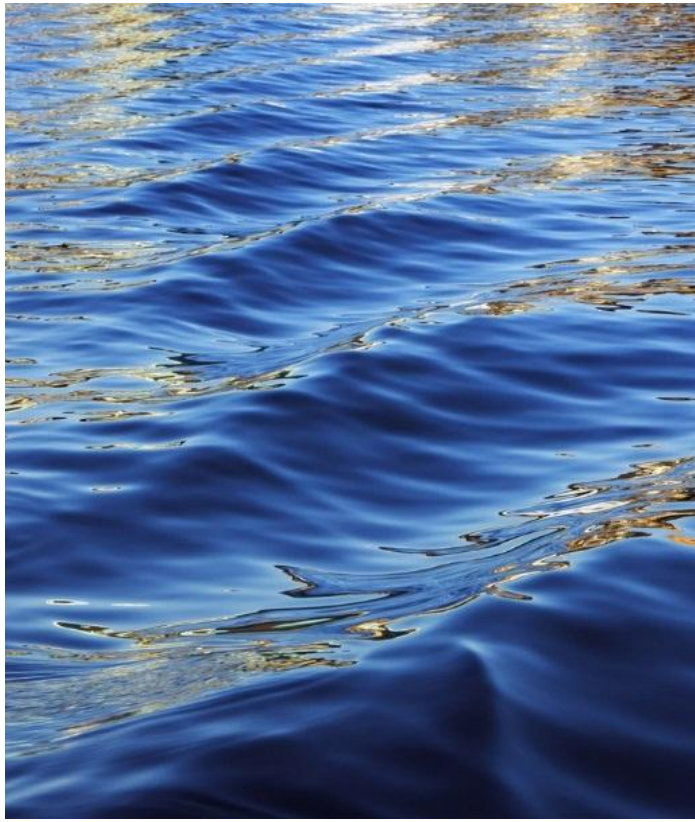
Lake Redstone

Shoreline Improvement Workshop

October 10, 2025

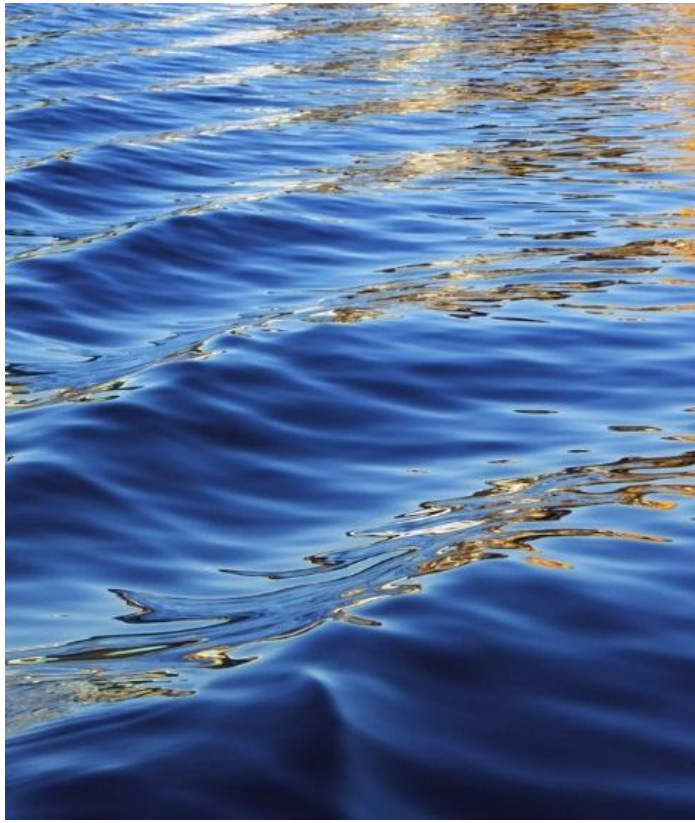


Outline of Workshop (Total time approx. 2 hours)

- **Introduction**: Brad Horner 20 min
- **Review of the various shoreline improvement methods:** Mitch McCarthy 60 min
- **Landscaper Perspective**: Nathen Ihde 25 min
- **Question & Answer:** Mike Mittelstadt 15 min

Introduction

Brad Horner



Purposes of the Workshop. To Provide:

- Basic information about the assessment
- Reimbursement Information
- Review of the various shoreline improvement methods
- Provide landscaper perspective on shoreline improvement projects

Basic Information About The Assessment

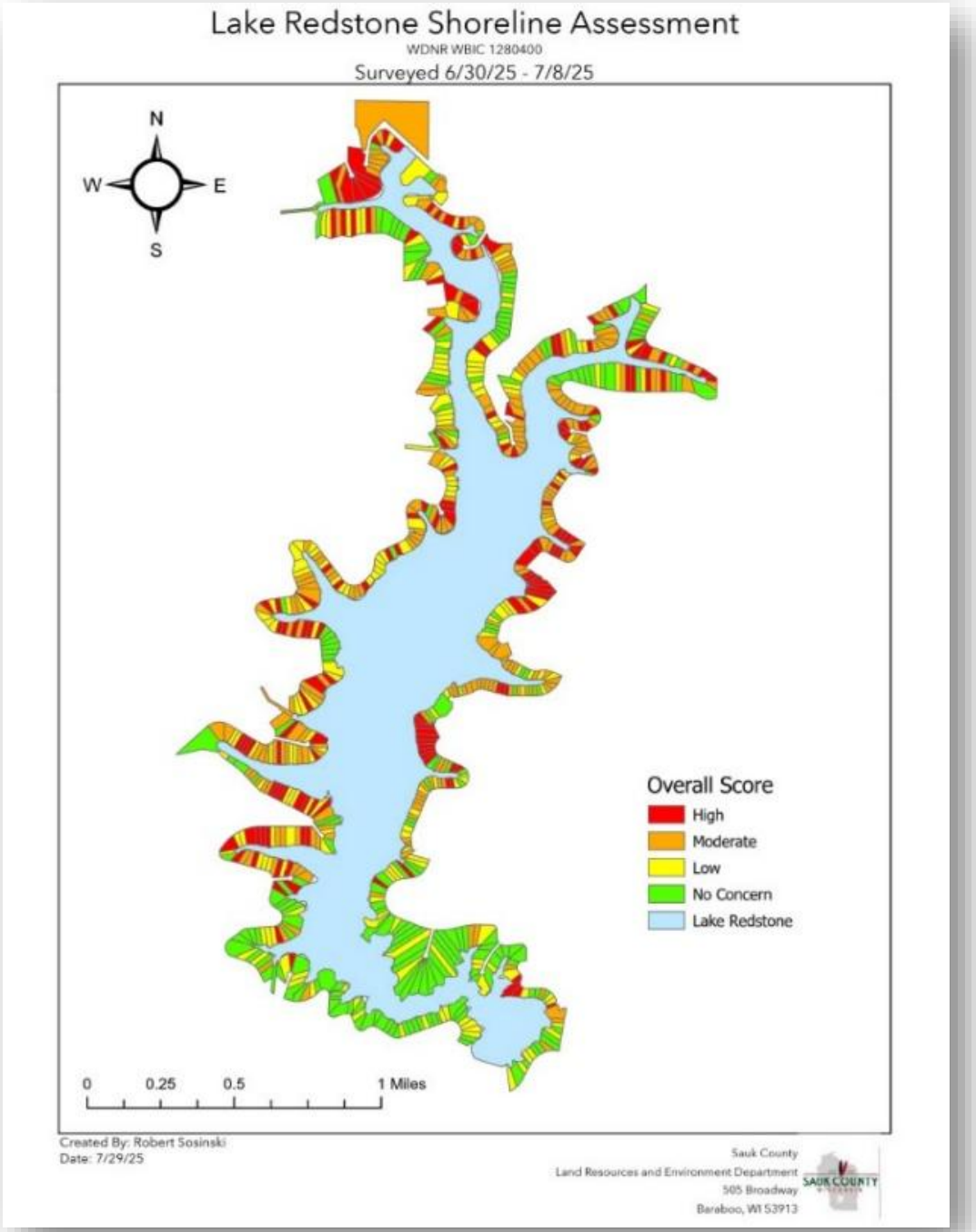
- The assessment was performed in June and July 2025 by Sauk County, with logistical support from the LRPD. A similar assessment was performed in 2018.
- Address of runoff from properties is vital to lake health because per numerous studies, appropriately 40% of the sediment coming into the lake are from properties around the lake.
- The process used in this survey was developed by the Wisconsin Department of Natural Resources (WDNR)
- Intended to provide:
  - Property owners with an understanding of the status of their property regarding runoff, and recommendations for improvement
  - The LRPD and Sauk County with updated, macro-level information about the properties around the lake
- The process involved photographing each parcel from the lake and evaluation using an application developed by Sauk County
- The riparian zone (first 35 feet) of each property was scored for 9 key parameters

