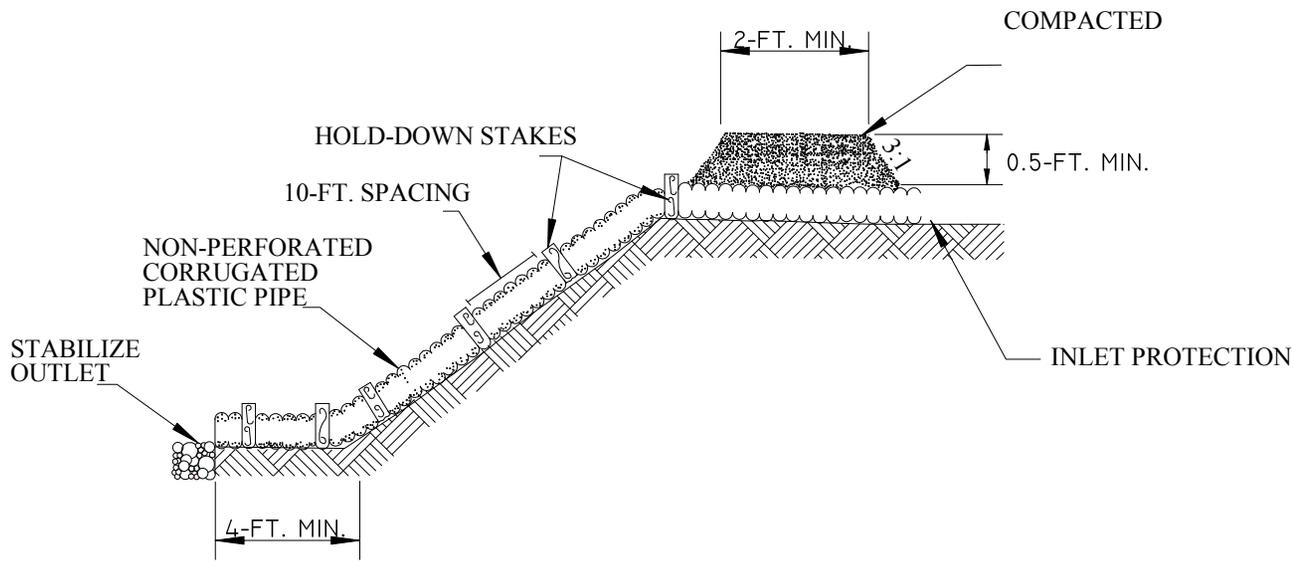

APPENDIX I

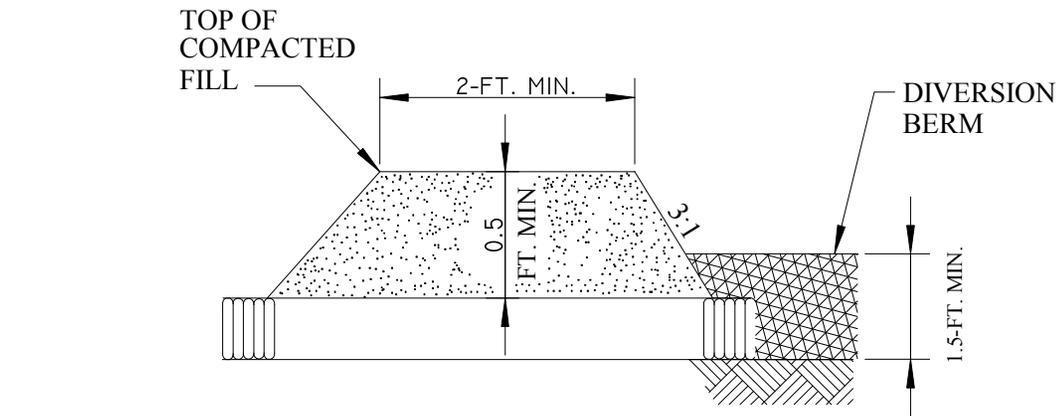
RUNOFF CONTROL STANDARD DETAILS

Standard Details

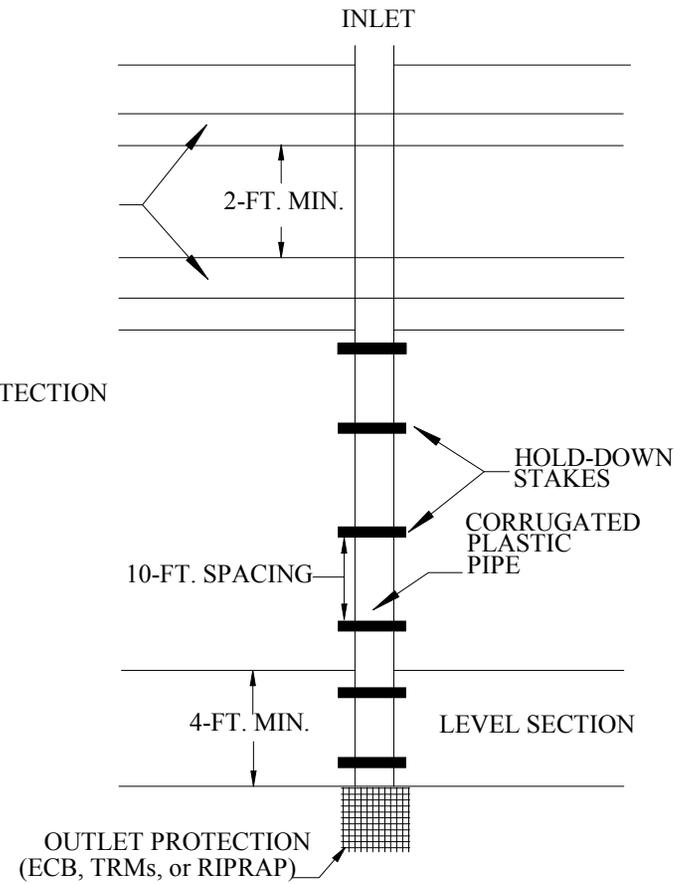
| <u>No.</u> | <u>Description</u> |
|------------|--|
| RC-01 | Pipe Slope Drain |
| RC-01 | Pipe Slope Drain (page 2) |
| RC-02 | Diversion Dike or Berm |
| RC-02 | Diversion Dike or Berm (page 2) |
| RC-03 | Diversion Swale |
| RC-03 | Diversion Swale (page 2) |
| RC-04 | Level Spreader |
| RC-04 | Level Spreader (page 2) |
| RC-05 | Temporary Stream Low Water Crossing |
| RC-05 | Temporary Stream Low Water Crossing (page 2) |
| RC-05 | Temporary Stream Low Water Crossing (page 3) |
| RC-06 | Subsurface Drain Layout |
| RC-07 | Concrete Washout - Straw Bales or Above Ground |
| RC-08 | Concrete Washout - Excavated Pit |
| RC-09 | Individual Residential Lot Controls |



