Best Management Practices Where we've been/ Where we're going

Gil Layton
Layton Environmental

We have worked and abused our waterways since the mid 1800's

1968
Is This an ACB?
Landlok

Early 90’s brought increased awareness of construction site erosion issues

WisDOT team formed to find solutions

Erosion Control

Product Acceptability Lists
for
Multi-Modal Applications

PAL

www.dot.wisconsin.gov/business/engrserv/pal.htm

Product Acceptability List (PAL)

- Erosion Mats
- Tackifiers
- Soil Stabilizers
- Inlet Protection
- ‘FF’ Fabrics
- Temporary Ditch Checks
- In-Stream Sediment Traps
- Articulated Concrete Block Systems (ACB’s)
- Soil Stabilizer Type A (Land Applied Polymer)
  - All products ranked by performance

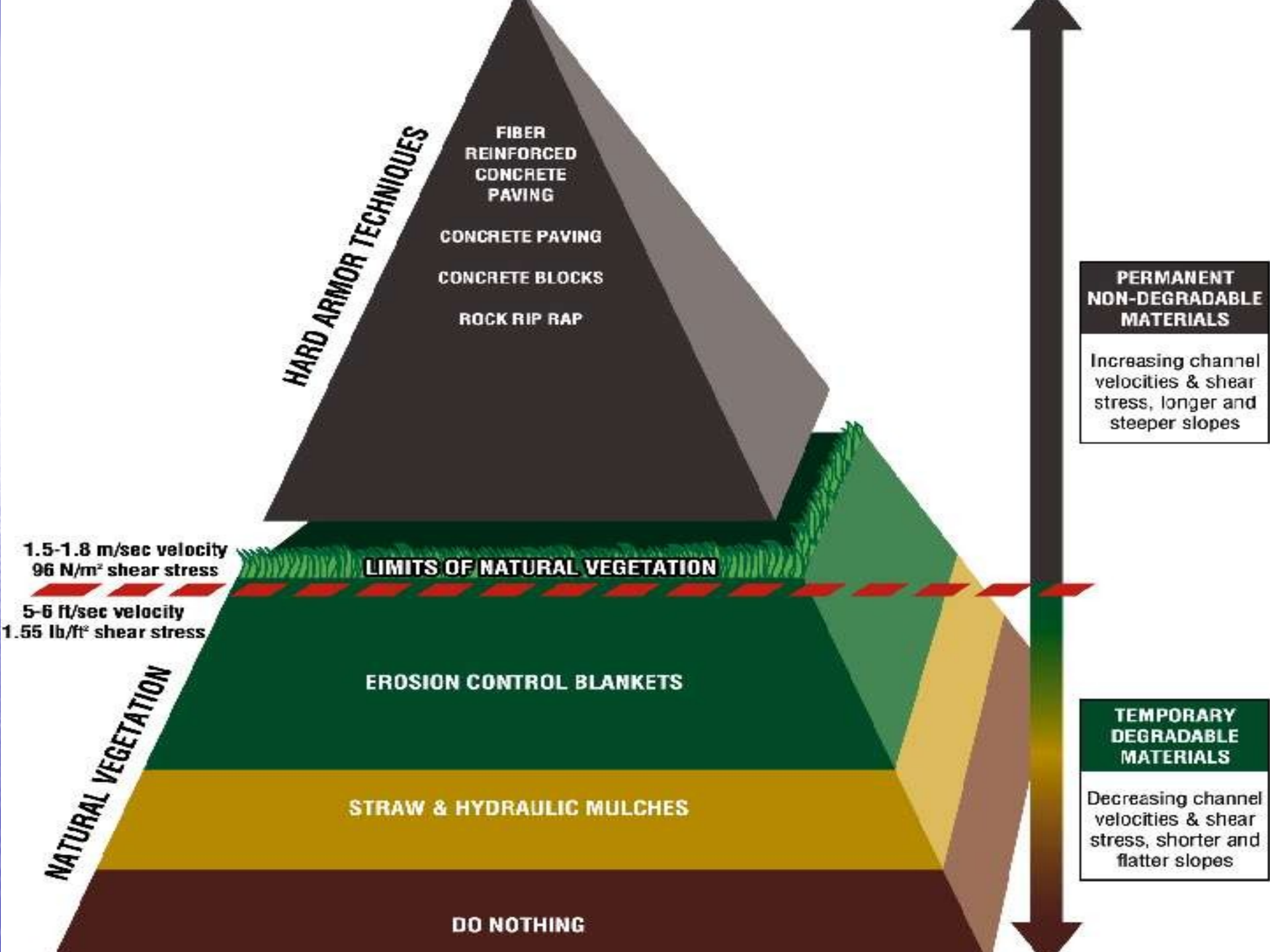
Has been adopted by WisDNR in their Technical Standards

