

Welcome to the DNR-LGU Forum!

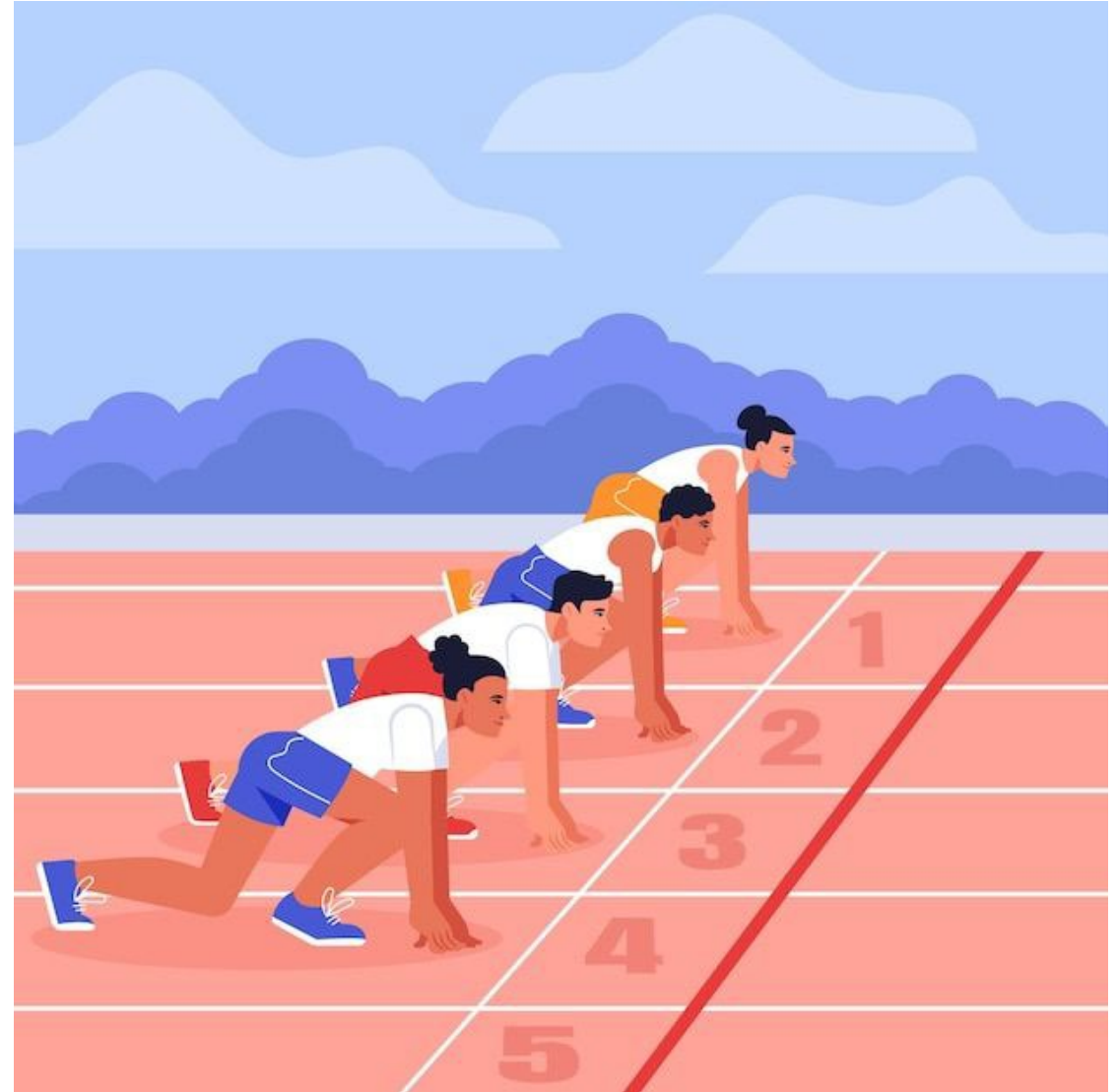
Forum Goals:

- Strengthen state-local partnership
- Share solutions to challenges
- Improve SL & FP administration and resource protection



Before we start.....

- Forum, including chat, is recorded – public data!
- Slides will be made available (as PDF)
- Questions welcome!!! – through chat or raise hand to ask



Slido for quiz questions

Also see link in chat....





Protecting & Restoring Natural Shorelines

9/16/26 LGU Forum

Agenda

Topic: Protecting & Restoring Natural Shorelines Through Better Shoreline Assessments and Regulations

Why is this important? – 5 mins.

Dan Petrik (DNR Shoreland Program Manager)

Shoreline stability and erosion – 10 mins.

Jake Frie (DNR Area Hydrologist)

Shoreland model ordinance update – 15 mins.

Dan Petrik (DNR Shoreland Program Manager)

Shoreline assessment tool demonstration – 20 mins.

Jake Frie (DNR Area Hydrologist)

Shoreline alteration standards – 20 mins.

Amy Kowalzek (Director, Morrison Co. Land Services)

Regulating riprap and buffer mitigation – 20 mins.

Michael Krick (Environmental Svcs. Coordinator, Carlton Co.)

Future Forum Topics & Training Updates



Why is protecting & restoring shorelines important?

We Have a Problem



Vanishing Natural Shorelines

- 40% - 50% of natural shorelines have been lost
- Losing 1 – 2% per decade

Before



After



Loss of Loon Nesting Habitat

Loons rely on dense, vegetated shorelines for nesting, roosting, feeding and protection from predators.



Andrea Lee Lambrecht

Loss of Fish Habitat

- Mixed vegetated buffers provide habitat for invertebrates that fish rely on for feeding.
- Riparian buffers remove sediment and nutrients that degrade in-lake habitat



Public Concern / Media Attention



Trouble by the water: Minnesota's vanishing natural lakeshores



August 14, 2024 4:00 AM

Unchecked development, lax regulation push Minnesota lakeshores to the edge

Development has destroyed nearly half the natural shorelines that help protect Minnesota lakes from erosion and pollution. Reversing that means convincing people that their vision of beauty is killing the thing they love.

by Kirsti Marohn



Listen [6:55]

Save



August 15, 2024 4:00 AM

'Quit mowing': Turning Minnesota lake homeowners into shoreline stewards, one lawn at a time

A program born in the Brainerd Lakes Area to protect natural shorelines and curb pollution also wants to reset Minnesota's lake culture. It's led by property owners, including some who helped create the current...

by Kirsti Marohn



Listen [3:58]

Save



Property Owners Influenced by Market and Neighbors



Private Lakeside Paradise



Watch later



Share



Contractors

- Accountability for demonstrated need
- Incentive to go big
- Have trust of property owner





Shoreline Stability & Erosion

Jake Frie – DNR Area Hydrologist

Lakeshore Erosion and its causes

- Lakeshore Erosion: “Gradual or accelerated removal of soil, sediment, and vegetation from the edge of a lake, caused by natural forces such as waves, currents, wind, and ice, as well as human activities that destabilize the shoreline”

Natural vs. Accelerated Erosion

- **Natural erosion:**

- Erosion proceeds very slowly
- Animals and plants adjust with it – not a delayed reaction
- Balanced equilibrium

- **Examples of “natural erosion”:**

- Undercut banks that do not involve sloughing
- Past eroded shorelines that are now heavily vegetated.
- Receded shorelines that align with surrounding natural shorelines
- Exposed rocks and stumps along the shoreline that have been in place for decades



