

Using the Tools In Your Toolbox  
(Wis. PAL, Technical Standards,  
Polymers, and New Things)



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It’s all about keeping our water clean

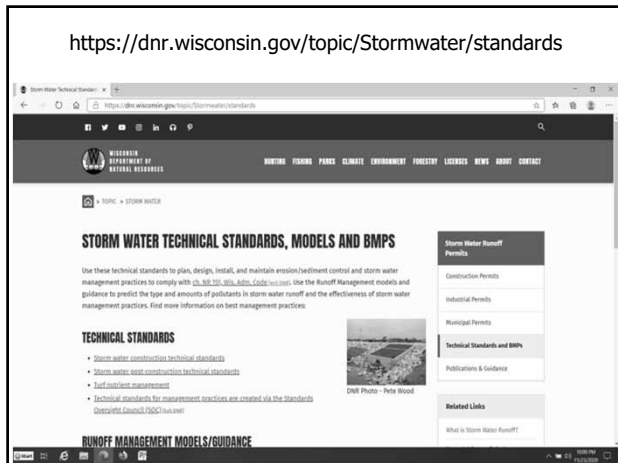


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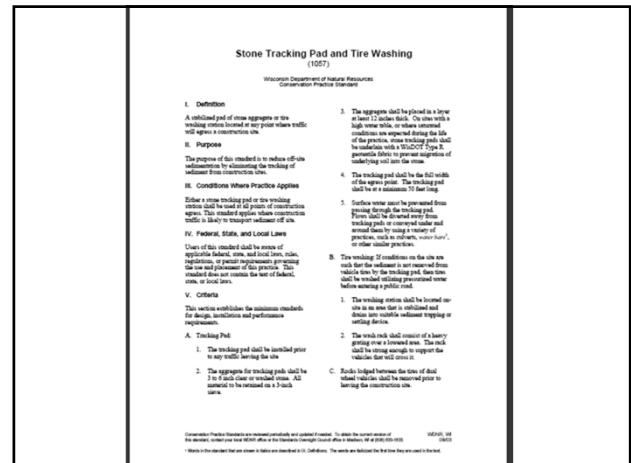
No Need To Be Confused



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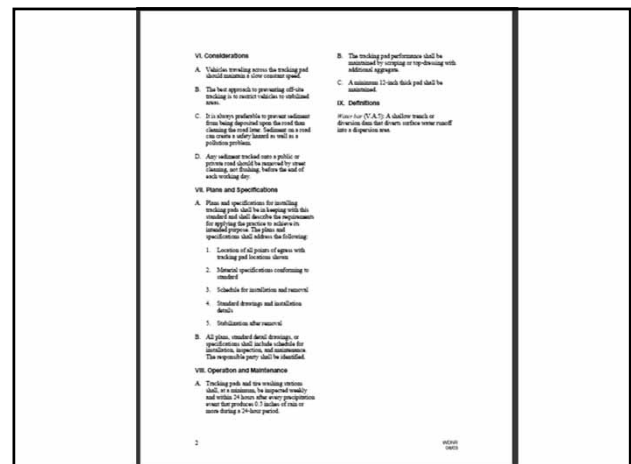


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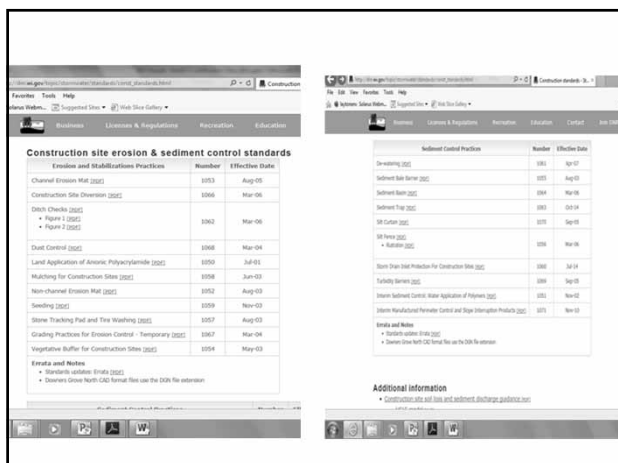
## DNR Technical Standards