LEVEL SECTION



TYPICAL PIPE SLOPE DRAIN LAYOUT



PLAN VIEW

South Carolina Department of Health and Environmental Control

PIPE SLOPE DRAIN

STANDARD DRAWING NO. RC-01 PAGE 1 of 2

NOT TO SCALE

JULY 31, 2005
DATE

PIPE SLOPE DRAIN

When and Where to Use It

Pipe slope drains are used when it is necessary for water to flow down a slope without causing erosion, especially before a slope has been stabilized or before permanent drainage structures are installed.

Installation:

Typical pipe slope drains are made of non-perforated corrugated plastic pipe.

Slope drain sections should be securely fastened together, have gasket watertight fittings, and be securely anchored into the soil.

Diversion berms or dikes should direct runoff to slope drains. The minimum depth of these dikes or berms should be 1.5–feet. The height of the berm around the pipe inlet should be a minimum of 1.5–feet high and at least 0.5–feet higher than the top of the pipe. The berm at the pipe inlet shall be compacted around the pipe. The area around the inlet shall be properly stabilized with ECBs, TRMs, riprap or other applicable stabilization techniques.

The area below the outlet must be properly stabilized with ECBs, TRMs, riprap or other applicable stabilization technique.

If the pipe slope drain is conveying sediment-laden water, direct all flows into the sediment trapping facility.

Permanent slope drains should be buried beneath the soil surface a minimum 1.5–feet.

Inspection and Maintenance:

Inspect pipe slope drain inlet and outlet points every seven (7) calendar days and within 24–hours after each rainfall event that produces $\frac{1}{2}$ –inches or more of precipitation.

The inlet should be free from undercutting, and no water should be going around the point of entry. If there are problems, the headwall should be reinforced with compacted earth or sandbags. The outlet point should be free of erosion and installed with appropriate outlet protection.

All temporary pipe slope drains should be removed within 30 days after final site stabilization is achieved or after the temporary BMP is no longer needed. Disturbed soil areas resulting from removal should be permanently stabilized.

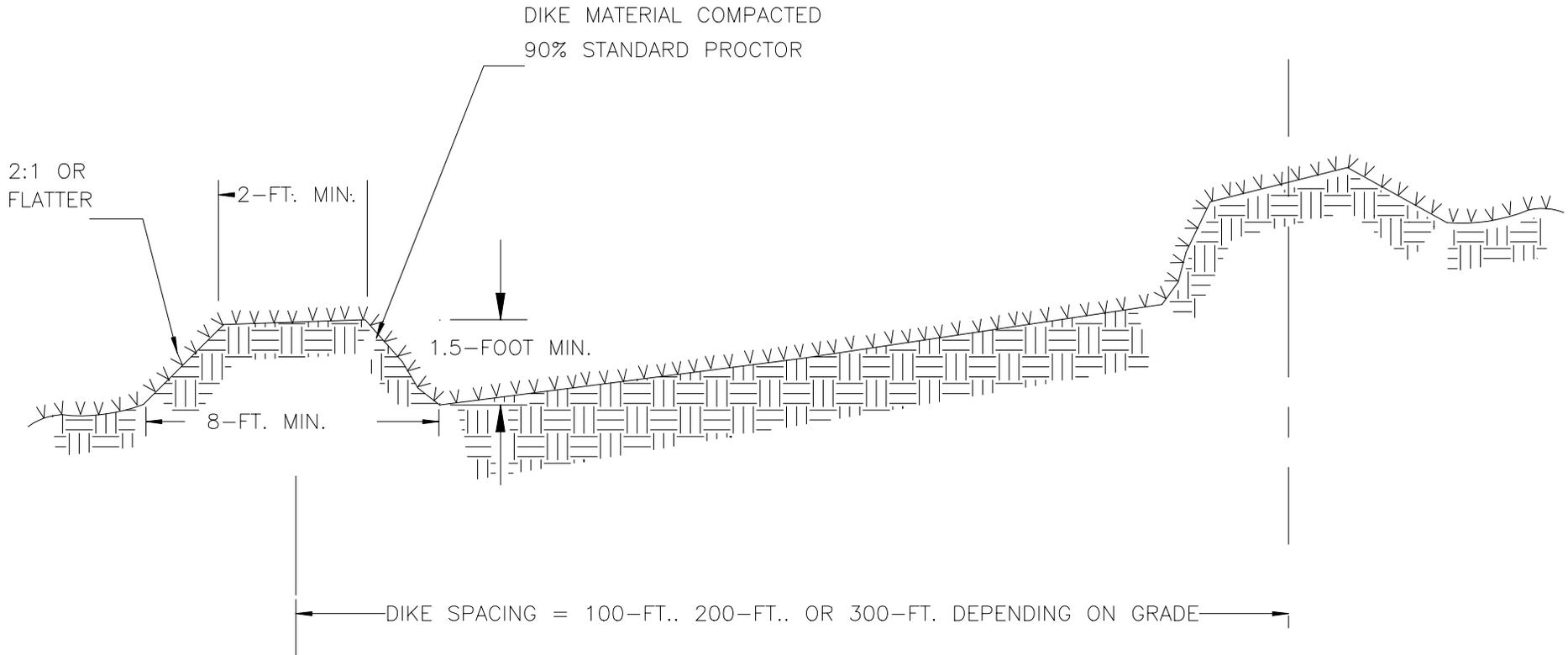
**South Carolina Department of
Health and Environmental Control**

PIPE SLOPE DRAIN

STANDARD DRAWING NO. RC-01 PAGE 2 of 2

GENERAL NOTES

JULY 31, 2005
DATE



South Carolina Department of
Health and Environmental Control

DIVERSION DIKE OR BERM

STANDARD DRAWING NO. RC-02 PAGE 1 of 2

NOT TO SCALE

JULY 31, 2005
DATE

DIVERSION DIKES AND BERMS

Installation

Slopes shall be stabilized immediately using vegetation, sod, and erosion control blankets or turf reinforcement mats to prevent erosion.