“Natural”
undercut bank

- Two categories of natural lakeshore erosion:
 - Aquatic: Precipitation falling on soils, Ice sheets “heaving”, ice sheets being transported, wind-driven waves
 - Terrestrial: Downward movement of soil caused by precipitation forces and gravity

Natural Erosion Example

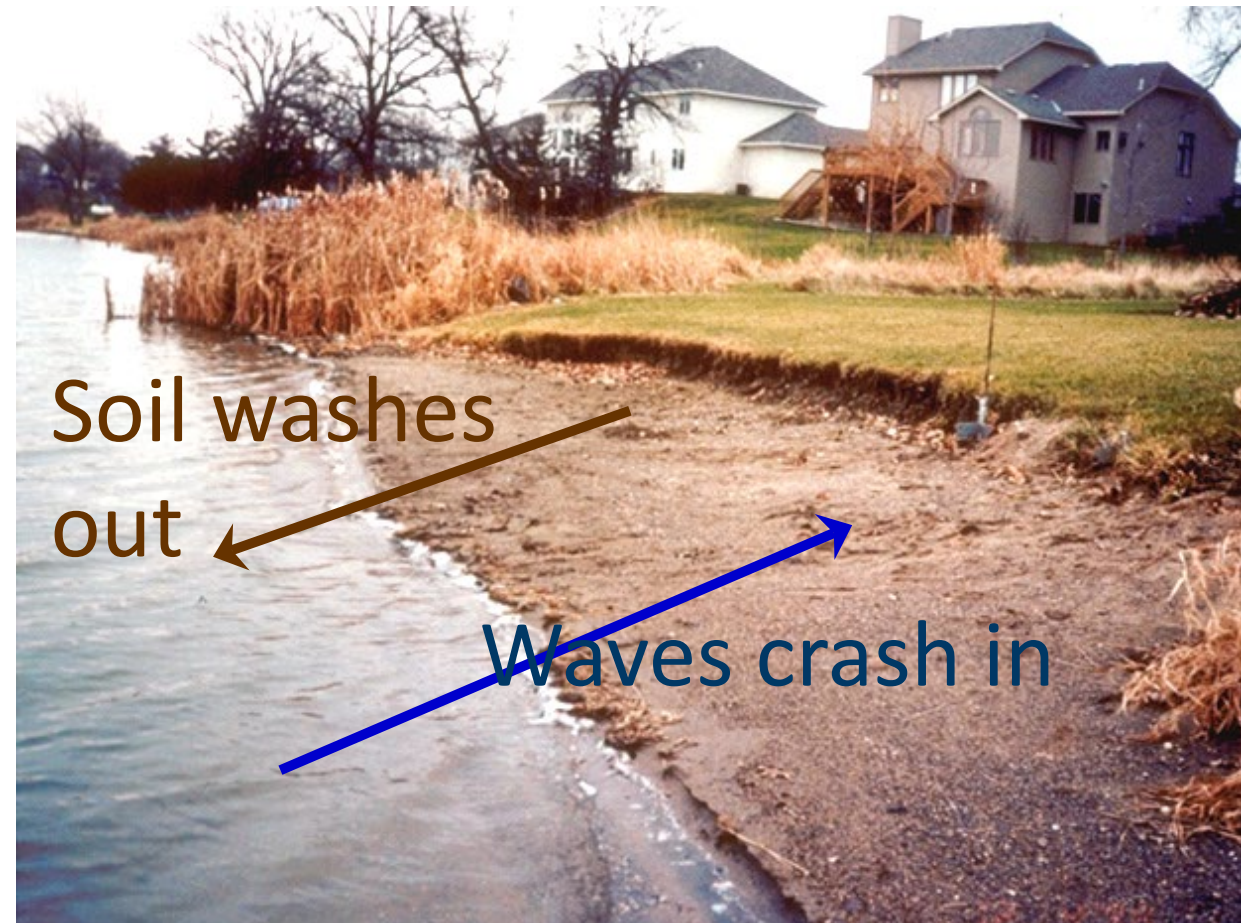




Natural vs. Accelerated Erosion

- **Accelerated Erosion:**

- Erosion proceeds very fast and is “acute”
- Animals and plants cannot easily adapt/adjust
- Imbalanced equilibrium
- Typically caused by either:
 - human-induced factors (i.e., natural vegetation removal, wake boats, etc)
 - Catastrophic “singular” events (i.e., 100-year or greater flood events)



“Stable” vs. “unstable” Shorelines

- Shorelines that experience “natural” erosion can be thought of as more “stable” shorelines (along a spectrum).
 - Typically do not require much human intervention to protect or “stabilize” (‘put into equilibrium’)
- Shorelines that experience “accelerated” erosion can be thought of as “unstable” shorelines (again – spectrum)

“Stable” vs. “unstable” Shorelines

- **Characteristics of Stable Shorelines:**

- Little exposed soils
- Plenty of root mass
- Shoreline is uniform in depth (distance to the surface water) vs. surrounding natural shorelines
- No soil sloughing apparent and obvious

- **Characteristics of unstable shorelines:**

- Exposed soils
- Little or no root mass
- Shoreline is grossly uneven in depth compared to surrounding natural shorelines
- Soil sloughing apparent and obvious

- Consequences of unstable shorelines:
 - Degraded wildlife habitat and killing of aquatic organisms
 - Reduced water clarity, light penetration and near-shore aquatic plant growth
 - Release of excessive nutrients that stimulate undesirable algae growth
 - Change of bottom substrate, impacting spawning areas; and
 - Potential loss of valuable waterfront property.

Stable vs. unstable shorelines

- What to do when confronted with a particular shoreline situation?
 - First step – evaluate the existing condition of a shoreline using objective criteria
 - Shorelines deemed “stable”:
 - Typically do not require much human intervention to protect or “stabilize” (‘put into equilibrium’)
 - Shorelines deemed “unstable”:
 - Could benefit from some form of human intervention (“stabilization practice”)
 - Methods of intervention to “stabilize” shoreline depends on a set of objective criteria to evaluate the severity of “de-stabilization”
 - Varies from simple plantings (Level 1 intervention) to hard-armoring of shoreline (Level 4 intervention)



Is this shoreline stable or not stable?

Clue - Adjacent natural shorelines have trees and shrubs with the same “scalloped” appearance as this.



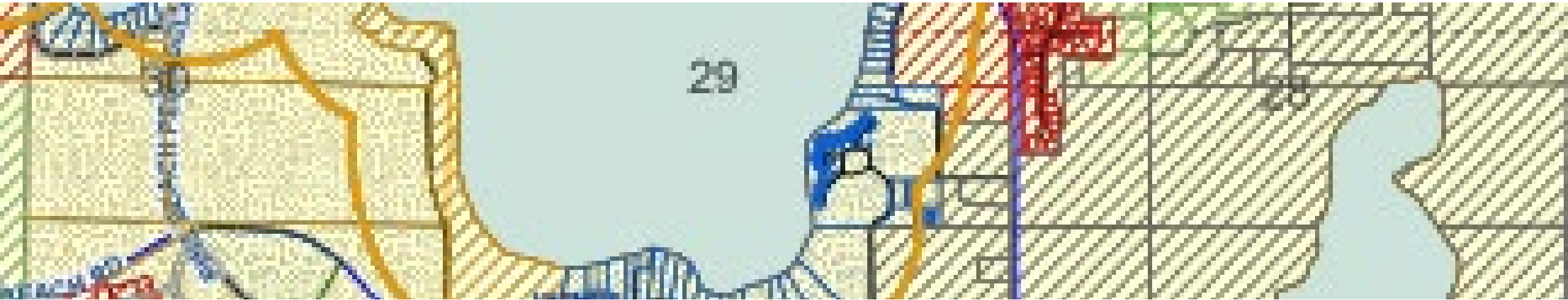
Is this shoreline stable or not stable?

