

## **SECTION 5 – STORMWATER POLICY**

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## 5.1. Stormwater Management Standards and Permitting

In addition to the provisions of drainage that is intended to move stormwater safely thought the City and avoid flooding damage or safety risks, there is a need to clean stormwater to maintain the health of the ditches in the community by reducing or eliminating pollutants before they reach their destination. Avoidance, Minimization, and Mitigation can be applied as part of a stormwater management plan. Without proper stormwater management, all development will increase stormwater runoff volume and pollutant loading; thus, all developments shall be in conformance with Texas Commission on Environmental Quality (TCEQ) stormwater permitting requirements.

## 5.2. Storm Water Discharges for Construction Activities

### A. Requirements for obtaining stormwater general permit coverage for construction projects that will disturb 5 or more acres, whether on their own or as part of a larger common plan of development.

When you disturb 5 acres or more of land or are part of a larger common plan of development that will disturb 5 or more acres of land, you must follow these steps before discharging storm water to any surface water in the state of Texas:

- Review your facility's compliance history ranking:
  - If your facility is new or has a ranking of "high" or "average," continue to Step 2.
  - If it is "poor," then your facility is not eligible for coverage under a general permit. You must apply for an individual permit instead.
- Read the general permit (TXR150000) to make sure it applies to your situation.
- Prepare and implement a Storm Water Pollution Prevention Plan. For more details, see Part III of General Permit TXR150000.
- Submit an original completed Notice of Intent (NOI) form with an original signature and fee as noted on the NOI.
- Before starting construction, post a copy of the Site Notice at the construction site. Leave the notice posted until construction is completed.
- Site Notice for Primary Operators of Large Construction Activities
- Site Notice for Secondary Operators of Large Construction Activities

### B. Requirements for small construction sites--those that disturb from 1 to less than 5 acres

A construction general permit (TXR150000) is for construction activities disturbing at least 1 but less than 5 acres or is part of a common plan of development disturbing at least 1 but less than 5 acres.

You will need to follow these steps to discharge storm water from a small construction site to any surface water in the state:

- Review your facility's compliance history ranking:
  - If your facility either does not have a compliance history ranking or has a ranking of "high" or "average," continue with Item 2.
  - If it is "poor," then your facility is not eligible for coverage under a general permit but it may be eligible under an individual industrial wastewater permit.
- Read the general permit (TXR150000) to make sure it applies to your situation.
- Adhere to the requirements of the general permit (TXR150000).
- Prepare and implement a Storm Water Pollution Prevention Plan. For more details, please refer to Part III of the general permit (TXR150000).
- Sign and post a construction site notice.
- At least 2 days before beginning construction, provide a copy of the site notice to the operator of any Municipal Separate Storm Water Sewer System (MS4) into which storm water will be discharged.

MS4s include streets, channels, gutters, ditches or anything else that is publicly owned, designed or used to collect or transport storm water.

As long as you meet the conditions of this general permit, you are authorized to discharge storm water.

No notice of intent (NOI), notice of termination (NOT), or fee is required under this option—as long as the requirements of this general permit are followed.

**C. Requirements for small construction sites--those that disturb less than 1 acre**

If your construction project disturbs less than 1 acre and is not part of a larger common plan of development, coverage under General Permit (TXR150000) is not required.

If your project is part of a larger plan, the total number of acres disturbed under that larger plan must be considered when determining how this general permit (TXR150000) applies to you.

A construction activity is part of a larger common plan of development if it is completed in one or more of the following ways:

- in separate stages
- in separate phases
- in combination with other construction activities

It is identified by the documentation that identifies the scope of the project including such things as the following:

- plats
- blueprints
- marketing plans
- contracts
- building permits
- public notice or hearing
- zoning requests

It can include one operator or many operators.

**Example:** A subdivision is being built. You are grading 0.75 acres, another company is clearing 4 different acres, and a contractor is excavating another 0.5 acres. In this case, the total area that would be disturbed is 5.25 acres, so **each operator** would fall under the requirements associated with disturbing 5 or more acres.

### 5.3. Erosion Control Measures

There are two types of water erosion control measures; those that prevent initial movement (cover factor, non-structural measures) and those that reduce sediment from moving water (practice factor, structural measures). Erosion control measures must be properly designed, installed and maintained if they are to accomplish their intended purpose and effectiveness.