The upslope side of the dike should provide positive drainage so no erosion occurs at the outlet. Provide energy dissipation measures as necessary. Sediment-laden runoff must be released through a sediment trapping facility.

Sediment-laden runoff shall be directed to a sediment trapping facility.

Minimize construction traffic over diversion dikes and berms.

Inspection and Maintenance:

Dikes and Berms should be inspected, every seven (7) calendar days and within 24-hours after each rainfall event that produces $\frac{1}{2}$ -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.

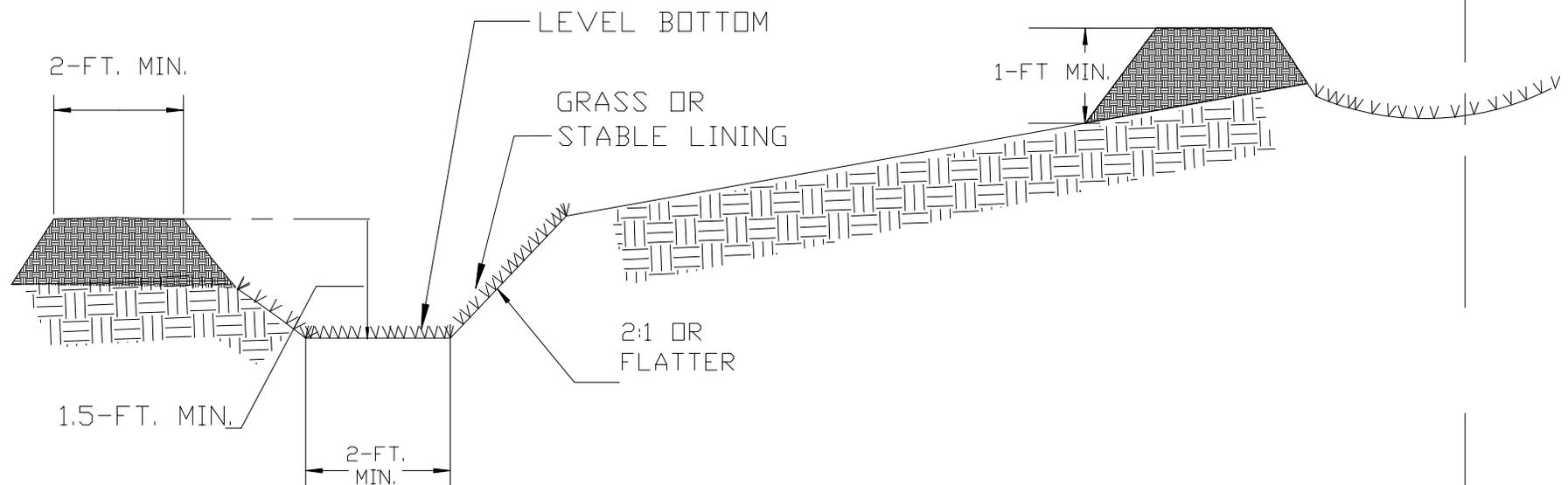
**South Carolina Department of
Health and Environmental Control**

DIVERSION DIKE OR BERM

STANDARD DRAWING NO. RC-02 PAGE 2 of 2

GENERAL NOTES

JULY 31, 2005
DATE



SWALE SPACING = 100-FT., 200-FT., OR 300-FT., DEPENDING ON SLOPE

South Carolina Department of
Health and Environmental Control

DIVERSION SWALE

STANDARD DRAWING NO. RC-03 Page 1 of 2

NOT TO SCALE

JULY 31, 2005
DATE

DIVERSION SWALE

Installation

The bottom width should be a minimum of 2–feet, and the bottom should be level.

The depth should be a minimum of 1.5–feet 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 $\frac{1}{2}$ –inches or more of precipitation and repairs made as necessary.

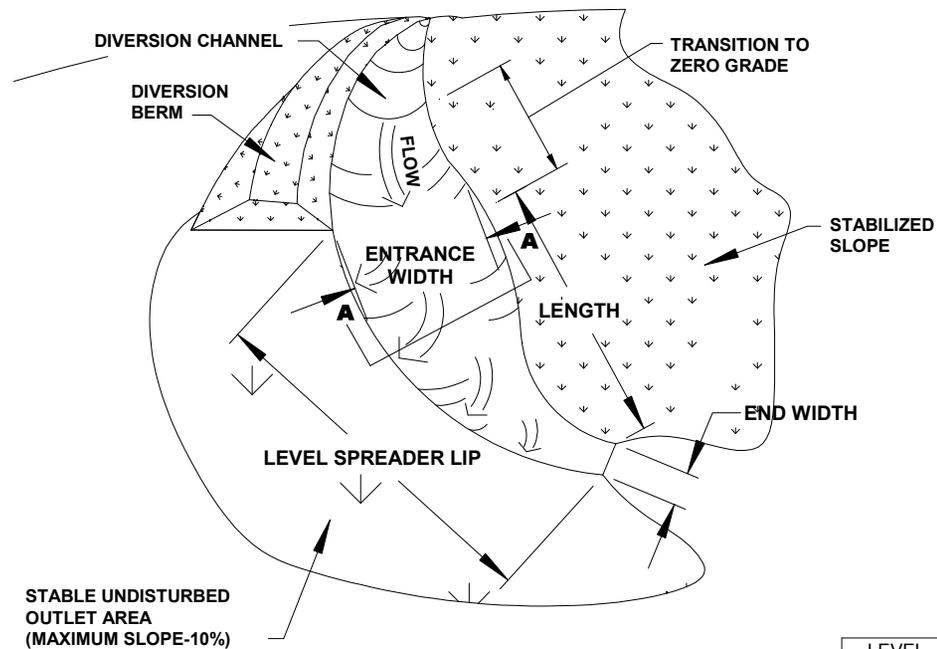
Damage caused by construction traffic or other activity must be repaired before the end of each working day.