- Developed under the Wisconsin Oversight Council (SOC) process
- Standards developed with input from various agency experts
- Uniform standards as recognized/utilized by agencies statewide including DOT and DSPS
- New erosion and sediment control standards **have replaced** the “Wisconsin Construction Site Handbook”
- Technical standards call for use of DOT approved materials on Product Acceptability List (PAL)

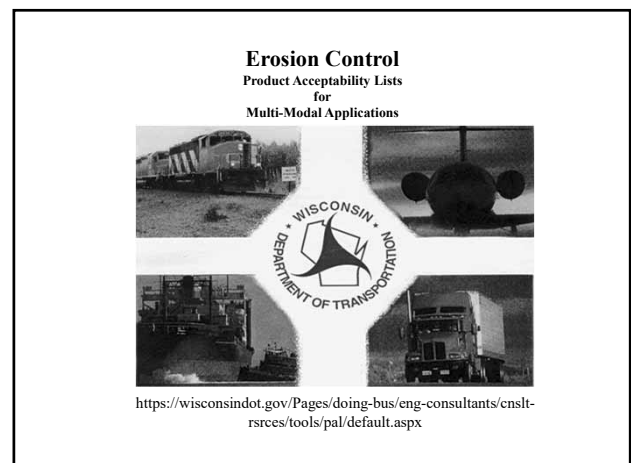
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- Erosion Mats
- Tackifiers
- Soil Stabilizers
- Inlet Protection
  - 'FF' Fabrics
- Temporary Ditch Checks
- Articulated Concrete Block Systems (ACB's)
  - Under Review - Removed From PAL

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- Ease of design
- Uniform performance within categories
- Toxicity testing where warranted
- Increased competition from suppliers
- Lower costs for clients / agencies

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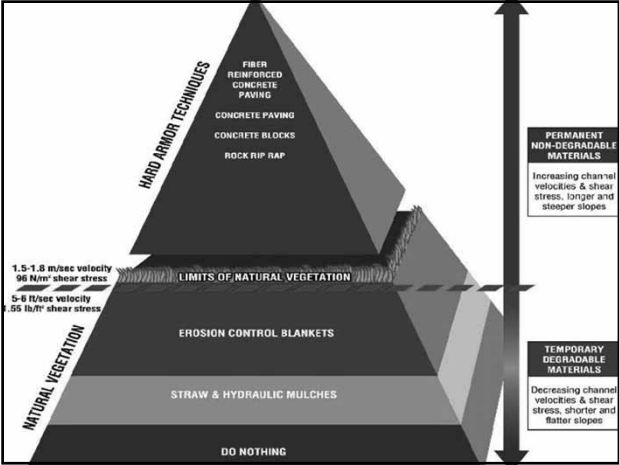
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CLASS I SHORT TERM ORGANIC	CLASS II LONG TERM ORGANIC	CLASS III PERMANENT SYNTHETIC
TYPE A SHEAR 3.6 SLOPES UP TO 2:1 LIGHT DUTY CHANNEL LINER	TYPE A JOINT LOG STU REINFORCEMENT	TYPE A SHEAR 2.0 ELUM MAT. SLOPES UP TO 2:1 CHANNEL LINER
TYPE B SHEAR 4.5 SLOPES UP TO 2:1 LIGHT DUTY CHANNEL LINER	TYPE B SHEAR 2.7 SLOPES UP TO 2:1 MEDIUM DUTY CHANNEL LINER SYNTHETIC NETTING ALLOWED	TYPE B SHEAR 2.8 TUM MAT. SLOPES UP TO 2:1 CHANNEL LINER
CLASS I URBAN FOR USE IN URBAN AND RESIDENTIAL AREAS	TYPE C SHEAR 2.0 SLOPES UP TO 2:1 MEDIUM DUTY CHANNEL LINER 60% ORGANIC FIBER REQUIRED	TYPE C SHEAR 1.5 TUM MAT. SLOPES UP TO 2:1 HEAVY DUTY CHANNEL LINER
URBAN, TYPE A SLOPES UP TO 4:1 NON-ERODIBLE NETTING	URBAN, TYPE B SLOPES UP TO 2:1 SHEAR 1.8 NON-ERODIBLE NETTING	TYPE D SHEAR 5.0 TUM MAT. SLOPES UP TO 1:1 HEAVY DUTY CHANNEL LINER

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Approved  
Biodegradable  
Staples  
Required