Clue - Adjacent natural shorelines are NOT receded like this shoreline and natural vegetation extends to surface water



Is this shoreline stable or not stable?

Clue - Water level when this picture was taken is 2 feet below historical average



Shoreland Model Ordinance Update

Shoreland Model Ordinance Update

- First model update since 2022, most significant since 2016
- Focus on SHORELINE ALTERATIONS, to address continuing loss of natural shorelines
- Incorporates standards many counties have already adopted
- Voluntary higher standards (blue bold)
- Use Implementation flexibility, as needed, to negotiate adoption



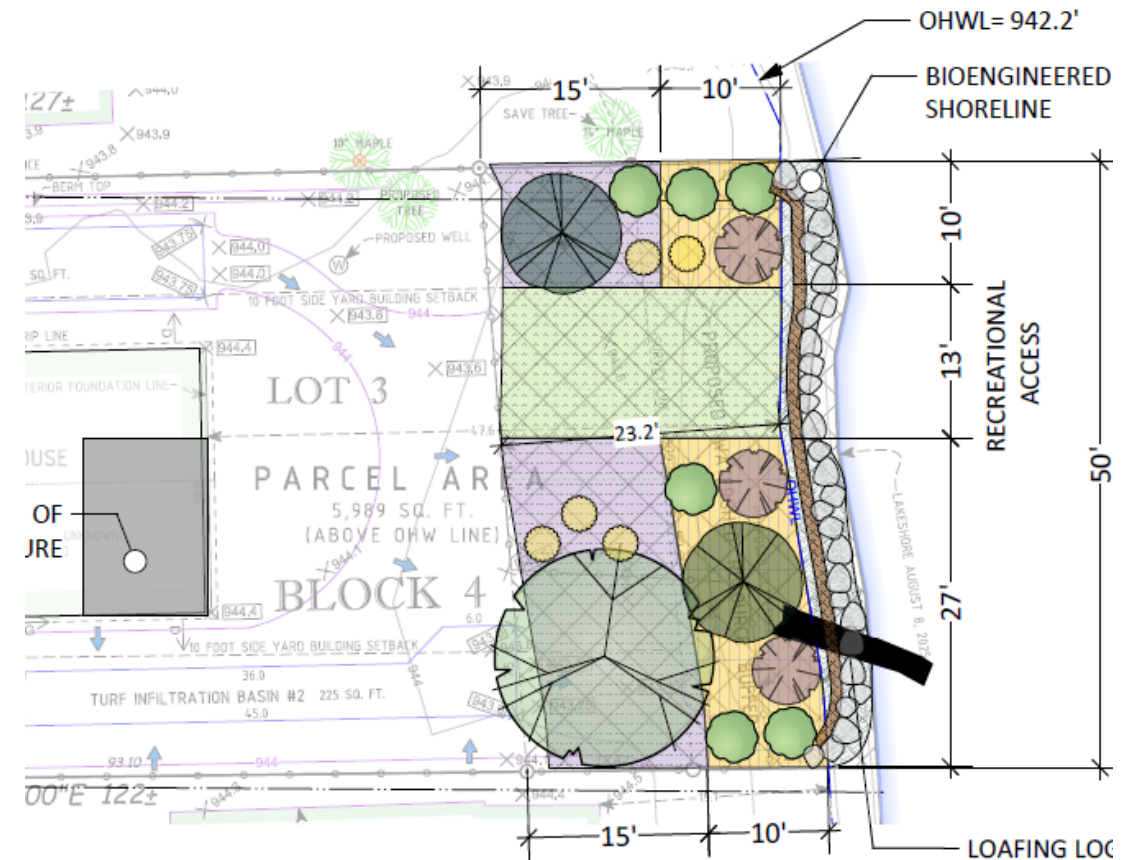
Shoreline Alterations

- Permits required for most vegetation removal and land alteration
 - All disturbance in SIZ/BIZ (not just over 10CY)
- 10-foot riparian buffer restoration as condition for all land alteration and vegetation removal permits.
 - Specifications for buffer
- Restoration plan requirements



Vegetation Cutting Standards

- Clarifying & Quantifying standards:
 - Structure screening
 - View corridor
 - Recreational use area
 - Access corridor through BIZ/SIZ



Shoreline Stabilization (riprap)

- Assessment required to determine best practice for stabilization
 - DNR Assessment tool a promoted option
- Riprap requirements
 - Not on wetlands
 - Not for landscaping reasons
 - Complies with 6115.0215
 - Rock size, > 6inches < 30 inches

Shoreline Assessment Part A: contributing factors to stability (abiotic & biotic)

Answer the below 6 questions to assess shoreline stability context. Answering these questions will better inform guidance on which shoreline protection strategy is best for this shoreline.

A. Description of slope within 35 feet of the shoreline

☐ No or little slope (0-5%)

☐ Moderate slope (5-12%)

☐ Steep slope (>12%)

B. Soil type near the top of bank

☐ Silt (smooth and spongy)

☐ Clay (stiff and sticky)

☐ Sandy (course and gritty)

C. Maximum fetch distance

Other Shoreline Alterations

- Sand Blankets
- Annual ice ridge
- Historic ice ridge



Other Related Standards

- Required 10-foot buffer mitigation as condition for variances
- Stairways as only access through bluffs
- Standards that strengthen PUD open space requirements
- Definitions that clarify and support these changes





DNR may
eliminate or
modify other
shoreland
standards in
return for better
shoreline
protections

What can I do to keep my shoreline from washing away?

Consider natural alternatives to riprap

If your shoreline is eroding, any of the following events may be destabilizing your soil, resulting in erosion: fluctuating water levels, increased wave action, ice pushes, loss of natural vegetation and human activity. There are many affordable, low-impact methods to stabilize shorelines while protecting property values, clean water and habitat. Where appropriate, the Minnesota Department of Natural Resources (DNR), encourages you to consider natural alternatives to riprap to control shoreline erosion, enhance aesthetic values and contribute to better water quality in your lake (see [Maintaining and restoring natural shorelines](#)).

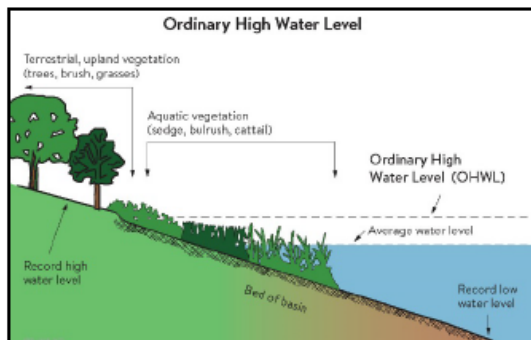


Riprap considerations

Natural rock riprap consists of coarse stones randomly and loosely placed along the shoreline. It can reduce erosion but is expensive and negatively affects lakes by creating a barrier between upland areas and the water. Riprap is not maintenance free and does not eliminate ice heaving. Vegetation planted within the rocks will stabilize the riprap and improve the appearance of your shoreline and habitat value. Naturalizing your shoreline is an important way to enhance water quality, maintain fishery resources and provide wildlife habitat.