**South Carolina Department of
Health and Environmental Control**

DIVERSION SWALE

STANDARD DRAWING NO. RC-03 PAGE 2 of 2

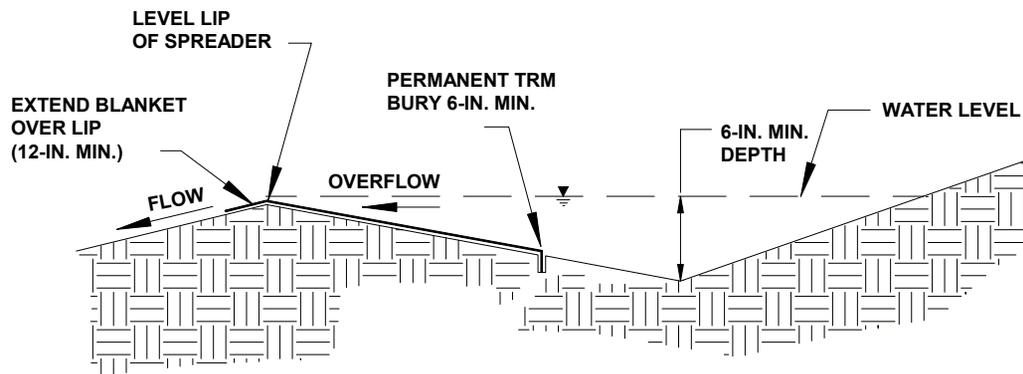
GENERAL NOTES JULY 31, 2005
DATE



PERSPECTIVE VIEW

LEVEL SPREADER

| LEVEL SPREADER | Q (cfs) | ENTRANCE WIDTH (ft) | LENGTH (ft) | END WIDTH (ft) | SPREADER LIP LENGTH (ft) | DEPTH (ft) |
|----------------|---------|---------------------|-------------|----------------|--------------------------|------------|
| 15' | | | | | | |
| | | | | | | |
| | | | | | | |



SECTION A-A

South Carolina Department of Health and Environmental Control

LEVEL SPREADER

STANDARD DRAWING NO. RC-04 PAGE 1 of 2

NOT TO SCALE

JULY 31, 2005
 DATE

Level Spreader

Description

A level spreader is a permanent outlet for dikes and diversions consisting of an excavated channel constructed at zero grade across a slope that converts concentrated runoff to sheet flow and releases it onto areas stabilized by existing vegetation. Sediment-laden waters should not be directed towards level spreaders.

When and Where to Use It:

Level spreaders should be constructed on undisturbed areas that are stabilized by existing vegetation and where concentrated flows are anticipated to occur. Diversion channels call for a stable outlet for concentrated storm water flows. The level spreader can be used for this purpose if the runoff is relatively free of sediment. If properly constructed, the level spreader will significantly reduce the velocity of concentrated storm water and spread it uniformly over a stable undisturbed area.

Design Criteria:

The lip of the level spreader should consist of a permanent Turf Reinforcement Mat (TRM) able to withstand 5-lbs/ft shear stress. The TRM should extend 10-feet below the lip and be buried at least 6-inches within the spreader, and extend at least 12-inches beyond the lip on the outside of the spreader.

Installation:

Care must be taken during construction to ensure the lower lip of the structure is level.

If there are any depressions in the lip, flow will tend to concentrate at these points and erosion will occur, resulting in failure of the outlet. This problem may be avoided by using a grade board, a gravel lip or a TRM along the exit lip of the level spreader.

If a TRM is used, it should extend 10-feet below the lip and be buried at least 6-inches within the spreader, and extend at least 12-inches beyond the lip on the outside of the spreader.

The grade of the channel transition for the last 20-feet before entering the level spreader should be less than or equal to 1 percent.

The crest of the overflow should be level (0 percent grade) to ensure uniform spreading of runoff.

Inspection and Maintenance:

The spreader should be inspected every seven days and within 24-hours after each rainfall event that produces ½-inches or more of precipitation to ensure that it is functioning correctly.

The contractor should avoid the placement of any material on the structure or prevent construction traffic across the structure.

If the spreader is damaged by construction traffic, it should be immediately repaired.

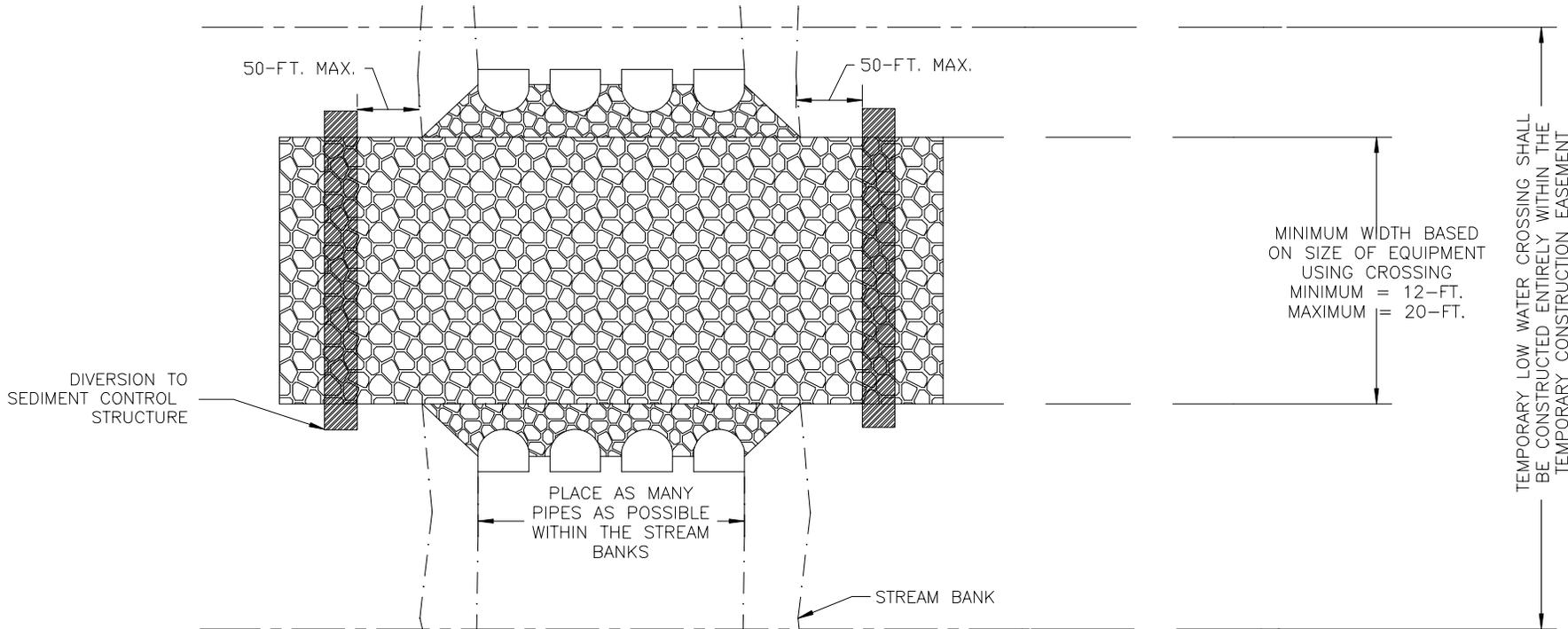
**South Carolina Department of
Health and Environmental Control**