#### 1. Non-structural Erosion Control Measures:

a. Non-structural erosion control measures provide the best means of managing sediment from disturbed lands by preventing soil movement. Dissipating the kinetic energy of rainfall is by placing cover (e.g., straw, burlap, mulch, etc.) over disturbed areas to prevent initial sediment transport.

One or more effective practices are the use of vegetation. Vegetation measures can provide temporary cover to help control erosion during construction and permanent cover to stabilize a site after construction is completed. The measures include the use of sod, planting of temporary cover crops and establishing permanent cover crops.

Two or more different types of seeds must be used and usually with a hydro mulch when establishing a permanent dry land grass cover. It is important to establish vegetative cover as soon as possible in order to reduce erosion. An approved native seed mix design shall be used to reestablished vegetative cover in the City right-of-way. Hydro mulching is essential in establishing good stands of grass on moderate to steep slopes, and on other areas where it is difficult to establish vegetation.

#### 2. Structural Erosion Control Measures:

a. Once erosion commences due to water, structural measures have to be utilized to reduce sediment transport from disturbed lands.

#### A. Performance Objectives:

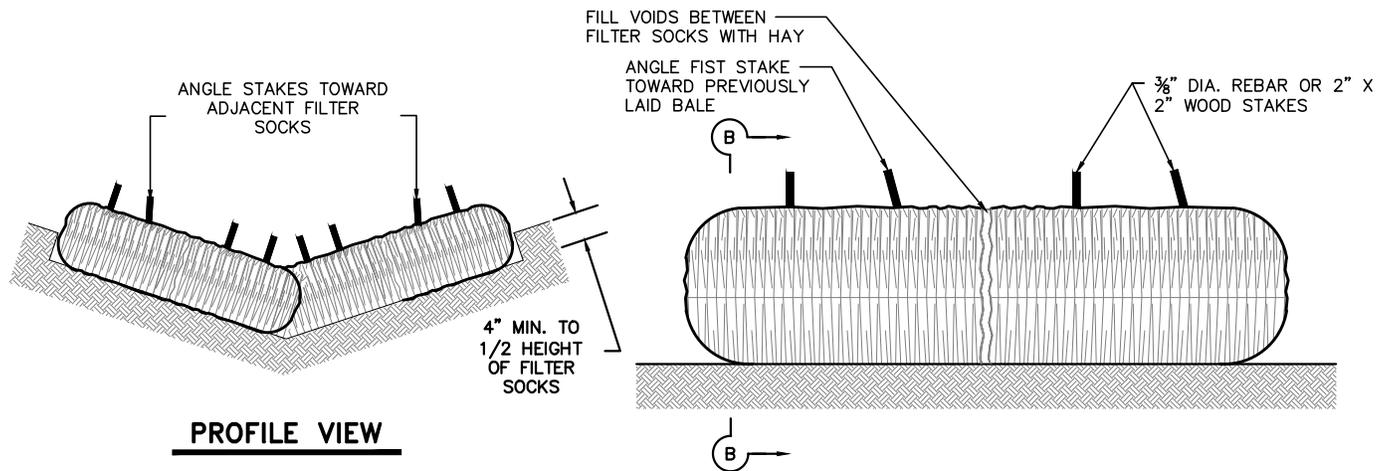
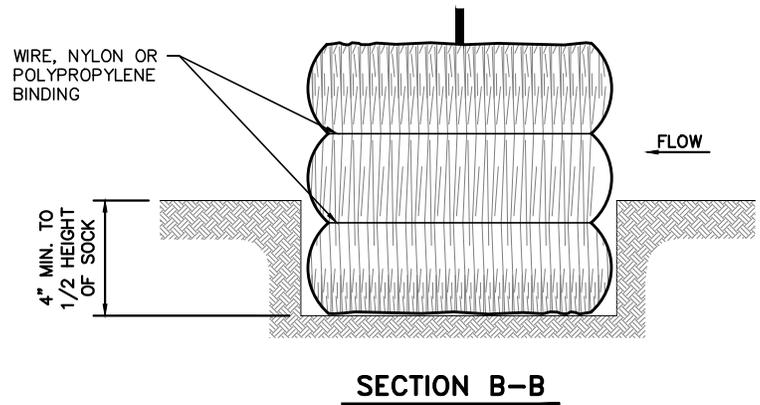
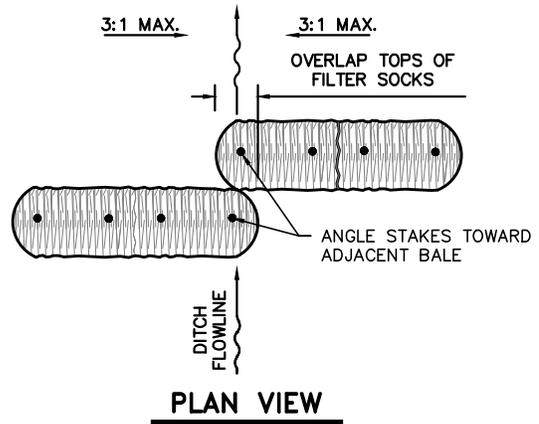
1. The primary performance objectives of an erosion control plan include:

- a. Conduct all land disturbance activities in a manner that effectively reduces accelerated soil erosion and reduces sediment transport and offsite deposition.
- b. Design and construct all temporary or permanent facilities for the conveyance of water around, through, or from the disturbed area to limit the flow of the water non-erosive velocities.
- c. Remove sediment caused by accelerated soil erosion from surface runoff water before it leaves the site.
- d. Stabilized the areas of land disturbance with permanent vegetative cover or stormwater quality control measures.

Timing of implementation is one of the most critical factors involved in the control of erosion from developing and redeveloping sites.

NOTES:

1. FILTER SOCKS SHALL BE A MINIMUM OF 8" DIAMETER.
2. FILTER SHALL BE BOUND BY EITHER WIRE NYLO OR POLYPROPYLENE STRING. THE FILTER SOCKS SHALL BE COMPOSED ENTIRELY OF VEGETABLE MATTER.
3. FILTER SOCKS SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4" AND WHERE POSSIBLE 1/2 THE HEIGHT OF THE HAY SOCK.
4. FILTER SOCKS SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT SOCKS. THE SOCKS SHALL BE PLACED WITH BINDINGS PARALLEL TO THE GROUND.
5. FILTER SOCKS SHALL BE SECURELY ANCHORED IN PLACE WITH 3/8" DIA. REBAR OR 2" X 2" WOOD STAKES, DRIVEN THROUGH THE FILTER SOCKS. THE FIRST STAKE SHALL BE ANGLED TOWARDS THE PREVIOUSLY LAID SOCK TO FORCE THE HAY SOCKS TOGETHER.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTION ONLY AND MAY BE MODIFIED BY THE ENGINEER.
7. NO HAY BALES ARE ALLOWED.



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**STW-1**

HAY SOCKS EROSION CONTROL  
DETAILS

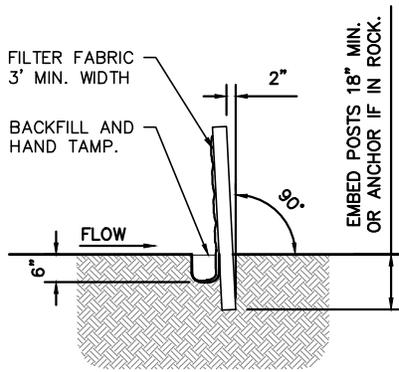
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PUBLIC WORKS DEPARTMENT

SCALE: N.T.S.

REVISED: IP/OC

DATE: MARCH, 2014

DRAWN BY: RMM



**SECTION A-A**

**GENERAL NOTES**

1. THE GUIDELINES SHOW HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

**SEDIMENT CONTROL FENCE USAGE GUIDELINES**

A SEDIMENT CONTROL FENCE MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUNOFF. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED.

SEDIMENT CONTROL FENCE SHOULD BE SIZED TO FILTER A MAX. FLOW THROUGH RATE OF 100 GPM/FT<sup>2</sup>. SEDIMENT CONTROL FENCE IS NOT RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA LARGER THAN 2 ACRES.

CONNECT THE ENDS OF SUCCESSIVE REINFORCEMENT SHEETS OF ROLLS A MIN. OF 6 TIMES WITH HOG RINGS

4' MIN. STEEL WOOD POSTS SPACED AT 6' TO 8'. SOFTWOOD POSTS SHALL BE 3" MIN. DIA. OR NOMINAL 2"x4". HARDWOOD POSTS SHALL HAVE A MIN. CROSS SECTION OF 1.5"x1.5".

