.
- *Note: Credits cannot be claimed twice for an identical area of the site (i.e. claiming credit for stream buffers and overland flow infiltration zones over the same site area).*
- *Note: Consult with the County to ensure if and when a credit is applicable and to determine restrictions on non-structural strategies.*

34. DISCHARGE POINTS

- Storm drainage or pond outfalls carried to an existing drainage outfall such as a pipe, ditch, etc.
- No new point discharges onto adjacent property where there was not a point discharge previously without providing the adjacent property owner's written permission.
- A recorded discharge agreement is required for all increases in discharge onto adjacent property. Water quality treatment is still required.
- Level spreaders, plunge pools, etc. must be provided at the end of the discharge point to ensure non-erosive discharges.
- Provide a 50-foot minimum undisturbed buffer between the end of the drainage outfall and the property line
- Outlets are not allowed to discharge on fill slopes
- Discharge pipes greater than 24" require headwall with wings
- Headwalls are required in major drainage channels
- Rip-rap headwalls are acceptable for pipes less than 24"
- *Note: This requirement also applies during construction*

35. PERMANENT STRUCTURAL BMP MAINTENANCE AGREEMENTS

- All permanent BMPs intended for operation and maintenance by Lexington County designed in accordance with Option B, described above.
- A signed agreement from a responsible party accepting ownership and maintenance of the structure shall be provided for all privately owned BMPs. This document needs to be recorded with the Lexington County Register of Deeds.
- If maintenance responsibility is transferred after NPDES coverage is granted, an updated agreement should be submitted with the Notice of Termination

36. DRAINAGE AREA MAPS

- Provide a drainage area map outlining the area draining to each outfall on site. Show existing and proposed contours for the site layout, as well as pre-development drainage area map and a post-development drainage area map. Include offsite run-on in drainage areas.
- Overlay soil types and HSG on drainage area map
- Place calculated design flows on each pipe and BMPs
- Provide the time of concentrations and curve numbers for each drainage area.
- Provide routing hydrographs for the 1, 2, 10, 25, and 100-year storm event
- Show pipe capacities for the design storm
- Provide Basin stage/storage and stage discharge calculations
- Label watershed areas within the drainage area map with (watershed identifier, CN, area, length,

slope)
- Include designed velocities for swales

37. TMDL/ 303d IMPAIRED WATERBODIES (POST-CONSTRUCTION)
- If Approved TMDL developed for nearest WQMS and if site's stormwater post-construction discharges contain the pollutant of impairment, showed that measures and controls on SWPPP met assumptions and requirements of TMDL For TURBIDITY, BIO (Macroinvertebrate), consider inclusion of permanent BMPs to reduce sediment load such as: wet pond, dry swales and sand filters to meet 80% TSS removal efficiency
- For TP (Total Phosphorous), TN (Total Nitrogen), and Chlorophyll-A, consider inclusion of BMPs to reduce nutrient load. This could include wet ponds, enhanced swales, infiltration trenches, etc.

38. DOWNSTREAM ANALYSIS
- Downstream Analysis studies shall be done using the design and 100-year 24-hour storm events. Each downstream analysis shall determine whether the design storm events of interest cause or make worse the following:
  - Flooding of structures or
  - Overtop roadway crossings
- Downstream analysis shall study shall be to the point where development represents less than 10 percent of the total drainage area of the watershed to that point.
- *Note: Typical points of concern shall be analyzed within this 10 percent area (i.e. first downstream road crossing, downstream residential lots, location of known existing flooding, drainage or erosion problems, any point as directed by Lexington County).*
- Primary areas for analysis shall be done for:
  - The development area
  - All outfall points from the property,
  - The receiving channel at the exit points, and
  - Each component of the downstream system including:
    - Channels, pipes, culverts, and bridges

Downstream Analysis Criteria
- Existing land use curve numbers shall be used for developed areas upstream.
- The weighted curve number for the proposed development site shall be used for all undeveloped upstream areas
- Existing land use for downstream areas of interest may be used, but future land use, when applicable, is recommended for conservative results.
- Routing of flows using an accepted hydrologic and hydraulic method from Section X of LDM.
- Hydraulic step-backwater calculations (Corps of Engineer's HEC-2 or HEC-RAS models or equivalent) shall be performed to determine flood elevations of any downstream impacted areas.
- The effects of any upstream and proposed stormwater quantity or quality structures.

Downstream Impact Mitigation Options
If the downstream analysis determines that the development of a particular site does cause a negative impact, then at least one of the following improvements shall be implemented:
1. On-site Water Quantity Control
2. Off-site Water Quantity Control
3. Improvements to the Downstream Stormwater Conveyance System
4. Off-site drainage or flow easements

- *Note: See Chapter 3 of the LDM for further criteria requirements for the methods listed above. Provide calculations of the proposed improvements per the LDM requirements accordingly.*

39. AS-BUILTS

To be provided see As-Built checklist.

40. APPLICANT AND DEVELOPER CERTIFICATIONS

- The following certifications must be signed on the final sets of plans for approval.

Applicant's Certification

I (We) hereby certify that all clearing, grading, construction, and/or development will be done pursuant to this plan and I (we) are responsible for the land disturbance and related maintenance thereof. Lexington County authorities will be allowed to enter the project site for the purposed of on-site inspections.

_____ _____

Date Owner/Person Financially Responsible

Designer's Certification

"I hereby certify that this plan is designed to contain soil on the property concerned to the maximum extent, to provide for the protection of the property and the proposed improvements thereon from the effects of flooding, to provide for the control of the runoff from the property, and that all the provisions for sediment control and storm drainage are in accordance with the Stormwater Management and Sediment Control Ordinance for Lexington County, South Carolina."

_____ _____

Date Designer's Signature and Certification

## Appendix D – Residential Designer Checklist

# COUNTY OF LEXINGTON, SOUTH CAROLINA

## Public Works Stormwater Division

440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201 Fax: (803) 785-8593


## LEXINGTON COUNTY CHECKLIST FOR DESIGN OF RESIDENTIAL DEVELOPMENTS

A pre-submittal and/or DRM meeting is required for all sites before plans are submitted for review.

Please indicate the location and page number(s) where each item below can be found in your SWPPP or supporting calculations. If an item is not applicable, put N/A. Lexington County reserves the right to modify this checklist at any time.

All items required for a design are not included on this checklist. You must refer to the Lexington County Land Development Manual for information on all design requirements**.**

Project Name: _____

Checklist Completed by:
Printed
Name_____ Signature _____Date:_____

## GENERAL

1. CURRENT COMPLETED APPLICATION FORM/DHEC NOI
   - Original Signature of individual with signatory authority for the applicant according to requirements set forth in R. 61-9.122.22 (see Appendix C)
   - All Residential Land Disturbance Submittals must be submitted to the Community Development Division (803-785-8121).

2. ONE SET OF COMPLETED SITE PLANS, CALCUATIONS, AND C-SWPPP FOR INITIAL REVIEW. IF A PROJECT IS IN A MUNICIPALITY IT MUST GO TO THE MUNICIPALITY BEFORE IT IS SUBMITTED TO LEXINGTON COUNTY.

3. FEES
   All fees must be paid before the review process will begin.
   Plan review fees can be found on the Public Works Stormwater Division website:
   (http://www.lex-co.com/Departments/publicworks/index.html)

4. COVER SHEET
   - Project Name
   - Engineer's Contact Information (name, mailing address, telephone, fax, email)
   - Developer's Contact Information (name, mailing address, telephone, fax, email)
   - Table of Contents
   - Location Map

- Room in the Lower Right Corner for Approval Stamp
- Applicant and design certification

5. VICINITY MAP
- Include North arrow and scale
- Outlined project location
- Labeled road names

6. PROJECT NARRATIVE
- Scope of project outlined, including a brief description of pre- and post-development conditions.
- Statement regarding stormwater design option being used (Option A or Option B)
- Summary table to include:
    - Pre- and post-development flows for the 1, 2, 10, 25 and 100 year storm events
    - WQv and CPv treatment volumes
    - Post-development discharge velocities
    - Downstream analysis finding
    - Pollutant reduction provided (80% TSS reduction is baseline goal)
- Information on pond performance
- Overview of structural and non-structural post construction BMPs being used on site
- Discussion of long term operation and maintenance responsibilities for structural and non-structural post construction BMPs
- Existing flooding problems in the surrounding area described.
- Disturbed area calculations included for projects or LCP disturbing 1 or more acres
    - For subdivisions, if the site is not to be mass-graded, the following formula should be used to determine the amount of disturbance:

    Disturbed Area = 2 [Max Restricted Building Size (square feet)][Number of Lots] + ROW areas
    {ROW (Right of Way) areas include clearing for roads, utilities, easements, etc.}
    - If this equation is to be used, include a note on the plans stating: "The site is not to be mass graded. No more than twice the area of the home footprint shall be cleared for each lot. The assumed area of disturbance for each lot is ___ square feet."

6. SITE PLAN CHECKLIST
- Size of plans shall be 24" x 36"
- Engineer stamp and signature
- Engineering Firm's Certificate of Authorization seal
- Location map
- Correct Scale and North Arrow
- Contours are to be tied to a known datum, no assumed elevations,
- Lot Layout
- Property lines, adjacent landowners' names, and land use conditions.
- Existing and proposed contours for entire disturbed area.
- Limits of disturbed area outlined on the plans.
- Locations of all areas NOT to be disturbed clearly outlined on plans
- Locations of off-site material, waste, borrow, or construction equipment storage areas, excluding roll-off containers (*Note: Some off-site disturbed areas may require a separate application for NPDES coverage*)
- Location and identification of any stormwater discharges associated with industrial activity (not construction)
- Location of Concrete Washout , materials storage, and other Pollution Prevention Measures
- Easements
- Road profiles with existing and proposed ground elevations (if no contours are shown on the plans).
- Construction sequence (see Item #14).
- Time schedule for each activity on the construction sequence
- Locations of all temporary and permanent control measures (erosion and sediment controls and

post construction stormwater BMPs)
- Details for all temporary and permanent control measures
- Grassing and stabilization specifications
- Maintenance requirements (for temporary and permanent controls, grassing, etc.)
- Construction entrance/exit
- Standard notes. SCDHEC standard notes can be found on their website:
- Individual lot erosion control plan (applicable to commercial subdivisions)

9. USGS TOPOGRAPHIC MAP
- Project boundary outlined
- Route of runoff from site to nearest waterbody shown
- Critical areas downstream of site indicated
- Road names adjacent to site labeled

10. SOILS INFORMATION
- Project boundary outlined
- Predominate soil types found at the site identified on the plans or on a separate map
- *Note: Soils information is available from the Natural Resource Conservation Service through their website: http://websoilsurvey.nrcs.usda.gov/app/*

11. FLOODWAY MAPS/FEMA FLOOD INSURANCE MAP
- Project boundary outlined, if in close proximity of floodplain/floodway
- 100-yr floodplain contour line associated with FEMA and County floodway and floodplain
- Contact must be made with the Lexington County Floodplain Manager (803-785-8121).