Priority Scoring Parameters

Parameter	Red Range (2 points)	Yellow Range (1 point)	Green Range (0 points)
Percent Canopy Cover	0-33%	34-66%	67-100%
Percent shrub and herbaceous(undisturbed)	0-33%	34-66%	67-100%
Percent lawn, impervious, and other surfaces	67-100%	34-66%	0-33%
Number of buildings and other human structures	>1	1	0
Presence/Absence of lawn or soil sloping to lake	N/A	1(Present)	0(Absent)
Presence/Absence of bare soil	2(Present)	N/A	0(Absent)
Presence/Absence of sand deposits	N/A	1(Present)	0(Absent)
Percent woody habitat	0-33%	34-66%	67-100%
Percent slope	>9%	5-8%	0-4%

Lake-wide Summary

Priority	Overall Score	Color	Number of Parcels
High	10-15	Red	162
Moderate	8-9	Orange	240
Low	5-7	Yellow	195
No Concern	0-4	Green	198



Reimbursement Information

- DNR and Sauk County Reimbursements go thru Mitch McCarthy mitchell.mccarthy@saukcountywi.gov
  - Mitch will guide you through the project design (on-site, free help), contracting, and project management processes. He will also help you with required reimbursement applications for one or both organizations.
  - DNR reimbursement is $1000 per improvement method used
  - Sauk County reimbursement is up to $3000
  - Applications due for 2026 projects by November 1st 2025
- LRPD reimbursement is up to 50% of total cost, up to $2000. Applications for work done in 2025 are due November 1st. See https://www.lakeredstonepd.org/shorelineimprovement

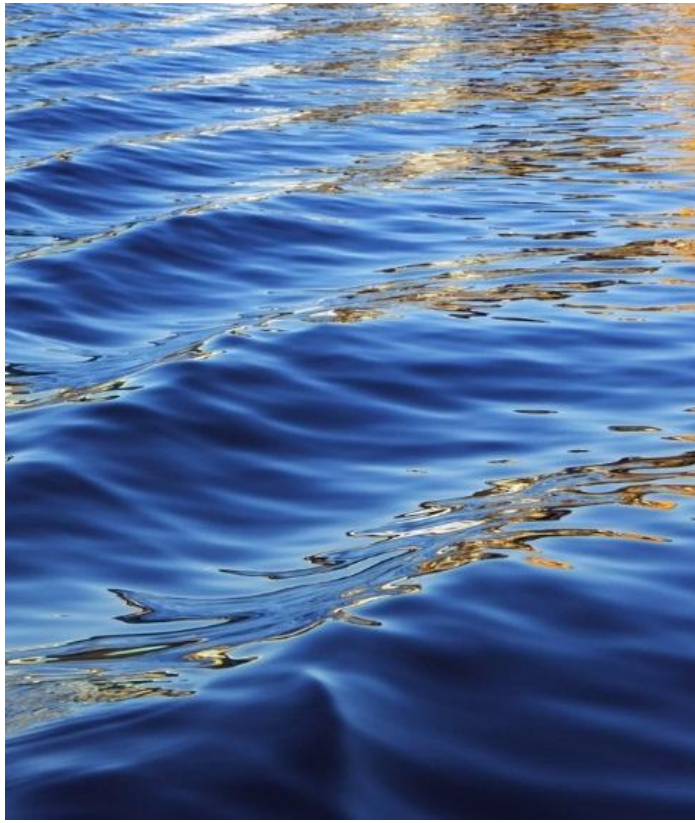
Reimbursement Programs Comparison

Best Management Practice	Funding Source		
	Sauk County	DNR Healthy Lakes	LRPD
Wave Reducing Timbers- Fish Stick		x	
Wave Reducing Timbers- Log Revetment	x		*
Native Plantings		x	x
Diversions		x	x
Rock Infiltrations		x	x
Rain Gardens		x	x
Bioengineered Shorelines- Natural Fiber Rolls, Blocks, and Mats	x		*
Bioengineered Shorelines- Riprap with Native Plantings	x		*
Bioengineered Shorelines- Geotextile Bags	x		*