FASTEN FABRIC TO TOP STAND OF WELDED WIRE MESH (W.W.M.) BY HOG RINGS OR CORD AT A MA. SPACING OF 15".

ATTACH THE W.W.M. AND FABRIC ON END POSTS USING 4 EVENLY SPACED STAPLES FOR WOODEN POST (OR 4 T-CLIPS OR SEWN VERTICAL POCKETS FOR STEEL POSTS) (TYPICAL)

GALVANIZED W.W.M. (12.5 GA. MIN.) MAX OPENING SIZE SHALL BE 2"x4"

WOVEN FILTER FABRIC

PLACE 4" TO 6" OF FABRIC AGAINST THE TRENCH SIDE AND APPROX. 2" ACROSS TRENCH BOTTOM IN UPSTREAM DIRECTION. MINIMUM TRENCH SIZE SHALL BE 6" SQUARE. BACKFILL AND HAND TAMP.

**PLAN SHEET LEGEND**

SEDIMENT CONTROL FENCE — (SCF) —

TEMPORARY SEDIMENT CONTROL FENCE — DETAILS



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**STW-2**

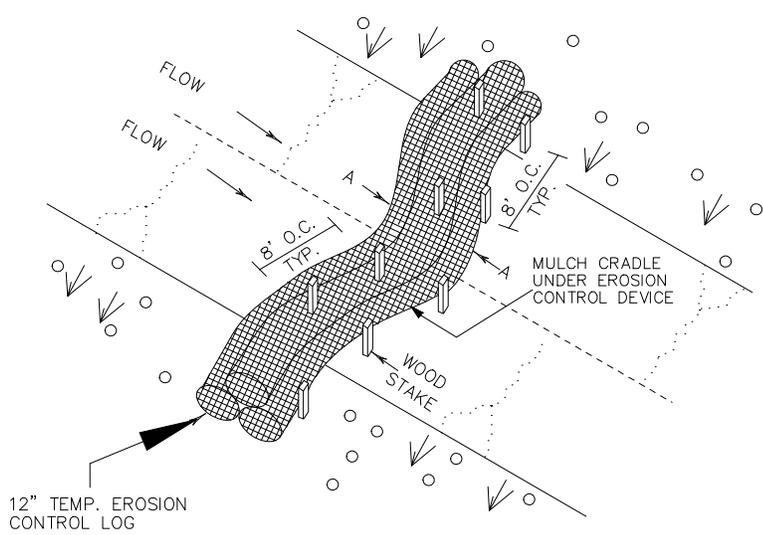
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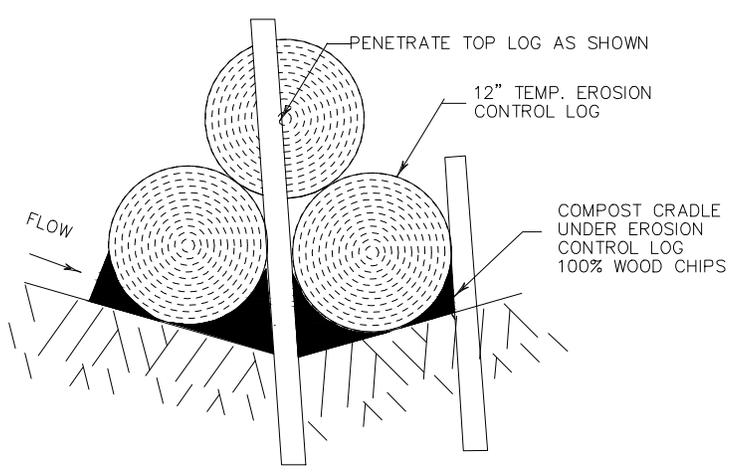
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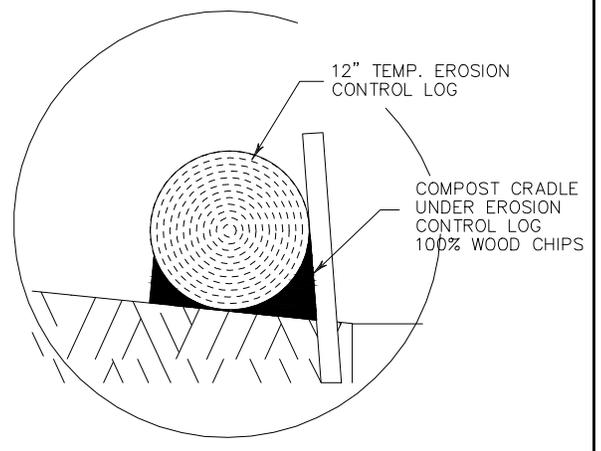
PLANS SHEET LEGEND