LEVEL SPREADER

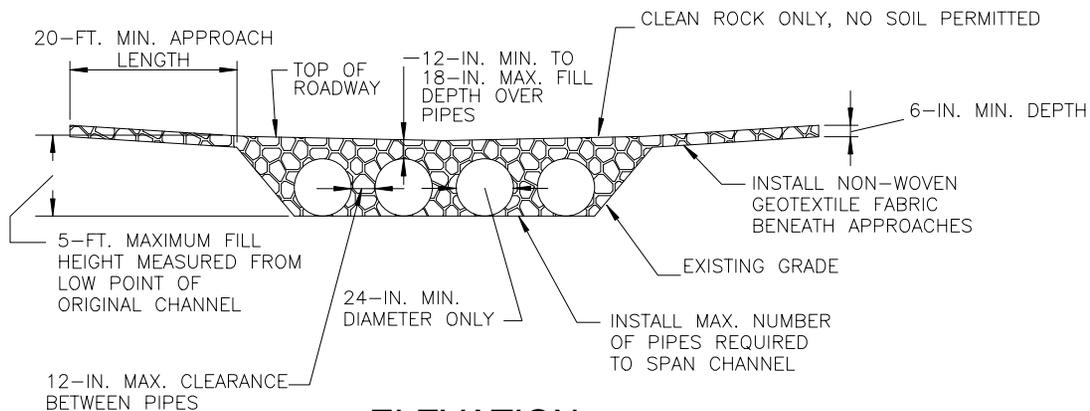
STANDARD DRAWING NO. RC-04 PAGE 2 of 2

GENERAL NOTES

JULY 31, 2005
DATE



PLAN VIEW



ELEVATION

**South Carolina Department of
Health and Environmental Control**

TEMPORARY STREAM CROSSING

STANDARD DRAWING NO. RC-05 PAGE 1 of 3

NOT TO SCALE

JULY 31, 2005
DATE

TEMPORARY STREAM LOW WATER CROSSING

Prior to constructing a temporary stream crossing, the owner/person financially responsible for the project must submit an Application for Permit to Construct Across or Along a Stream to the South Carolina Department of Health and Environmental Control (SC DHEC). Temporary stream crossings require authorization. Refer to the US Army Corps of Engineers and SCDHEC nationwide 401 and 404 regulations for information on permitting requirements.

Installation:

Crossings shall be installed prior to any other activities.

Pump-around diversions shall be installed and maintained prior to any excavation and during the installation of the crossing.

Crossings shall be placed in temporary construction easements only.

The temporary waterway crossing shall be at right angles to the stream. Where approach conditions dictate, the crossing may vary 15 degrees from a line drawn perpendicular to the centerline of the stream at the intended crossing location. However every effort shall be taken to install the crossing perpendicular to the stream. All fill materials associated with the roadway approach shall be limited to a maximum height of 2-feet above the existing flood plain elevation.

A water diverting structure such as a dike or swale shall be constructed (across the roadway on both roadway approaches) 50-feet (maximum) on either side of the waterway crossing. This will prevent roadway surface runoff from directly entering the waterway. The 50-feet is measured from the top of the waterway bank. The flow captured in these dikes and swales shall be directed to a sediment trapping structure. If the roadway approach is constructed with a reverse grade away from the waterway, a separate diverting structure is not required.

Streambank clearing shall be kept to a minimum. Do not excavate rock bottom streambeds to install the crossing. Lay the culvert pipes on the streambed "as is" when applicable. Place as many pipes as possible within the low area of the stream. Place remaining pipes required to cross the stream on the existing stream bottom.

The maximum number of pipes as possible should be placed within the stream banks with a maximum spacing of 12-inches between pipes. The minimum sized pipe culvert that may be used is 24-inches.

The length of the culvert shall be adequate to extend the full width of the crossing, including side slopes. The slope of the culvert shall be at least 0.25 feet per foot.

Coarse aggregate of clean limestone riprap with a 6-inch D50 stone or greater will be used to form the crossing. The depth of stone cover over the culvert shall be equal to $\frac{1}{2}$ the diameter of the culvert or 12-inches, whichever is greater but no greater than 18-inches.

**South Carolina Department of
Health and Environmental Control**

TEMPORARY STREAM CROSSING

STANDARD DRAWING NO. RC-05 PAGE 2 of 3

GENERAL NOTES

JULY 31, 2005
DATE

TEMPORARY STREAM LOW WATER CROSSING

Installation:

All fill materials associated with the roadway approach shall be limited to a maximum height of 2-feet above the existing flood plain elevation.

The approaches to the structure shall consist of clean stone or concrete fill only with a minimum thickness of 6-inches. The minimum approach length shall be 20-feet and the width shall be equal to the width of the structure.

Inspection and Maintenance:

Inspect crossings every seven (7) calendar days and within 24-hours after each rainfall event that produces $\frac{1}{2}$ -inches or more of precipitation. Check the structure integrity and for excessive sediment deposition and replace fill stone as needed.

Clean mud and/or sediment from the roadway and do not allow it to enter the stream.

The structure shall be removed when it is no longer required to provide access to the construction area. During removal, leave stone and geotextile fabric for approaches in place. Place fill over the approaches as part of the stream bank restoration operation.

A temporary culvert crossing should be in place no longer than 24-months.