* Case by case basis

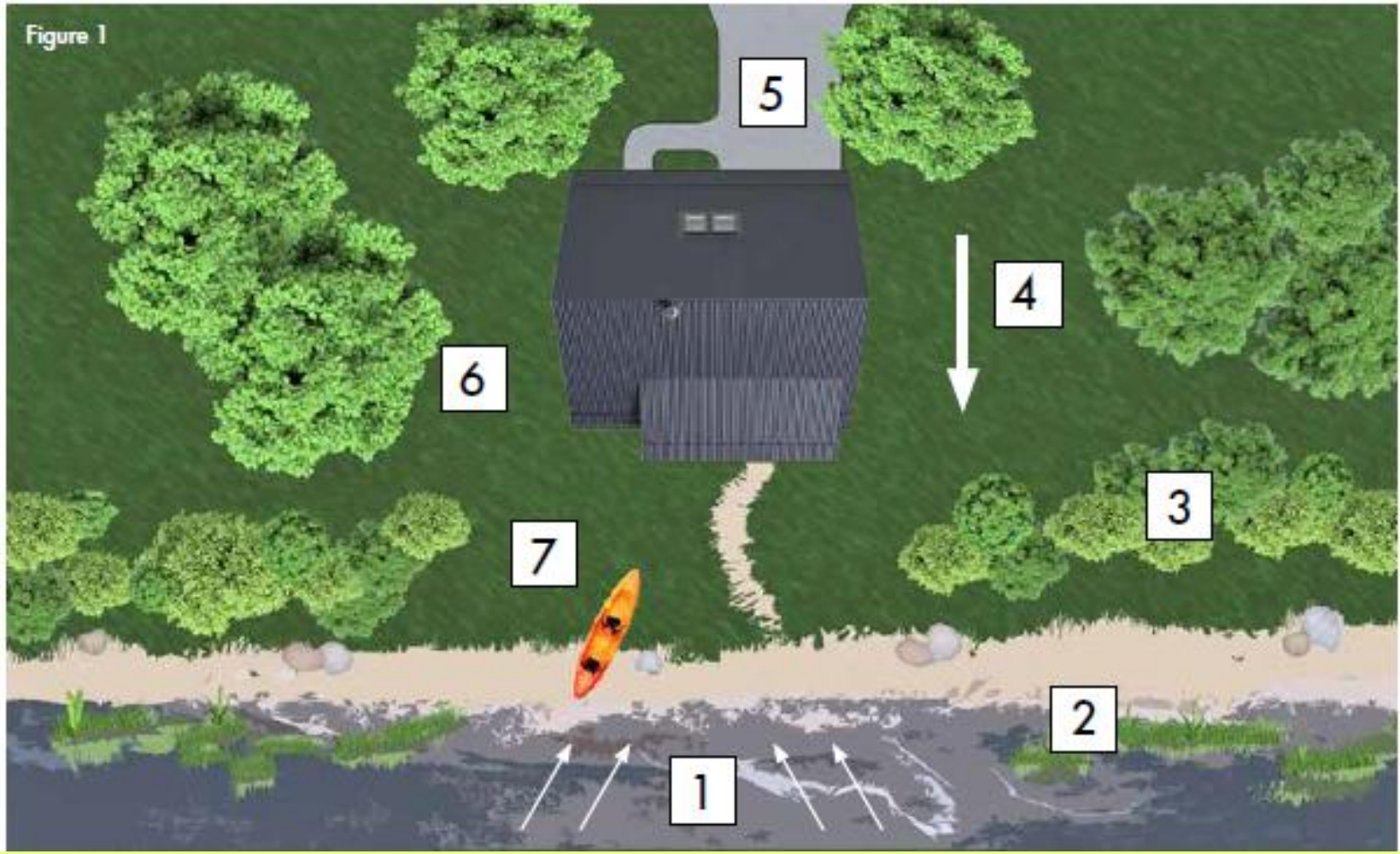
Review of the various shoreline improvement methods per Sauk County Lake Cost Share Funding Program

Mitch McCarthy



Assessing Your Shoreline

1. Wave Energy
2. Aquatic Vegetation
3. Shoreline Vegetation
4. Slope
5. Impervious Surfaces
6. Soil Type
7. Recreational Use



Best Management Practices

There are a variety of practices that homeowners can implement to improve their shoreline for habitat, runoff control, stabilization, and natural beauty. It is important to take into consideration the needs of the property as well as the landowner's goals. All practices can be cost shared by Wisconsin DNR through their Healthy Lakes initiative, Sauk County – Land Resources and Environment, or the Lake Redstone Protection District.

Practices:

1. Wave Reducing Timbers
2. Native Plantings
3. Tree Cover
4. Diversions
5. Rock Infiltrations
6. Rain Gardens
7. Bioengineered Shorelines

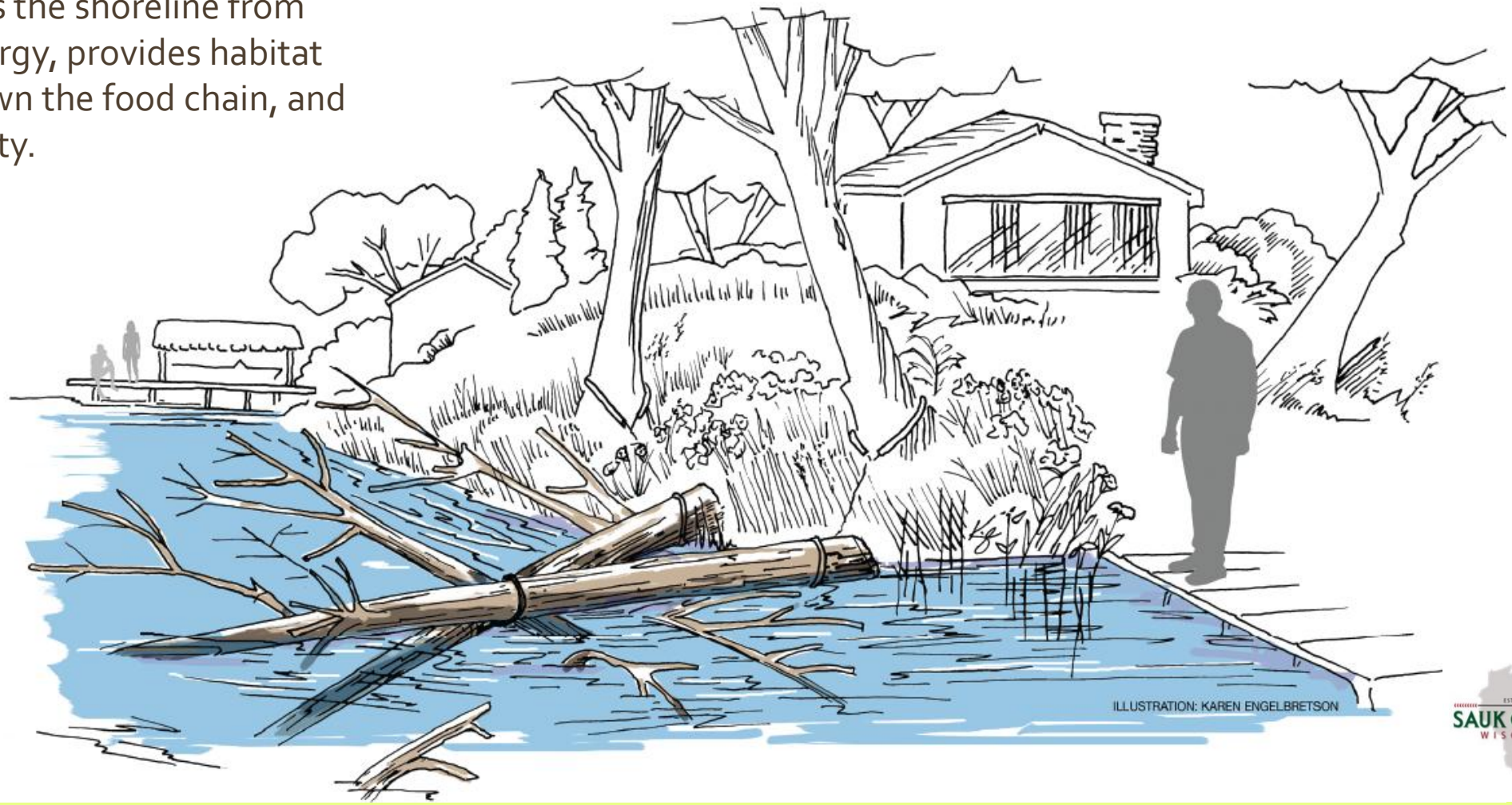
Sauk County Regulations for Shoreline Work

Before starting any alteration of your shoreline, make sure you have any required permits from the appropriate local municipalities, county government, tribal government, Wisconsin Department of Natural Resources (DNR), and the U.S. Army Corps of Engineers, as needed.

