

COUNTY OF SANTA CRUZ



CONSTRUCTION SITE STORMWATER POLLUTION CONTROL BMP MANUAL

CONTAINING STANDARDS FOR BEST MANAGEMENT PRACTICES (BMPS) TO BE
IMPLEMENTED DURING CONSTRUCTION TO CONTROL EROSION, SEDIMENT AND
STORMWATER POLLUTION

WITHIN THE UNINCORPORATED PORTION OF SANTA CRUZ COUNTY

October 2011 EDITION

PLANNING DEPARTMENT

PURPOSE OF THE MANUAL

The purpose of this manual is to provide standardized and comprehensive erosion, sediment and construction waste control best management practices (BMPs) (collectively stormwater pollution BMPs) for implementation on construction projects throughout the County of Santa Cruz. This manual is intended to provide detailed and comprehensive guidance for engineers and designers in the construction industry, contractors, local inspectors, and other interested parties to facilitate effective implementation of erosion and sediment control measures and reduction of construction-related water quality impacts. This manual also addresses non-stormwater BMPs, as well as specialized biotechnical erosion and sediment control - techniques that are particularly relevant to many areas and projects in the County of Santa Cruz.

APPLICABILITY

The *Construction Site Stormwater Pollution BMP Manual* standards contained herein are minimum requirements for development within the unincorporated areas of Santa Cruz County.

Stormwater pollution control plans are required for all building permit applications, except over the counter permits or other building permits that do not require plans.

By reference, this *Construction Site Stormwater Pollution BMP Manual* is incorporated as part of the Stormwater Ordinance as set forth in Section 7.79 of the Santa Cruz County Code. Exceptions and/or conditional exceptions to these standards may be authorized by the approving body and, if granted, must be reflected in the development use permit, building permit and/or improvement plans.

CONTENTS

Part 1 GENERAL

- Section A - Definitions
- Section B – Who Can Prepare a Stormwater Pollution Control Plan
- Section C – Stormwater Pollution Control Plan Processing and Review

Part 2 STORMWATER POLLUTION CONTROL PLAN REQUIREMENTS

- Section A – Minimum Requirements
- Section B – Erosion Control Requirements
- Section C – Sediment Control Requirements
- Section D – Temporary Winter Drainage Control Requirements
- Section E – Site Housekeeping Requirements

Part 3 FIGURES

- EC-1 Erosion Control Blankets
- SC-1 Fiber Rolls
- SC-2 Silt Fences

- SC-3 Storm Drain Inlet Protection with Fiber Rolls or Silt Fence
- SC-4 Storm Drain Inlet Protection with Rock Bags
- SC-5 Stabilized Construction Exit

PART 1. GENERAL

Section A – Definitions

Ground Disturbance - Shall mean any construction activity that affects the soil on a property. Examples of ground disturbance include, grading, land clearing, foundation excavation, installation of subsurface facilities, etc.

Major Development – Shall mean projects that disturb more than one acre, projects that include grading in excess of 1,000 cubic yards, projects that involve grading during the winter season, and other projects of a similar nature determined by the Planning Director to cause major land disturbance.

Winter Season – October 15th through April 15th of any given year.

Stormwater Pollution Prevention Plan (SWPPP) – Shall mean a plan required to be submitted to the State Regional Water Quality Control Board (RWQCB). SWPPPs generally contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project. SWPPPs list Best Management Practices (BMPs) the discharger will use to protect storm water runoff and the placement of those BMPs. Additionally, SWPPPs contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

Stormwater Pollution Control Plan – Shall mean a plan required to be submitted to the Planning Department which includes measures, notes, and detail of specific practices to control erosion, sediment, drainage and construction waste associated with building and grading permits.

Section B – Who Can Prepare a Stormwater Pollution Control Plan

1. With exception of major development proposals, stormwater pollution control plans may be prepared by any individual involved in the project.

Major development projects that disturb one acre or more shall have a stormwater pollution control plan prepared by a Qualified SWPPP Developer (QSD).

All other major development projects shall have a stormwater pollution control plan prepared by a Certified Professional in Erosion and Sediment Control (CPESC); a Certified Professional in Stormwater Quality (CPSWQ); a Qualified SWPPP Developer (QSD); a Qualified SWPPP Practitioner (QSP); or a civil engineer or professional of equal qualifications as approved by the Planning Department.

All civil engineering work associated with the preparation of a storm water pollution control plan must be prepared by a civil engineer or under the direction of a civil engineer, in accordance with the California Business and Professionals Code.