DITCH LINE SEDIMENT TRAP



DITCH LINE SEDIMENT TRAP A-A



COMPOST CRADLE



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**STW-3**

TEMPORARY EROSION CONTROL LOGS - 1

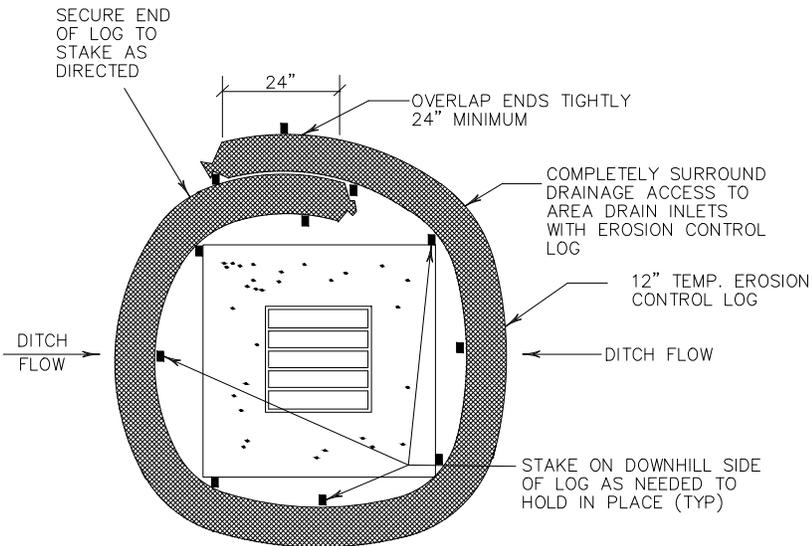
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**DROP INLET SEDIMENT TRAP**

NTS  
 (DI-ST)

PLANS SHEET LEGEND

(DI-ST)  
 DROP INLET SEDIMENT TRAP

(CI-ST)  
 CURB INLET SEDIMENT TRAP

SEDIMENT BASIN & TRAP USAGE GUIDELINES

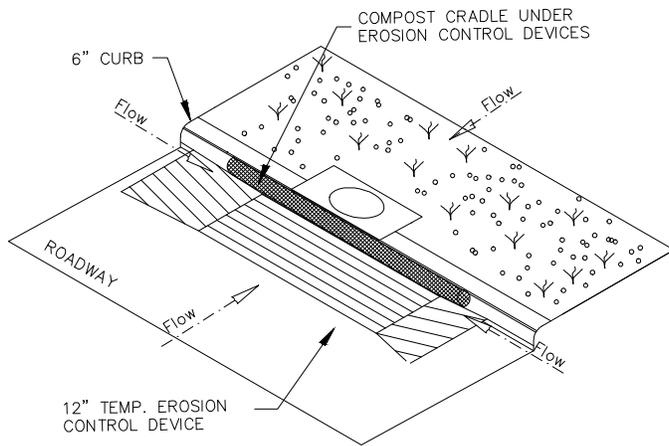
A sediment trap may be used to precipitate sediment out of runoff draining from an unstabilized area.

Traps: the drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Sediment traps should be placed in the following locations:

1. Immediately preceding drain inlets
2. Just before the drainage enters a water course
3. Just before the drainage leaves the right of way
4. Just before the drainage leaves the construction limits where drainage flows away from the project

The trap should be cleaned when the capacity has been reduced by 1/2 or the sediment has accumulated to a depth of 1', whichever is less. Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.



**CURB INLET SEDIMENT TRAP**

NTS  
 (CI-ST)

GENERAL NOTES

1. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED. MAXIMUM LENGTH OF LOGS SHALL BE 30' FOR 12" DIAMETER LOGS.
2. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
3. STUFF LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE DENSITY THAT WILL HOLD SHAPE WITHOUT EXCESSIVE DEFORMATION.
4. STAKES SHALL BE 2" X 2" WOOD 4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG.
5. COMPOST CRADLE MATERIAL IS INCIDENTAL AND WILL NOT BE PAID FOR SEPARATELY.