Sauk County Zoning	608-355-3245
WDNR	608-267-3125
U.S. Army Corps of Engineers	715-345-7911

Wave Reducing Timbers- Fish Sticks

This practice protects the shoreline from low energy wave energy, provides habitat to wildlife up and down the food chain, and improves water quality.



Wave Reducing Timbers- Fish Sticks-Example

FISH STICKS AND TREE DROPS

Appropriate Uses & Benefits

- Reduces wave energy and limits bank erosion
- Provides habitat for a variety of species
- Provides an environment for establishing aquatic plants
- Restores natural structure to lakes

Limitations

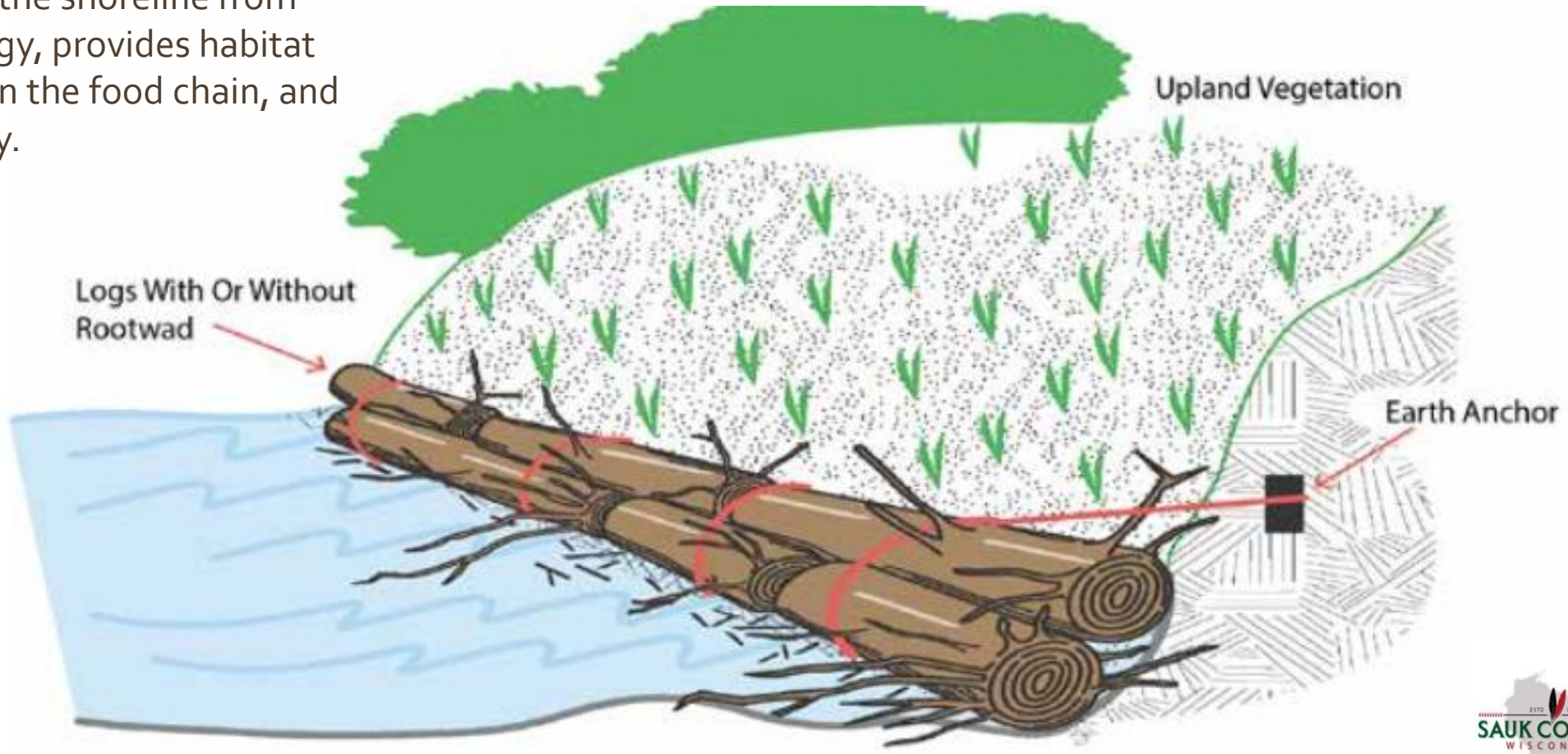
- Accessing and transporting trees
- Not suitable for high energy sites
- Not suitable near heavy boat traffic
- Avoid walleye spawning areas
- Icy conditions can delay installation

Funding Source

Sauk County	N
Healthy Lakes	Y
LRPD	N

Wave Reducing Timbers- Log Revetments

This practice protects the shoreline from low energy wave energy, provides habitat to wildlife up and down the food chain, and improves water quality.



Wave Reducing Timbers Log Revetments- Example

LOG AND ROOT WAD REVETMENT

Appropriate Uses & Benefits

- Both high and low energy sites
- Improves spawning habitat
- Economical

Limitations

- Limits shoreline access
- Creates shoreline disturbance
- May need to be replaced eventually
- Transporting and access to trees

Funding Source

Sauk County	Y
Healthy Lakes	N
LRPD	Case by case basis

Native Plantings- aka 350 ft² Native Buffer

Native buffers help to filter and slow runoff before reaching the lake, protecting shorelines with their dense and deep root structures. Additionally, buffers provide fantastic habitat to beneficial birds, insects, and provide shade and food to fish.

Native Plantings- aka 350 ft^2 Native Buffer

NATIVE PLANTINGS

Appropriate Uses & Benefits

- Most sites are appropriate
- Areas with little or no traffic are best
- Areas with little or no wave action

Limitations

- Cost
- Maintenance is required (e.g. fencing, watering, and weeding)
- Deer browse may be an issue
- Not for use on sites with active erosion issues
- May need additional practices to address erosion

Funding Source

Sauk County	**Native Plant Sale**
Healthy Lakes	**Y**
LRPD	**Y**

Tree cover

Tree cover benefits Wisconsin's lakes by acting as a natural filter that improves water quality, preventing shoreline erosion, and providing essential habitat for fish and wildlife.