The requirements of this document are not intended to replace the requirements of the RWQCB for stormwater pollution control on construction projects. Where conflicts may arise from the requirements of the RWQCB and this document, the more stringent requirement shall apply.

Section C - Stormwater Pollution Control Plan Processing and Review

1. Stormwater pollution control plans shall be submitted with all building permit applications, with the exception of applications that do not require submittal of plans. The stormwater pollution control plans will be reviewed by the Planning Department for conformance with the requirements of this document.

Note that the exception noted above from the requirement to submit a stormwater pollution control plan does not exempt a project from the requirements of Section 7.79 of the Santa Cruz County Code.

Exceptions to the requirements of this BMP manual may be allowed if it is demonstrated to the satisfaction of the Planning Department that a proposed alternative will provide an equal or greater level of stormwater pollution control. All exceptions must be requested in writing and, if approved, be clearly shown on the plans.

PART 2. STORMWATER POLLUTION CONTROL PLAN REQUIREMENTS

Section A –Plan Requirements

1. The following items must be included on the stormwater pollution control plan:
 - a. Project vicinity map.
 - b. Property lines.
 - c. Parcel number and address.
 - d. Topography (existing contours) of the entire limits of disturbance, plus a minimum of 50 feet of topography in all directions.
 - e. Nearby watercourses within 200 feet of the project area.
 - f. Proposed grading contours, if applicable.
 - g. Locations of existing utilities, such as sewer, storm drain, curb and gutter, as applicable.
 - h. Name, phone number, email address and address of the property owner.
 - i. Name, phone number, email address and address of the individual who prepared the plan.
 - j. Proposed erosion control measures, including installation details and notes.
 - k. Proposed sediment control measures, including installation details and notes.
 - l. Proposed temporary drainage control measures, including installation details and notes.
 - m. Proposed construction waste control measures, including installation details and notes.
 - n. Locations of stockpile areas (per phase if major development)
 - o. Equipment storage and staging area (per phase if major development).
 - p. Total area of disturbance, expressed in acres.

Major Development Projects shall also include the following requirements:

- q. A phased plan for controlling erosion, sediment drainage, and waste during the various phases of construction. This shall also include temporary / phased grading contours, if applicable.
- r. An inspection schedule by a stormwater inspector that includes inspection of the erosion, sediment and drainage control before predicted rainfall events in excess of .5 inches, as well as during the rainfall event. The inspections shall be photo documented and provided to the County Planning Department within 1 week of the inspections. The inspection documentation shall include a review of the adequacy of the erosion, sediment and drainage control onsite as well as the site housekeeping for compliance with this manual. If major development projects have a SWPPP, all stormwater inspections performed for compliance with the SWPPP shall be forwarded to the Planning Department within 1 week of the inspection.
- s. A street sweeping schedule, if applicable.

Section B – Erosion Control Requirements

Any project that involves ground disturbance shall include the following minimum erosion control measures on the stormwater pollution control plan. The minimum erosion control measures shall be shown in plan view and shall include installation details and/or notes as shown herein.

1. **Cover of Bare Soils.** At least one of the following *erosion* control measures must be indicated on the stormwater pollution control plan as a means to cover bare soils during the winter season.

- **Seed and Straw Mulch**

Seed and straw mulch is to be used for soil disturbed areas as a means for temporary protection until permanent stabilization is established. It may be used on slopes up to 3:1 H:V (33%).

Seed and straw mulch shall consist of spreading seed (a minimum of 5 lbs/1000 sq. ft.) over disturbed areas and then placing a uniform layer of straw (2-3 bales/1000 sq. ft.) incorporating it into the soil with a studded roller or anchoring it with a tackifier stabilizing emulsion.

Note: In areas that are not sensitive habitat, the seed shall be annual winter barley and the straw shall be derived from rice, barley or wheat. In areas that are sensitive habitat, the seed mix and straw shall be as recommended by the project biologist, be indicated on the plans, and approved by the Planning Department.

- **Erosion Control Blankets (Geotextile or Erosion Mats)**

Erosion control blankets are required on slopes in excess of 3:1, however they may be used on ground surfaces less than 3:1, in lieu of seed and straw mulch. Seeding must be placed on the disturbed ground prior to placement of the erosion control blankets, as described in the Seed and Mulch section, above.

Erosion control blankets placed within 100 feet of a riparian area or on sites with other sensitive habitat must be biodegradable and must be noted on the plans. Examples of biodegradable and non-biodegradable erosion control blankets are shown below.