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Entrenchment  
Required Next  
To Live Traffic  
Lanes or  
Airport  
Runways &  
Taxiways

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Soil Stabilizers Type A

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Tackifiers  
with Seed & Mulch



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Bonded Fiber Matrix (BFM)



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Soil Stabilizers, Type B  
(Land Application of Polymers)

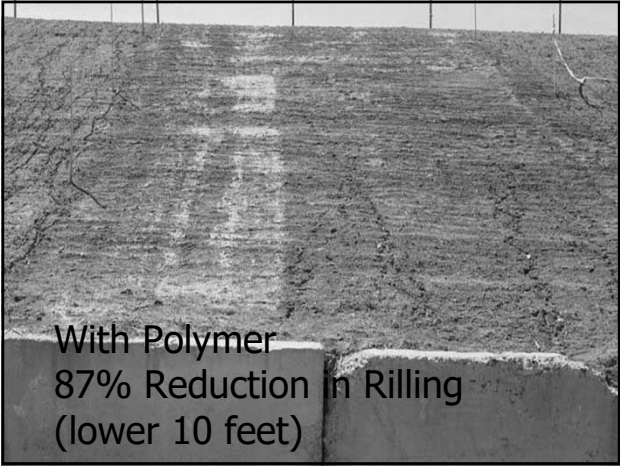
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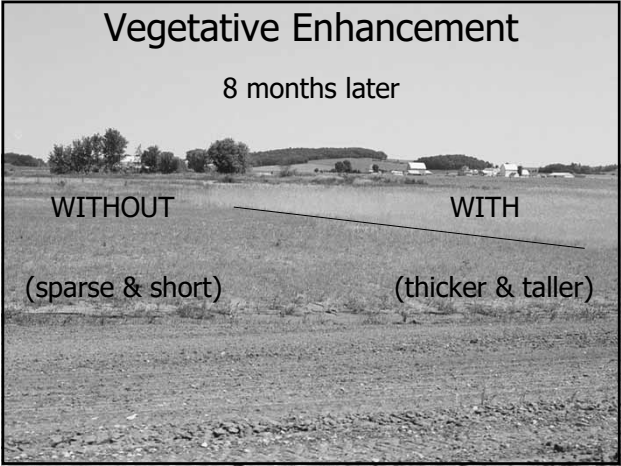
Dry Application

- Suitable for small sites
- Must be diluted with lime
- More expensive on large sites
- Dust may be a concern with workers depending upon product used

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Wet Application

Most Common and economical on Large Sites

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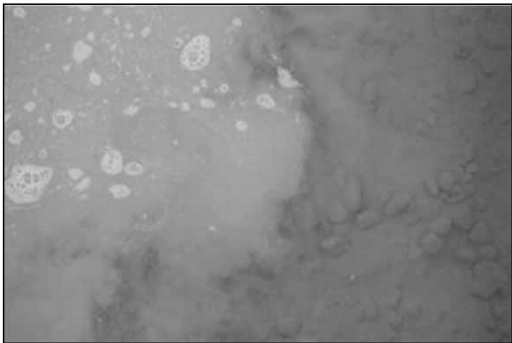
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### WisDOT PAL Requirements

- WisDNR Toxicity Testing and Use Restriction
- Small Scale (Lab) Performance Test
- Large Scale (Outdoor) Performance Test

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### Sediment Settling



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### Experience

- Polymers are about 80% as effective as erosion mats on slopes
- Not recommended for channel protection
- Effectiveness increases with the use of mulch
- Cost is approximately 10% the cost of erosion mat
- Must be monitored for application rates

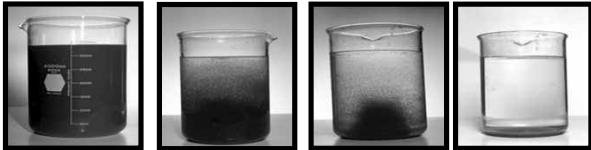
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### Application Methods

- Inserted in Geotextile Dewatering Bags
- Gravity settling (channels, basins, tanks, or ponds)
- Filtration (passive or pressurized)

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### Water Application of Polymer NOT ON PAL



