

BMP 13.00. Prefabricated Barrier System

DESIGN CONSIDERATIONS

Objectives

The purpose of a Prefabricated Barrier System is to slow and spread overland flows and to trap sediment and prevent it from being transported out of the project area to another area or to waters of the U.S.

Description

Prefabricated Barrier Systems are prefabricated devices with a foam core enclosed in woven geotextile fabric. Each unit is a minimum of 5 inches tall after installation and at least 4 feet in length. They have an apron that extends beyond both sides of the base of the foam core. The sleeve at one end allows attachment of additional sections as needed.

Other Names

Foam Logs, Geotextile Encased Check Dam, Geotextile Triangular Dam.

Applicability

Prefabricated Barrier Systems can be placed at the perimeter of a project, below the toe of exposed and erodible slopes, and around temporary stockpiles. They can be applied to steep or long slopes and slopes that are susceptible to freeze/thaw activity, sheet and rill erosion, or dry ravel. They can be placed along the toe, top, face, and at grade-breaks on disturbed or erodible slopes. They can be used as a temporary berm to direct flow around exposed soils, or to a sediment trap. They can be used as a check dam in unlined ditches, or as storm drain inlet protection.

Selection Considerations

- Flexibility of the materials in Prefabricated Barrier Systems allows them to conform to all channel configurations.
- Prefabricated Barrier Systems have the ability to interlock to form longer barriers without water flowing between the individual units.
- Prefabricated Barrier Systems can be secured using a combination of nails, solvent-free adhesives, or gravel-filled bags depending on the surface.

- When used below disturbed areas subject to sheet and rill erosion drainage, the area must be no greater than 0.25-acre per 100 lineal feet of barrier.
- Slope behind the barrier should be no steeper than 2H:1V.
- Prefabricated Barrier Systems can be reused depending on the amount of wear.
- The quantity of sediment that a barrier can capture is limited.

Design

Show precisely where to place this type of barrier on the plan sheets. Be cautious about the concentrated flow that develops at the end of the barrier. Do not place them where the concentrated flow will do damage and include provisions for energy dissipation or treatment, as appropriate.

Relationship to Other Erosion and Sediment Control Measures

Prefabricated Barrier System can be used in combination with other barriers.

- Prefabricated Barrier Systems can be used in place of silt fence. The advantage of Prefabricated Barrier Systems over silt fence is that installation may be easier and may be less damaging to existing vegetation.
- Compost socks can be used in place of Prefabricated Barrier Systems and are heavy enough that they can be placed on paved surfaces without the use of adhesive products.
- A Prefabricated Barrier System can be used in place of fiber rolls and requires a smaller trench. A Prefabricated Barrier System can also be adhered to paved surfaces.

Common Failures or Misuses

- Use where flow volume or velocity inhibit best management practice (BMP) function.
- Use as a filter.
- Piercing the barrier's core with nails or stakes.

- Unless properly secured to the ground, runoff can flow underneath the barrier and cause failure.
- Unless properly secured, barriers can be dislodged or transported by high flows.
- Prefabricated Barrier System must be placed perpendicular to flow (parallel to the slope contour).