Biodegradable Erosion Control Blankets	Non-Biodegradable Erosion Control Blankets
Jute Mesh	Plastic Mesh
Curled Wood Fiber	Synthetic Fiber with Netting
Straw	Bonded Synthetic Fibers
Wood Fiber	
Coconut Fiber	

Coconut Fiber Mesh	
Straw Coconut Fiber	

If erosion control blankets are used as a method to control erosion, the plans must include Figure EC-1.

Section C – Sediment Control Requirements

Any project that involves ground disturbance shall include the following minimum *sediment* control measures on their stormwater pollution control plan. The minimum sediment control measures shall be shown in plan view and shall include installation details and/or notes as shown herein.

1. **Perimeter Control** At least one of the following sediment control measures must be indicated on the stormwater pollution control plan as a means to prevent soil/sediment from leaving the site during the winter season.

- **Fiber Rolls (or Wattles)**

Fiber rolls are to be placed at the down slope perimeter of the disturbance limits to prevent or limit sediment from leaving the site. In urban areas or sites directly adjacent to streets, fiber rolls shall be placed at the back of a sidewalk or curb to limit sediment from entering the street. *Fiber rolls or wattles are generally preferred over silt fences.*

Fiber rolls are best used in low-exposure/low-sediment load areas. Fiber rolls at the toe of slopes greater than 5:1 (H:V) may require the use of 20 inch diameter ROLLS or installations achieving the same protection (e.g., stacked smaller diameter fiber rolls, etc.). Fiber rolls must be adequately trenched to be effective.

If fiber rolls are used as a method to control sediment, the plans must include Figure SC-1.

- **Silt Fence**

Silt fences shall be used for perimeter control. They shall be placed below areas where sheet flows discharge from the site. They should also be used as interior controls below disturbed areas where runoff may occur in the form of sheet and rill erosion.

Silt fences shall not be used in streams, channels, drain inlets, or any place where flow is concentrated.

Silt fences shall not be used in locations where ponded water may cause flooding.

Silt fences shall not be used on a slope, or across any contour line. If not installed at the same elevation throughout, silt fences will create erosion.

The maximum length of slope draining to any point along the silt fence should be 200 feet or less.

The ends of the silt fence shall be turned uphill to prevent stormwater from flowing around the fence.

If a silt fence is used as a method to control sediment, the plans must include Figure SC-2.

2. **Storm Drain Inlet Protection**

Projects that include storm drain inlets or projects that drain into storm drains shall include measures on the stormwater pollution control plan to protect the inlets so silt and other pollutants do not enter the storm drain system.

Storm drain inlet protection consists of a sediment filter or an impounding area around or upstream of a storm drain, drop inlet, or curb inlet. Storm drain inlet protection measures temporarily pond runoff before it enters the storm drain, allowing sediment to settle. Some filter configurations also remove sediment by filtering, but usually the ponding action results in the greatest sediment reduction.

Figure SC-3 or SC-4 must be included on the plans as a method to protect storm drains.

3. **Stabilized Construction Exit and Rocked Access Areas**

- **Stabilized Construction Exits**

Stabilized construction exits are used to keep sediment from being tracked onto adjacent roads.

All projects that include ground disturbance must include a stabilized construction exit, unless construction vehicles and equipment remain on paved surfaces at all times during construction.

Stabilized construction exits are to be 50 feet long x 12 feet wide (minimum) and consist of 3-6 inch rock.

Plans shall show the location of the stabilized construction exit as well as construction details and notes.

In cases where the site cannot accommodate a stabilized construction exit that is 50 feet long, the plans shall incorporate an alternative subject to the approval of the Planning Department.

Figure SC-5 must be shown on the plans.

- **Rocked Access Areas**

Rocked access areas are used to control sediment and erosion in areas on the project where vehicles and equipment park, travel and work. They are used primarily to keep construction vehicles and equipment off of bare soils. All projects that include ground disturbance must include rocked access areas, unless construction vehicles and equipment remain on paved surfaces at all times during construction.

Rocked construction areas shall consist of 6 inches (minimum) of baserock or drainrock.

Plans shall show the location of all rocked access areas with notes describing the type and thickness of rock to be used.

Section D – Temporary Winter Drainage Control Requirements

All projects that involve ground disturbance of one acre or more shall include at least one of the following minimum temporary drainage control measures on the stormwater pollution control plan. The minimum temporary drainage control measures shall be shown in plan view and shall include installation details and/or notes as shown herein.

1. **Sediment Trap / Sediment Basin** At least one of the following drainage control measures must be indicated on the stormwater pollution control plan as a means to control drainage during the winter season. Sediment traps and sediment basins must be designed by a licensed civil engineer or architect.
 - **Sediment Trap (to be used when drainage area is less than 5 acres)**
Sediment traps are required to be used on sites where the disturbed drainage area is less than 5 acres as a method to control drainage during construction when the permanent drainage system has not yet been installed.