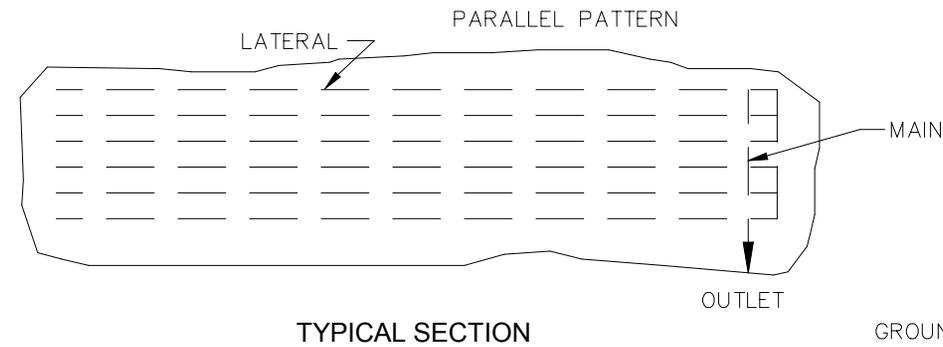
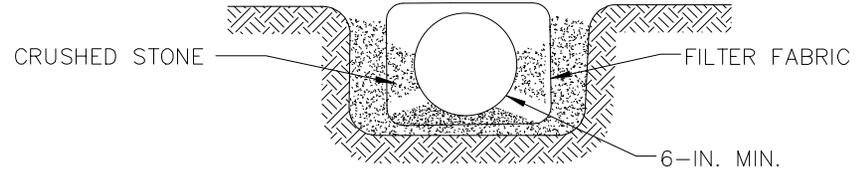
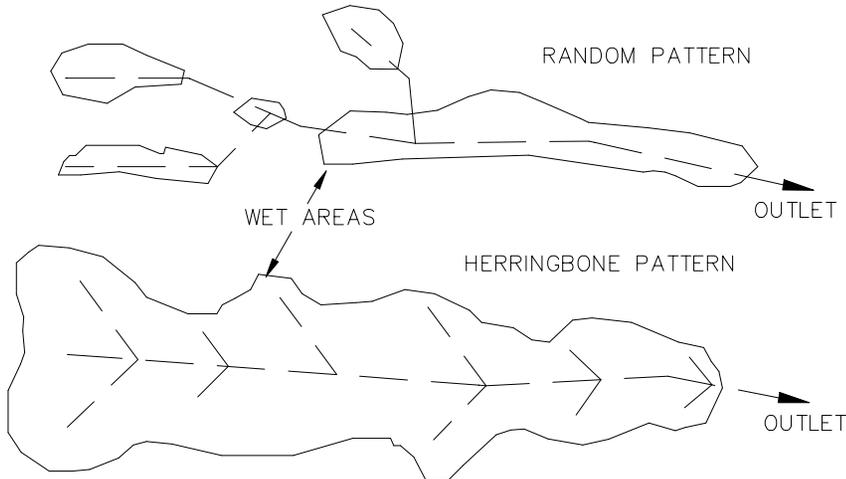
**South Carolina Department of
Health and Environmental Control**

TEMPORARY STREAM CROSSING

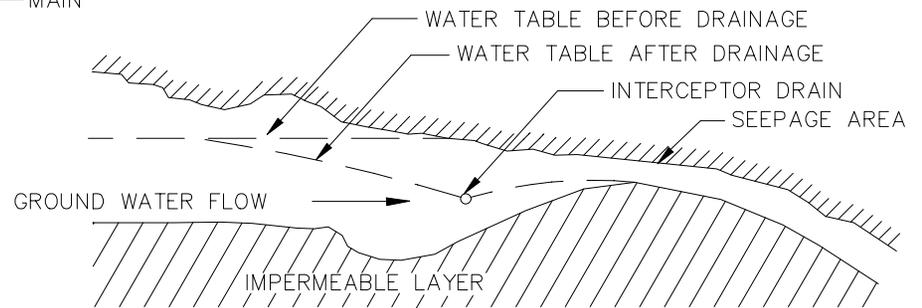
STANDARD DRAWING NO. RC-05 PAGE 3 of 3

GENERAL NOTES JULY 31, 2005
DATE

SUBSURFACE DRAIN LAYOUT



EFFECT OF SUBSURFACE DRAINAGE ON THE WATER TABLE



South Carolina Department of Health and Environmental Control

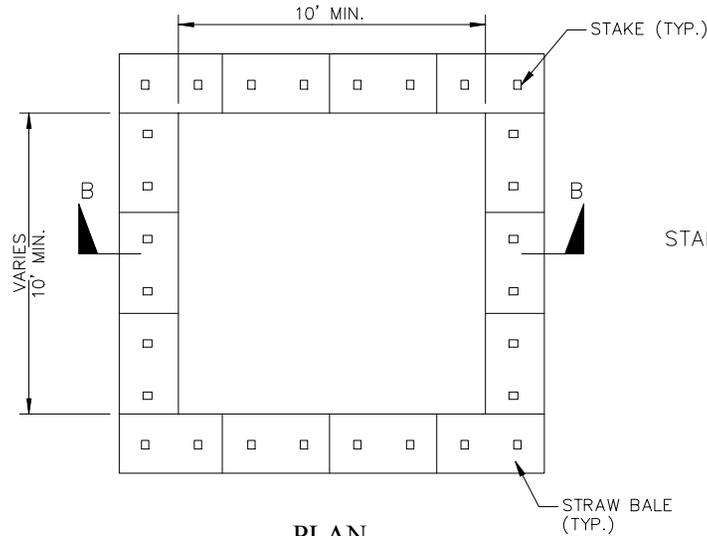
SUBSURFACE DRAIN LAYOUT

STANDARD DRAWING NO. RC-06 PAGE 1 of 1

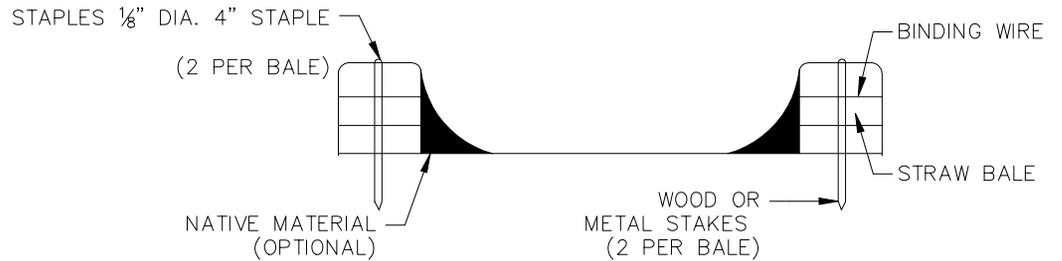
NOT TO SCALE

JULY 31, 2005
DATE

STRAW BALE BARRIER CONCRETE WASHOUT



PLAN
TYPE "ABOVE GRADE"
WITH STRAW BALES

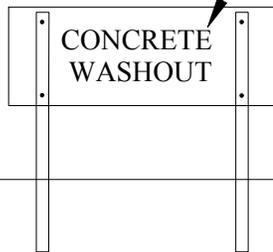


SECTION B-B

NOTES:

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. INSTALL CONCRETE WASHOUT SIGN (24"X24", MINIMUM) WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. TEMPORARY WASHOUT AREA MUST BE AT LEAST 50' FROM A STORM DRAIN, CREEK BANK OR PERIMETER CONTROL.
4. CLEAN OUT CONCRETE WASHOUT AREA WHEN 50% FULL.
5. THE KEY TO FUNCTIONAL CONCRETE WASHOUTS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR CLEAN OUT.
6. SILT FENCE SHALL BE INSTALLED AROUND PERIMETER OF CONCRETE WASHOUT AREA EXCEPT FOR THE SIDE UTILIZED FOR ACCESSING THE WASHOUT.
7. A ROCK CONSTRUCTION ENTRANCE MAY BE NECESSARY ALONG ONE SIDE OF THE WASHOUT TO PROVIDE VEHICLE ACCESS.

LETTERS A MINIMUM OF 5" IN HEIGHT



CONCRETE WASHOUT SIGN DETAIL

**South Carolina Department of
Health and Environmental Control**

CONCRETE WASHOUT

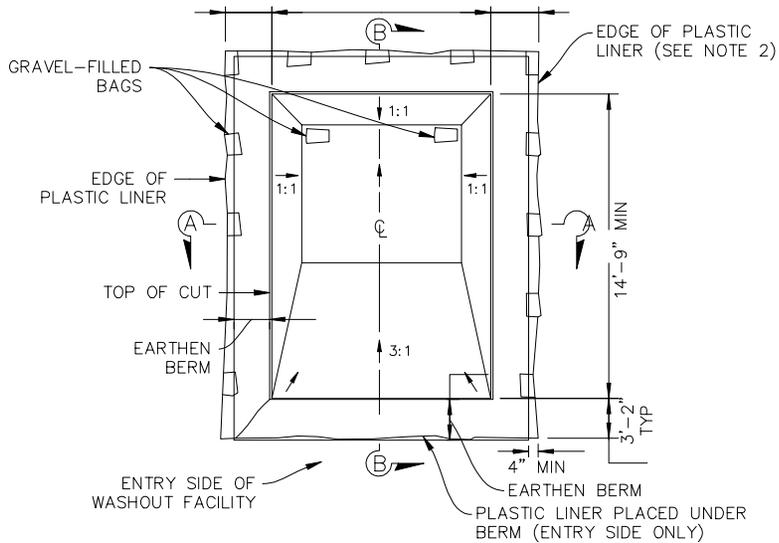
STRAW BALES OR ABOVE GROUND

STANDARD DRAWING NO. RC-07 PAGE 1 of 1

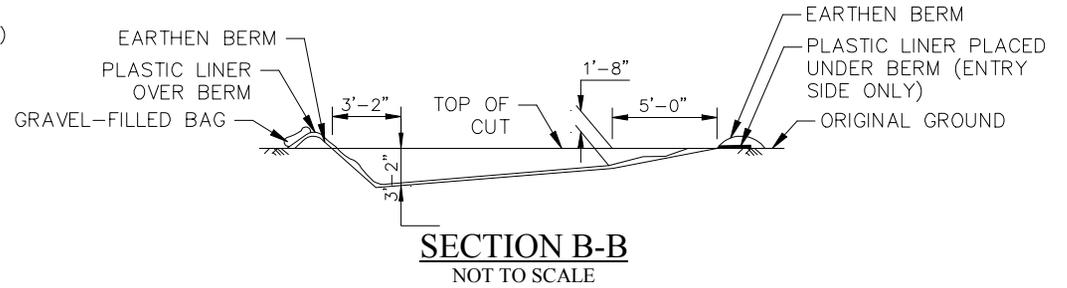
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FEBRUARY 2014
DATE

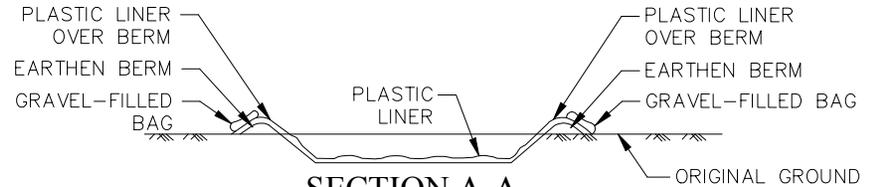
EXCAVATED PIT CONCRETE WASHOUT



PLAN
TYPE "EXCAVATED PIT"



SECTION B-B
NOT TO SCALE

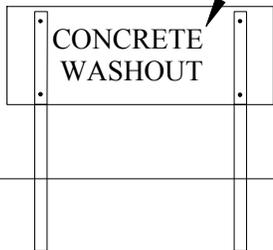


SECTION A-A
NOT TO SCALE

NOTES:

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. INSTALL CONCRETE WASHOUT SIGN (24"X24", MINIMUM) WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. TEMPORARY WASHOUT AREA MUST BE AT LEAST 50' FROM A STORM DRAIN, CREEK BANK OR PERIMETER CONTROL.
4. CLEAN OUT CONCRETE WASHOUT AREA WHEN 50% FULL.
5. THE KEY TO FUNCTIONAL CONCRETE WASHOUTS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR CLEAN OUT.
6. SILT FENCE SHALL BE INSTALLED AROUND PERIMETER OF CONCRETE WASHOUT AREA EXCEPT FOR THE SIDE UTILIZED FOR ACCESSING THE WASHOUT.
7. A ROCK CONSTRUCTION ENTRANCE MAY BE NECESSARY ALONG ONE SIDE OF THE WASHOUT TO PROVIDE VEHICLE ACCESS.