Riprap requirements

Riprap is only allowed where there is a demonstrated need to stop existing erosion or to restore an eroded shoreline and not for landscaping or to replace a stable, naturally vegetated shoreline. Placement of riprap may only include areas of the shoreline where erosion is present. You should consult your [local DNR Area Hydrologist](#) to determine whether there is a demonstrated need for riprap to stop erosion. For most projects constructed below the ordinary high water level (OHWL) of public waters, a Public Waters Work Permit is required by the DNR.



However, a permit from the DNR is not required for riprap placement if the installation meets all of the following conditions:

- The riprap must not cover aquatic emergent vegetation, unless authorized by a [DNR aquatic plant management permit](#).
- The rock is sized appropriately, based on the erosion potential of the wave or current action of the water body.

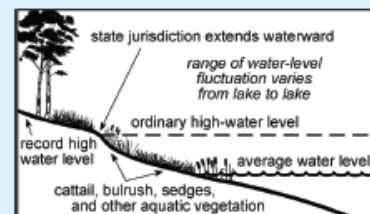
Shoreline Alterations: Riprap



Is an individual permit required?

For most projects constructed *below* the ordinary high-water level* (OHWL) of public waters, an individual Public Waters Work Permit is required by the Minnesota Department of Natural Resources (DNR).

Riprap exception: An individual permit from the DNR is not required for riprap placement if the conditions outlined in this information sheet are followed.



Shoreline cross section.

If you have questions concerning the contents of this information sheet, contact your local DNR Area Hydrologist. See contact information on reverse side.

Please note that local units of government and other agencies may require a permit for this project.

*For lakes and wetlands, the OHWL is the highest elevation that has been maintained as to leave evidence on the landscape. It is commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For watercourses, the OHWL is the top of the bank of the channel. For reservoirs and flowages, the OHWL is the operating elevation of the normal summer pool.

What can I do to keep my shoreline from washing away?

If your shoreline is eroding, any of the following events may be destabilizing your soil, resulting in erosion: fluctuating water levels, increased wave or wake action, ice pushes, loss of natural vegetation, and human activity. Protecting your shoreline from erosion may not require you to replace natural shoreline with a high-cost, highly engineered retaining wall or riprap.

There are affordable, low-impact methods to stabilize your shoreline and still protect property values, water quality, and habitat. The Minnesota Department of Natural Resources (DNR) encourages you to consider planting native vegetation to control shoreline erosion, enhance aesthetic values, and contribute to better water quality in your lake (see [Lakescaping information sheet](#)).



Shoreline stabilized with riprap and enhanced with a vegetative buffer.

Both riprap and retaining walls can reduce erosion, but they can be expensive and negatively affect lakes by creating a barrier between upland areas and the shoreline environment. Riprap should only be used where necessary and never to replace a stable, naturally vegetated shoreline. Additionally, installing riprap on a stream or river bank is a special condition that may require professional advice to ensure that the structure will stand up to the fluctuations in water levels and flowing conditions.

Natural rock riprap consists of coarse stones randomly and loosely placed along the shoreline. You should consult your DNR Area Hydrologist to determine whether your shoreline needs riprap to stop erosion. If there is a demonstrated need, such as on steep slopes, you may want to consider placing riprap or a combination of riprap and vegetation. In most cases, vegetation planted in the rocks will stabilize the riprap and improve the appearance of your shoreline. Naturalizing your shoreline is the most important contribution you can make to enhance water quality, maintain fishery resources, and provide wildlife habitat.



Shoreline Assessment Tool Demo

Jake Frie – DNR Area Hydrologist

Four Stabilization Levels

Level	Type of practice or solution	Good for Areas with	Considerations
Level 1 – Natural Vegetation	• No Mow • No Mow supplemented with natural vegetation • New natural vegetation	• No to low wave energy • No to little bank slope • no to little foot traffic • Native seed bank present	• Less control over plants with no mow. • With vegetation, plants take time and maintenance to establish • No grading
Level 2 – Simple Bioengineering	• Natural fiber products (mats, netting, rolls, blocks). • Level 1 practices, as desired.	• Low to medium wave energy • Little to modest bank slope	• No/minimal grading • Products are easy to install • Little site disturbance • Installs to existing shore contours • Products may be dislodged by high wind and water if not staked
Level 3 – Advanced Bioengineering	• Toe rock • Tiered fiber rolls or blocks • Willow wattles • Natural timbers • Log & root wad revetments • Footer logs • Level 1 -2 practices as desired or needed	• Medium to high wave energy • Modest to steep bank slope.	• Minimal to extensive grading • May provide fish & wildlife habitat.
Level 4 – Natural Rock Riprap	• Rock riprap • Riprap with vegetative buffer • Vegetated riprap • Synthetic engineered matting • Level 1 – 3 practices as desired or needed	• High wave energy • Modest to steep bank slope • Unstable soils	• Extensive grading, likely with heavy equipment • Will not protect from ice heaves

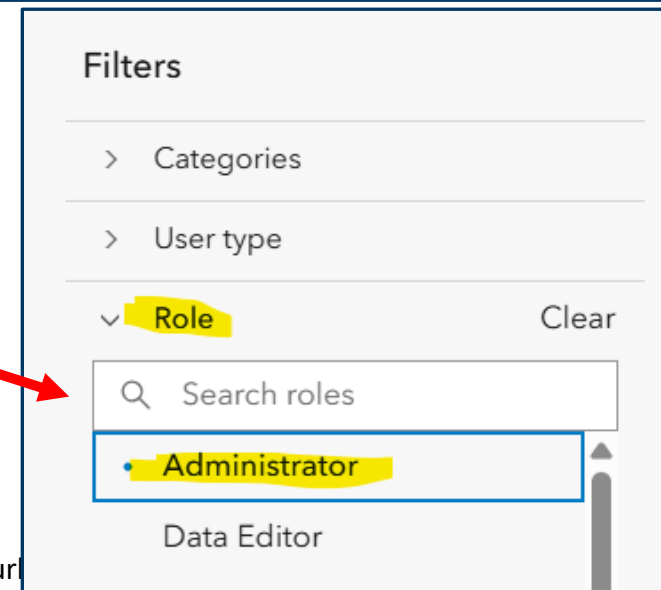
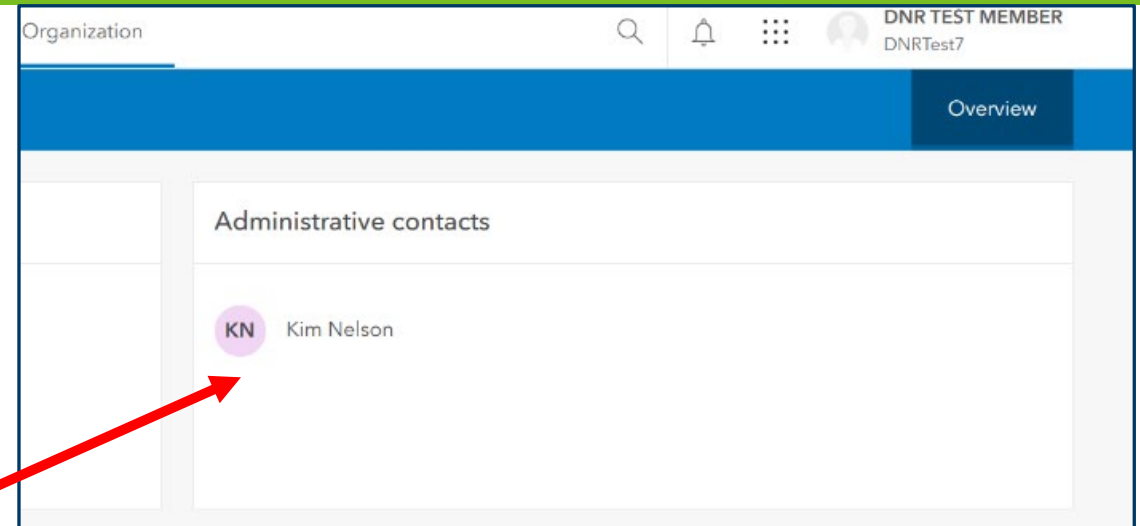
Lakeshore Stability Assessment Tool