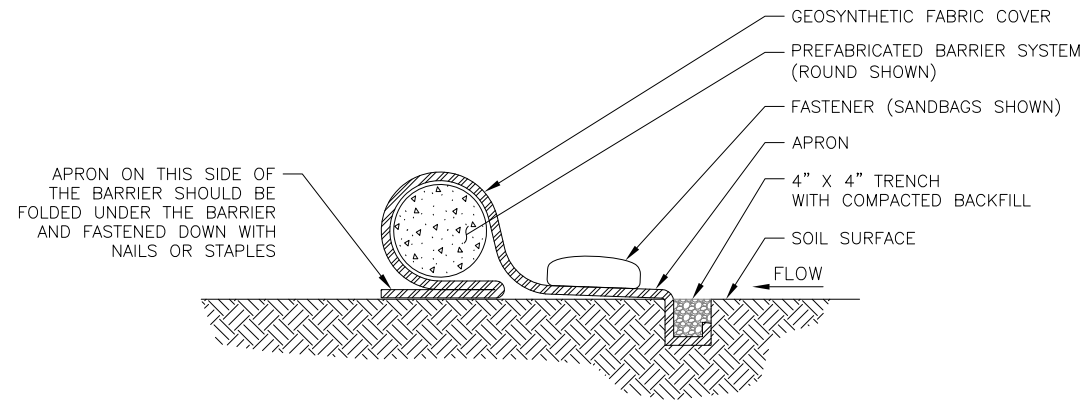
SPECIFICATIONS

Standard Specifications

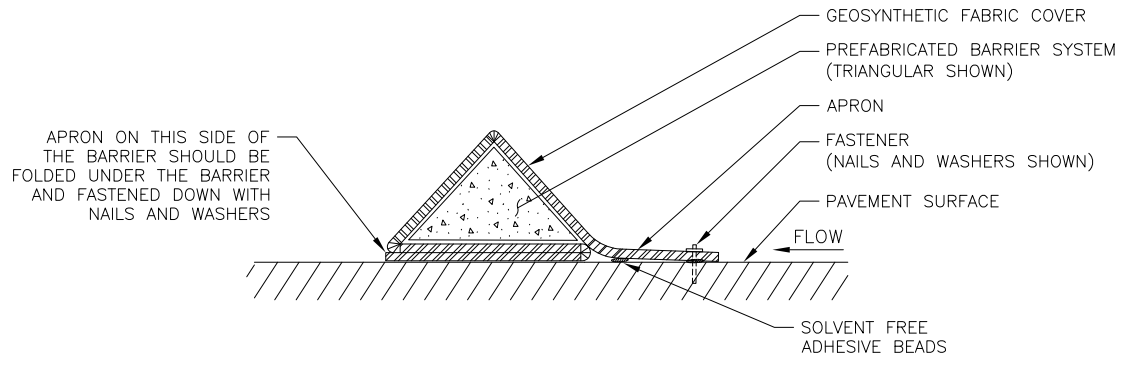
- 675 – Prefabricated Barrier System

Drawings

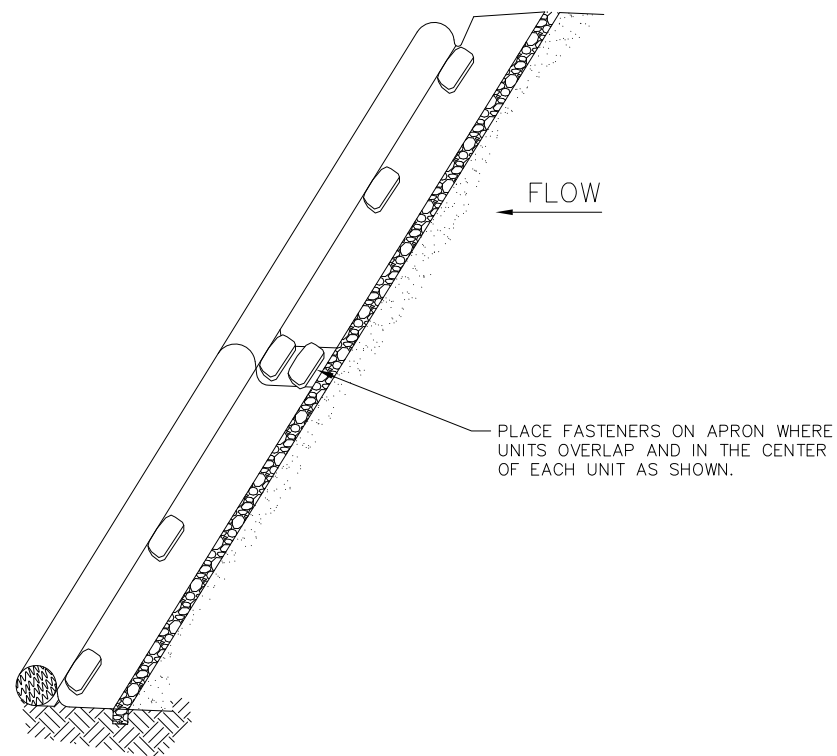
- BMP-13.00 Prefabricated Barrier System
- BMP-31.00, BMP-32.00, BMP-33.00
Temporary Check Dam
- BMP-21.00, BMP-22.00 Slope Drain
- BMP-10.00 Fiber Rolls for Erosion and
Sediment Control
- BMP-25.00, BMP-26.00, BMP-27.00, BMP-
28.00, BMP-29.00 Storm Drain Inlet
Sediment Protection