Tree Cover

Tree Cover

Appropriate Uses & Benefits

- Natural filter that improves water quality
- Preventing shoreline erosion
- Providing essential habitat for wildlife
- Most effective when the native shoreline buffer

Limitations

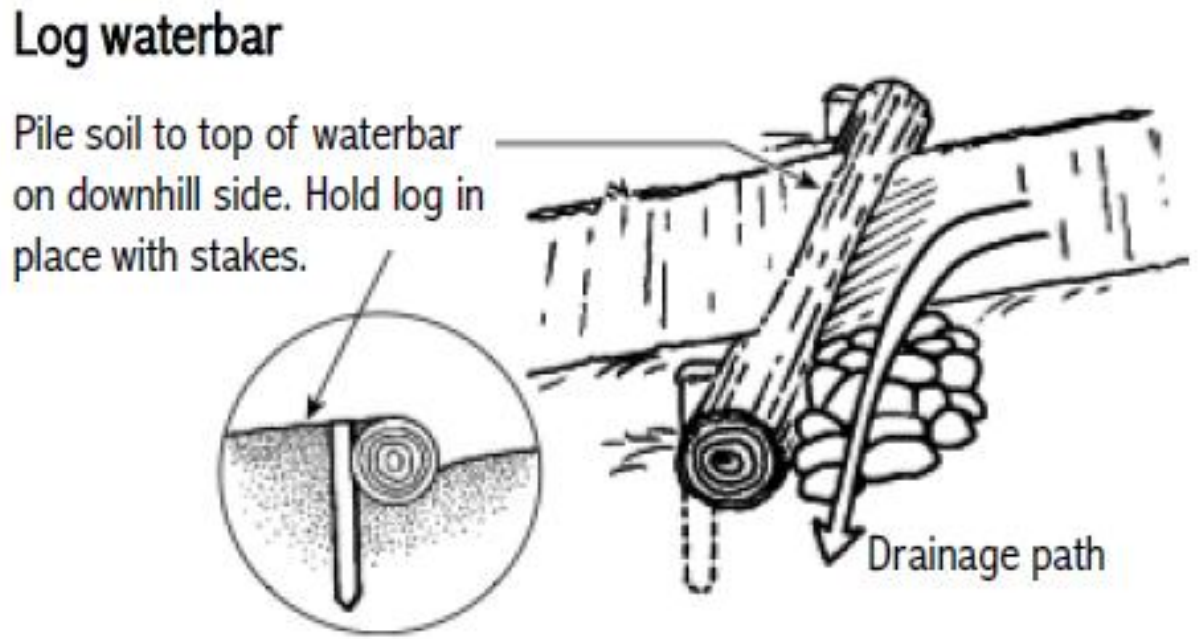
- Possible view obstruction
- Deer browse

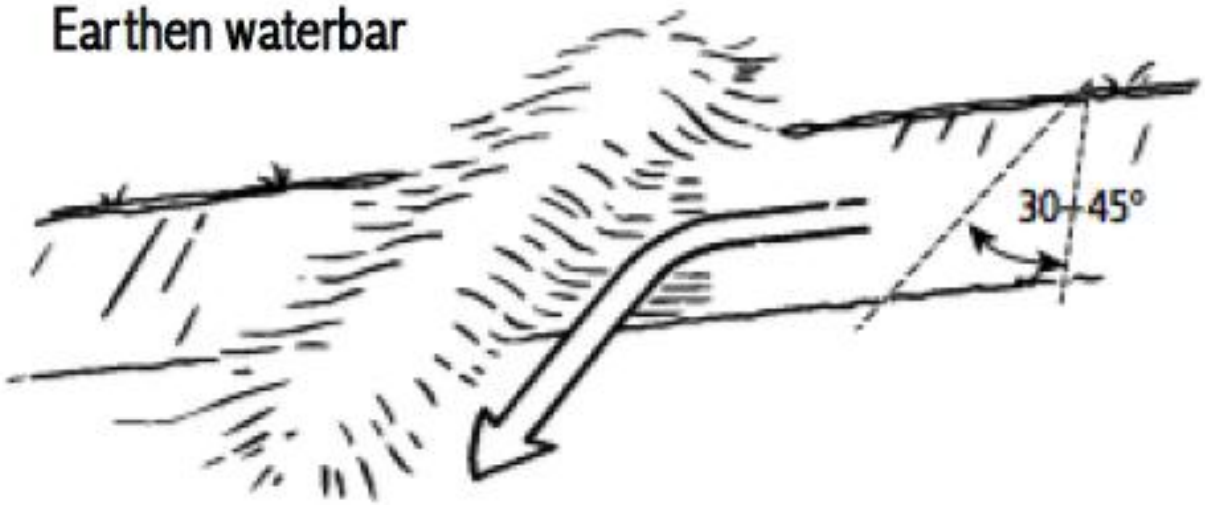
<u>Funding Source</u>

Sauk County	**Tree Sale**
Healthy Lakes	**Y- (part of buffer)**
LRPD	**N**

Diversion

Diversions divert water into places better suited for water infiltration. In addition to helping improve lake health, these can also reduce the effects of erosion on the paths that the diversions are installed on.





Diversion

Diversion

Appropriate Uses & Benefits

- Transition zone and upland best practice
- Intercept runoff from a path or driveway
- Redirect it into a well-vegetated dispersion area or infiltration practice
- Multiple diversion practices may be necessary

Limitations

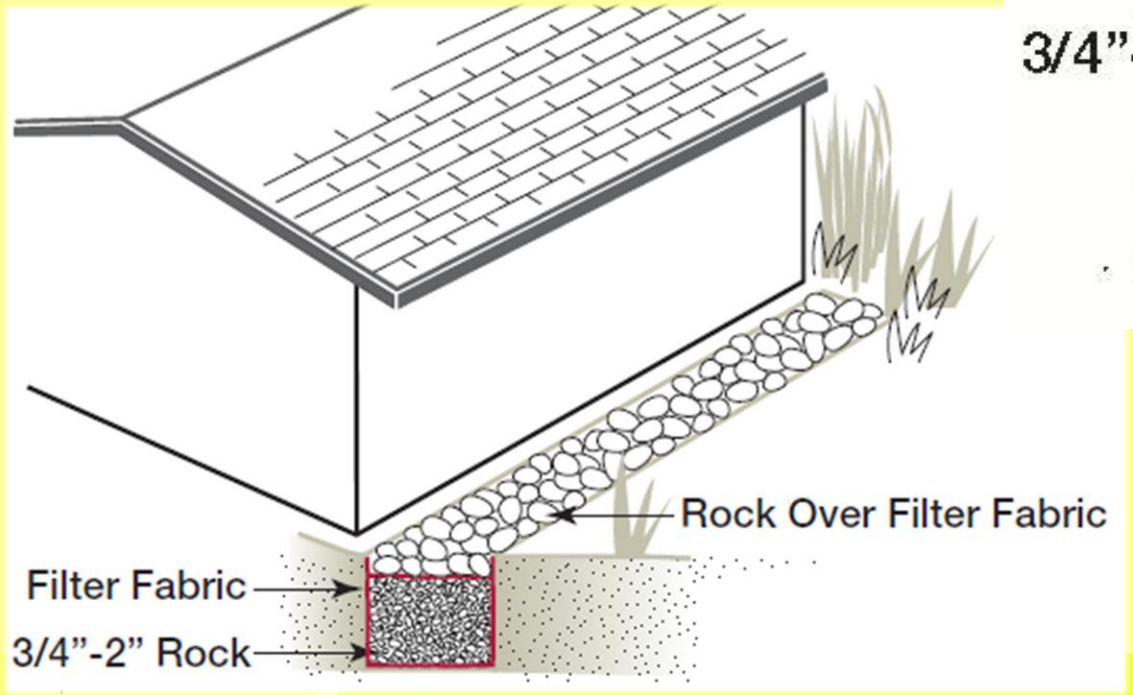
- Slopes not exceeding a 10% grade
- Must outlet to a stable, well-vegetated area
- Not intended for large volumes of runoff