- **Lakeshore Stability Assessment Directions App – AGOL Settings**

- ArcGIS Online (AGOL) is a web application from Environmental Systems Research Institute, Inc. (Esri). The DNR uses AGOL to share geographical information publicly or within groups. For this App, we use Survey123 and Experience Builder to facilitate collaboration and data sharing.
- External AGOL Organization members can be added to DNR AGOL groups. To be added to the DNR's AGOL Lakeshore Stability Assessment group follow these directions.
- **First**, external partner users must have **their profile visibility set to public** and the **privilege to be added to external groups** so group owners and managers can both find and add them to DNR created groups. User visibility and privileges are modified by an AGOL Organization Administrative Contact -- contact your GIS staff or administrator for assistance.

Lakeshore Stability Assessment Tool

- ***How to Find Administrative Contact:***
- To find this contact, once logged in, external partner users can navigate to the **Organization Tab** and:
- 1. Immediately see the **administrative contacts** listed > OR
- 2. Select the **Members Tab** and use **Filters** to select the **Role** “**Administrator**.” Any user listed can perform the task.



Lakeshore Stability Assessment Tool

- Administrative Contact process for External Partner user set up.
- **1.) User Profile** Visibility set to **Public**.
- **2.) User Role privilege** to allow **user Role** to **join external groups**. *Please note, this requires a custom role with **join external groups** privilege turned on.* [ESRI Documentation.](#)
- **3.) User Type assigned** appropriate for collaboration needs. [ESRI Documentation.](#)
- **Second**, once you've checked, and if necessary, changed your settings, please contact Paul Radomski, paul.radomsk@state.mn.us, with your AGOL account name or Username. Paul will then invite you to the group. An invitation will be added to the users ArcGIS Online Account Notifications, **and you will need to accept**. Once this is completed, you can access all data, applications and content shared within the AGOL Lakeshore Stability Assessment Group.

Tentative Upcoming LGU Forum Topics

Upcoming forum dates (usually 3rd Wed):

- 10/21/2026
- 11/18/2026
- 12/16/2026

Some topics in the works:

- LiDAR, including introduction to 2nd generation LiDAR and web resources
- USACE environmental habitat projects on Mississippi River
- Upcoming floodplain regulation changes

Education & Training Web Updates

Separate pages for:

- Shoreland Training
- Floodplain Training
- Other Land Use Training
- Water Talk Newsletter
 - Past issues

[Link to Shoreland & Floodplain Educations and Training page](#)



Shoreland and Floodplain Education and Training Center

Register now for FREE training sessions



September 2026 - April 2027

Register now for Shoreland and Floodplain Education and Training sessions.

[View the course list »](#)



Shoreland and river-related training

Trainings in a variety of formats on various shoreland and river-related topics. Training content is generally applicable to local government administration of the Shoreland, Wild and Scenic Rivers, Lower St. Croix Riverway, and Mississippi River Corridor Critical Area programs. [Learn more »](#)



Floodplain training

Trainings on different floodplain topics are available in a variety of formats. Includes educational materials for local officials, professionals working with floodplain areas, and interested citizens/residents, as well as links to trainings and educational materials by partners, including MN Association of Floodplain Managers (MnAFPM) and FEMA. [Learn more »](#)



Other land use training

Training in a variety of topics related to shoreland and floodplain administration. [Learn more »](#)



Water Talk newsletter

Periodic updates on floodplain and shoreland management for local governments. Current and past issues of Water Talk including an index for searching past issues for specific topics. [Learn more »](#)

Upcoming Virtual Training Schedule

- 09/28/26 Flood Inundation Real-time Mapping
- 10/05/26 Floodplain Basics
- 10/19/26 Floodplain Administration 101
- 11/09/26 FEMA Map Basics
- 11/16/26 Tools for Assessing Shoreland Bluffs
- 12/07/26 Accessory Structures in the Floodplain
- 01/11/27 Dealing with Zone A Floodplains
- 01/20/27 Flood Insurance Basics
- 02/01/27 Better Culverts and Crossings
- 02/16/27 Floodplain Administration 201
- 03/15/27 Hydrology and Hydraulics for Non-Engineers
- 03/29/27 Floodplain and Watershed Higher Standards
- 04/05/27 Post-Flood Responsibilities and Substantial Damage



Morrison County

2024 & 2026 Shoreland Standards Update

Shoreland Ordinance Update – 2024 & 2026

- Main Components of the Updates
 - Permits for all vegetation removal
 - Added minor and major topographic alteration standards
 - Rip rap standards with buffer
 - Quantified beach and sand blanket allowances
 - Tightened walkout basement excavation limits
 - Explicit historic ice ridge standards
 - “Recipe” for buffer installations
 - Prohibits private landings when lake offers a public access
 - Shoreland Contractor Licensing

Shoreland Ordinance Updates

- Permits required for all vegetation removal, grade and fill
 - Best way to ensure performance standards are met
 - Keep track of impervious surface
 - Formalize understanding of the project
- Better black and white standards
 - Minimize judgment calls and arguments
 - Easier for someone to understand the standard (yes, you, armchair experts)
 - Easier enforcement
- Contractor Accountability
 - Reduce number of ATF variances and restoration orders