Time 0      1 min.      15 min.      2 hours

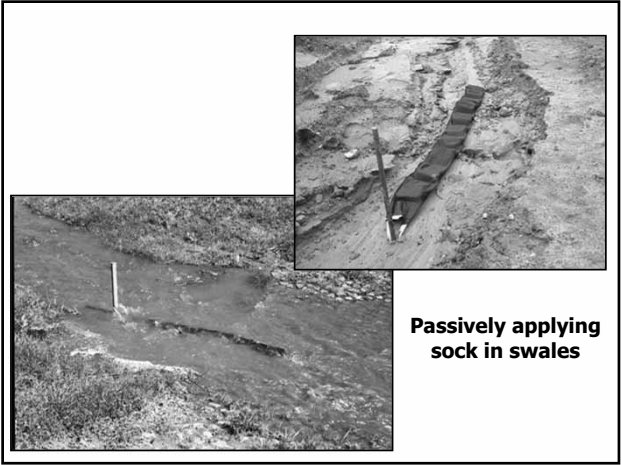
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### Applied in Dewatering Bag



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Two WisDNR Standards Apply

- (Code 1050) Land Application of Additives for Erosion Control (formerly Land Application of Anionic Polyacrylamide)  
Require product approval on WisDOT PAL
- (Code 1051) Water Application of Additives for Sediment Control  
Presently no WisDOT PAL category

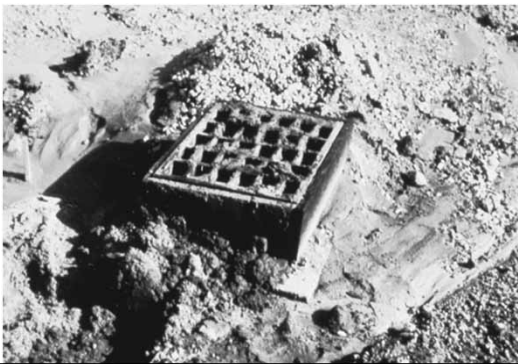
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Sand Filters

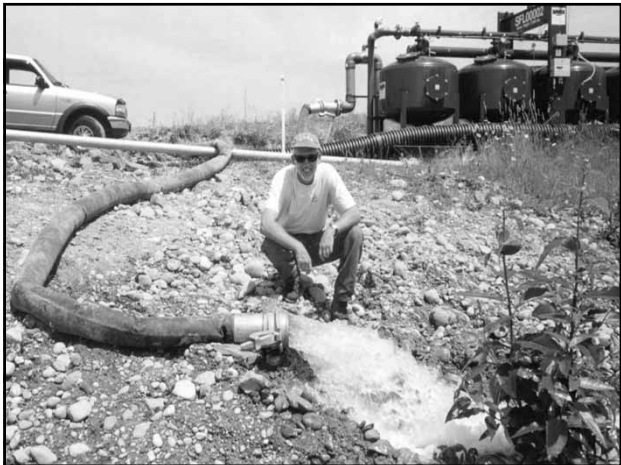


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Inlet Protection and “FF” Fabric



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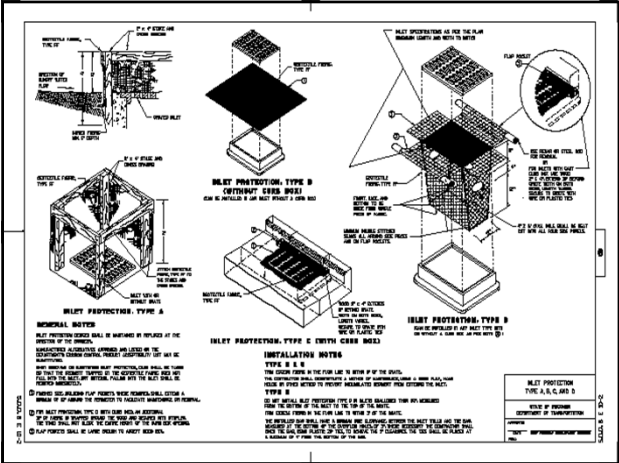
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Exposed Soil Texture	Exposed Soil Particle Diameter (average) (mm)	Filtering Fabric Type*	Recommended Inlet Protection Device Type
Course (Sand)	$\geq 0.0625$	FF	D, D-M
Medium (Silt Loam)	$0.0624 - 0.005$	DF	D-M
		R	D-M
Fine (Clay)	$\leq 0.004$	HR	D-HR