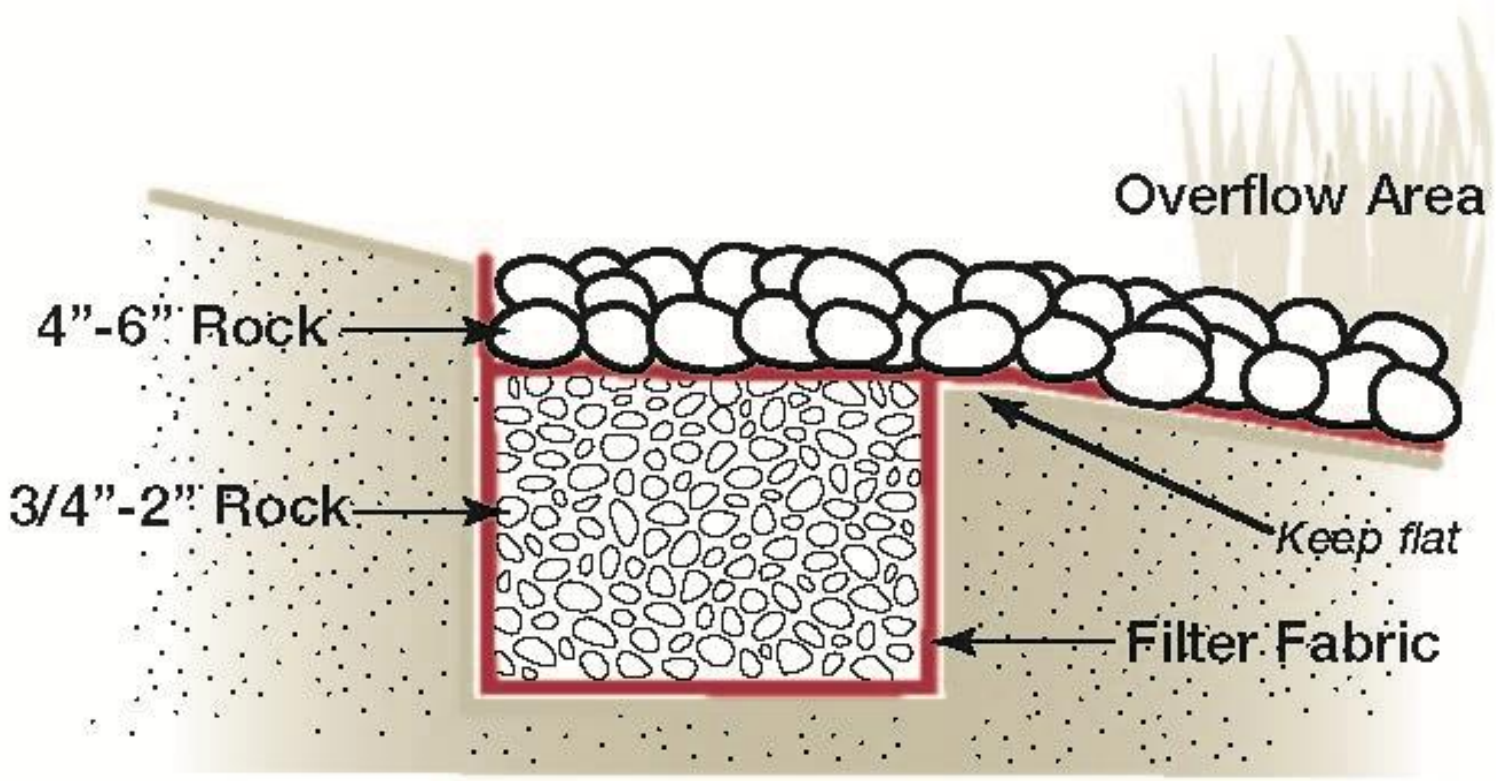
Funding Source

Sauk County	**N**
Healthy Lakes	**Y**
LRPD	**Y**

Rock Infiltration

Installed upland, where large quantities of water are expected to come from (think roofs, roads, and gutters). Infiltrations slow water down and allow it to absorb into the soil instead of going straight down to the lake.





Rock Infiltration

Rock Infiltration

Appropriate Uses & Benefits

- Transition zone and upland best practice
- Capture, redirect, and pre-treat water
- Alternative option to Rain Garden