A sediment trap is a containment area where sediment-laden runoff is temporarily detained, allowing sediment to settle out before the runoff is discharged.

Sediment traps shall be located at the perimeter of the site at locations where runoff is discharged offsite, at multiple locations within the project site where sediment control is needed, and/or around or upslope from storm drain inlet protection measures.

Sediment traps shall be situated according to the following criteria: by excavating a suitable area or where a low embankment can be constructed across a swale, where failure would not cause loss of life or property damage, and to provide access for maintenance, including sediment removal and sediment stockpiling in a protected area.

Sediment traps shall be sized to accommodate a settling zone and sediment storage zone with minimum volumes of 67 cubic yards/acre and 33 cubic

yards/acre of contributing drainage area, respectively. Multiple traps and/or additional volume may be required to accommodate site specific rainfall and soil conditions.

Sediment traps capable of impounding more than 1,300 cubic yards shall be designed by a licensed civil engineer. The design shall include maintenance requirements, including sediment and vegetation removal, to ensure continuous function of the trap outlet and bypass structures.

Plans shall show the location and details of all sediment traps.

- Sediment Basin (to be used when drainage area is between 5 and 75 acres)
Sediment basins are required to be used on sites where the disturbed drainage area is between 5 acres and 75 acres as a method to control drainage during construction, when the permanent drainage systems has not yet been installed.

A sediment basin is a controlled stormwater release structure formed by excavation or by construction of an embankment of compacted soil. It is intended to trap sediment before it leaves the construction site. The basin is a temporary measure with a design life of 12 to 28 months in most cases and is to be maintained until the site area is permanently protected against erosion or a permanent detention basin is constructed.

Sediment basins should be located at the stormwater outlet from the site but not in stream. A typical application would include temporary dikes, pipes, and/or channels to divert runoff to the basin inlet.

Sediment basins shall be designed as follows:

Sediment basin(s), as measured from the bottom of the basin to the principal outlet, shall have at least a capacity equivalent to 3,600 cubic feet (133 cubic yards) of storage per acre draining into the sediment basin. The length of the basin shall be more than twice the width of the basin. The length is determined by measuring the distance between the inlet and the outlet; and the depth must not be less than 3 feet nor greater than 5 feet.

Sediment traps capable of impounding more than 1,300 cubic yards shall be designed by a licensed civil engineer. The design shall include maintenance requirements, including sediment and vegetation removal, to ensure continuous function of the trap outlet and bypass structures.

2. **Control of Driveway/Roadway Runoff** Projects that include driveways or roadways shall include provisions on the stormwater pollution control plan to control drainage on the driveway or roadway during the winter season if the final surfacing (e.g. asphalt) is not in place.

Acceptable methods to control runoff on driveways and roadways is to install rolling dips, gravel bags, or base rock berms across the driveway at 25-50 foot intervals to direct runoff to a temporary catch basin or pipe that collects the water and directs it to an adequate release point (such as a sediment trap or sediment basin).

Section E – Site Housekeeping Requirements

All projects shall include the following minimum housekeeping notes on the stormwater pollution control plan.

Construction Materials

- All loose stockpiled construction materials that are not actively being used (i.e. soil, spoils, aggregate, fly-ash, stucco, hydrated lime, etc.) shall be covered and bermed.
- All chemicals shall be stored in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed).
- Exposure of construction materials to precipitation shall be minimized. This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.).
- Best Management Practices to prevent the off-site tracking of loose construction and landscape materials shall be implemented.

Waste Management

- Disposal of any rinse or wash waters or materials on impervious or pervious site surfaces or into the storm drain system shall be prevented.
- Sanitation facilities shall be contained (e.g., portable toilets) to prevent discharges of pollutants to the storm water drainage system or receiving water, and shall be located a minimum of 20 feet away from an inlet, street or driveway, stream, riparian area or other drainage facility.
- Sanitation facilities shall be inspected regularly for leaks and spills and cleaned or replaced as necessary.
- Cover waste disposal containers at the end of every business day and during a rain event.
- Discharges from waste disposal containers to the storm water drainage system or receiving water shall be prevented.
- Stockpiled waste material shall be contained and securely protected from wind and rain at all times unless actively being used.
- Procedures that effectively address hazardous and non-hazardous spills shall be implemented.
- Equipment and materials for cleanup of spills shall be available on site and that spills and leaks shall be cleaned up immediately and disposed of properly; and
- Concrete washout areas and other washout areas that may contain additional pollutants shall be contained so there is no discharge into the underlying soil and onto the surrounding areas.