12. NAVIGABLE WATERS
- Extra plan sheet showing impacts to navigable water and description of activity included if S.C. Navigable Waters (SCNW) crossing and separate SCNW permit has not been obtained for all activities
- *Note: For NOI's initially submitted to delegated entities, if project has SCNW crossing and if separate SCNW permit has not been obtained for this crossing, then this item will be reviewed by S.C. DHEC before NPDES coverage will be granted.*

13. WETLANDS/WATERS-OF-THE-STATE (WOS)
- Show and label on plans delineation of all waters of the State (WoS), including wetlands, verified by Army Corps of Engineers. Where impacts to WoS are to occur, show the areas to be impacted with a description of the activity(s), whether it is permanent or temporary, and any other relevant information.
- If impacts to WoS are to occur, outline areas of impacts on the plans and include labels indicating that no work can begin in this area until all necessary USACOE permits and SCDHEC 401 certifications have been obtained.
- Minimum 10' maintenance buffer provided between last row of silt fence and WoS; or, if buffer not provided, then statement from P.E. on plans indicating how silt fence will be installed and maintained without impacts to WoS
- *Note: If there are proposed impacts to WoS, then it is advised that you contact the UCACOE (866-329-8187) and/or S.C. DHEC Water Quality Certification, Standards & Wetlands Programs Section (803-898-4300) to determine additional requirements before submitting this NOI.*
- *Note: If WoS are to be impacted, work cannot be performed in these designated areas until all necessary permits have been acquired.*
- *Note: If USACOE permit is required for construction of a permanent stormwater management structure, NPDES permit coverage cannot be granted until the USACOE permits and S.C. DHEC 401 Section certificates are obtained.*
- *Note: SCDHEC recommends a 20-foot buffer between a sediment trap/basin and waters of the State and wetland areas.*

14. CONSTRUCTION SEQUENCE

- Construction Sequence should accurately reflect the nature and timing of construction activities for the site
- The sequence should begin with the installation of perimeter controls and end with the removal of sediment and erosion control measures once the site has been finally stabilized
- Address the timing of conversion of any temporary sediment control structures to permanent measures (i.e., conversion of a sediment basin to a permanent detention basin)
- The sequence should reflect implementation and transition between each phased plan (see item 15 below)

15. PHASED SEDIMENT & EROSION CONTROL PLANS

- Phased Sediment and Erosion Control Plans are not required when land-disturbance is 5 acres or less
- For land-disturbance between 5 and 10 acres, a two-phased stormwater management and sediment and erosion control plan is required for all non-linear projects. Each phase must be shown on a separate plan sheet. Plans should address the transition between phases.
    - Phase 1 – Initial Land Disturbance – Must include perimeter sediment and erosion control BMPs required prior to initial/mass clearing and other appropriate BMPs needed to maintain compliance with the permit. On some sites, this may include appropriate BMPs for demolition of existing structures
    - Phase 2 – Stabilization – Sediment and erosion control BMPs required during the remainder of grading and construction. Must also include appropriate BMPs at final grade and for stabilization – grassing, inlet protection, etc.
- For land-disturbance greater than 10 acres, a three-phased stormwater management and sediment and erosion control plan is required for all non-linear projects. Each phase must be shown on a separate plan sheet. Plans should address the transition between phases.
    - Phase 1 – Initial Land Disturbance – Must include perimeter sediment and erosion control BMPs required prior to initial/mass clearing and other appropriate BMPs needed to maintain compliance with the permit. On some sites, this may include appropriate BMPs for demolition of existing structures
    - Phase 2 – Construction – Sediment and erosion control BMPs required during the majority of grading and construction activities
    - Phase 3 – Stabilization – Sediment and erosion control BMPs required near the completion of the construction project. Must also include appropriate BMPs at final grade and for stabilization – grassing, inlet protection, etc.

16. LAND DISTURBANCE BUFFERS

- For sites disturbing from 1 to 5 acres
- Select Compliance Option A, B, or C in Section 3.2.4.C of the CGP and provide appropriate documentation
    - Double row silt fence provided in all areas where a 50’ undisturbed buffer cannot be maintained between the disturbed area and the WoS
    - Minimum 10’ maintenance buffer provided between last row of silt fence and WoS; or, if buffer not provided, then statement from P.E. on plans indicating how silt fence will be installed and maintained without impacts to WoS
- Ensure discharges into a buffer zone are non-channelized and non-concentrated to prevent erosion, and first treated by the construction site’s sediment and erosion controls
- Ensure any velocity dissipation measures implemented within a buffer zone comply with 3.2.4.C.III (d)
- See Item 17 for more information on permanent water quality buffers.

17. PERMANENT WATER QUALITY BUFFERS

- For sites disturbing 5 acres or more

- Lexington County requires a 100 ft water quality buffer on all perennial streams and a 50 ft water quality buffer on all intermittent streams as identified on a 7.5 USGS quad map, US Army Corp of Engineers of the Public Works Stormwater Division. Water quality buffers cannot be disturbed during project construction and must be left in the existing condition upon completion of construction activities.
- Lexington County requires a 50 ft water quality buffer on all wetlands delineated outside of perennial or intermittent streams.
- Submit a Buffer Plan in conjunction with the erosion prevention and sediment control plan, SWPPP Document, and all applicable calculations for a land disturbance permit (as required by PW/SWD in Chapter 7 of the Land Development Manual). Plans should include access to buffer areas for maintenance.
- Water quality buffers must be clearly identified on all stormwater management plans and construction drawings and marked with the statement "Water Quality Buffer. Do Not Disturb"
- Water quality buffers must be marked in the field prior to construction beginning. The locations of signage must be clearly shown on plans.
- A narrative stating the extent of the buffer areas, including any allowed disturbance in the buffer areas (this should be in the narrative as well as in the SWPPP Document) must be included with the plans.
- A double row of silt fence (with metal posts and wire backing) shall be shown on the upstream side of the applicable buffer area(s).
- Concentrated stormwater discharges cannot be conveyed through the section of the buffer with the minimal width

18. WATER QUALITY CREDIT AREAS
- Identify water quality credit areas on the site plan.
- Where a water quality credit requires that the credit area not be disturbed, clearly mark the areas on the plans as Water Quality Credit Area – DO NOT DISTURB
- Provide BMPs around the water quality credit areas to ensure protection
- See item #31 for further details on Site Design Credit Areas.

19. FLOW CONTROL
- Control stormwater volume and velocity within the site during construction to minimize erosion within the site
- Control stormwater rates and volume at outlets during and after construction to minimize erosion to downstream properties and streambanks

20. SEDIMENTOLOGY
- Provide a drainage area map outlining the area contributing to sediment basins, traps, and rock sediment dikes.
- Sediment basins. Provide trapping efficiency calculations showing that all sediment basins/ traps are capable of achieving a sediment trapping efficiency of at least 80% for the 10-year, 24-hour storm event, if more than 10 disturbed acres drain to a common point (stream, lake, etc.). Include calculations to show that sediment basins provide storage for the 10-year, 24-hour storm event for disturbed conditions or 3600 $ft^3$/ acre draining to the basin, if more than 10 disturbed acres drain to a common point (stream, lake, property line, etc.)
- Sediment traps. Sediment traps can only be used for drainage areas of less than 5 acres. Provide sediment trap storage calculations, showing that 1800 $ft^3$/ total acre draining to each trap is provided below the spillway. If trapping efficiency calculations are required for sediment traps, then provide peak outflow, $q_{po}$, calculations; the 10-year, 24-hour storm event for construction conditions cannot overtop the trap's spillway
- Sediment basins and traps must be designed for total area draining to them
- Curve Number for construction analysis needs to reflect construction/disturbed conditions. Curve Numbers for newly graded areas are:
    - Hydrologic Soil Group "A": 77
    - Hydrologic Soil Group "B": 86
    - Hydrologic Soil Group "C": 91

    - Hydrologic Soil Group "D": 94
- Copies of figures used to determine $V_{15}$ (SV-1) and trapping efficiency (ST-1, SB-1, SB-2), if Design Aids from BMP manual are used to determine trapping efficiencies.
- When multiple $D_{15}$ values exist for an area, use the soil type with the smallest $D_{15}$ for the appropriate depth to determine the settling velocity, $V_{15}$. Do not use an average $D_{15}$.
- Sediment basins must dewater via an outlet structure that pulls water from the surface. Options for this include skimmers and flash board risers. Surface dewatering is not required for traps.
- Porous baffles must be provided in sediment basins
- Forebays must be installed, unless infeasible
- Public safety should be taken into consideration as a factor in design of sediment basin. Alternative BMPs must be utilized where a construction site limitations would preclude a safe design
- Silt fence only used in areas with drainage areas of less than ¼ acre per 100 LF of fence and not used in areas with concentrated flows
- Clean-out stake, marked at 1/3 the designed sediment storage depth, provided in all sediment basins/ sediment traps
- Indicate the placement of a11 BMPs (silt fence, inlet protection, construction entrance, rip-rap at outfalls, check dams etc.) on the site plan
- Include notes on the site plan that disturbed areas must be stabilized within 14 days (for all disturbed areas)
- Note stating "temporary sediment pond shall be eliminated after 80% of the site is stabilized"
- *Note: Consult the SC DHEC BMP Handbook for information on the design of these and other devices.*
- *Note: The Design Aids in the SC DHEC BMP Handbook cannot be used to determine trapping efficiencies for structures in series. If the flow for the 10-year, 24-hour storm for construction conditions overtops the structure or the structure's spillway, then the Design Aids cannot be used. If multiple soil types are in the area draining to the structure, then the soil type with the smallest $D_{15}$ for the appropriate depth should be used to determine the settling velocity, $V_{15}$; an average $D_{15}$ should not be used.*

21. CONVEYANCE MESAURES AND STABLE CHANNEL CALCULATIONS
- All channels and diversion ditches must be able to handle the 25 year storm event with non-erosive velocities of less than 5 feet per second during construction and post-construction
- Stabilization of conveyance channels is to be completed within 7 days of channel construction
- Rock check dams must be provided in temporary diversion channels
- Include installation details for erosion control blanket (ECB) or turn reinforcement matting (TRM) if ECBs or TRMs are to be used.
- All ditches/swales must be double seeded.
- Temporary conveyance channels should be utilized to divert concentrated stormwater flows from running onto and within the disturbed area

22. INLET PROTECTION
- Inlet protection must be provided at all inlets (existing and proposed) and shown on the site plans.
- Hay bales are not allowed
- Steel posts and buried fabric must be shown on the details for filter fabric inlet protection. Wood posts are not allowed.
- Inlet protection provided for pre-paving and after roadways have been paved.
- Include construction details for each type of inlet protection to be installed on the site.
- *Note: SC DHEC recommends that an inlet not have more than one (1) acre draining to it.*

23. ENERGY DISSIPATORS/OUTLET PROTECTION
- All outlets shall be stabilized against erosion, and construction details provided.
- Calculations for riprap aprons must be provided and dimensions (including stone sizes) shown on the plans or in a table. Filter fabric must be installed beneath all riprap
- Note that appropriate outlet protection and energy dissipation is also required for post-construction

24. FILL SLOPES AND/OR EMBANKMENTS

- All slopes shall be provided with permanent stabilization.
- All slopes within 20' of the property line must be adequately protected
- Minimize disturbance to Slopes that are 3H:1V or steeper
- Divert concentrated flows around steep slopes using slope drains or temporary diversions
- Utilize appropriate measures to prevent erosion (erosion blankets, surface roughening, terracing, etc.)
- Provide slope drains where concentrated flows discharge onto fill slopes. Slope drains must be designed in accordance with the South Carolina DHEC Storm Water Management BMP Handbook

- For all slopes steeper than 1.5:1, identify the stabilization practice (e.g., ECB, TRM)
- Measures, in addition to grassing or hydroseeding, include synthetic or vegetative matting, diversion berms, temporary slope drains, etc.
- If retaining walls or fill slopes are to be constructed at the downstream property line, a 10'buffer must be shown to allow for construction and maintenance. If a 10' buffer is not provided, then provide permission from the adjacent property owner for possible land-disturbing activities on his property.