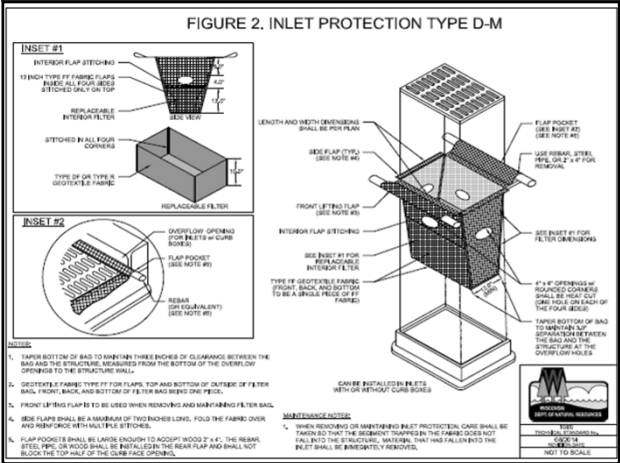
\* DF, R or HR filters may be used where FF is the required minimum standard.

R or HR filters may be used where DF is the required minimum standard.

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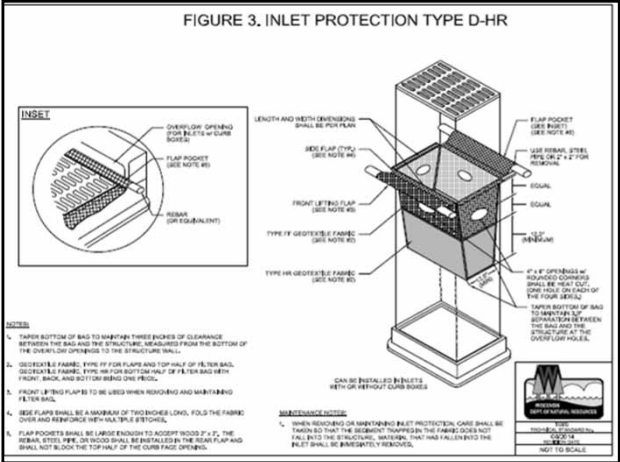
NEW – DNR ONLY

Storm Drain Inlet Protection for Construction Sites (1060)

Wisconsin Department of Natural Resources

Conservation Practice Standard

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Tracking

Environmental as well as Safety  
Issues

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Tracking Pads

- Generally needed in urban areas with storm sewers
- Generally not a bid item
- Need regular maintenance
- May not adequately prevent tracking when used alone
- High on EPA’s inspection list

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NEW

Trackout Control Practices 1057

- Tracking pads no longer required if gravel or hard surfaces are in place and access is restricted to disturbed soils.

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Mud Mat



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- FODS:**
- Pyramids are always upright or “proud”
  - Will not compact 15,000lbs per pyramid
  - Mud and dirt fall to the pan of the mat
  - Can be placed over uneven surface

The FODS Trackout Control System  
Alternative

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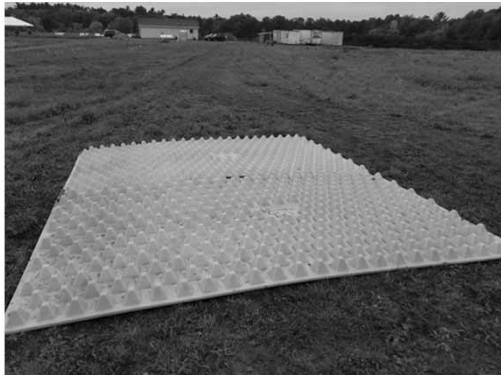


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FODS



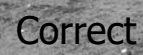
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Temporary Ditch Checks  
Erosion Bale  
And  
PAL Approved Alternatives