SECTION



SECTION



PLAN

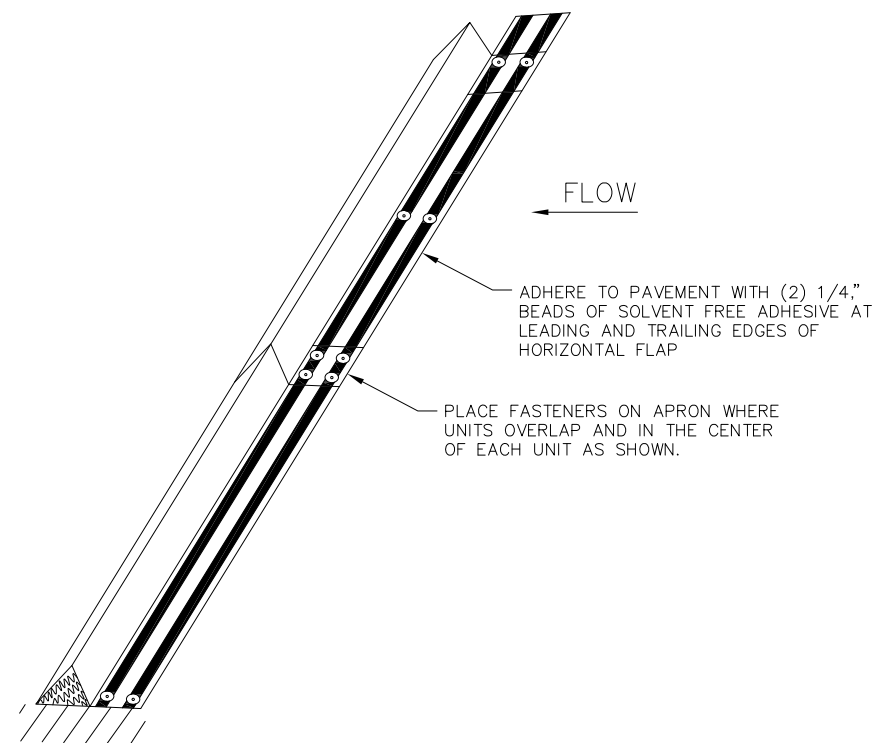
SOIL INSTALLATION
NOT TO SCALE

SOIL NOTES:
INSTALLATION

1. INSTALL BARRIER ALONG CONTOURS.
2. SECURE THE BARRIER WITH FASTENERS A MAXIMUM OF 4 FEET APART.
3. INSTALL WITH 2 FASTENERS AT CONNECTION POINTS WHERE BARRIERS OVERLAP.

INSPECTION

1. LOOK FOR SCOURING UNDERNEATH AND AT THE ENDS OF THE BARRIER.



PLAN

PAVEMENT INSTALLATION
NOT TO SCALE

PAVEMENT NOTES:
INSTALLATION

1. INSTALL THE HORIZONTAL FLAP ON THE UPSLOPE SIDE.
2. SECURE THE BARRIER WITH 1-INCH NAILS A MAXIMUM OF 4 FEET APART OR USE SANDBAGS.
3. INSTALL WITH 2 FASTENERS AT CONNECTION POINTS WHERE BARRIERS OVERLAP.
4. USE SOLVENT-FREE ADHESIVE TO ENSURE A TIGHT CONNECTION WITH THE PAVEMENT.

PREFABRICATED BARRIER SYSTEM GENERAL NOTES:
MATERIALS

BARRIER: PREFABRICATED FOAM CORE ENCLOSED IN WOVEN GEOSYNTHETIC FABRIC.

FASTENERS: 1-INCH OR 6-INCH NAILS, 1-INCH WASHERS, SOLVENT-FREE ADHESIVE, 6-INCH TO 8-INCH STAPLES, SAND BAGS, AND/OR GRAVEL-FILLED BAGS.

INSPECTION

1. ENSURE THAT THE BARRIERS ARE IN WATER TIGHT CONTACT WITH SOIL OR PAVEMENT.
2. LOOK FOR SPLIT, TORN, UNRAVELLING, OR SLUMPING BARRIERS.
3. ENSURE EQUIPMENT DOESN'T DRIVE OVER INSTALLED BARRIERS.

MAINTENANCE

1. REPLACE DAMAGED SECTIONS OF BARRIER.
2. REMOVE ACCUMULATED SEDIMENT UPSLOPE OF THE BARRIER BEFORE IT REACHES ONE-HALF OF THE DISTANCE BETWEEN THE TOP OF THE BARRIER AND THE GROUND SURFACE OR ONE-THIRD THE AVAILABLE STORAGE IF PROTECTING A WATER BODY OR STORM DRAIN INLET.

REMOVAL

1. REMOVE AND DISPOSE OF THE ACCUMULATED SEDIMENT THEN REMOVE THE BARRIER.
2. AFTER REMOVAL FILL TRENCHES AND NAIL HOLES TO BLEND WITH THE ADJACENT GROUND AND REVEGETATE AS NECESSARY.

REVISIONS		
Date	Description	By

State of Alaska DOT&PF

PREFABRICATED
BARRIER SYSTEM

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V
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Date 12/2015 X/XX/XX