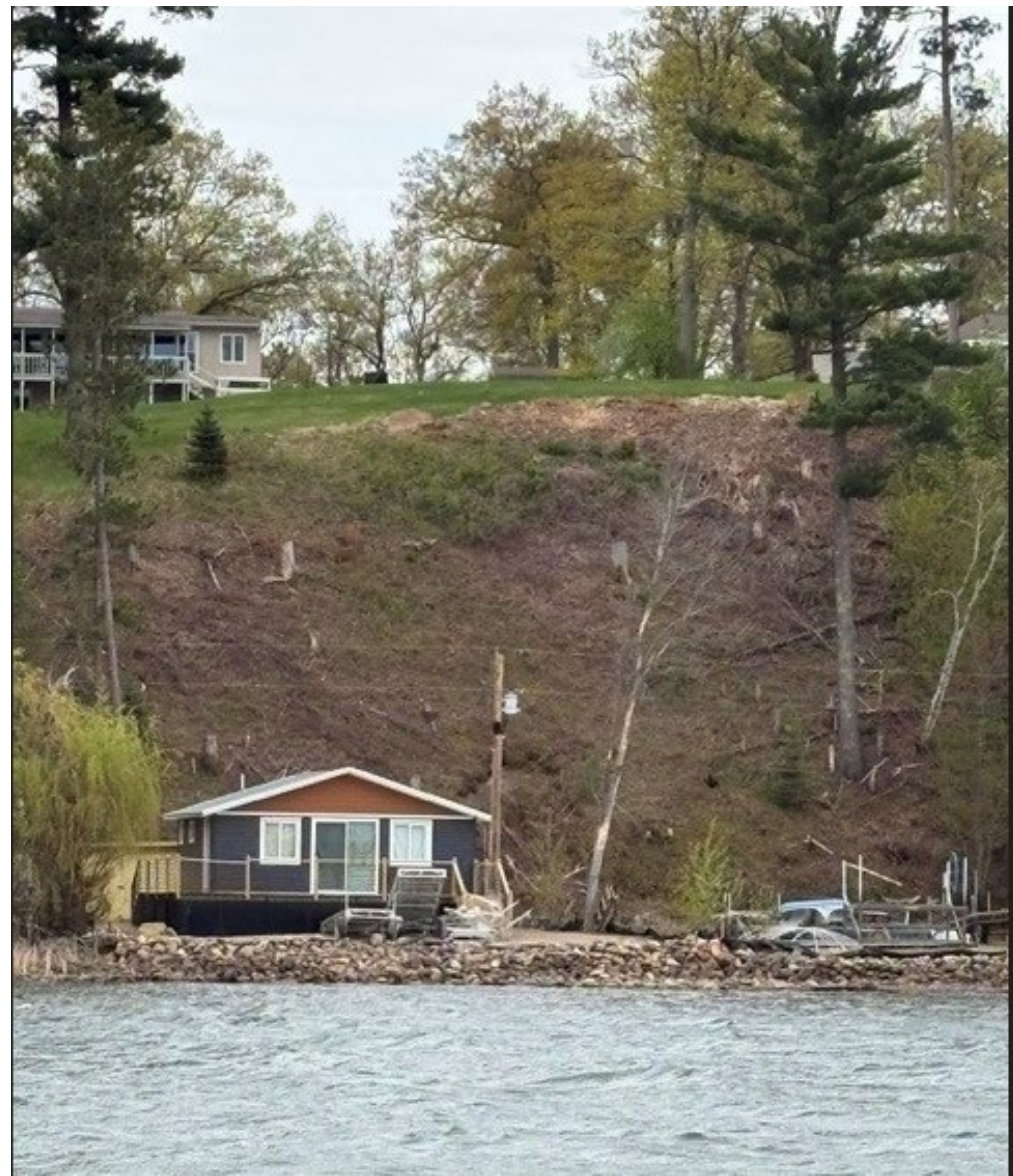
Clear Standards – Vegetative Alterations

d. Limited pruning, trimming, and cutting of vegetation is allowed to provide a view to the water from the principal dwelling, to create access paths, and recreational use areas, provided that:

- (1) Vegetation be maintained to screen structures, vehicles, or other facilities by at least 50% as viewed from the water, assuming summer leaf-on conditions. The maximum view corridor shall be less than 50 feet wide or 25% of the parcel width, whichever is less. The view corridor shall extend from the most lakeward side of the principal structure and continue to the ordinary high-water level of a public water body.
- (2) Existing shading of water surfaces is preserved.
- (3) Perennial ground cover is maintained.
- (4) A recreational use area at the shoreline does not exceed a maximum width of twenty-five (25) feet or 25% of the lot width, whichever is less, and fifteen (15) feet in depth or, if located at least twenty-five (25) feet landward from the ordinary high-water level, fifty (50) feet in width or 50% of the lot width, whichever is less.
- (5) Access paths from the principal structure to the shoreline are permissible, but shall not exceed six (6) feet in width and shall be oriented generally perpendicular to the shoreline.
- (6) Cutting debris or slash shall be scattered and not mounded on the ground.

e. Any time there is significant vegetative removal, in the opinion of the zoning administrator, on steep slopes for a permitted use, the Zoning Administrator may require a vegetation restoration plan prior to permit issuance.

f. Violations of the vegetation standards shall be subject to a restoration order including a vegetation restoration plan and a three-year maintenance plan prepared by the landowner and approved by the Zoning Administrator. Near shore or highly erodible locations must be restored with a mix of deep-rooted woody and herbaceous vegetation with high stem density, suitable for the location.



Clear Standards – Rip Rap Buffer Plan

- (4) If a native vegetative buffer of at least 10ft does not exist on the property, an application for riprap must include a plan to establish a native vegetative buffer of at least 10ft as measured from the top of the Riprap and extending the length of the property excluding recreational use areas. These plans shall be approved by Morrison County Land Services and shall be implemented immediately. Buffer plans must include:
- A. At least seven (7) native grass species suited to the area and soil type planted as a new seeding for the entire restoration area or as live plugs on a 1-foot spacing, and at least five (5) native forb species suited to the area and soil either included in a grass seeding or as live plugs on a 2-foot spacing; or Mn/DOT Seed Mixture 34-261 or equivalent approved by Land Services; and
 - B. At least three (3) native shrub species, at least 12 inches tall at planting, suited to the area and soil type spaced on a maximum 5-foot evenly throughout the restoration area.
 - C. Buffer plans must be submitted with an application for a permit and must be implemented within the first growing season immediately following Riprap installation.
 - D. Buffers not maintained behind the Riprap shall be deemed a violation of this ordinance and subject to a restoration order.



Clear Standards – Grading and Filling

Minor Topographic Alterations. A permit for minor alterations may authorize the following activities:

(1)Topographic alterations of up to ten (10) cubic yards of fill deposited, removed, or graded on steep slopes or within shore or bluff impact zones.

(2)Topographic alterations necessary to complete a restoration or shoreline improvement project approved and supervised by the Morrison County Soil and Water Conservation District or the Land Services Department.

(3)Topographic alterations of up to 100 cubic yards located between the shore impact zone and required setback pursuant to Section 7-6 of this Ordinance.

(4)Topographic alterations located beyond the required setback pursuant to Section 7-6 of this Ordinance.

*Grading above these limits are subject to review and approval as a major topographic alteration permit.



I didn't do it, my contractor did it

The ordinance prohibits commencing work without a permit. However:

1. Work is done without a permit
 - May not be allowed
2. Work begins before permits are field checked, and/or approved
 - May not meet setback
 - May not have a complete application – septic inspection, stormwater plans, etc.
3. Work does not comply with the shoreland ordinance standards or is not authorized in the permit
 - Work goes beyond the scope of the permit
 - May not be allowed

Examples

No Permit – 5 years to resolve – 6 site visits – Outside Agencies and County Attorney



No Permit – 1 year to resolve – 4 site visits



Permit NC – 2 years to resolve – 6 site visits and other agencies involved



Shoreline Photos Viewer





Ordinance Amendment Discussion

- Researched what can be done to change this dynamic of repeat violations from the same contractors and create some accountability
- Discussion with other Counties – similar issues
- Some license their shoreland contractors – particularly excavators and landscapers
 - Education – trained on the regulations
 - Bond – used if they contribute to a violation
 - Property owner peace of mind/protection
- Implement shoreland contractor licensing in 2026
 - Adopt standards end of 2025
 - Hold classes Q1 2026
 - License Q1 & Q2 2026

Morrison County Contacts

Darrin Welle – Shoreland Specialist

320.632.0100

darrin.welle@morrisoncountymn.gov

Amy Kowalzek – Director

320.632.0171

amy.kowalzek@morrisoncountymn.gov

QUESTIONS?