25. UTILITY LINES

- Limits of disturbance include areas disturbed for installation of all utilities (cable, electrical, natural gas, water and sewer), as appropriate.
- For instances where the location of cable, electric, and natural gas has not been determined at the time the SWPPP is developed, SWPPP preparer may include a note that the installation of these is to be within the permitted limits of disturbance and that installation outside of these areas will require a modification to the permit
- Inlet protection shall be provided at all existing inlets that receive flows from the disturbed areas; also add this as a note on the plans.
- For all utility lines crossing WoS, a narrative and detail showing sediment and erosion control measures shall be provided on plans.
- Include a note on the plans that construction entrances are to be provided at all locations where construction traffic accesses a paved roadway.

26. STAKING AND GRADING PLAN

- Entire Boundaries of property
- Existing conditions
- 2' contours
- Time schedule for each activity on the construction sequence (see item #14 for further detail).
- Sight Distances
- Show existing roads and/or commercial drives across the road from the proposed access entrance.
- Entrance Islands (12' from the edge of pavement of existing street. Signs are to be 5' from back of curb, minor drainage system.)
- Call out expulsion curb to be used at islands.
- On storm drain lines show inverts (in and out), diameter, length and slope of pipe, and cfs.

27. CONSTRUCTION DETAILS

Provide construction details for all BMPs to be installed during active construction and when the site has been stabilized. The construction details must show dimensions as appropriate, as well as maintenance requirements for construction site BMPs.

28. TMDL/ 303d IMPAIRED WATERBODIES (CONSTRUCTION)

- Provide a qualitative and quantitative assessment (described in Section 3.4C of SCR100000), if the nearest WQMS is listed on the 303(d) List of Impaired Waters and if the site's stormwater construction discharges contain the pollutant of impairment and if the site disturbs 25 or more acres

- Provide an evaluation of selected BMPs if the nearest WQMS is listed on the 303(d) List of Impaired Waters and if the site's stormwater construction discharges contain the pollutant of impairment and if the site disturbs less than 25 acres
- Construction pollutants of concern include TURBIDITY, BIO (Macroinvertebrate), TP (Total Phosphorus), TN (Total Nitrogen), and Chlorophyll-A.
- Link to Water Quality Information Tool and Instructions: http://gisweb01.dhec.sc.gov/water/Stormwater.html?mode=0
- If an approved TMDL has been developed for the nearest WQMS and if the site's stormwater construction discharges contain the pollutant of impairment, show that measures and controls on the SWPPP meet assumptions and requirements of the TMDL (may need to contact DHEC's Watershed Manager for assistance)
- For TURBIDITY, BIO (Macroinvertebrate) TMDLs, consider inclusion of BMPs to reduce sediment load such as: sediment traps and basin designed to meet 80% sediment removal efficiency (regardless of size), additional measures to stabilize site, limited clearing and grading
- For TP (Total Phosphorous), TN (Total Nitrogen), and Chlorophyll-A TMDLs, consider inclusion of BMPs to reduce nutrient load. This could include limited clearing and grading, soil samples to determine nutrient requirements during grassing

# POST-CONSTRUCTION

Two options are available to meet the post-construction stormwater management requirements. Please check the option selected for this project:

- ☐ Option A –Traditional method outlined in Section 3.5 of the Land Development Manual. (Note that this design method was adopted in the 2007 version of the Land Development Manual). This option is only allowed where ponds and other BMPs installed on the project are to be privately maintained perpetually.
- ☐ Option B –Unified Sizing Criteria Method outlined Section 3.6 of the Land Development Manual. All BMPs that are to be maintained by the County shall be designed using this design methodology.

29. OPTION A – TRADITIONAL METHOD

- Post-development discharge rates shall not exceed pre-development discharge rates for the 2, 5, 10, and 25-year frequency 24-hour duration storm events. The same hydrologic procedures shall be used in determining both the pre-development and post-development peak flow rates.
- Detain the pre-developed runoff volume for the 2 and 10-year 24-hour storm events for a period of 24-hours.
- Permanent water quality ponds and water quality structures having a permanent pool elevation shall be designed to store the first ½-inch of runoff from the contributing area of the site and release the accumulated water quality volume (WQv) over a minimum period of 24-hours.
- Permanent water quality structures not having a permanent pool elevation shall be designed to store the first 1-inch of runoff from the contributing area of the site and release the WQv over a minimum period of 24-hours.
- Pretreatment devices such as forebays, vaults, or other devices that remove debris and coarser sediments from the drainage system are required.

30. OPTION B - UNIFIED SIZING CRITERIA (USC)

- Water Quality (WQv): Provide calculations to show that post-construction BMPs and water quality credits are used to treat WQv for each discharge point.
- Channel Protection (CPv): Provide calculations to show extended detention of the 1-year, 24-hour storm event released over a period of 24 hours for each discharge point.
- Overbank Flood Protection ($Q_{FP}$): Provide peak discharge control of the 2-year, 10-year and 25-year storm events such that the post-development peak rate does not exceed the predevelopment rate (see item #29 for appropriate rainfall data to use for calculations) for each discharge point.
- Extreme Flood Protection ($Q_{100}$): Provide a downstream analysis to evaluate the effects of the 100-year storm on the stormwater management system, adjacent property, and downstream facilities and properties. Where the downstream analysis shows that runoff from the site has a negative downstream impact such as flooding structures and/or causing overtopping of a roadway, provide the stormwater mitigation efforts to reduce the impact such as:
  - Additional onsite stormwater controls –
  - Upgrading downstream conveyance system components (such as undersized culverts) and/or
  - Obtaining flow or drainage easements from downstream landowners of land impacted by increased runoff.
- *Note: See the attached Volume Calculation Summary Sheet for guidance.*
- *Note: Orifice diameters for CPv control of less than 3 inches are not recommended without adequate clogging protection.*
- *Note: Flows can be conveyed without retention or detention to a receiving floodplain if it can be shown that the floodplain is sufficiently sized to account for extreme flow increases from the site without causing damage or negative impacts such as flooding of structures or roadway overtopping.*

31. HYDROLOGIC ANALYSIS

- Provide calculations supporting post-development discharge velocities will not cause erosion to the project outlet or downstream properties.
- Drainage area maps that clearly correspond to the calculations (see item #35 for further details).

- Analysis performed at the same points and with the same drainage area for both pre- and post-development.
- Post-development discharges less than pre-development discharges for each outfall point.
- Analysis performed using SCS 24-hour, Type II Storm (Rational method not acceptable)
- Used rainfall data from South Carolina DHEC Storm Water Management BMP Handbook

| 1-Year | 2-Year | 10-Year | 25-Year | 100-Year |
|---|---|---|---|---|
| 3.1” | 3.6” | 5.3” | 6.4” | 8.3” |

32. DETENTION ANALYSIS/DESIGN ANALYSIS

- Pond routing using a volume based hydrograph for the 1(USC only)-, 2-, 10-, 25-, and 100 year SCS 24-hour rainfall event (Drain:Edge, ICPR, HEC-1, SedCAD, HYDRAFLOW, etc. perform full pond routings: TR55 does not perform a full pond routing; rational method cannot be used)
- Hydrologic and hydraulic calculations necessary to determine the impact of hydrograph timing modifications of the proposed development, with and without the pond (results of analysis will determine the need to modify the pond design or eliminate the pond requirement-see note in item 10)
- Inputs and outputs from the routing analysis program
- Summary table of the peak inflows, peak outflows, and maximum water surface elevations (WSE) for the 2, 10, 25 and 100-year storm events for each pond
- Include dimensions for all components of each pond.
- Stage-storage-discharge relationship for the outlet structure of each detention structure
- If a rating curve for the outlet structure must be generated externally from the analysis program (Drain:Edge, HEC-1, HydroCAD), provide the data and equations used to rate the outlet structure.
- Include an as-built detail of the existing detention pond if the site drains to an existing detention pond (see below).
- *Note: SedCAD users please refer to the memo regarding the input of the outlet structures on the DHEC website.*

Pond Design

Include the following details and calculations:

- Detail of outlet structure and cross-section of the dam, including elevations and dimensions that correspond to the calculations.
- Orifice constructability considered (do not specify orifice diameters with increments of less than ¼”).
- *Note: small orifices (those less than 3”) are prone to clogging*
- Maximum WSE for the 100-year storm event below the embankment with 1-ft of freeboard between maximum WSE for the 100-year storm embankment.
- Dewatering time calculations for the 10-year storm event (dry ponds must drain completely within 72 hours, wet ponds must drain to normal pool elevation within 72 hours).
- Bottom of all detention and retention ponds graded to have a slope of not less than 0.5%.
- If the pond is to be used for sediment control during construction, skimmers, baffles, and forebays must be used during construction and shown on the pond detail. In addition, the construction sequence must include the steps to be taken by the contractor to ensure that the final contours of the detention pond are restored to the contours in the design.
- Permanent maintenance access must be provided to all permanent detention structures.
- Emergency spillways should not be built on fill slopes.
- Installation of a trash rack or other debris-screening device on all pond risers.
- *Note: SC DHEC recommends a maximum slope of 3:1 on pond embankments to allow for ease of maintenance.*
- *Note: SC DHEC recommends installation of sediment forebays at each outfall into the detention/ sediment basin. This is a requirement during construction*

Other BMPs

- Where infiltration systems are included, they must be designed in accordance with section

3.8.7 of the Land Development Manual.

- Low Impact Development measures, bioretention cells, infiltration, and other post-construction practices should be installed only after the drainage area to these practices has been stabilized.

33. WATER QUALITY CREDITS (OPTION B ONLY)

- Water quality credits (i.e. natural conservation areas, stream buffers, vegetated channels, overland flow/infiltration zones, and environmentally sensitive large lot subdivisions) must meet all the minimum requirements outlined in Section 3.8 of the LDM.
- All credit areas must be identified on final plans, including temporary controls installed to protect credit areas that are to be left undisturbed or that rely on infiltration.
- Ensure correct final construction of water quality credit areas needed for credits.
- Develop maintenance requirements and documents (i.e. easement documents). Ensure long term protection and maintenance for credit areas.
- *Note: Credits cannot be claimed twice for an identical area of the site (i.e. claiming credit for stream buffers and overland flow infiltration zones over the same site area).*
- *Note: Consult with the County to ensure if and when a credit is applicable and to determine restrictions on non-structural strategies.*

34. DISCHARGE POINTS

- Storm drainage or pond outfalls carried to an existing drainage outfall such as a pipe, ditch, etc.
- No new point discharges onto adjacent property where there was not a point discharge previously without providing the adjacent property owner's written permission.
- A recorded discharge agreement is required for all increases in discharge onto adjacent property. Water quality treatment is still required.
- Level spreaders, plunge pools, etc. must be provided at the end of the discharge point to ensure non-erosive discharges.
- Provide a 50-foot minimum undisturbed buffer between the end of the drainage outfall and the property line
- Outlets are not allowed to discharge on fill slopes
- Discharge pipes greater than 24" require headwall with wings
- Headwalls are required in major drainage channels
- Rip-rap headwalls are acceptable for pipes less than 24"
- *Note: This requirement also applies during construction*

35. PERMANENT STRUCTURAL BMP MAINTENANCE AGREEMENTS

- All permanent BMPs intended for operation and maintenance by Lexington County designed in accordance with Option B, described above.
- A signed agreement from a responsible party accepting ownership and maintenance of the structure shall be provided for all privately owned BMPs. This document needs to be recorded with the Lexington County Register of Deeds.
- If maintenance responsibility is transferred after NPDES coverage is granted, an updated agreement should be submitted with the Notice of Termination

36. DRAINAGE AREA MAPS

- Provide a drainage area map outlining the area draining to each outfall on site. Show existing and proposed contours for the site layout, as well as pre-development drainage area map and a post-development drainage area map. Include offsite run-on in drainage areas.
- Overlay soil types and HSG on drainage area map
- Place calculated design flows on each pipe and BMPs
- Provide the time of concentrations and curve numbers for each drainage area.
- Provide routing hydrographs for the 1, 2, 10, 25, and 100-year storm event
- Show pipe capacities for the design storm
- Provide Basin stage/storage and stage discharge calculations
- Label watershed areas within the drainage area map with (watershed identifier, CN, area, length,

slope)
- Include designed velocities for swales

37. TMDL/ 303d IMPAIRED WATERBODIES (POST-CONSTRUCTION)
- If Approved TMDL developed for nearest WQMS and if site's stormwater post-construction discharges contain the pollutant of impairment, showed that measures and controls on SWPPP met assumptions and requirements of TMDL For TURBIDITY, BIO (Macroinvertebrate), consider inclusion of permanent BMPs to reduce sediment load such as: wet pond, dry swales and sand filters to meet 80% TSS removal efficiency
- For TP (Total Phosphorous), TN (Total Nitrogen), and Chlorophyll-A, consider inclusion of BMPs to reduce nutrient load. This could include wet ponds, enhanced swales, infiltration trenches, etc.