Vehicle Storage and Maintenance

- Measures shall be taken to prevent oil, grease, or fuel to leak in to the ground, storm drains or surface waters.
- All equipment or vehicles, which are to be fueled, maintained and stored onsite shall be in a designated area fitted with appropriate BMPs.
- Leaks shall be immediately cleaned and leaked materials shall be disposed of properly.

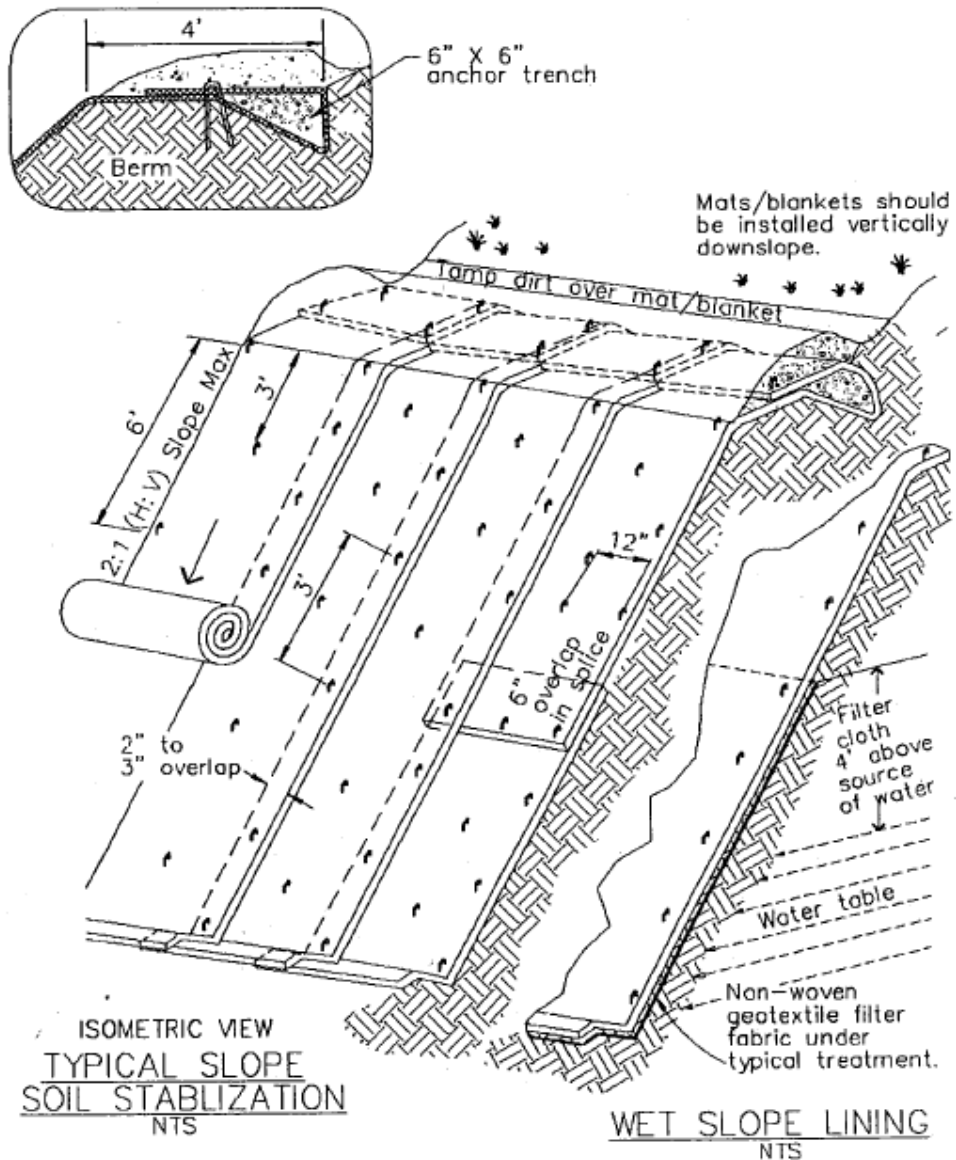
Landscape Materials

- Contain stockpiled materials such as mulches and topsoil when they are not actively being used.
- Contain fertilizers and other landscape materials when they are not actively being used.
- Discontinue the application of any erodible landscape material within 2 days before a forecasted rain event or during periods of precipitation.
- Apply erodible landscape material at quantities and application rates according to manufacture recommendations or based on written specifications by knowledgeable and experienced field personnel.
- Stack erodible landscape material on pallets and covering or storing such materials when not being used or applied.