Carlton County

Rip Rap and Shoreland Mitigation Plans



Agenda

1. Rip Rap and Erosion
 1. Higher Standards
 2. What Qualifies as Erosion?

2. Variance
 1. Reasons
 2. Process
 3. Support

Questions?

Higher Standards

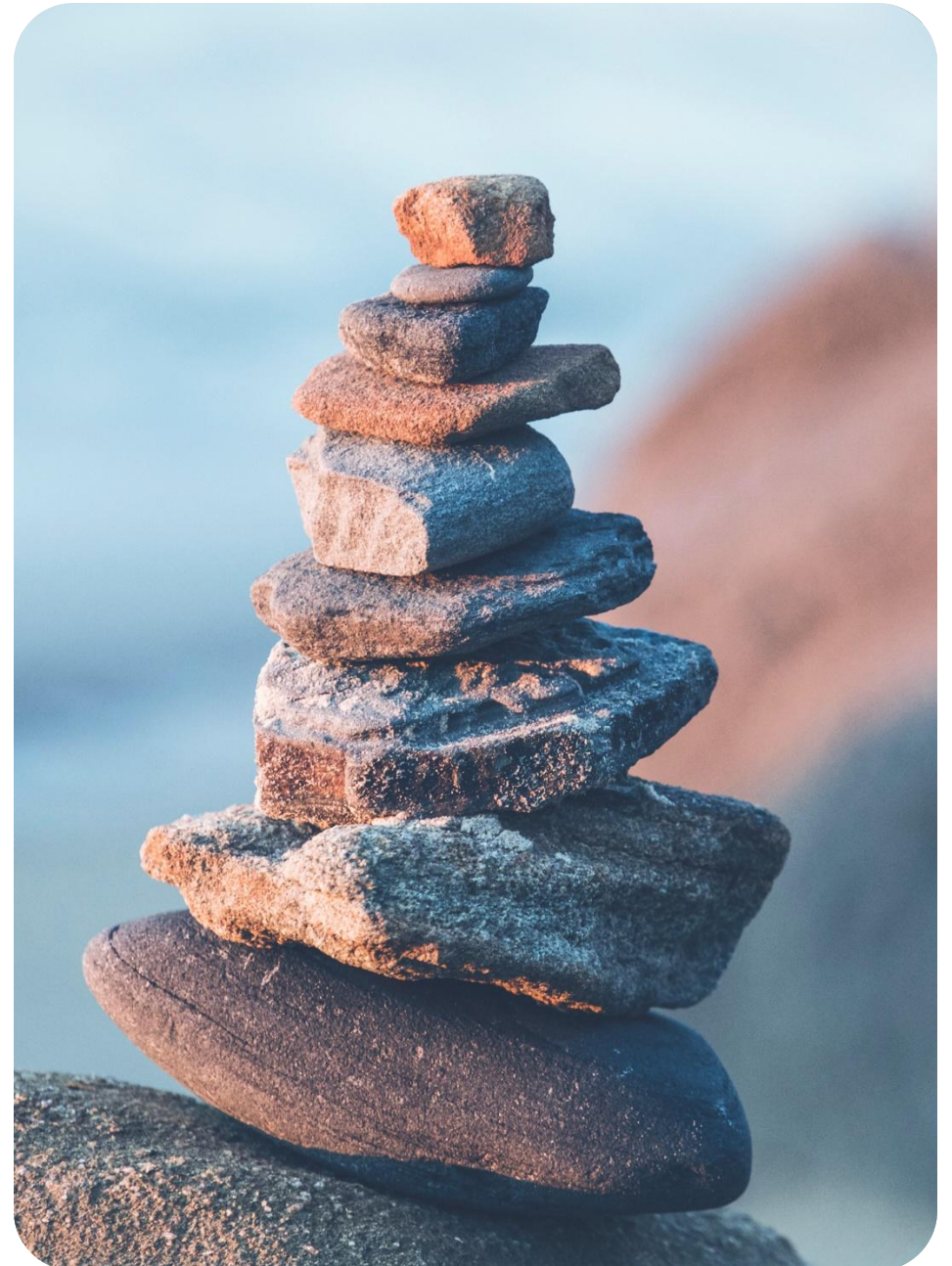
Ordinance allows County staff to decide the severity of erosion. Ultimately, at the discretion of the Zoning Administrator.

We require engineering for rip rap, which prices out most potential requests.

An engineer needs to provide evidence that hard armoring is the only solution to erosion.

County staff have yet to come across a situation that would require hard armoring of a shoreline.

All LGU staff understand the importance of natural shorelines.



Ordinance No. 27 Article 4 Section 5 Subd. H 10(c)

Rip-Rap. Placement of rock rip-rap, including associated grading of the shoreline and placement of a filter blanket, requires a shoreland alteration permit and shall be done in accordance with Minnesota Department of Natural Resource (MN DNR) standards. The MN DNR standards require – a) the finished slope does not exceed three (3) feet horizontal to one (1) foot vertical, b) the landward extent of the rip rap is within ten (10) feet of the OHWL, and c) the height of the rip rap above the OHWL does not exceed three (3) feet. Rip-Rap will only be allowed in situations where active erosion problems exist. Any permit for rip-rap must contain a plan to establish a vegetative buffer with the depth to be determined by the Zoning and Environmental Services Department for the entire width of the lot, except for lake or river access areas. Plans for such buffers shall be approved by the Carlton County Zoning and Environmental Services Department and shall be implemented immediately. Rock rip-rap shall only be used for the correction of an established erosion problem that cannot be controlled through the use of suitable vegetation, slope stabilization using coir logs, willow wattle or similar bioengineering means. Rip-rap and retaining walls used for ornamental purposes or for terracing natural slopes are prohibited within the shore impact zone and bluff impact zones.







Variance Process



Non-Conforming Lots

Prior to zoning controls

Minimum lot size

Setbacks

Road, property lines, Ordinary High-Water Level.

Density

Height

Impervious

May apply to vary from any ordinance.

Variance – Mitigation Plan

Variances are to have approved mitigation plan.

May proceed without, but...

We want an approvable mitigation plan!

CARLTON COUNTY
ZONING AND ENVIRONMENTAL SERVICES
301 Walnut Avenue, Room 103
P.O. Box 220
Carlton, MN 55718-0220
218-384-9176
www.carltoncountymn.gov

Permit number
Barnum
Township

SHORELAND MITIGATION PLAN – SCORE SHEET

Are you requesting a variance from the setback from the ordinary high water level (OHWL) of a classified lake, river or stream? If yes, you **MUST** complete a Shoreland Mitigation Plan (SCORE SHEET and REVEGETATION – SITE DIAGRAM) and have it approved prior to Variance Application submittal. A conforming lot is assigned a score of 100. A lot is deemed conforming when the structure meets the required setbacks to the protected water as specified in Carlton County Zoning Ordinance #27. A structure that fails to meet this definition is considered nonconforming. To bring a nonconforming structure to a score of 100, the landowner shall conduct and maintain one or more mitigating activities, which have been assigned points. You **MUST** achieve a score of 100 points or more.