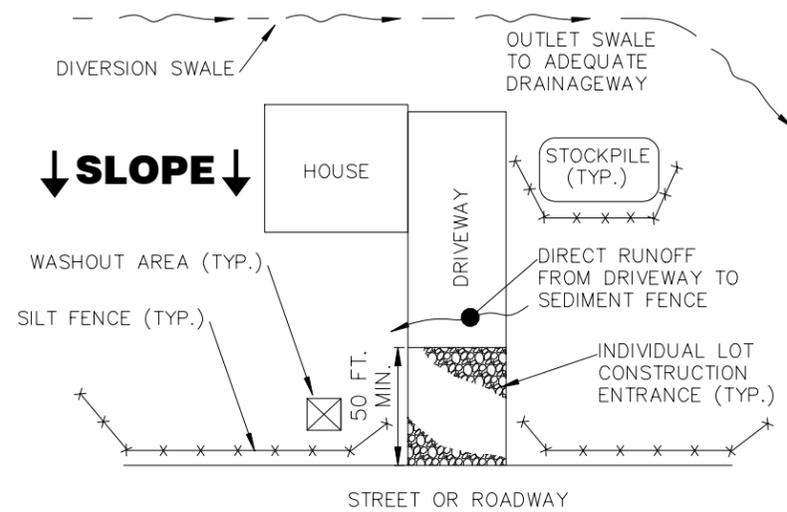
LETTERS A MINIMUM OF 5" IN HEIGHT



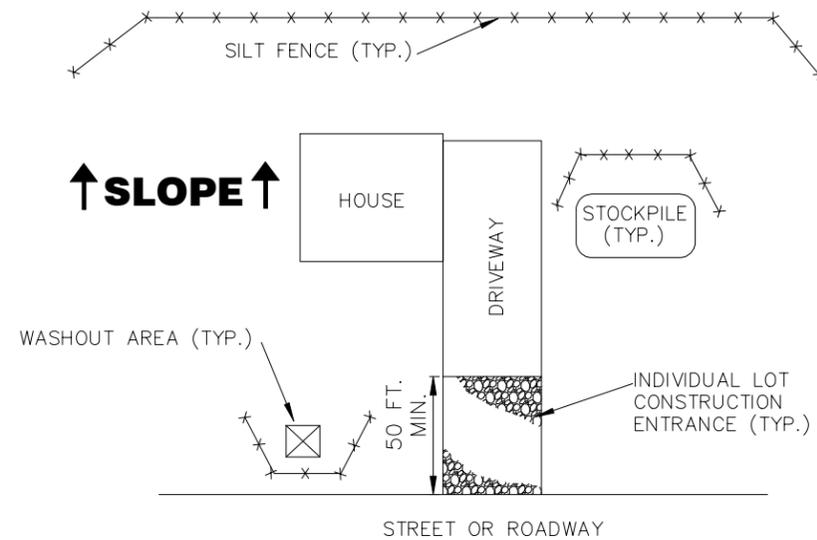
CONCRETE WASHOUT SIGN DETAIL

| | |
|--|-------------------|
| South Carolina Department of Health and Environmental Control | |
| CONCRETE WASHOUT | |
| EXCAVATED PIT | |
| STANDARD DRAWING NO. | RC-08 PAGE 1 of 1 |
| NOT TO SCALE | |
| FEBRUARY 2014 DATE | |

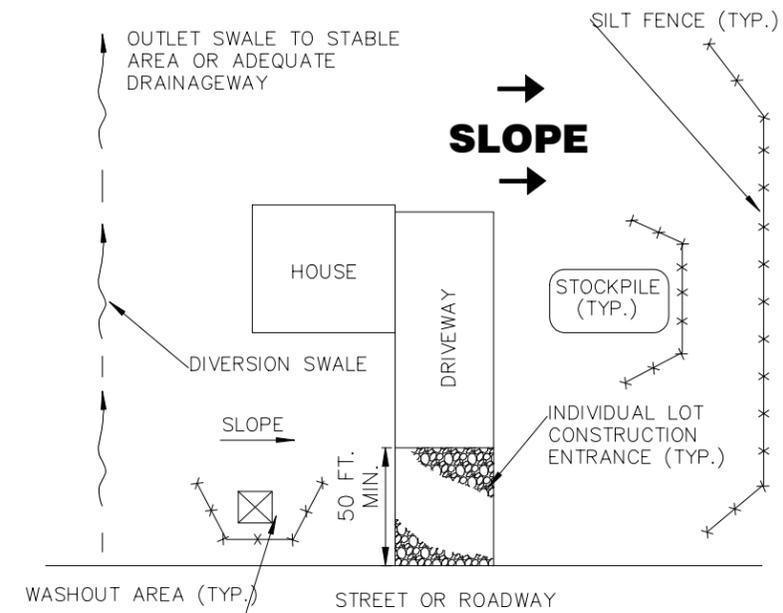
INDIVIDUAL RESIDENTIAL LOT CONTROLS



LOT EXAMPLE "A"
SLOPES TO FRONT



LOT EXAMPLE "B"
SLOPES TO REAR



LOT EXAMPLE "C"
SLOPES TO SIDE

NOTES

1. THE KEY TO FUNCTIONAL INDIVIDUAL LOT BMPS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR SEDIMENT REMOVAL.
2. NO MORE THAN ¼ ACRE TO DRAIN TO 100 L.F. OF SILT FENCE.
3. SEE INDIVIDUAL LOT CONSTRUCTION ENTRANCE, SILT FENCE, CONCRETE WASHOUT & STOCKPILE DETAILS FOR ADDITIONAL INFORMATION.
4. ADDITIONAL BMPS, SUCH AS INLET PROTECTION, ROCK CHECKS, SEDIMENT TUBES & SILT FENCE ROCK OUTLETS, MAY BE NECESSARY ON A LOT-TO-LOT BASIS. ADDITIONAL BMPS SHOULD BE IMPLEMENTED AS NOTED ON PLANS OR DIRECTED UPON SITE INSPECTIONS.
5. CONCRETE WASHOUTS MAY NOT NEED TO BE PROVIDED ON EACH INDIVIDUAL LOT WHEN A WASHOUT AREA HAS BEEN DESIGNATED AND IMPLEMENTED WITHIN THE DEVELOPMENT FOR COMMON USE.
6. PROPER WASTE DISPOSAL TECHNIQUES MUST BE IMPLEMENTED ON EACH LOT TO PREVENT STORMWATER RUNOFF CONTACT WITH EXPECTED WASTE MATERIALS (SUCH AS EXCESS BUILDING MATERIALS, TRASH, AND OTHER POTENTIAL POLLUTANTS).

South Carolina Department of
Health and Environmental Control

INDIVIDUAL LOTS

RESIDENTIAL BMPS CONTROLS

STANDARD DRAWING NO. RC-09 Page 1 of 1

NOT TO SCALE

FEBRUARY 2014
DATE