PART 3. FIGURES

Figure EC-1

Erosion Control Blankets



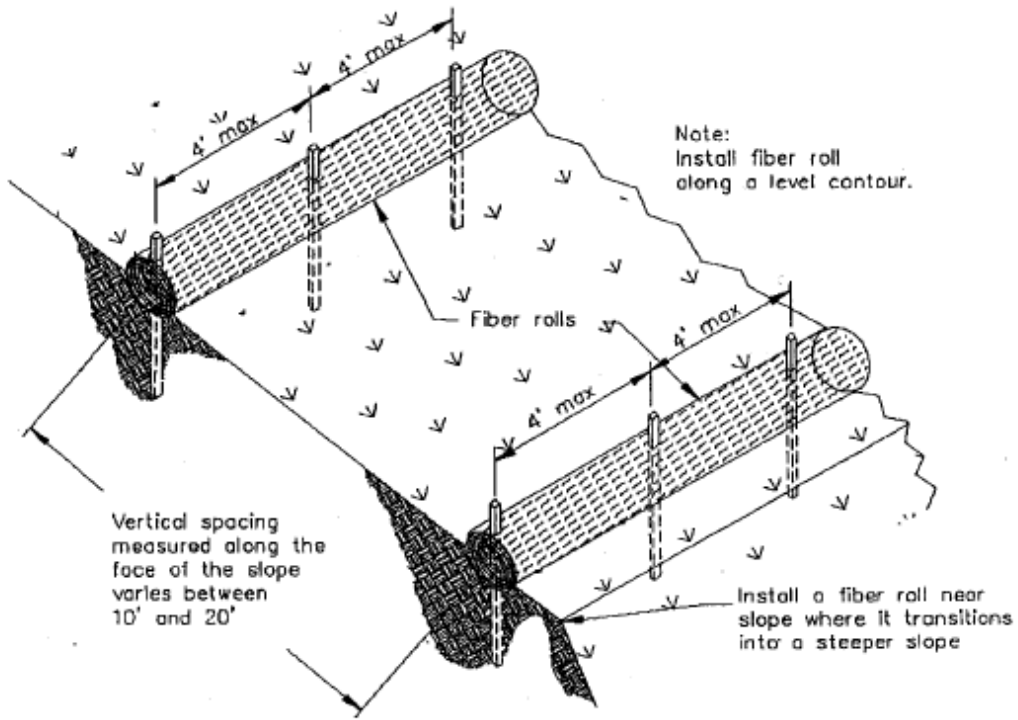
NOTES:

1. Slope surface shall be free of rocks, clods, sticks and grass. Mats/blankets shall have good soil contact.
2. Lay blankets loosely and stake or staple to maintain direct contact with the soil. Do not stretch.
3. Install per manufacturer's recommendations

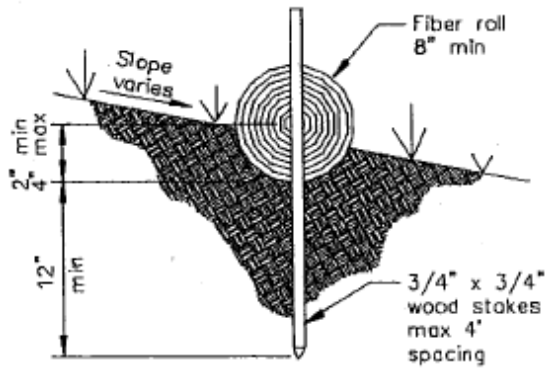
TYPICAL INSTALLATION DETAIL

Figure SC-1

Fiber Rolls

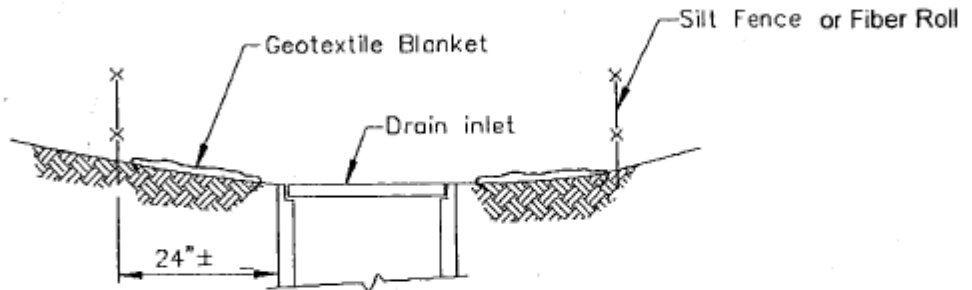


TYPICAL FIBER ROLL INSTALLATION
N.T.S.