38. DOWNSTREAM ANALYSIS
- Downstream Analysis studies shall be done using the design and 100-year 24-hour storm events. Each downstream analysis shall determine whether the design storm events of interest cause or make worse the following:
  - Flooding of structures or
  - Overtop roadway crossings
- Downstream analysis shall study shall be to the point where development represents less than 10 percent of the total drainage area of the watershed to that point.
- *Note: Typical points of concern shall be analyzed within this 10 percent area (i.e. first downstream road crossing, downstream residential lots, location of known existing flooding, drainage or erosion problems, any point as directed by Lexington County).*
- Primary areas for analysis shall be done for:
  - The development area
  - All outfall points from the property,
  - The receiving channel at the exit points, and
  - Each component of the downstream system including:
    - Channels, pipes, culverts, and bridges

Downstream Analysis Criteria
- Existing land use curve numbers shall be used for developed areas upstream.
- The weighted curve number for the proposed development site shall be used for all undeveloped upstream areas
- Existing land use for downstream areas of interest may be used, but future land use, when applicable, is recommended for conservative results.
- Routing of flows using an accepted hydrologic and hydraulic method from Section X of LDM.
- Hydraulic step-backwater calculations (Corps of Engineer's HEC-2 or HEC-RAS models or equivalent) shall be performed to determine flood elevations of any downstream impacted areas.
- The effects of any upstream and proposed stormwater quantity or quality structures.

Downstream Impact Mitigation Options
If the downstream analysis determines that the development of a particular site does cause a negative impact, then at least one of the following improvements shall be implemented:
1. On-site Water Quantity Control
2. Off-site Water Quantity Control
3. Improvements to the Downstream Stormwater Conveyance System
4. Off-site drainage or flow easements

- *Note: See Chapter 3 of the LDM for further criteria requirements for the methods listed above. Provide calculations of the proposed improvements per the LDM requirements accordingly.*

39. AS-BUILTS

To be provided see As-Built checklist.

40. APPLICANT AND DEVELOPER CERTIFICATIONS

- The following certifications must be signed on the final sets of plans for approval.

Applicant's Certification

I (We) hereby certify that all clearing, grading, construction, and/or development will be done pursuant to this plan and I (we) are responsible for the land disturbance and related maintenance thereof. Lexington County authorities will be allowed to enter the project site for the purposed of on-site inspections.

_____ _____

Date Owner/Person Financially Responsible

Designer's Certification

"I hereby certify that this plan is designed to contain soil on the property concerned to the maximum extent, to provide for the protection of the property and the proposed improvements thereon from the effects of flooding, to provide for the control of the runoff from the property, and that all the provisions for sediment control and storm drainage are in accordance with the Stormwater Management and Sediment Control Ordinance for Lexington County, South Carolina."

_____ _____

Date Designer's Signature and Certification

# Appendix D – Operation and Maintenance Plan/Agreement

STATE OF SOUTH CAROLINA )
)
)
)
COUNTY OF LEXINGTON )

PERMANENT STORMWATER SYSTEM
MAINTENANCE AND RESPONSIBILITY
AGREEMENT

Under the South Carolina Stormwater Management and Sediment Reduction Act of 1991 (48-14-10, et. Seq.), Regulation 72-308 requires the Landowner, its successors and assigns, including any homeowners association, shall adequately maintain the Stormwater management/Best Management Practices (BMP) facilities. In addition, the Small Municipal Separate Storm Sewer Sytem permit number SCR 030000 under which Lexington County has covereage requires the County to ensure that all permanent BMPs installed to address stormwater quantity and quality are maintained in perpetuity. This includes all pipes and channels built to convey stormwater to the facility, as well as all structures, improvements, and vegetation provided to control the quantity and quality of stormwater. Adequate maintenance is herein defined as good working condition so that these facilities are performing as designed.

Lexington County (County) requires The Landowner, its successors and assigns, to inspect the Stormwater management/BMP facility and the stormwater system components annually. The purpose of the inspection is to assure safe and proper functioning of the facilities. The inspection shall cover the entire stormwater system, including berms, outlet structure, pond areas, access roads, vegetation, etc.

The Landowner, its successors and assigns, herby grant permission to the County, its authorized agents and employees, to enter upon the Property and to inspect the stormwater system and BMP facilities whenever the County deems necessary. The purpose of inspection is to follow-up on reported deficiencies and/or to respond to citizen complaints and, if necessary, take corrective action. The County shall provide the Landowner, its successors and assigns, copies of the inspection findings and a directive to commence with the repairs if necessary. Should a Homeowner's Association or BMP owner fail to maintain the stormwater system or any BMPs, the County can begin enforcement action.

The Landowner, its successors and assigns, will perform the work necessary to keep these facilities in good working order as appropriate. The stormwater system and BMP owner(s) will follow the maintenance schedule as outlined in the recorded Operation and Maintenance Plan.

This Agreement imposes no liability of any kind whatsoever on the County and the Landowner agrees to hold the County harmless from any liability in the event the stormwater management/BMP facilities fail to operate properly.

**I, _____, accept responsibility for the ownership and proper maintenance of the stormwater system (pond, swales, water quality treatment credit areas, etc.) on the _____(project name and phase) site located on _____(TMS #), owned by _____(Owner) per the approved Operation & Maintenance plan(s). I will complete any necessary repairs and/or preventive maintenance procedures in a timely manner to ensure the stormwater system is properly functioning .**

- **I will continue to own and maintain the the practices and stormwater system identified in this Operation and Maintenance Plan until the County is notified in writing of a transfer in ownership and maintenance responsibility. The notification will include a date for the transfer of responsibility and a letter of acceptance from the new owner.**
- **I understand that failure to adhere to the signed maintenance agreement may result in a civil penalty subject to the penalty jurisdiction of the Magistrate's Court. Each separate day of a violation consititutes a new and separate violation.**
- **I will complete an annual inspection on all permanent practices included in this O&M Plan and submit the inspection report to the County's Public Works Department (400 Ball Park Road, Lexington, SC 29072) by July 1 or each year.**

If the owner is a Homeowner's Association, check here: ☐

Provide the names of all board members of the Homeowner's Association. The President must sign the agreement.

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**Signature of Owner/Agent** **Printed Name of Owner/Agent** **Date**

**Mailing Address** **City/State/Zip** **Phone Number**

**Notary Signature/Date/Stamp**

**Witness**

**Witness**

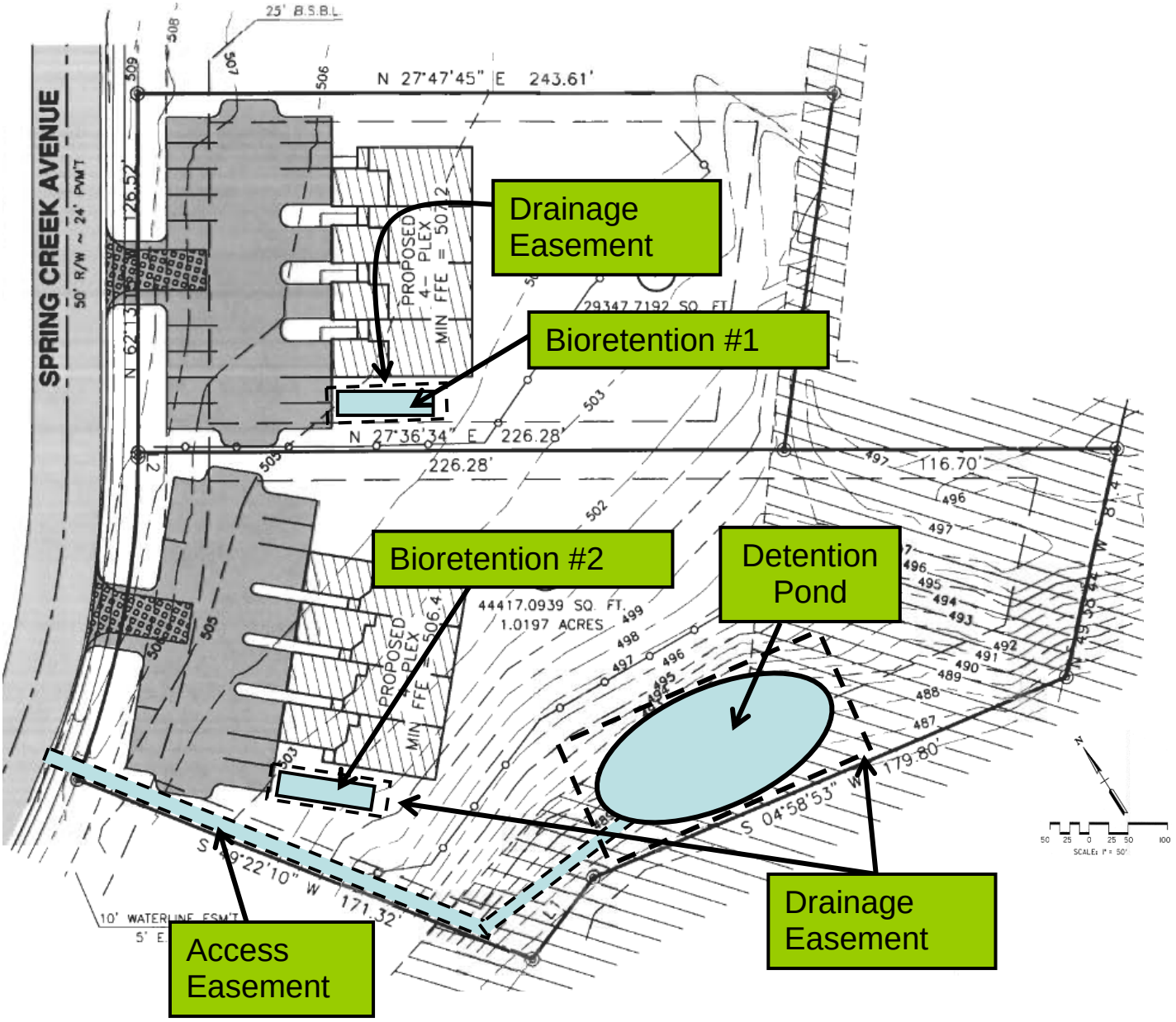
STATE OF SOUTH CAROLINA )
) ACKNOWLEDGEMENT
COUNTY OF LEXINGTON )

I, _____, Notary Public, certify that _____, personally appeared before me this day and acknowledged the execution of the foregoing instrument.