and

DSPS (Commerce)

Benefits of PAL

- Ease of design
- Uniform performance within categories
- Toxicity testing where warranted
- Increased competition from suppliers
- Lower costs for clients / agencies (Contractors can use any pre-approved product within a category)


HARD ARMOR TECHNIQUES
FIBER REINFORCED CONCRETE PAVING
CONCRETE PAVING
CONCRETE BLOCKS
ROCK RIP RAP
1.5-1.8 m/sec velocity
96 N/m² shear stress
LIMITS OF NATURAL VEGETATION
5-6 ft/sec velocity
1.55 lb/ft² shear stress
NATURAL VEGETATION
EROSION CONTROL BLANKETS
STRAW & HYDRAULIC MULCHES
DO NOTHING
PERMANENT NON-DEGRADABLE MATERIALS
Increasing channel velocities & shear stress, longer and steeper slopes
TEMPORARY DEGRADABLE MATERIALS
Decreasing channel velocities & shear stress, shorter and flatter slopes

Erosion Mat

TRM Mat

Why Use Urban Mat?

Approved Biodegradable Staples Required

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

TACO BELL
SCHWINN

Tackifiers
with Seed & Mulch

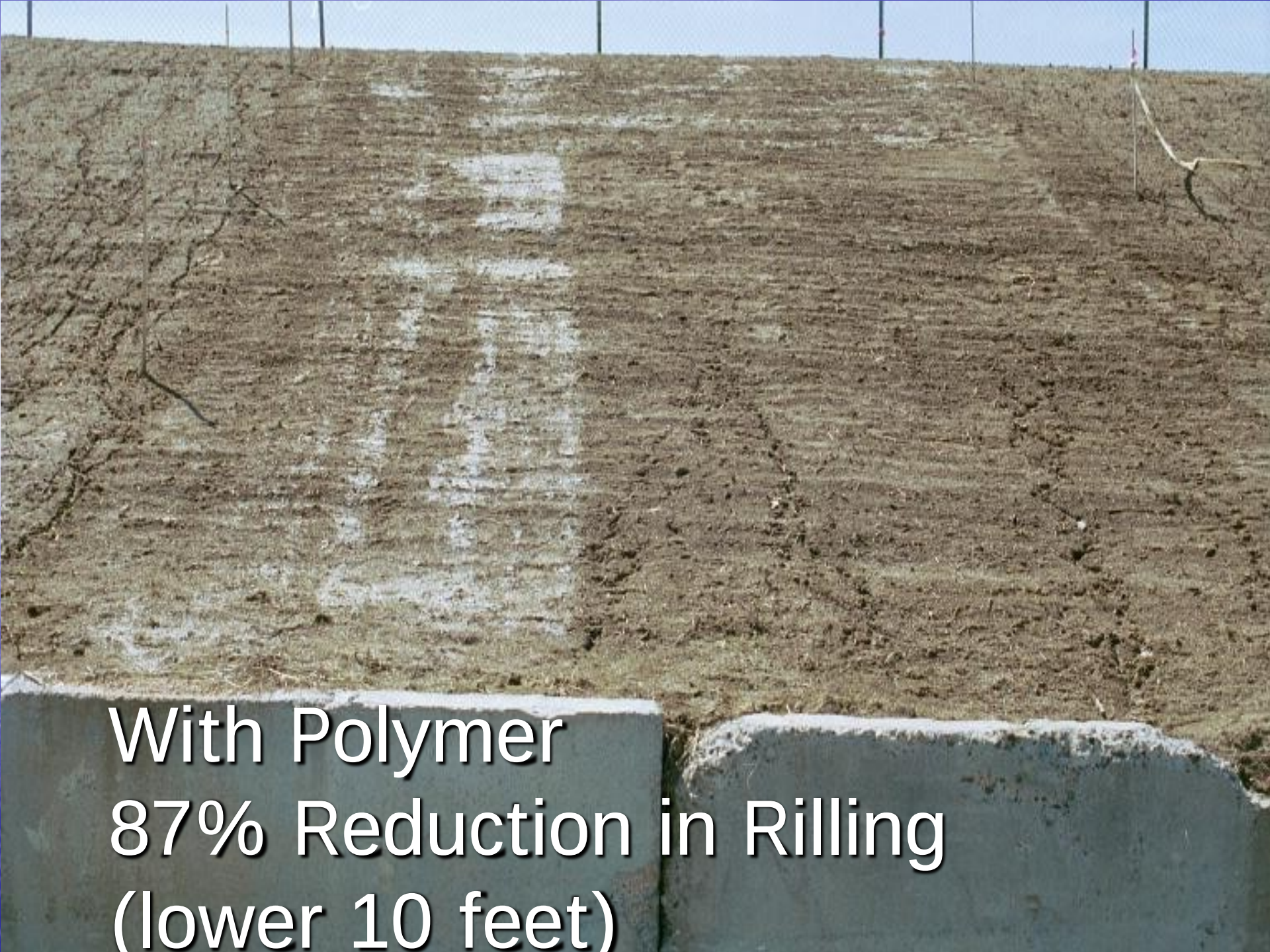
Soil Stabilizers Type A

Hydro Mulch

Bonded Fiber Matrix (BFM)

Soil Stabilizers, Type B
(Land Application of Polymers)

Land Application Polymer Control Site Without Polymer


With Polymer
87% Reduction in Rilling
(lower 10 feet)

Without Polymer
Late Spring

With Polymer
Late Spring

Wet Application

Most Common and economical on Large Sites

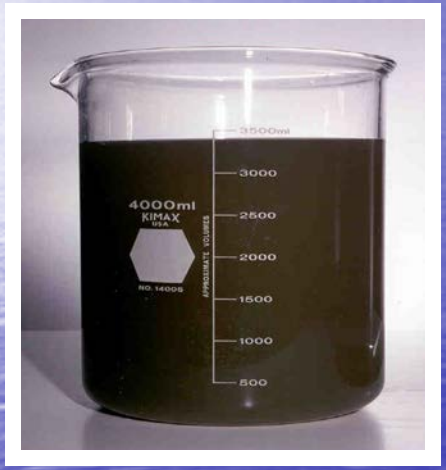
Dry Application

- 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

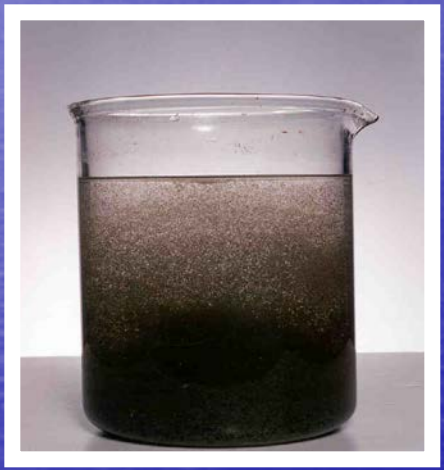
Vegetative Enhancement

8 months later

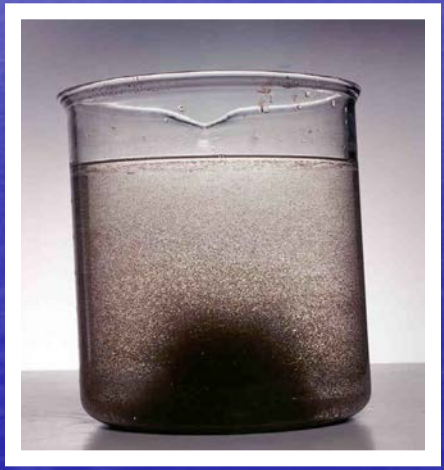
Water Application of Polymer



Time 0



1 min.