Limitations

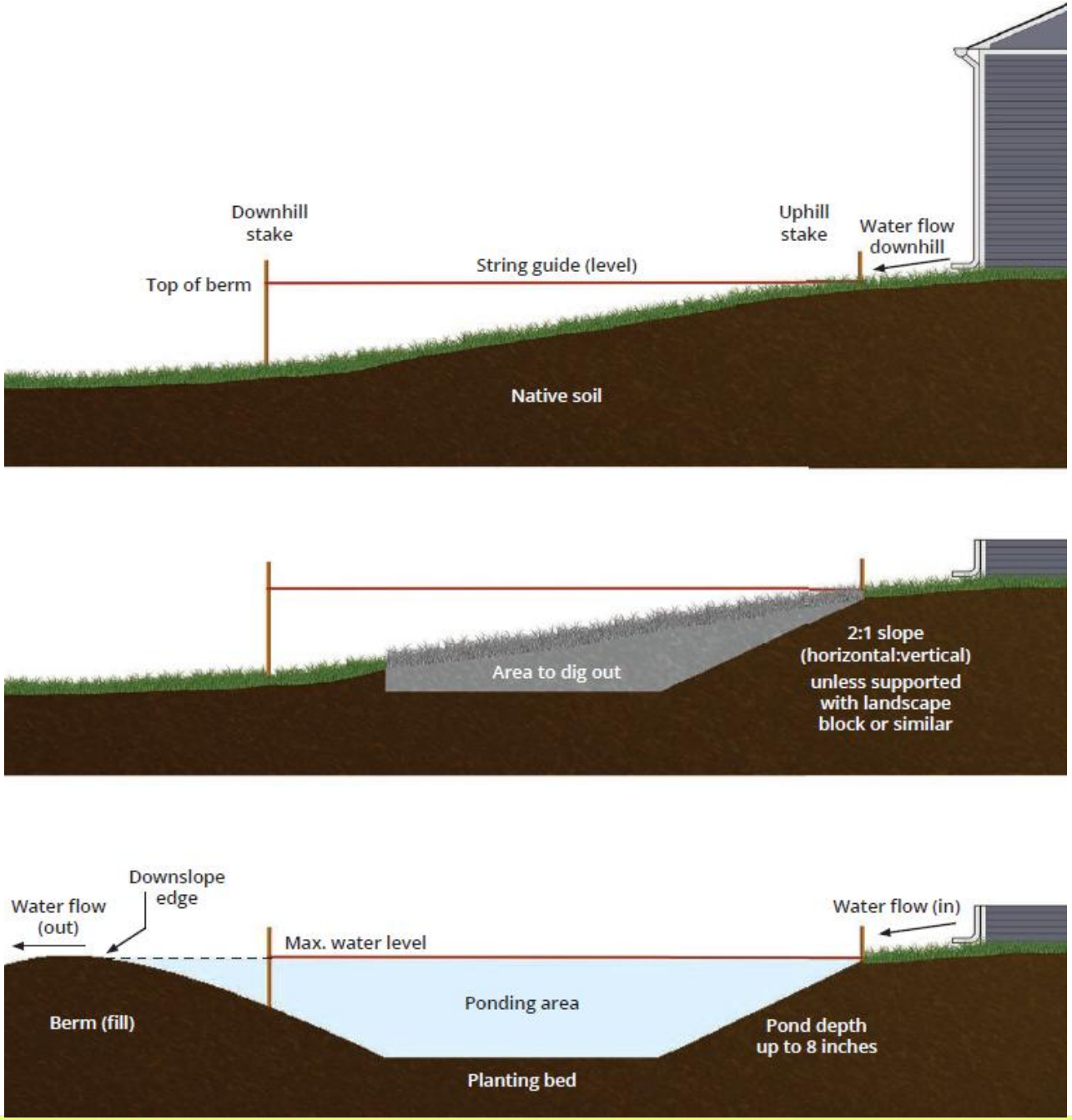
- Appropriate for sandy to loamy soils only (not clay!)
- May require a catch basin or diversion practice to redirect runoff water to it

Funding Source

Sauk County	**N**
Healthy Lakes	**Y**
LRPD	**Y**

Rain Garden

Rain Gardens collect roof, path, and driveway runoff allowing it to soak into the ground. With larger rain events the garden will still support the lake by filtering out a majority of the polluted runoff. Rain Gardens also give homeowners an opportunity to create a beautiful native garden that will attract birds, butterflies, and beneficial insects.



Rain Garden

Rain Garden

Appropriate Uses & Benefits

- Capture and infiltrate runoff
- Designed to drain within 1-2 days,
- Provide habitat for birds, butterflies, and beneficial insects and promote natural beauty

Limitations

- At least 10 feet away from your home
- Do not locate the garden over a septic field or where water already ponds
- Choose a location in full or partial sun