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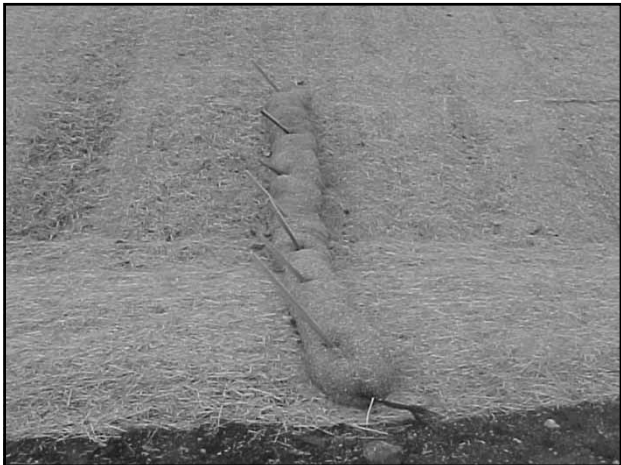
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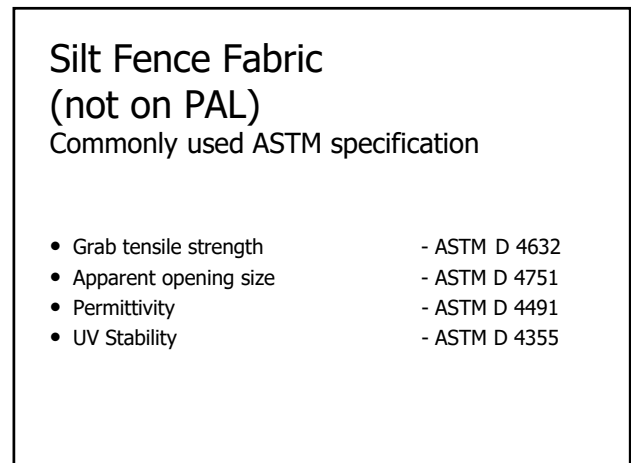
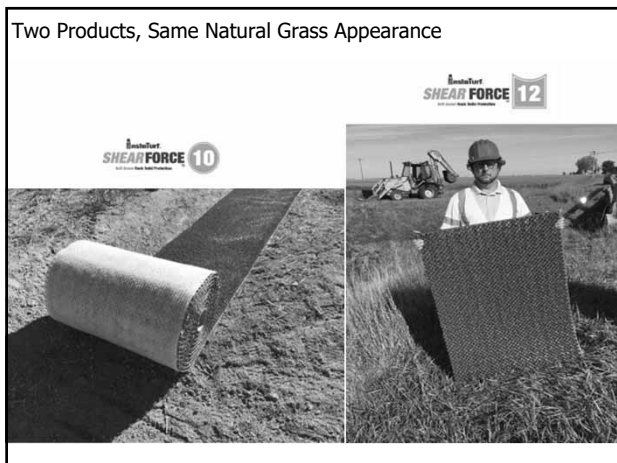
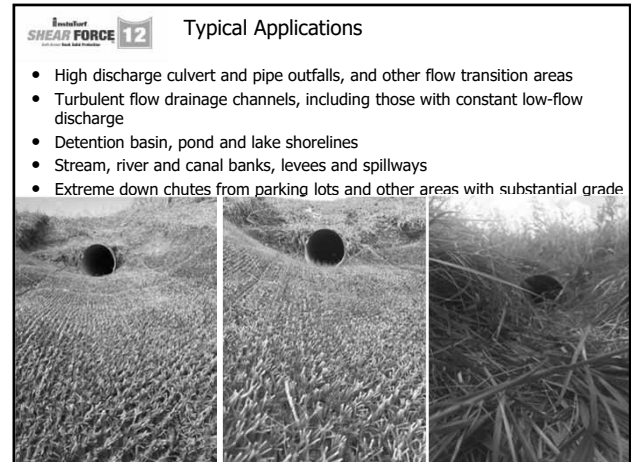
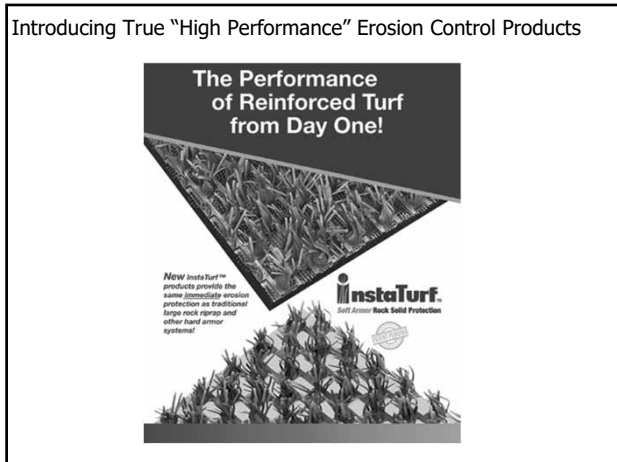
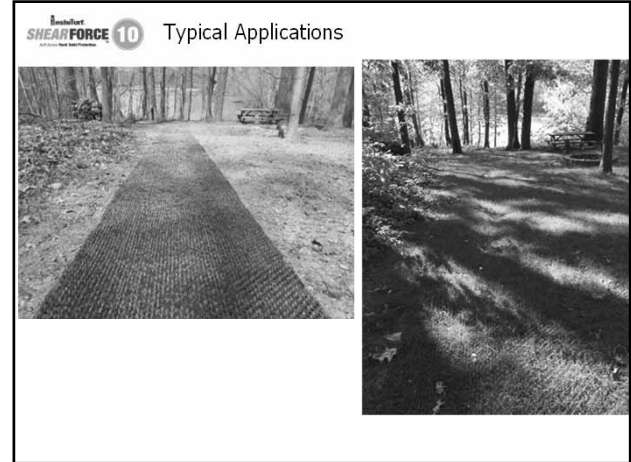
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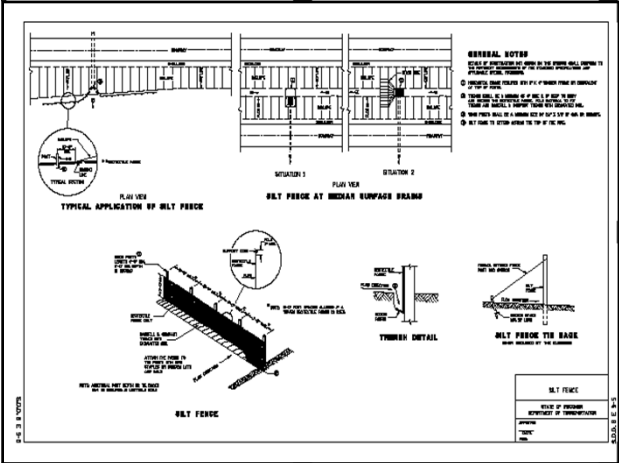