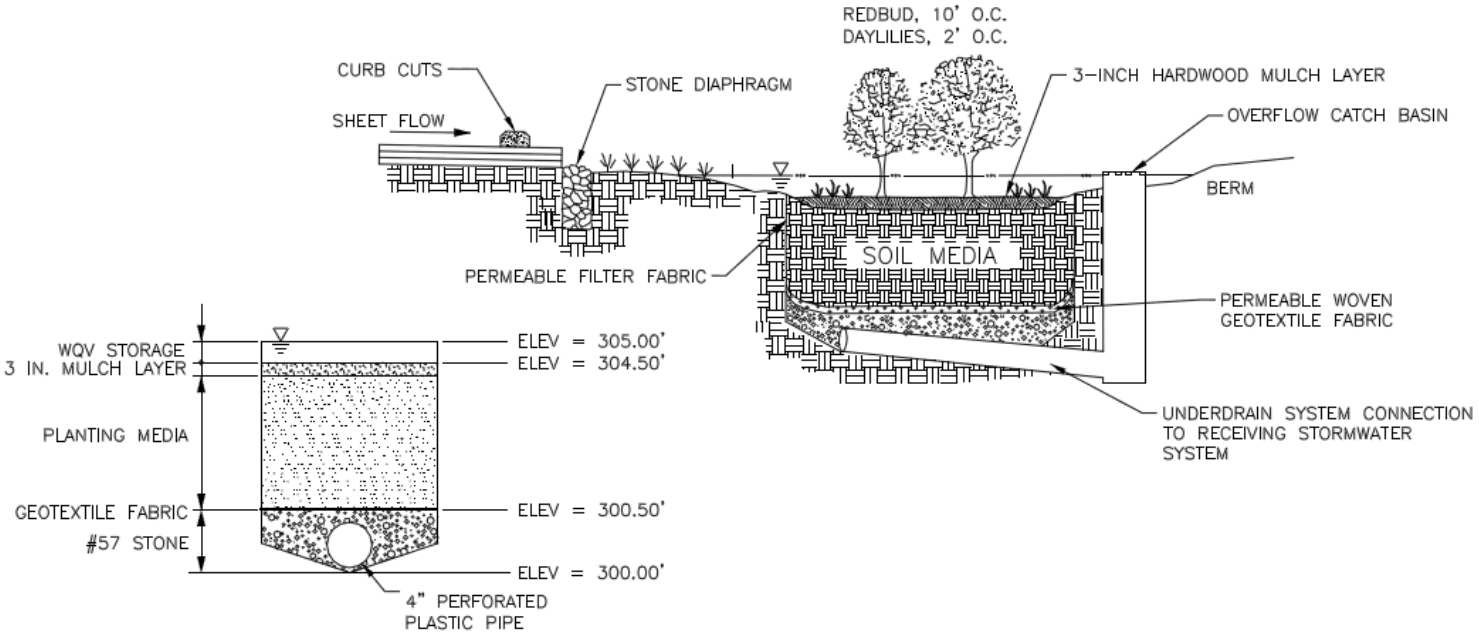
Witnessed my hand and official stamp this _____ day of _____, _____.

Notary Public for South Carolina
My Commission Expires:_____

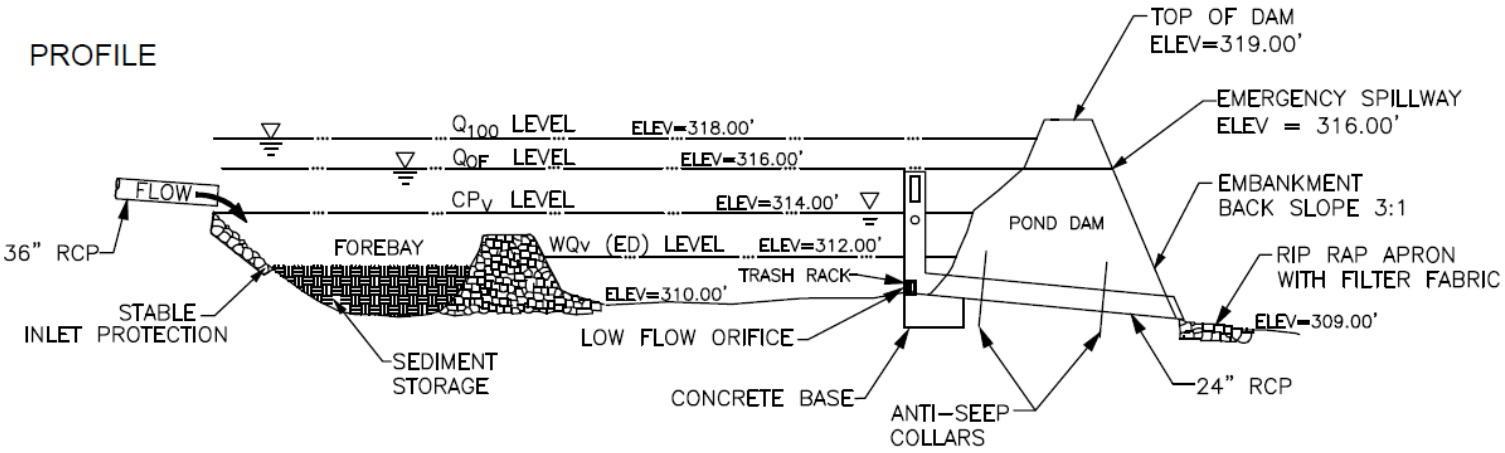
**BMP Location Plan (Example)**



**BMP Schematics Example**
**Bioretention Area 1**



**BMP Schematics Example**
**Dry Extended Detention Pond**



# Stormwater Pond

## Annual Inspection Checklist for BMP Owners

**Circle one: Dry Pond Wet Pond**

Submit Inspection Checklists by July 1 each year to:
Public Works Stormwater Division
440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201

Site name: _____ BMP Number: _____

Owner Change since last inspection? Y N
Owner Name _____
Address _____
Phone Number _____
Location: _____

Inspection Date: _____ Time: _____

Inspector: _____
Weather Conditions: _____
Was flow observed: If so, what was the appearance of the water (i.e. color, sheen, estimated flow rate, etc.)?

_____

| Maintenance Item | Inspected? (Yes/No) | Maintenance needed? (Yes/No) | Comments |
|---|---|---|---|
| Embankment (Dam) and Emergency Spillway | | | |
| Circle Type: Reinforced concrete, corrugated pipe, masonry, other _____ | | | |
| 1. Vegetation | | | |
| 2. Erosion on embankment/dam | | | |
| 3. Animal burrows | | | |
| 4. Cracking, bulging or sliding of dam | | | |
| A. Location: | | | |
| B. Describe | | | |
| 5. Drains are clear and functioning | | | |
| 6. Leaks or seeps noted on embankment | | | |
| A. Location | | | |
| B. Describe | | | |
| 7. Vegetation or rip rap lining in emergency spillway | | | |
| 8. Emergency spillway clear of obstructions | | | |
| 9. Other (describe) | | | |
| Riser and Principal spillway | | | |
| Circle Type: Reinforced concrete, corrugated pipe, masonry, other _____ | | | |
| 1. Low flow orifice blocked | | | |
| 2. Trash rack | | | |
| A. debris removal needed | | | |
| B. corrosion noted | | | |
| 3. Excessive sediment buildup in riser | | | |
| 4. Concrete/Masonry condition | | | |
| A. cracks or displacement | | | |
| B. spalling | | | |
| 5. Metal pipe condition | | | |
| 6. Control Valve operational | | | |

| Maintenance Item | Inspected? (Yes/No) | Maintenance needed? (Yes/No) | Comments |
|---|---|---|---|
| 7. Pond drain valve operational | | | |
| 8. Outfall channels functioning | | | |
| 9. Other (describe) | | | |
| Ponding Area | | | |
| 1. Water being held in ponding area at time of inspection? Y N | | | |
| 2. Undesirable vegetative growth | | | |
| 3. Debris removal needed | | | |
| 4. Visible pollution | | | |
| 5. Shoreline erosion | | | |
| 6. Visible sediment deposition in ponding area | | | |
| 6. Other (describe) | | | |
| Sediment Forebay | | | |
| 1. Sediment deposition noted | | | |
| 2. Sediment cleanout needed (over 50% full) | | | |
| Other | | | |
| 1. Erosion at stormwater outfalls into pond | | | |
| 2. Headwalls and endwalls | | | |
| 3. Encroachment into pond or easement area | | | |
| 4. Complaints from residents | N/A | | |
| 5. Public hazards (describe) | N/A | | |
| 6. Needs to be mowed | | | |
| 7. Other vegetation needs to be removed | | | |
| 8. Other - describe | | | |

Note: If any inspection items were checked "yes" for maintenance needed, list maintenance actions and dates completed below.

| **Maintenance Action Needed** | **Date Due** | **Completed? Y/N** |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
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| | | |

Inspector Signature: Printed Name:

# Stormwater Constructed Wetland
## Annual Inspection Checklist for BMP Owners

Submit Inspection Checklists by July 1 each year to:
Public Works Stormwater Division
440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201

Site name: _____ BMP Number: _____
Owner Change since last inspection? Y N
Owner Name _____
Address _____
Phone Number _____
Location: _____

Inspection Date: _____ Time: _____

Inspector: _____
Weather Conditions: _____
Was flow observed: If so, what was the appearance of the water (i.e. color, sheen, estimated flow rate, etc.)?

_____

| Maintenance Item | Inspected? (Yes/No) | Maintenance needed? (Yes/No) | Comments |
|---|---|---|---|
| **Embankment (dam) and Emergency Spillway** | | | |
| Circle Type: Reinforced concrete, corrugated pipe, masonry, other _____ | | | |
| 1. Vegetation | | | |
| 2. Erosion on embankment/dam | | | |
| 3. Animal burrows | | | |
| 4. Cracking, bulging or sliding of dam | | | |
| A. Location: | | | |
| B. Describe | | | |
| 5. Drains are clear and functioning | | | |
| 6. Leaks or seeps noted on embankment | | | |
| A. Location | | | |
| B. Describe | | | |
| 7. Vegetation or rip rap lining in emergency spillway | | | |
| 8. Emergency spillway clear of obstructions | | | |
| 9. Other (describe) | | | |
| **Riser and Principal spillway** | | | |
| Circle Type: Reinforced concrete, corrugated pipe, masonry, other _____ | | | |
| 1. Low flow orifice blocked | | | |
| 2. Trash rack | | | |
| A. debris removal needed | | | |
| B. corrosion noted | | | |
| 3. Excessive sediment buildup in riser | | | |
| 4. Concrete/Masonry condition | | | |
| A. cracks or displacement | | | |
| B. spalling | | | |
| 5. Metal pipe condition | | | |
| 6. Control Valve operational | | | |

| Maintenance Item | Inspected? (Yes/No) | Maintenance needed? (Yes/No) | Comments |
|---|---|---|---|
| 7. Pond drain valve operational | | | |
| 8. Outfall channels functioning | | | |
| 9. Other (describe) | | | |
| Permanent Pool | | | |
| 1. Ponding generally at right levels | | | |
| 2. Undesirable vegetative growth | | | |
| 3. Floatable debris removal needed | | | |
| 4. Visible pollution | | | |
| 5. Shoreline erosion | | | |
| 6. Sediment deposits noted | | | |
| 7. Other (describe) | | | |
| Sediment Forebays | | | |
| 1. Sediment deposition noted | | | |
| 2. Sediment cleanout needed (over 50% full) | | | |
| Other | | | |
| 1. Erosion at stormwater outfalls into wetland area | | | |
| 2. Headwalls and endwalls | | | |
| 3. Encroachment into pond or easement area | | | |
| 4. Complaints from residents | N/A | | |
| 5. Public hazards (describe) | N/A | | |
| 6. Needs to be mowed | | | |
| 7. Other vegetation needs to be removed | | | |
| 8. Other - describe | | | |
| Constructed Wetland Area | | | |
| 1. Vegetation healthy | | | |
| 2. Evidence of invasive species | | | |
| 3. Sediment deposits noted in wetland area (clean out when 50% full or when vegetation damage noted) | | | |