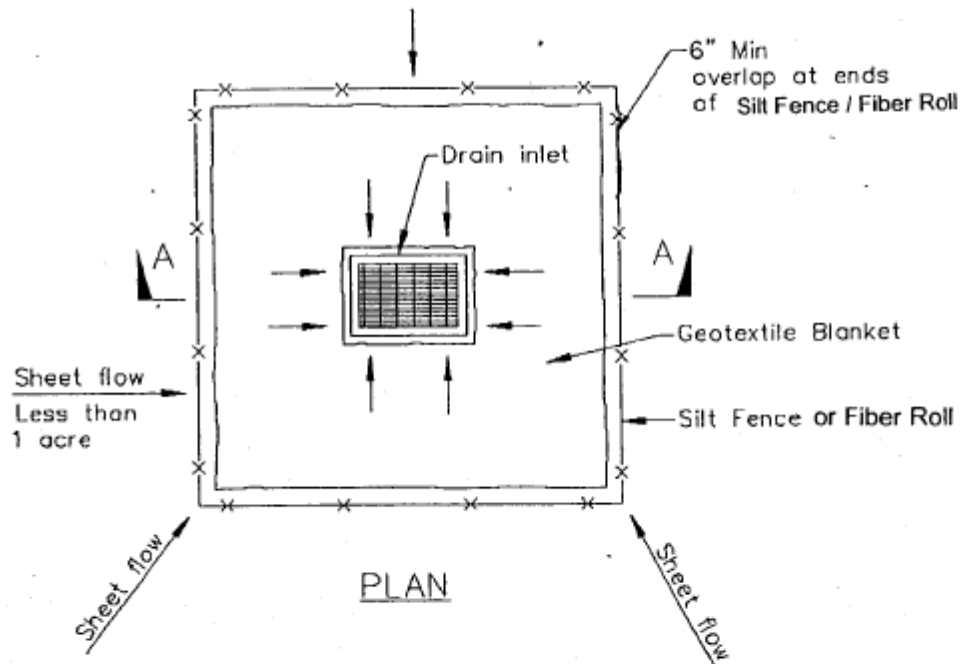


ENTRENCHMENT DETAIL
N.T.S.