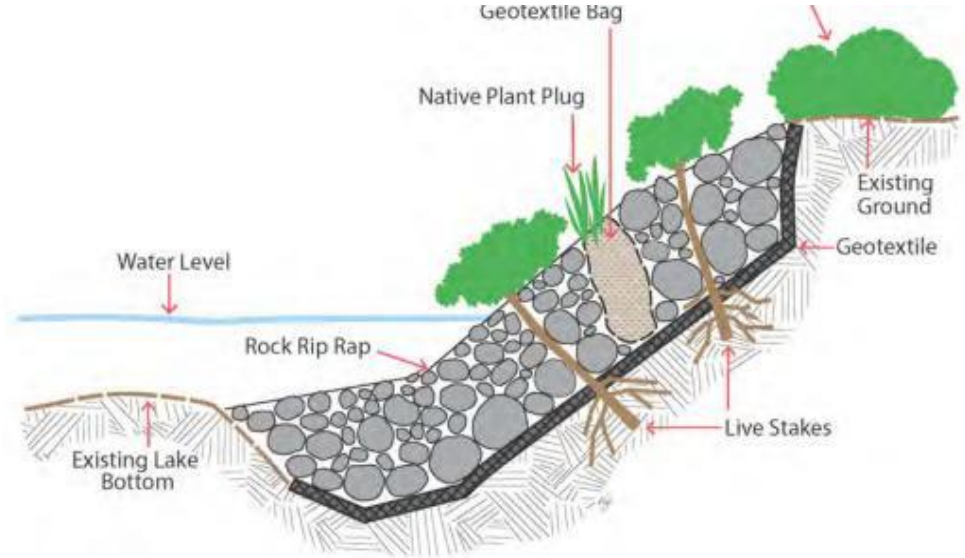
Funding Source

Sauk County	**N**
Healthy Lakes	**Y**
LRPD	**Y**

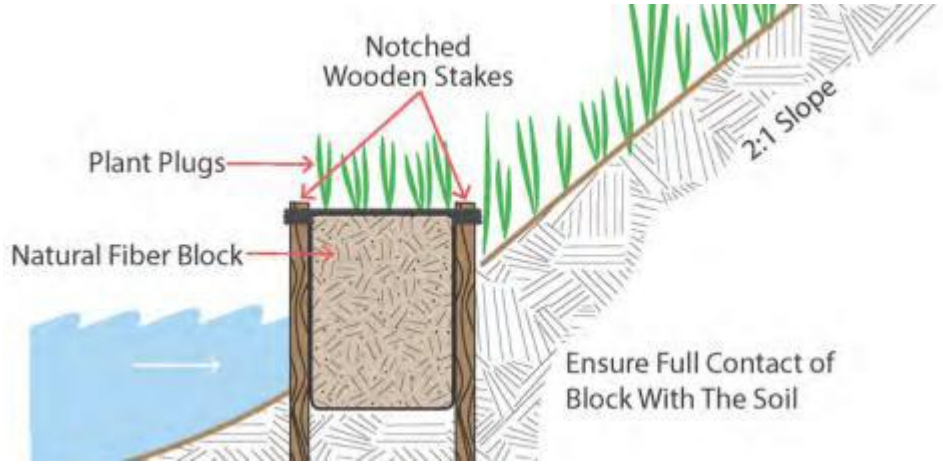
Bioengineered Shorelines

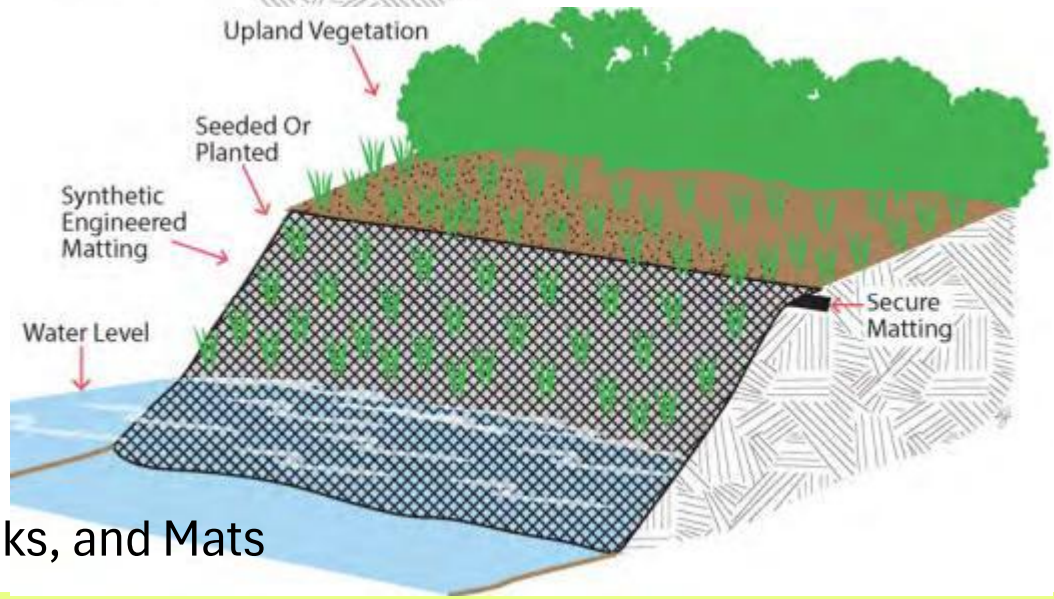
Bioengineered shoreline option that can be suited to any property. Natural fibers, plantings, and geotextiles reinforces riprap with root structures to enhance its longevity, runoff absorption qualities, and ability to provide habitat. If landowners want to replace or install riprap it is highly recommended to consider a bioengineered option that includes some plant integration.

Riprap with Native Plantings



Geotextile Bags





Natural Fiber Rolls, Blocks, and Mats

Bioengineered Shorelines

ROCK RIPRAP TOE WITH UPLAND GEOTEXTILE BAGS

Appropriate Uses & Benefits

- Steeper slopes
- Quickly establish riparian vegetation
- Effectiveness increases with time
- Smaller areas of unvegetated banks between trees and shrubs
- Best for areas of limited access with existing vegetation
- Environmentally friendly alternative to hardscape retaining walls

Limitations

- Expensive
- Labor intensive
- Requires engineering
- Soil-filled bags require site to be accessible

Funding Source

Sauk County	Y
Healthy Lakes	N
LRPD	Y

We are proud to share our success!

QUESTIONS?

Mitch McCarthy

Watershed Coordinator

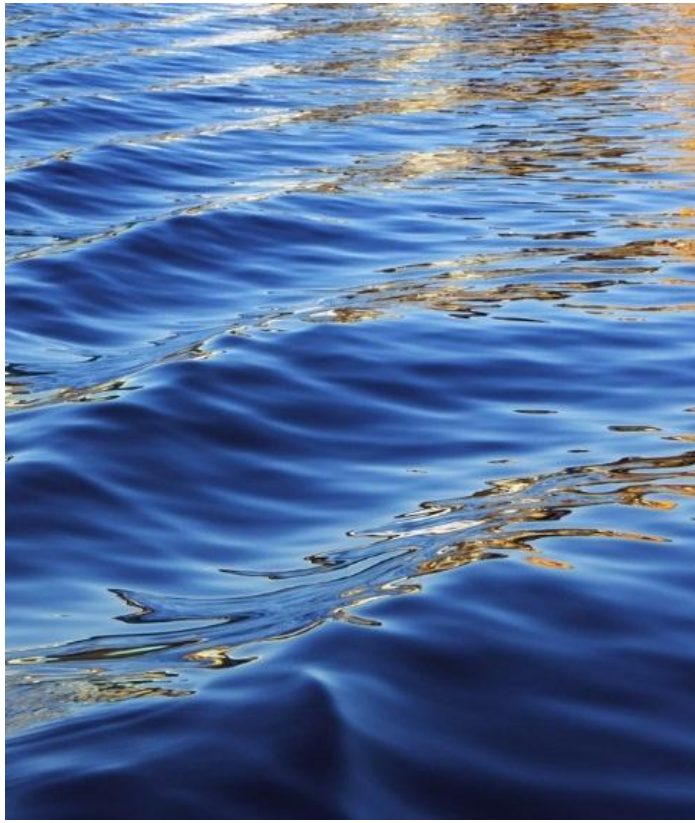
Sauk County Land Resources & Environment

mitchell.mccarthy@saukcountywi.gov.

608-355-4836

Landscaping Projects

Nathan Ihde
Gonzo Valley Greenscaping
608-415-0229
gonzovalleygreen@icloud.com



Landscaping Projects

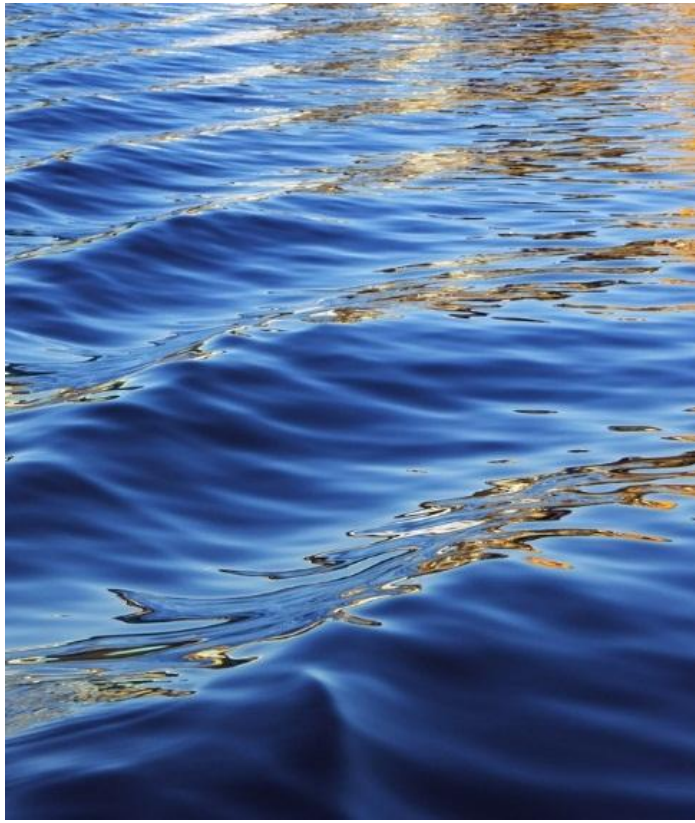
The video shows 2 projects completed using the Sauk County Lake Cost Share Funding Program:

- Lake Redstone - Rock Riprap Toe With Upland Geotextile Bags
- Dutch Hollow - Wave Reducing Natural Timbers

Gonzo Valley Video

Question & Answer

Mike Mittelstadt



Thank you!

For more information:

www.lakeredstonepd.org

lrpd.board@gmail.com