Note: If any inspection items were checked "yes" for maintenance needed, list maintenance actions and dates completed below.

| **Maintenance Action Needed** | **Date Due** | **Completed? Y/N** |
|---|---|---|
| | | |
| | | |
| | | |
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| | | |

Inspector Signature: Printed Name:

# Stormwater Bioretention Area

## Annual Inspection Checklist for BMP Owners

Submit Inspection Checklists by July 1 each year to:
Public Works Stormwater Division
440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201

Site name: _____ BMP Number: _____
Owner Change since last inspection? Y N
Owner Name_____

Address _____

Phone Number _____ Location: _____

Inspection Date: _____ Time: _____
Inspector: _____
Weather Conditions:
_____
Was flow observed: If so, what was the appearance of the water (i.e. color, sheen, estimated flow rate, etc.)?
_____

| Maintenance Item | Inspected? (Yes/No) | Maintenance needed? (Yes/No) | Comments |
|---|---|---|---|
| Treatment area | | | |
| 1. Evidence of drainage (Is water ponding less than 24 hrs after rain event?) | | | |
| 2. Signs of erosion noted (in contributing watershed or in bioretention area?) | | | |
| 3. Mulch condition – thin or decomposing? | | | |
| 4. Sediment deposits noted in treatment area? | | | |
| 5. Vegetation condition | | | |
| 6. Overflow spillway in good condition? | | | |
| 7. Wetland vegetation noted in treatment area? (evidence of poor drainage) | | | |
| 8. Other - describe | | | |

Note: If any inspection items were checked "yes" for maintenance needed, list maintenance actions and dates completed below.

| **Maintenance Action Needed** | **Date Due** | **Completed? Y/N** |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

Inspector Signature: Printed Name:

# Stormwater Enhanced Swales

## Annual Inspection Checklist for BMP Owners

**Circle one: Dry Swale Wet Swale**

Submit Inspection Checklists by July 1 each year to:
Public Works Stormwater Division
440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201

Site name: _____ BMP Number: _____
Owner Change since last inspection? Y N
Owner Name _____
Address _____
Phone Number _____
Location: _____

Inspection Date: _____ Time: _____

Inspector: _____
Weather Conditions: _____
Was flow observed: If so, what was the appearance of the water (i.e. color, sheen, estimated flow rate, etc.)?

_____

| Maintenance Item | Inspected? (Yes/No) | Maintenance needed? (Yes/No) | Comments |
|---|---|---|---|
| Channel treatment area | | | |
| 1. Evidence of trash/debris build up? | | | |
| 2. Signs of erosion noted in channel | | | |
| 3. Evidence of ponding (wetland vegetation) | | | |
| A. In dry swale, more than 12 hrs | | | |
| B. In wet swale, more than 48 hrs | | | |
| 4. Vegetation in good condition? | | | |
| Spillway systems | | | |
| 1. Dry Swale – outlet of underdrain stabilized? | | | |
| 2. Wet Swale - Check dam(s) in good condition? | | | |
| 3. Other (specify) | | | |

Note: If any inspection items were checked "yes" for maintenance needed, list maintenance actions and dates completed below.

| **Maintenance Action Needed** | **Date Due** | **Completed? Y/N** |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Inspector Signature: Printed Name:

# Storm Water Infiltration Trench

## Annual Inspection Checklist for BMP Owners

Submit Inspection Checklists by July 1 each year to:
Public Works Stormwater Division
440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201

Site name: _____ BMP Number: _____
Owner Change since last inspection? Y N
Owner Name _____
Address _____
Phone Number _____
Location: _____

Inspection Date: _____ Time: _____

Inspector: _____
Weather Conditions: _____
Was flow observed: If so, what was the appearance of the water (i.e. color, sheen, estimated flow rate, etc.)?

_____

| Maintenance Item | Inspected? (Yes/No) | Maintenance needed? (Yes/No) | Comments |
|---|---|---|---|
| Treatment area | | | |
| 1. Treatment area – free of debris/trash? | | | |
| 2. Treatment area – free of erosion? | | | |
| 3. Contributing watershed – stabilized? | | | |
| 4. Treatment area – water ponding more than 24 hrs? | | | |
| 5. Observation well(s) – water within 1 foot of bottom of trench/basin? | | | |
| 6. Signs of subsurface collapse in treatment area? | | | |
| 7. Other (describe) | | | |

Note: If any inspection items were checked "yes" for maintenance needed, list maintenance actions and dates completed below.

| Maintenance Action Needed | Date Due | Completed? Y/N |
|---|---|---|
| | | |
| | | |
| | | |

Inspector Signature: Printed Name:

# Stormwater Manufactured BMP

## Annual Inspection Checklist for BMP Owners

Submit Inspection Checklists by July 1 each year to:
Public Works Stormwater Division
440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201

Site name: _____ BMP Number: _____
BMP Name/Manufacturer

_____

Owner Change since last inspection? Y N
Owner Name _____
Address _____
Phone Number _____
Location: _____

Inspection Date: _____ Time: _____

Inspector: _____
Weather Conditions: _____
Was flow observed: If so, what was the appearance of the water (i.e. color, sheen, estimated flow rate, etc.)?

_____

**Note: The following maintenance plan items must be filled in based upon the manufacturer's recommendations and submitted to Lexington County for approval with the maintenance agreement.**

| Maintenance Item | Inspected? (Yes/No) | Maintenance needed? (Yes/No) | Comments |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Note: If any inspection items were checked "yes" for maintenance needed, list maintenance actions and dates completed below.

| **Maintenance Action Needed** | **Date Due** | **Completed? Y/N** |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

Inspector Signature: Printed Name:

## Appendix D – SCDHEC Current 303(d) List and TMDL Information

*The South Carolina Department of Health & Environmental Control's impaired waters and contaminant limits information on the most current 303(d) List and TDML information can be found:*

http://www.scdhec.gov/HomeAndEnvironment/Water/ImpairedWaters/Overview/

## Appendix D – Georgia Stormwater Management Manual, First Edition

*The Original Georgia Stormwater Management Manual Volumes 1, 2 and 3 (First Edition, August 2001) can be found:*

http://atlantaregional.com/environment/georgia-stormwater-manual

- or -

Lexington County Public Works Stormwater Division
440 Ball Park Road, Lexington, SC 29072

# Appendix E – Post Construction

- Checklist for As-Builts
- Financial Assurance and Warranty Agreement
- Grassing Agreement

# COUNTY OF LEXINGTON, SOUTH CAROLINA

## Public Works Stormwater Division

440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201 Fax: (803) 785-8593


## CHECKLIST FOR AS-BUILTS

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As-builts submitted for review to the Public Works Stormwater Division (PWSD) must include all items listed on this checklist. All as-builts should show general information such as: parcels, setbacks, easements, right-of-way, benchmarks, control points, floodway, floodplain, wetlands, etc. Items on this checklist serve as a guide and additional information may be requested if deemed necessary by the PWSD. AS-built surveys and/or analysis must be submitted and approved by PWSD before the NPDES Notice of Termination (NOT) is submitted.

### I. STORMWATER DRAINAGE

- Cross-section of drainage swales and ditches
- Pond stage:storage/discharge information and routing of all storms using the as-built information
- Water quality calculations to be included, if applicable
- Volume calculations to be included, if applicable
- As-built info for pond to include bottom, top of dam, emergency spillway elevation, 100 yr WSE, 1' (min) contour lines on pond
- Outlet structure elevation information and detail (orifices, weirs, dimensions of structures)
- Elevations and sizes of all storm drainage coming into the pond and the discharge pipe.
- Cross-section of emergency spillway
- Correct easement widths and locations
- Water quality treatment volume credit areas:
    a. Located in easements
    b. Must meet the design criteria outlined in the LDM

### II. PERMANENT WATER QUALITY BUFFERS

- Located in easement
- Must be undisturbed

### III. ROADS (if applicable)

- Centerline
- Bearing
- Distances
- Horizontal curve centerline
- BOC radius information at intersections, cul-de-sacs, islands
- Typical road cross-section
- Typical pavement section
- Road profiles to show proposed vs. as-built information with centerline elevations every 100' stationed as on the proposed plans
- Show 100' station locations on plan view for comparison
- Guard rail location if applicable

**IV. OTHERS**

- Lexington County As-Built Certification
- Show location of any buffers, wetlands, etc.
- Contact information for the engineer and developer
- Signed and sealed by the engineer or South Carolina Licensed Land Surveyor

## Engineering Certification

I hereby certify that all roads, storm drainage, ponds, easements, etc. required by Lexington County Stormwater Management to serve _____ have been completed and are satisfactory as depicted on the as-builts. To the best of my knowledge and belief, I certify that the stormwater management controls installed on the site, as shown on the Stormwater Management Facility As-Built Plan prepared by _____ and dated _____, are in general compliance with the latest approved SWPPP.

_____ _____

Date Signature

# COUNTY OF LEXINGTON, SOUTH CAROLINA

## Public Works Stormwater Division

440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201 Fax: (803) 785-8593


## FINANCIAL ASSURANCE AND WARRANTY AGREEMENT PROCESS

**Purpose**

The purpose of the Warranty Agreement is to secure funds during the two year warranty period. The warranty period begins once a project has obtained recording of a final plat. A developer/permit applicant can obtain a Warranty Agreement by securing monies with Lexington County in an amount as described in Section 8.2.1 of the Land Disturbance Manual.

A warranty agreement is not a substitute for the grassing agreement. These agreements can be executed simultaneously, but are managed separately. They cannot be combined.

**Warranty Agreement Process**

Prior to recording of the final plat the developer/permit applicant shall provide a cost estimate for unforeseen failures of curbing, asphalt (pavement) and storm drainage (pipes and boxes) that may occur during the two year warranty period. This cost estimate will be reviewed and approved by PW/SWD. An example of formulas used to calculate the warranty cost estimate for curbing, asphalt and storm drainage are provided in Section 8.2.1 of the Land Disturbance Manual. The approved cost estimate amount can be provided in the form of a check to the PW/SWD at 440 Ball Park Road, Lexington SC 29072.

**Infrastructure Inspections**

The roads and stormwater management systems that are to be dedicated to Lexington County for public maintenance shall be under warranty by the developer/permit applicant for a period of two years. The PW/SWD shall observe the infrastructure with a semiannual inspection and provide written notification to the developer/permit applicant of any observed failures. The developer/permit applicant shall provide Lexington County with a timeline for the completion of the required repairs of failures. See Section 8.2 Warranty Period of the Land Development Manual for additional information.

**Inability to Repair Failures**

If documented failures are not repaired by the timeline provided by the developer/permit applicant the PW/SWD may correct the failures and use the funds that are secured for said purpose.

**Refunds**

A developer/permit applicant must provide a written request for a Warranty Agreement refund. The request must include; name of project, amount requesting, and name and address where the refund (this should match the account owner information on the original check) is to be returned. Any interest accrued by the County while the monies are in its account will remain as the property of Lexington County.

# COUNTY OF LEXINGTON, SOUTH CAROLINA

## Public Works Stormwater Division

440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201 Fax: (803) 785-8593


## FINANCIAL ASSURANCE AND WARRANTY AGREEMENT

Project Name:

Land Disturbance Permit Number:

NPDES Permit Coverage Number:

Warranty Agreement Amount: $

Warranty Agreement Start Date:

Warranty Agreement End Date:

Developer/Permit Applicant:

Name:

Address:

Phone and Fax Number(s):

Email Address: _____

I have read the Financial Assurance and Warranty Agreement Process and I request a Warranty Agreement based on the information listed above. I agree to the Warranty Agreement amount listed above. I agree to have any documented failures repaired prior to the Warranty Agreement End Date. Otherwise, I will forfeit the Warranty Agreement amount plus interest to the County. I agree to hold Lexington County harmless and will allow the County access on the property for semiannual inspections and in the event work needs to be performed by the County.

