Switchgrass-based Filter Sock
Inlet Filter Bags can quickly get filled up and flood streets. Maintenance is "out of sight - out of mind" or requires machine time. 2D filter fabric can easily get blinded. Limited storage capacity.

Assessment and Design Criteria

New BMP needs to greatly reduce risk of street flooding, come with built-in maintenance motivation, lower installation and maintenance costs, be less prone to blinding than 2D, and meet PA DEP particle filtration size spec.
The Answer:

A Filter/Ponder Hybrid Using Robust Components…

Today it’s Compost Filter Sock Problem – Inlet Filter Bags can quickly get filled up and flood streets. Maintenance is “out of sight – out of mind” or requires machine time. 2D filter fabric can easily get blinded. Limited storage capacity.

Assessment and Design Criteria – New BMP needs to greatly reduce risk of street flooding, come with built-in maintenance motivation, lower installation and maintenance costs, be less prone to blinding than 2D, and meet PA DEP particle filtration size spec.

In the past we would keep going on Compost Filter Sock. Pre-filled Compost Filter Sock Factory State College, PA

1600 units
### Approved Alternative E&S BMPs

<table>
<thead>
<tr>
<th>Alternative BMP</th>
<th>Description</th>
<th>ABACT – HQ</th>
<th>ABACT – EV</th>
<th>DEP Review Date</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of Wood Chips in Compost Socks</td>
<td>Tests show wood chips are as effective as compost for filtering sediment.</td>
<td></td>
<td>No</td>
<td>04/01/2012</td>
<td>Refer to Page 65 of the E&amp;S Manual for compost sock installation.</td>
</tr>
</tbody>
</table>
| Use of Switchgrass in Compost Socks                  | Tests show Switchgrass is as effective as compost for filtering sediment. This is a direct replacement for Compost sock and should follow the same standards.                                                | Yes        | Yes        | 03/01/2017      | **Big Switch Sock**  
**Diamond Sock**  
**SwitchSock**                                                                 |
| Multi-Layer Geotextile Filter Fence                  | Testing provided shows that this filter fence product results in water quality equivalent to a compost filter sock. This filter fence is 21-in. or 28-in. above the surface of the ground, with the material trenched into the existing soil (similar to silt fence). This filter fence is supported by spaded stakes at 5-ft. spacing. The 21-in. filter fence will use slope lengths equivalent to a 24-in. compost filter sock; while the 28-in. filter fence will use slope lengths equivalent to a 32-in. compost filter sock. | Yes        | Yes        | 08/22/2018      | Siltron Fence-MKB Enterprises (Siltron Details)                                             |
Switch Sock®

Switchgrass-based Filter Sock

- Category added to PA DEP New Technologies List (SGFS - 2017)
- Chopped switch grass creates 3 to 8-inches long strands and some fines
- Fill is hydrophobic before saturation and flow
- 1/3 the weight of Compost Filter Sock (CFS)
- Fill Spread easier on vegetative cover requirement
- Must install edging fill material
- Used the same netting as CFS
- Costs about 50% more than CFS
- Switch Sock® Specific Details:
  - Filled at a rate of 6 lbs/cu ft
  - Stake every 5 ft max (CFS is 10 ft)
  - Available pre-filled in 8, 12, 18, and 24
  - Continuous or pre-cuts
- Renewable bio-mass
- Available in PA, OH and other states
- 2x Bulk Density of Wheat Straw
- 2x Field Longevity of Wheat Straw
Project: ASTM D 7351
Client / Product: MKB / Switch Sock® by Diamond Sock®
Test Date: 6/15/2017
Test Setup: 2 in x 2 in x 36 in wood posts @ 24 in centers, Upstream Compost Fill
Duration: 35 minutes
Water / Soil Input: 1638 lbs water 105 lbs soil
Sediment Concentration: Lorn @ 6.0%

Soil Retention Effectiveness: 92.81%
Water Retention Effectiveness: 17.08%

TRI Environmental Testing
(yellow/white netting not available at time of testing)
<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Composition</th>
<th>Specimen #</th>
<th>Soil Type</th>
<th>Test Configuration (Vertical or Horizontal)</th>
<th>Specimen Width, cm</th>
<th>Flow Volume (L)</th>
<th>Distance from SRD to the edge of water behind SRD at end of 25 min (mm)</th>
<th>Flow Rate (m²/m²/min)</th>
<th>Flow Rate (GPM/ft²)</th>
<th>Initial Mass of Soil (g)</th>
<th>Final Mass of Soil (g)</th>
<th>Filtering Efficiency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SwitchSock 18</td>
<td>High Strength Netting Sock Filled with Switch Grass</td>
<td>1</td>
<td>Clear Water</td>
<td>Vertical</td>
<td>81</td>
<td>50</td>
<td>0</td>
<td>0.466</td>
<td>11.430</td>
<td>0</td>
<td>0</td>
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<tr>
<td>SwitchSock 18</td>
<td>High Strength Netting Sock Filled with Switch Grass</td>
<td>1</td>
<td>Silty Clay</td>
<td>Vertical</td>
<td>81</td>
<td>50</td>
<td>0</td>
<td>0.322</td>
<td>7.910</td>
<td>150</td>
<td>6.81</td>
<td>95.5</td>
</tr>
<tr>
<td>SwitchSock 18</td>
<td>High Strength Netting Sock Filled with Switch Grass</td>
<td>1</td>
<td>Silty Clay</td>
<td>Vertical</td>
<td>81</td>
<td>50</td>
<td>0</td>
<td>0.287</td>
<td>7.052</td>
<td>150</td>
<td>6.66</td>
<td>95.5</td>
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<tr>
<td>SwitchSock 18</td>
<td>High Strength Netting Sock Filled with Switch Grass</td>
<td>1</td>
<td>Silty Clay</td>
<td>Vertical</td>
<td>81</td>
<td>50</td>
<td>0</td>
<td>0.263</td>
<td>6.461</td>
<td>150</td>
<td>5.97</td>
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<td>Avg</td>
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<td>0.291</td>
<td>7.141</td>
<td></td>
<td>6.49</td>
<td>95.7</td>
</tr>
</tbody>
</table>
What You Need to Know:

1. Don’t try this at home
2. If not growing don’t plant it
3. Prices are $120-150 a ton
4. Prefer spring harvested
5. Weed-free is important
6. Large round or square bales
7. Call Dan Arnett at Ernst Seed