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**STW-4**

**TEMPORARY EROSION CONTROL LOGS - 2**

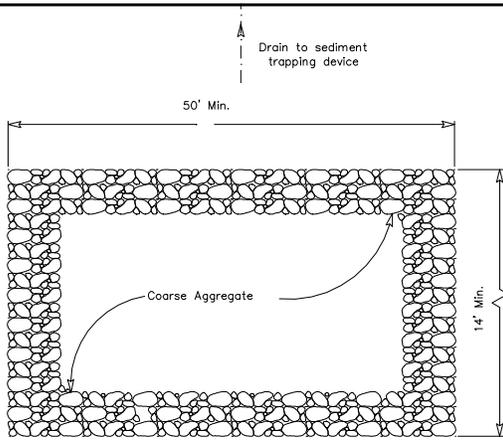
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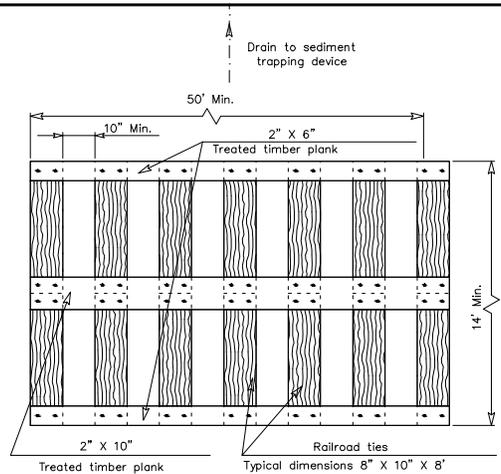
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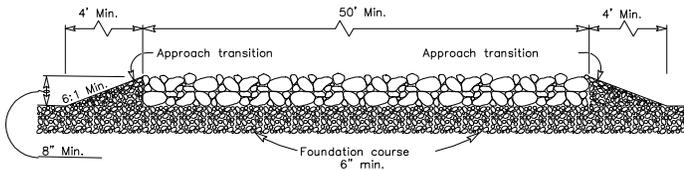
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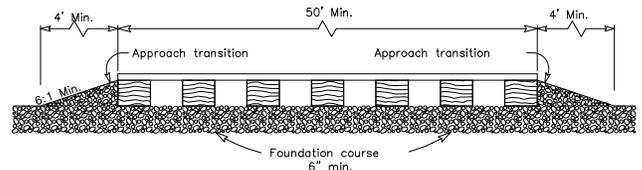
PLAN



PLAN



PROFILE



PROFILE

CONSTRUCTION EXIT (TYPE 1)

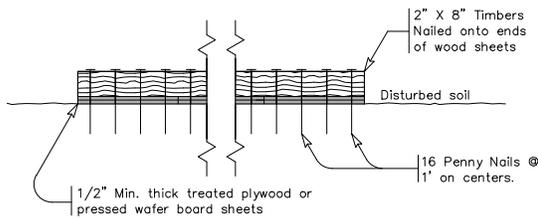
GENERAL NOTES

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown herein are suggestions only and may be modified by the Engineer.

CONSTRUCTION EXIT (TYPE 2)

GENERAL NOTES

1. The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50'.
2. The treated timber planks shall be attached to the railroad ties with 1/2" x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown herein are suggestions only and may be modified by the Engineer.

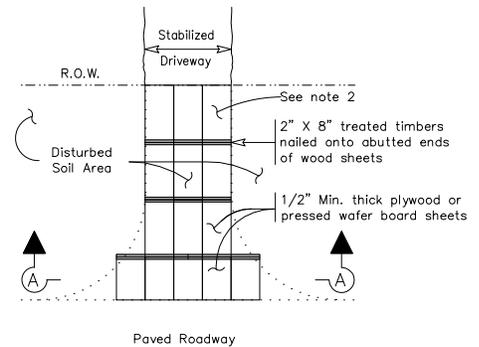


SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

GENERAL NOTES

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown herein are suggestions only and may be modified by the Engineer.



PLAN

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STW-5

TEMPORARY EROSION CONTROL  
CONSTRUCTION EXIT



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