_____ _____
Signature of Developer/Owner Print Name Date

_____ _____
Signature of County Representative Date

# COUNTY OF LEXINGTON, SOUTH CAROLINA

## Public Works Stormwater Division

440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201 Fax: (803) 785-8593


## GRASSING AGREEMENT PROCESS

**Purpose**

The purpose of the Grassing Agreement process is to allow a construction site the ability to obtain a final plat status when final stabilization across a site has not been achieved. A developer (or person financially responsible) can obtain a grassing agreement by securing monies to Lexington County in the event the developer does not, or is unable to complete the project.

For the purpose of this agreement, the definition of **final stabilization is 70 % permanent vegetative coverage across 100 % of the construction site** for all disturbed areas without buildings or pavement. Seeding with temporary grass is not considered final stabilization.

A grassing agreement is not a substitute for the warranty agreement. These agreements can be executed simultaneously, but are managed separately. They cannot be combined.

**Eligibility**

To be eligible for a grassing agreement, a developer (or person financially responsible) must meet the following criteria:

1. The site must be graded to which permanent grass and/or other methods of final stabilization can be achieved.
2. All attempts to achieve final stabilization must be taken prior to the County's acceptance of the agreement.
3. All off site areas disturbed during the construction process must have permanent stablization (i.e. an offsite sewer line going through individual homeowners yards, right of ways etc.).
4. All ponds' (detention/retention/amenity) as-built surveys must be approved by the County.
5. All recorded covenants for permanent maintenance for stormwater ponds (detention/retention/amenity) must be approved by the County.
6. Final plat must be submitted to the County
7. The developer or permit applicant must agree to the Grassing Agreement.
8. All sites greater than 1 acre shall continue with weekly, bi-weekly or monthly inspections until the site has been permanently stabilized and the grassing agreement has been released by PW/SWD and the Notice of Termination has been approved by DHEC.

**Grassing Agreement Process**

If the developer/permit applicant meets all eligibility criteria, they may apply for a grassing agreement by submitting the Grassing Agreement. The developer/permit applicant shall have the site completely stabilized by the end of the agreement period set by the PW/SWD.

The amount of money required to secure the agreement shall be at the discretion of the PW/SWD. The PW/SWD will decide the actual amount of money to be secured. **A general rule for this will be $5000 per acre or any portion of a disturbed acre**. The PW/SWD reserves the right to adjust the agreement amount.

If the site has been completely stabilized before the end of the agreement period, the developer/permit applicant will be refunded the entire amount of the agreement. Any interest accrued by the County while the monies are in its account will remain as the property of Lexington County.

**Extensions**

A developer/permit applicant can request an agreement extension in the event that unforeseen circumstances do not allow final stabilization to occur. The request must be written and submitted to the PW/SWD at 440 Ball Park Road, Lexington SC 29072, within 10 days prior to the expiration of the agreement. This request will be evaluated by the PW/SWD, and an extension will be considered. The PW/SWD reserves all rights to deny an extension request.

**Refunds**

A developer/permit applicant must provide a written request for a grassing agreement refund. The request must include; name of project, amount requesting, and name and address where the refund (this should match the account owner information on the check) is to be returned.

**Failure to Meet Grassing Agreement Requirements**

**IF THE SITE HAS NOT BEEN COMPLETELY STABILIZED BY THE END OF THE GRASSING AGREEMENT PERIOD, OR AN EXTENSION HAS NOT BEEN APPROVED, THEN THE DEVELOPER/PERMIT APPLICANT IS IN VIOLATION OF THE LEXINGTON COUNTY STORMWATER ORDINANCE. THE PW/SWD WILL ISSUE A CIVIL CITATION SUBJECT TO THE PENALTY JURISDICTION OF THE MAGISTRATE'S COURT AND THE DEVELOPER/APPLICANT WILL FORFEIT ALL MONIES SECURED FOR THE AGREEMENT. EACH DAY OF A VIOLATION CONSTITUTES A NEW AND SEPARATE VIOLATION UNTIL FINAL STABILIZATION HAS BEEN ACHIEVED.**

**Additional Conditions:**

# COUNTY OF LEXINGTON, SOUTH CAROLINA

## Public Works Stormwater Division

440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201 Fax: (803) 785-8593


## GRASSING AGREEMENT

Project Name:

TMS #:

Land Disturbance Permit Number:

NPDES Permit Coverage Number:

Acreage to Be Stabilized:

Agreement Amount: $

Agreement Date:

Agreement Expiration Date:

Developer/Owner:

Name:

Address:

Phone and Fax Number(s):

Email Address: _____

I have read the Grassing Agreement Process and I request an agreement based on the information listed above. I agree to the Agreement amount listed above. I agree to have final stabilization of this site by the Agreement Expiration Date or have a request for an extension. Otherwise I will forfeit the entire Grassing Agreement amount plus interest to the County. If the site has final stabilization before the Grassing Agreement Expiration Date, I understand that a refund request of the Grassing Agreement amount can be made and will be returned to me within 30 days. I agree to hold Lexington County harmless and will allow the County access on the property in the event that any work needs to be performed by the County to complete final stabilization.

_____ _____
Signature of Developer/Owner Print Name Date

_____ _____
Signature of County Representative Date

# Appendix F – Flood Damage Prevention Forms

- Application Instructions for Residential Construction in Special Flood Hazard Areas
- Lexington County Floodplain Development Permit Application

# COUNTY OF LEXINGTON, SOUTH CAROLINA

## Public Works Floodplain Management

212 South Lake Drive
Lexington, SC 29072
Phone: (803) 785-8121 Fax: (803) 785-5186


### APPLICATION INSTRUCTION FOR CONSTRUCTION IN SFHA

If your property lies within the special flood hazard area (SFHA), a Residential Building Permit Application and a floodplain permit may be required for the following types of work:

- Construction, reconstruction, or placement of a building;
- Additions to existing buildings;
- Renovation;
- Remodeling;
- Manufactured homes;
- Filling or regrading;
- Excavation;
- Construction or erection of levees, dams or walls;
- Storage of materials in floodplain (including gas or liquid tanks); and
- Any other activity that might change the direction, height, or velocity of floodwaters.

Residential Building Permit Applications are available from the Community Development Department's Building Inspections and Safety Division or downloaded from the Community Development Building Permits website:

Lexington County Administration Building
Fourth Floor
212 South Lake Drive
Lexington, SC 29072

http://www.lex-co.sc.gov/departments/DeptAH/communitydevelopment/Pages/buildingpermits.aspx

**Residential Building Permit Applications shall require the following:**

1. Identify and describe the work to be covered by the permit for which application is made.
2. Describe the land on which the proposed work is to be done by legal description, street address, or similar description that will readily identify and definitely locate the proposed building or work.
3. Indicate the use and occupancy for which the proposed work is intended.
4. Be accompanied by construction documents and other information as required in Section 6.1 of the Building Code Ordinance.
5. State the valuation of the proposed work if applicable.

6. Be signed by the applicant, or the applicant's authorized agent.
7. Give such other data and information as required by the Building Official.
8. A floodplain permit will be required at the time of permit application if it can be determined at that time the activity for which the permit is being pulled is located within the Special Flood Hazard Area. If the location of the activity cannot be positively determined at that time a floodplain permit may be required when such a determination can be made.

A floodplain permit application can be found in Appendix F of the Land Development Manual. Additional information about floodplain permits can be found in Chapter 11 of the Land Development Manual or from the Lexington County Floodplain Manager.

**Compliance with the Lexington County Flood Damage Prevention Ordinance shall require the following:**

**A. Single Family Construction (New Construction) in Flood Zones with Base Flood Elevations (BFEs) including Lake Murray.**

1. A foundation survey stamped and signed by a South Carolina Registered Land Surveyor. The 1-percent annual chance flood must be shown along with ground elevations taken at each corner of the structure. This must be done within 30 days of the approved footing inspection. A hold will be put on the rough-in inspection until this is satisfied.
2. **If the entire footprint of the structure is located outside of the 1-percent annual chance flood no further flood certification is required.**
3. If the foundation survey determines the footprint of the structure falls within the 1-percent annual chance flood line, the following construction requirements will apply:
    a. The lowest floor must be elevated at least 2 feet above the designated BFE.
    b. All mechanical, utility, HVAC units and ductwork, hot water heaters, washers, dryers, and all similar equipment and their operating components must be elevated to at least 2 feet above the designated BFE.
    c. Fuel storage tanks located below the BFE must be secured against flotation and lateral movement. This can be accomplished by anchoring the tank with tie down straps or anchor bolts onto a concrete slab or counterweight.
    d. Flood vents must be installed in the foundation based on the following criteria:
        - Provide a minimum of 2 openings on at least 2 separate walls having a total area of 1 square-inch for every 1 square-foot of enclosed area.
        - The bottom of openings shall be no higher than 1 foot above grade.
        - Openings may be equipped with screens, louvers, valves or other coverings or devices provided they cannot be closed at any time and permit the automatic flow of floodwater in both directions.
    e. An as-built elevation certificate must be submitted at **finished construction** signed and stamped by a South Carolina Registered Land Surveyor to verify floor elevations, flood vents, and elevation of machinery and equipment.
    f. A site inspection will be performed by the Floodplain Manager to verify the as-built elevation certificate.

**A. Single Family Construction (Additions) in Flood Zones with Base Flood Elevations (BFEs) including Lake Murray.**

1. Before a Residential Building Permit may be issued, the applicant must submit a survey with ground elevations taken at the corners of the existing residence, ground elevations taken at the proposed corners of the addition, and finished floor elevations of the existing residence and proposed addition.
2. If the elevations of the existing residence and proposed addition are above the Base Flood Elevation (BFE), a hold will be put on the rough-in inspection and the Lexington County Floodplain Administrator will verify the proposed addition based upon the submitted survey. If the addition is built according to the submitted survey the hold will be lifted from the permit.
3. If any elevations of the existing residence or proposed addition are below the Base Flood Elevation the addition will have to be built according to the above specifications for structures located in a flood zone.
4. If the addition is deemed to be a **substantial improvement** the existing residence will have to be brought into compliance with Lexington County Floodplain Management regulations as well.

**B. Single Family Construction (New Construction) in Flood Zones with no established BFE.**

1. A survey must be submitted by a South Carolina Registered Land Surveyor showing the location of the structure and the scaled location of the 1-percent annual chance flood. If the structure is located outside the scaled limits of the 1-percent annual chance flood, no further flood certification is needed.
2. If the structure is determined to be inside the 1-percent annual chance flood, the regulations for single-family construction in flood zones with designated BFE will apply. The BFE for this property will be determined by the Lexington County Floodplain Administrator or by some other approved method.

**C. Manufactured Homes**

Manufactured homes are subject to the same floodplain management regulations as described for single-family construction in flood zones. In addition the manufactured home must be anchored to a foundation system to resist flotation, collapse, and lateral movement. Flood vents will be required if the manufactured home rests on a solid foundation.

Note the requirements listed above provide a general summary of the Flood Damage Prevention Ordinance requirements. Please see the full Floodplain Ordinance and Chapter 11 of the Land Development Manual for additional information. Or contact the Lexington Floodplain Administrator at (803) 785-8121 for further information and prior to undertaking any activity within the floodplain.