Figure SC-3 Storm Drain Inlet Protection



SECTION A-A



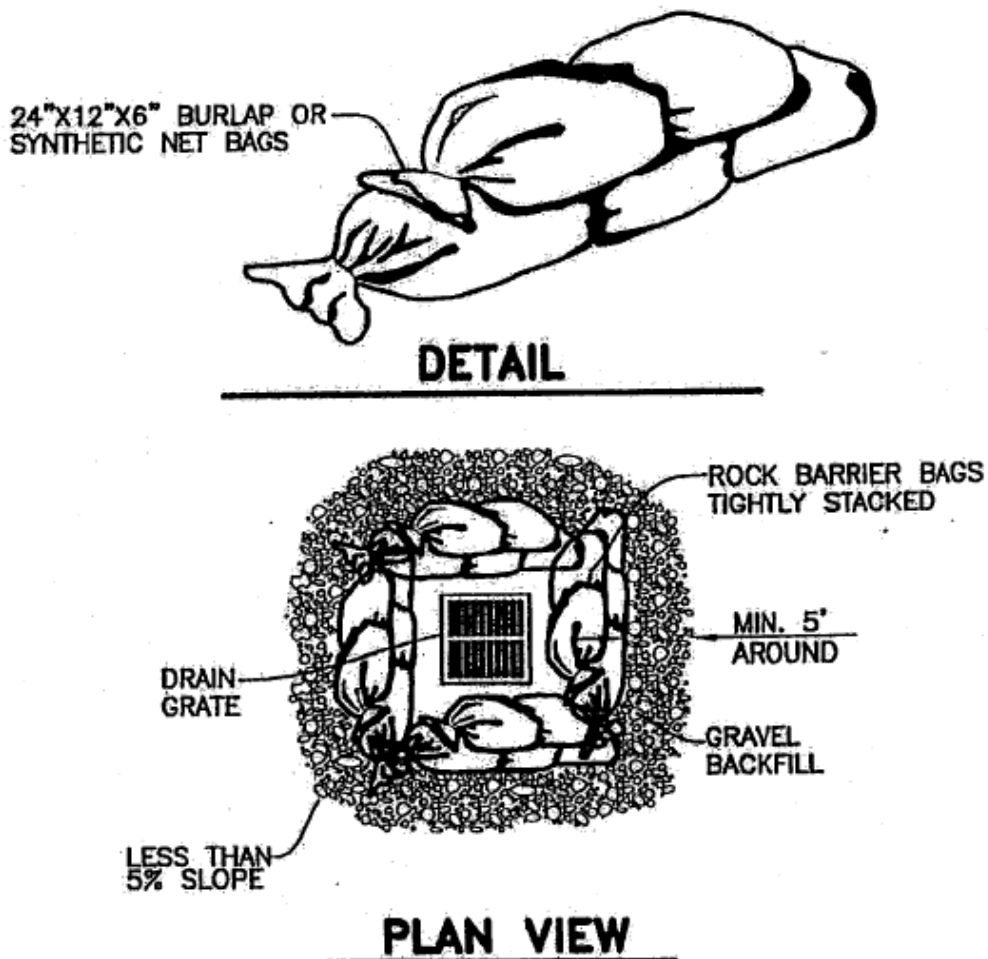
PLAN

DI PROTECTION TYPE 1
NOT TO SCALE

NOTES:

1. For use in areas where grading has been completed and final soil stabilization and seeding are pending.
2. Not applicable in paved areas.
3. Not applicable with concentrated flows.

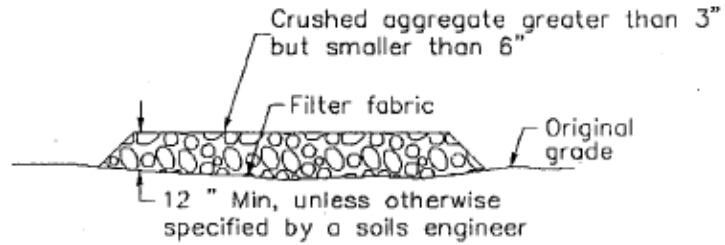
Figure SC-4 Storm Drain Inlet Protection



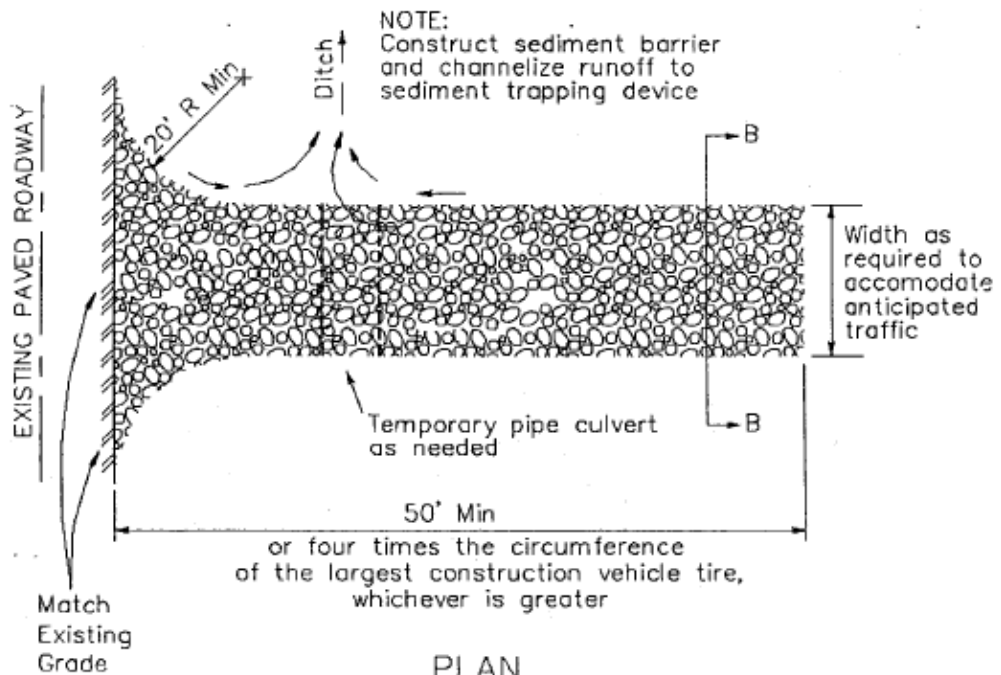
NOTES:

1. FILL ROCK BARRIER BAGS $\frac{2}{3}$ FULL OF $\frac{3}{4}$ " ROCK.
2. PLACE BAGS SUCH THAT NO GAPS ARE EVIDENT IN A SINGLE OR DOUBLE LAYER. STAMP ENTIRE LAYER INTO PLACE PRIOR TO STARTING THE NEXT LAYER.
3. ROCK BARRIER BAGS FOR CATCH BASIN SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%).

Figure SC-5 Stabilized Construction Exit



SECTION B-B
NTS



PLAN
NTS