15 min.

2 hours

Application Methods

- Passive application using socks
  - Sock placed in gravity flow
  - Sock placed in created flow
- Active surface application using liquid
  - Hydroseeder
  - Pump mixing
  - Backpack sprayer

Sediment Settling

Passive Application (Super Simple)

Passively applying sock in swales

Applied in Dewatering Bag

Vegetated Retaining Walls & Slope Stabilization

(the Envirolok wall System)

Traditional Retaining Walls

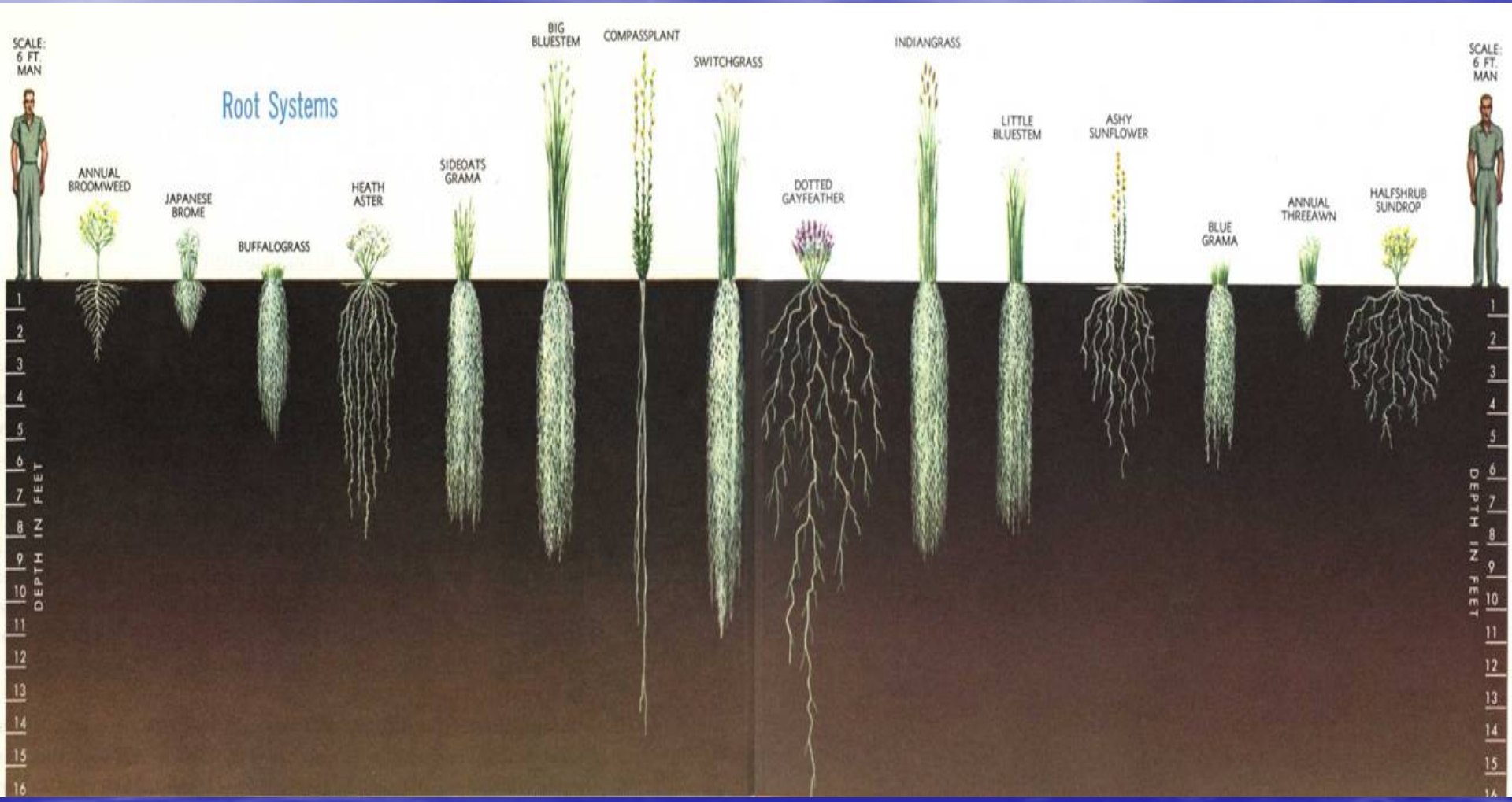
Needs Maintenance

Natives

Native Species Benefits

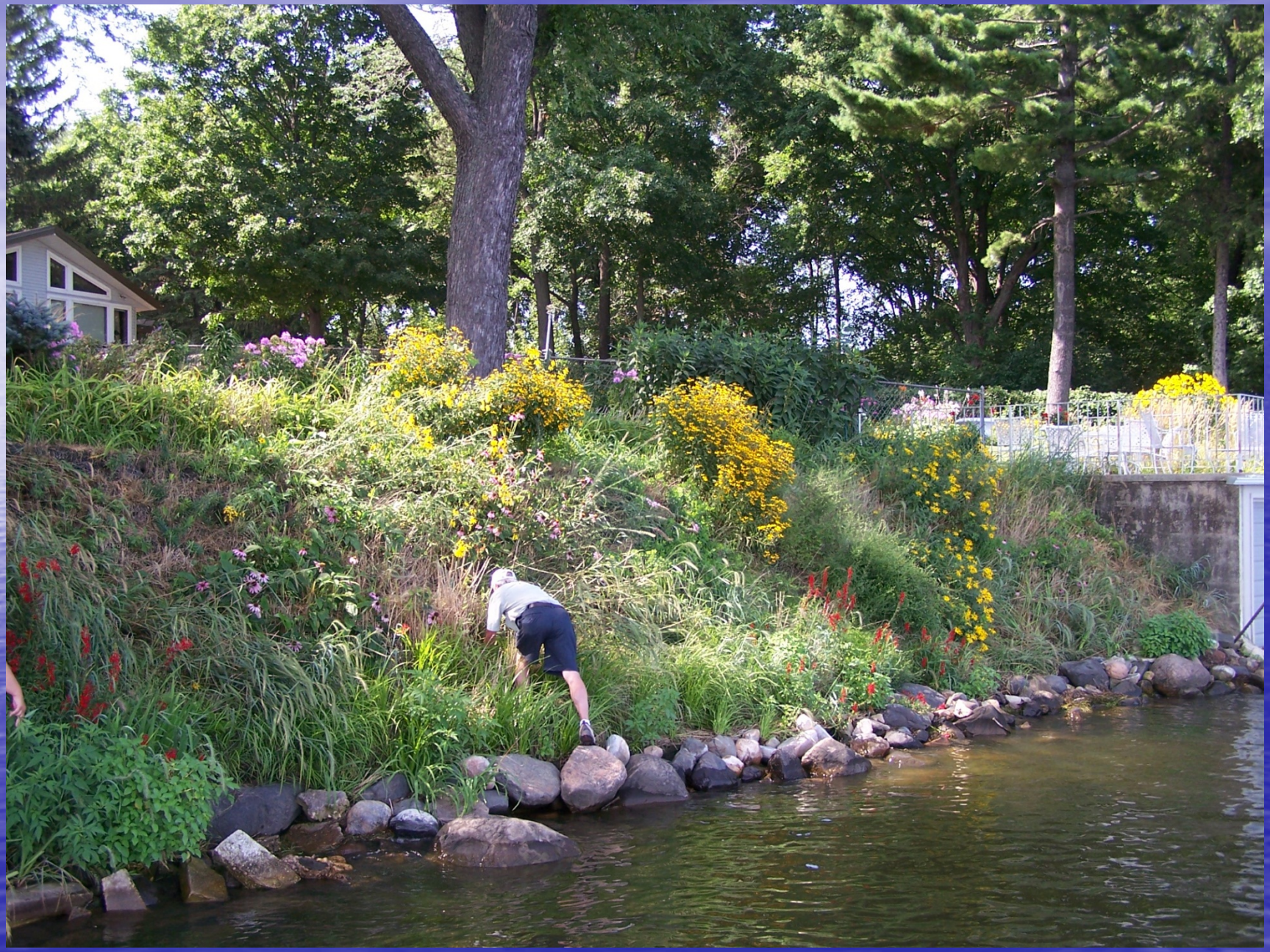
- Hardiness, plants have adapted to local conditions
- Don’t need pesticide, fertilizer, or watering
- Less maintenance
- Wildlife habitat improvement
- Beautification

Root Depths



Turf Grasses Average 3 – 4” (75 – 100 mm)

DIXON
608 741-5617



Geotextile bags pin earth in place and create soil confinement.