# LEXINGTON COUNTY FLOODPLAIN DEVELOPMENT PERMIT APPLICATION

**Issued in:** Enter community **(Community)** **Permit #:** Enter permit #

**Issued to:**

Name: Enter name
Street or P.O. Box: Enter Street or P.O. Box
City: Enter City State: Enter State Zip: Enter zip code

**Project Location:**

FIRM Panel: Enter FIRM Panel
Parcel ID #: Enter Parcel ID #
Project Address: Enter project address

**The proposed development** is in the: ☐Floodway ☐AE ☐A

**The Base Flood Elevation** at the project site is:

Enter elevationft NAVD, Enter elevationft NGVD

**Source Documents:** Enter source documents

**For structures requiring elevation certification:**

MSL Elevation to which lowest floor is to be elevated: Enter MSL ElevationMSL
MSL Elevation to which structure is to be flood proofed: Enter MSL ElevationMSL

**Brief description and purpose of the project:**

Description/purpose: Enter brief description and purpose
Who is performing the work?
☐Homeowner ☐Contractor ☐Other: Please describe
If performed by a contractor please provide their license #: Enter license #
Have you had a Substantial Damage Estimate? ☐Yes ☐No ☐ NA
If yes, what is the percent damaged? Enter percent%

**Note that this permit is only valid for improvements to this structure up to $Enter amount.**
If improvements exceed this value, the structure may be required to be reconstructed in accordance with the existing floodplain ordinance, which may require that the structure be elevated to 2' above the base flood elevation (BFE).

Lexington County Floodplain Manager:
Chris Stone
212 South Lake Drive
Lexington, SC 29072
Phone: 803-785-8121
Fax: 803-785-5186

**Action Taken:**

☐ The proposed development is in partial conformance with the applicable Floodplain Management Standards. **A conditional approval is granted, conditions attached.**

☐ The plan and materials submitted in support of the proposed development are in compliance with applicable Floodplain Management Standards. **Permit is approved.**

**Conditions:** Enter conditions

***In accepting this permit, the applicant understands that all conditions of the permit must be met, all other regulatory permits have been obtained, an elevation certificate may be required once project is completed, and agrees to allow on-site inspections, as needed during or after construction, to determine compliance with this permit.***

Applicant: _____

Local Floodplain Administrator: _____

*I understand that the County is required to track improvements/damages to this property cumulatively for a period of 5 years. When the improvements/damages within a 5 year period exceed 50% of the market value of the house (minus the land value), I may be required to bring my house into compliance with the existing floodplain regulations. Compliance with the existing floodplain regulations may include but not be limited to elevating the finished floor to 2-feet above the 100 year flood elevation.*

Signature: _____

Printed name: _____

Date: _____

Lexington County Floodplain Manager:
Chris Stone
212 South Lake Drive
Lexington, SC 29072
Phone: 803-785-8121
Fax: 803-785-5186

# Appendix G – Definitions

# COUNTY OF LEXINGTON, SOUTH CAROLINA

## Public Works Stormwater Division

440 Ball Park Road
Lexington, SC 29072
Phone: (803) 785-8201 Fax: (803) 785-8593


## LAND DEVELOPMENT MANUAL DEFINITIONS

The following definitions apply to all chapters of the Land Development Manual except to Chapter 10. Definitions relative to floodplain management are included in the floodplain ordinance. Unless specifically defined below, words or phrases used in this manual shall be interpreted so as to give them the meaning they have in common usage and to give this manual it's most reasonable application.

As-built certification – a certification by a professional engineer that the constructed components of a development have been installed as designed and meet the design requirements established by the Stormwater Management Ordinance and the Land Development Manual.

BMP – best management practice - BMPs are structural or non-structural measures installed to manage stormwater quality and/or quantity.

Culvert - enclosed symmetrical channel of comparatively short length installed to convey water from one side of an embankment to the other, typically under a roadway, and mainly used to divert stream or rainfall runoff to prevent erosion or flooding on highways.

Contour - an imaginary line, or its representation on a contour (topographic) map, joining points of equal elevation.

Construction buffer - an area, strip, or plot of dense undisturbed perennial native vegetation, either original or reestablished, surrounding streams and rivers, ponds and lakes, wetlands, seeps, or other surface waters within which construction activities are restricted, and which are established for the primary purpose of protecting water quality and maintaining a healthy aquatic ecosystem in the receiving surface waters (from SCR100000). Construction buffers are to be maintained as undisturbed (except as provided in SCR100000) during construction activities.

"Defined" natural drainage channel - a natural drainage channel depicted on the Lexington County Soil Survey.

Detention - the collection and storage of stormwater runoff in a surface or sub-surface facility for subsequent controlled discharge to a watercourse or water body.

Ditch - a drainage channel in earth created by natural or artificial means to convey surface and/or subsurface water, flowing continuously or intermittently.

Drainage - a general term applied to the removal of surface or subsurface water from a given area either by gravity via natural means or by systems constructed so to remove water, and is commonly applied herein to surface water.

Drainage easement – A right granted from a property owner to another to maintain the drainage system. It does not convey ownership.

Drainage facility - any component of the drainage system.

Drainage system - the surface and/or subsurface system which collects and conveys stormwater and surface water, and includes all watercourses, waterbodies, and wetlands.

Easement - right granted from a property owner to another for a specific use of a portion of the owner's land. It does not convey ownership, only a specific use.

Ephemeral stream – a stream that generally has a defined natural watercourse that flow only in direct response to rainfall or snowmelt and in which discrete periods of flow persist no more than 29 consecutive days per event (from DHEC R61-68 Water Classifications & Standards June 2012).

Embankment or fill - a deposit of soil, rock or other material placed by man.

Final stabilization - means that all land-disturbing activities at the construction site have been completed and that on all areas not covered by permanent structures, either (1) a uniform (e.g., evenly distributed, without large bare areas) vegetative cover with a density of 70 percent of the natural background vegetative cover has been established excluding areas where no natural background vegetative cover is possible (e.g., on a beach), or (2) equivalent permanent stabilization measures (such as the use of landscaping mulch, riprap, pavement, and gravel) have been implemented to provide effective cover for exposed portions of the construction site not stabilized with vegetation.

Flood - a general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland or tidal waters, or the unusual and rapid accumulation of runoff of surface waters from any source.

a) Two (2) year flood - The flood having a fifty (50) percent chance of being equaled or exceeded in any given year.

b) Five (5) year flood - The flood having a twenty (20) percent chance of being equaled or exceeded in any given year.

c) Ten (10) year flood - The flood having a ten (10) percent chance of being equaled or exceeded in any given year.

d) Twenty-five (25) year flood - The flood having a four (4) percent chance of being equaled or exceeded in any given year.

e) Fifty (50) year flood - The flood having a two (2) percent chance of being equaled or exceeded in any given year.

Green infrastructure – the patchwork of natural areas that provides habitat, flood protection, cleaner air, and cleaner water through stormwater management systems that mimic nature by soaking up and storing water.

Impaired stream – a stream identified by SCDENR where required pollution controls are not sufficient to attain or maintain applicable water quality standards.

Impervious surface - a hardened surface that doesn't allow water to seep into the ground. Developed areas that are traditionally impervious include roadways, roofs, sidewalks, and parking lots. Alternative surfaces such as pervious pavers and green roofs can be included in a development design to turn traditionally impervious areas to pervious areas. Gravel parking lots, roads, and driveways are considered impervious.

Illicit connection - any man-made conveyance connecting an illicit discharge directly to a small municipal separate storm sewer.

Illicit discharge - refers to any discharge to the County's stormwater system or to a Waters of the State not totally made up of stormwater, except discharges authorized under an NPDES permit or otherwise identified in the Stormwater Ordinance.

Land development permit – a permit issued by PW/SWD that allows construction to begin on a new development or redevelopment site.

Lexington County inspector – any staff of the PW/SWD that is a Certified Erosion Prevention and Sediment Control Inspector (CEPSCI) or equal certification. CEPSCI is a program conducted by Clemson University Extension and approved by SCDHEC.

LID – Low Impact Development - an approach to land development (or re-development) that works with nature to manage stormwater as close to its source as possible.

MEP – Maximum Extent Practicable - the technology-based control standard used in the NPDES municipal storm water program against which SC DHEC Bureau of Water and permittees assess whether or not an adequate level of control has been proposed in the storm water management program (SWMP). This term is defined by §403(p)(3)(B) of the Clean Water Act, by SC Water Pollution Control Permits Regulation 61-9 122.34(a)

Non-erosive - a flow condition that does not cause erosion. Soil types and slopes should be considered in determining if a flow condition will cause erosion.

Outfall point (as it relates to new development) – the point where concentrated stormwater discharges from a new development site to a downstream property or receiving system.

Permanent water quality buffer – area of undisturbed natural or re-established vegetation that borders streams, rivers, ponds, lakes, and wetlands; permanently maintained as undisturbed vegetation.

Post-development conditions – those conditions which are expected to exist, or do exist, after alteration of the natural topography, vegetation, and rate, volume or direction of stormwater runoff, (resulting from development activity).

Pre-development conditions - those conditions, in terms of the existing topography, vegetation and rate, volume or direction of stormwater runoff, which exist at the time the applicant submits an application form for a land disturbance permit (before development activities occur).

Primary permittee – the person that has operational control over construction plans, SWPPPs, and specifications; typically the owner or developer.

Rate – volume of water passing a point per unit of times, generally expressed in cubic feet per second (cfs).

Re-development – as it applies to Land Disturbance Permits, any project such as expansion or addition that results in additional impervious area. Re-development projects greater than 5,000 $ft^2$ must obtain a permit.

Retention – the collection and storage of stormwater runoff without subsequent discharge to surface waters.

Retrofit – the process of altering an existing drainage system to function properly or more efficiently that currently exists.

Runoff: that part of rainfall that is not absorbed into the ground, transpired by plants, or stored on site but that flows over the ground to surface waters.

Secondary Permittee - the person that has day-to-day operational control of activities at a construction site, which are necessary to ensure compliance with a SWPPP for the construction site or other permit conditions; typically a contractor or builder.

SMS4 – small municipal separate storm sewer system – is defined at South Carolina Water Pollution Control Permits Regulation 61-9 122.26(b)(16) and refers to all small separate storm sewer systems that are owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States, but is not defined as “large”" or “medium” municipal separate storm sewer system. This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

Sediment – fine particulate material, whether mineral or organic, that is in suspension and is being transported, or has been transported, from its site of origin by water or air.

Sedimentation - the process which operates at or near the surface of the ground, or deposits soils, debris and other materials either on other ground surfaces or in the waterbody.

Sedimentation facility - any structure or area which is designed to retain suspended sediments from collected stormwater runoff, to include sediment basins.

Site - any tract, lot, or parcel of land or combination of tracts, lots, or parcels of land which are in common ownership, or are contiguous and in diverse ownership where development is to be performed as part of a unit, subdivision, or project.

Storm frequency - rate of likely recurrence of a rainstorm.

Stormwater Management Plan - a drainage system plan which fully indicates necessary land management and treatment measures, including a timetable of the schedule for their installation, operation, and maintenance which will effectively minimize construction and post-construction stormwater pollutant discharges, and which is approved for application to a particular area or parcel of ground. This plan includes the technical report containing all engineering calculations and construction drawings.

TMDL – Total maximum daily load – a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that load among the various sources of that pollutant.

Unified sizing criteria – a comprehensive stormwater design approach that addresses the full range of storm events up to and including the 100-year event and water quality.

Water quality volume treatment credits – better site design practices that are incorporated into the Unified Sizing Criteria stormwater design for a development to reduce the volume of stormwater runoff and minimize the pollutant loads from the development.

Watercourse - any natural or man-made conveyance used to transport runoff from one location to the next.

Waters of the State (WoS) – Per the SC Pollution Control Act, waters of the state are lakes, bays, sounds, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic Ocean within the territorial limits of the State and all other bodies of surface or underground water, natural or artificial, public or private, inland or coastal, fresh or salt, which are wholly or partially within or bordering the State or within its jurisdiction.

Watershed – area of land where all of the water that is under it or drains off of it goes into the same place.

Wetlands – those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.