Typical Good Installation

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Incorrectly Installed Across Channel

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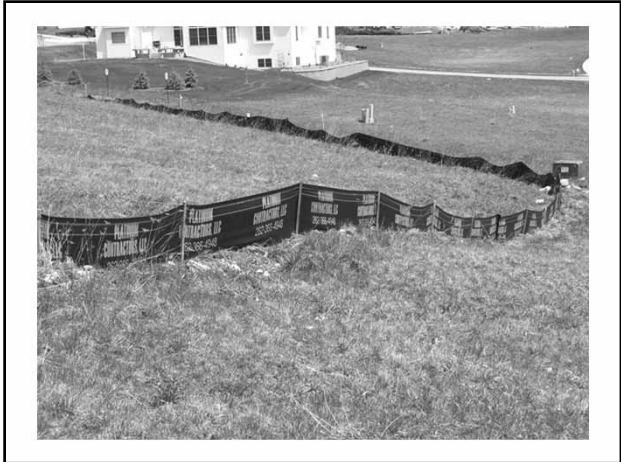
Improper Joint

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Lettering is not allowed per Wisconsin's outdoor advertising law

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Shoreline Restoration Work  
and  
Vegetated Retaining Walls

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Shorelines

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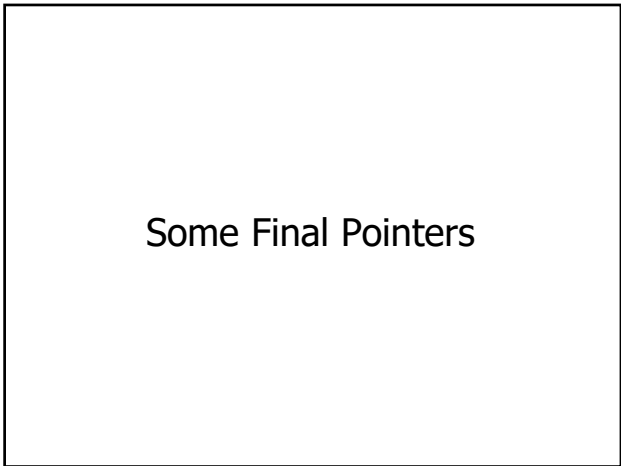
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