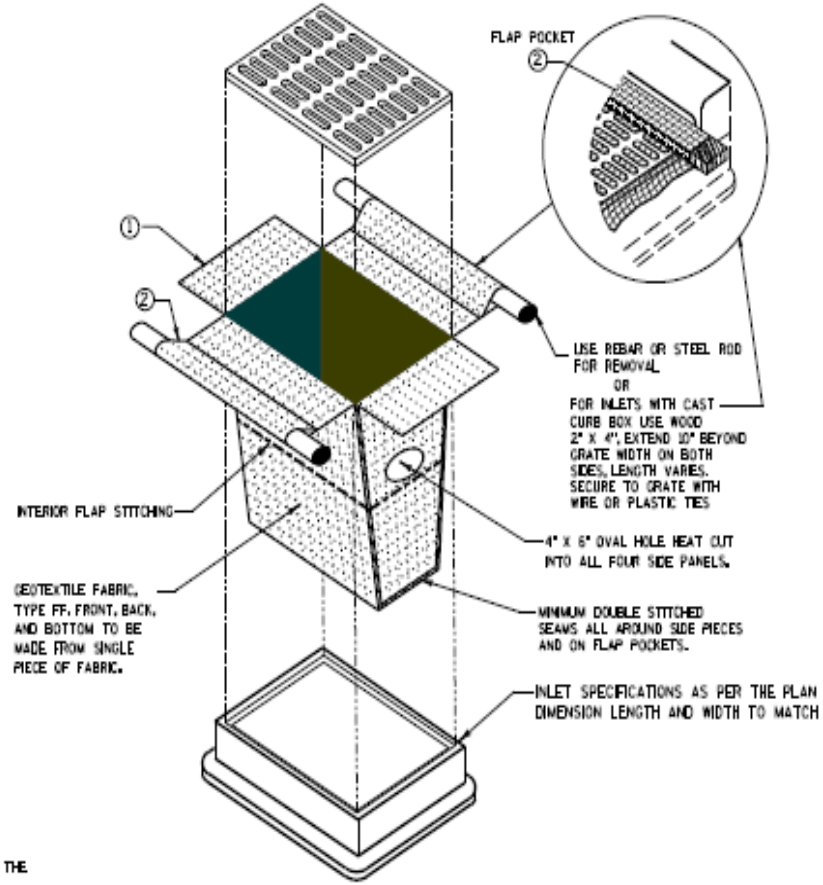
Use as an alternate to rock and concrete

Use where equipment access is limited

Installation is user friendly

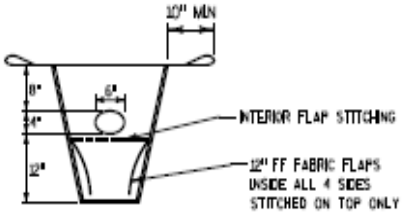
Coir Logs

NEW Curlex Shore Blocks

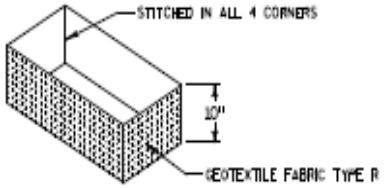


INLET PROTECTION TYPE D
REPLACEABLE FILTER MODIFIED

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)



SIDE VIEW



REPLACEABLE FILTER

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

① MINIMUM 10" SIDE FLAPS FOR TO FACILITATE INSTALLATION. AFTER INSTALLATION, TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE

② FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INLET PROTECTION TYPE D
REPLACEABLE FILTER MODIFIED

6

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We’ve Come A Long Way

We Still Have Problems

Questions, Gil Layton
608-332-3413