STEP 1: The structure's level of nonconformance is based on a Pre-Mitigation LOT SCORE.
To determine the LOT SCORE, follow the steps below.

A	Determine the DNR classification of the protected water on the lot. See COLUMN 1 in reference table below.	Recreational Development
B	Determine the required structure setback to that classification of water. See COLUMN 2 in reference table below.	100 ft.
C	Determine the actual setback of the structure on your property: measure the closest part of the structure to the closest part of the ordinary high water level of the protected water or bluff from which the setback is in question.	64 ft.
D	Enter the corresponding score multiplier from COLUMN 3 in the following reference table. If a bluff is present use COLUMN 4.	1
E	Calculate the pre-mitigation lot score by multiplying the actual setback determined above (LETTER C) by the score multiplier determined above (LETTER D), then round to the nearest whole number. This is your pre-mitigation lot score. You MUST add mitigating activities with assigned values to achieve a score of 100 points or more.	LOT SCORE: 64 ft.

Reference Table

COLUMN 1 Public Waters Type (DNR Classification)	COLUMN 2 Required Structure Setback	COLUMN 3 Score Multiplier Structures	COLUMN 4 Score Multiplier Bluff
General Development Lake	75 feet	1.333	(30 foot setback)
Recreational Development Lake	100 feet	1.000	
Natural Environment Lake	150 feet	0.667	4.000
Tributary Stream	100 feet	1.000	
Forested Stream	150 feet	0.667	
Remote Stream	200 feet	0.500	

S:\RECYCLING COORD\Shoreland\Education\Mitigation Packet\Shoreland Performance Standards Score Sheet.doc

STEP 2: To bring a nonconforming structure to a score of 100, the landowner shall conduct and maintain one or more of the mitigating activities listed below. Property owners must start with Zone A to achieve lot score of 100. Zones referenced in the attached "Shoreland Restoration Plan Requirements and Standards."

a) Zone A: Maintain, restore and maintain, or plant and maintain, a 25 feet wide natural vegetated buffer zone adjacent to the OHWL.	30 points	30
b) Zone B: Maintain, restore and maintain, or plant and maintain, an additional 12.5 feet wide natural vegetated buffer zone between Zone A landward.	20 points	20
c) Zone C: Maintain, restore and maintain, or plant and maintain, an additional 12.5 feet wide natural vegetated buffer zone between Zone B landward.	10 points	10
d) Removal of other structures that do not meet the standard structure setbacks, including water-oriented structures.	10 pts/structure	
e) Removal of impervious surfaces (excluding bedrock) to half of the applicable ordinance maximum, which is 12.5% impervious.	10 points	
f) Removal of fill placed in historic wetlands and no future wetland fill recorded on deed.	10 points	
g) Revegetate bluff or steep slopes and provide screening of structures from the lake.	10 points	
h) Diversion of all water runoff from impervious surfaces (excluding bedrock) away from the water body into retention ponds, subsurface drains, wetlands, etc. with no outlet to the lake or tributary.	10 points	
i) Maintain, restore and maintain, or plant and maintain aquatic vegetation 50 feet shoreward of the OHWL.	10 points	
j) Restore ice berms adjacent to the OHWL.	10 points	
k) Stabilize eroding shoreline following the DNR Division of Water's Guidelines.	10 points	

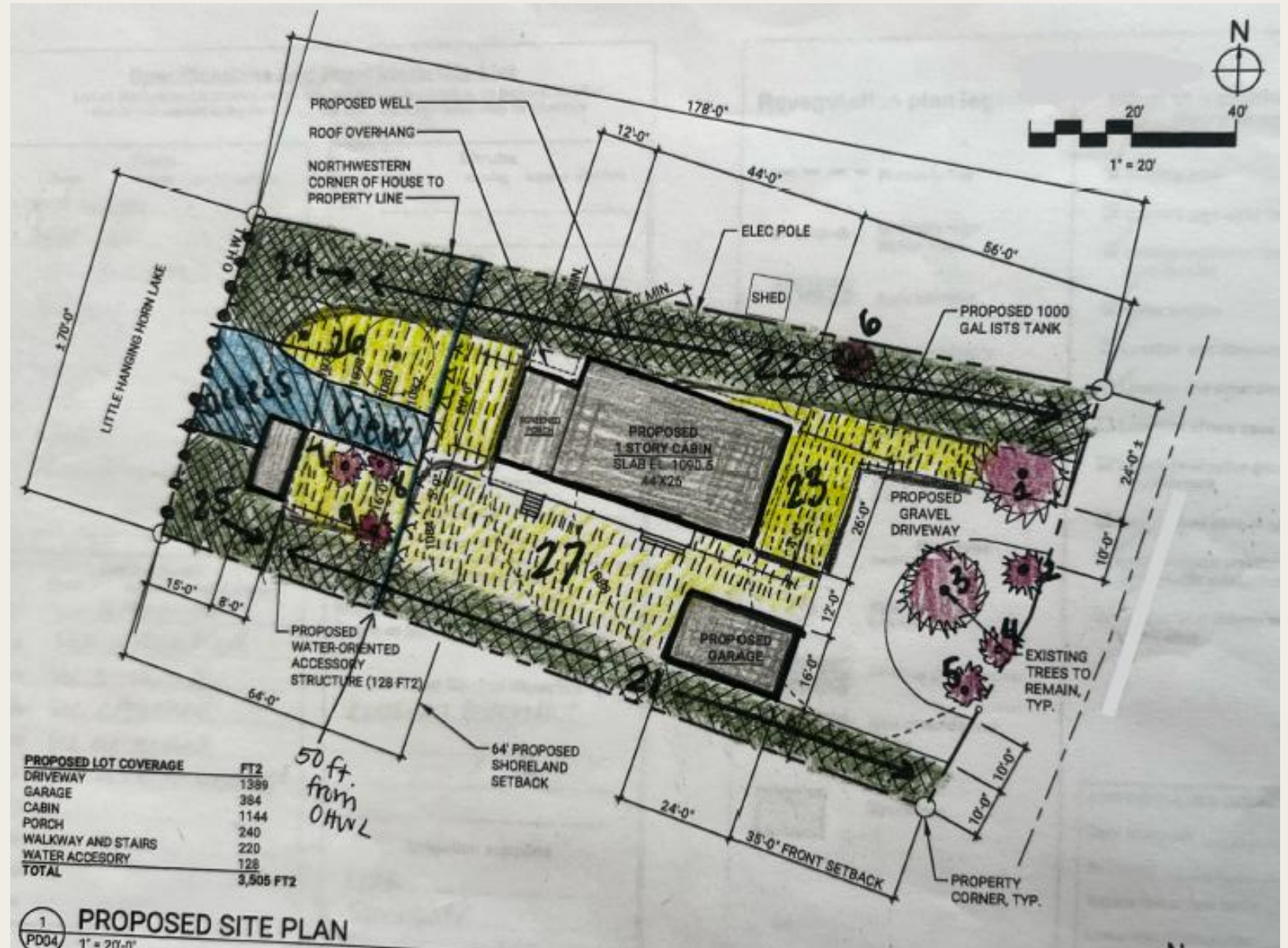
Pre-Mitigation Lot Score (Step 1, Letter D) 64
plus Mitigation Credits Total (Step 2, add items a through k) 60
Grand Total (minimum 100 points) 124

Alternatives proposed:

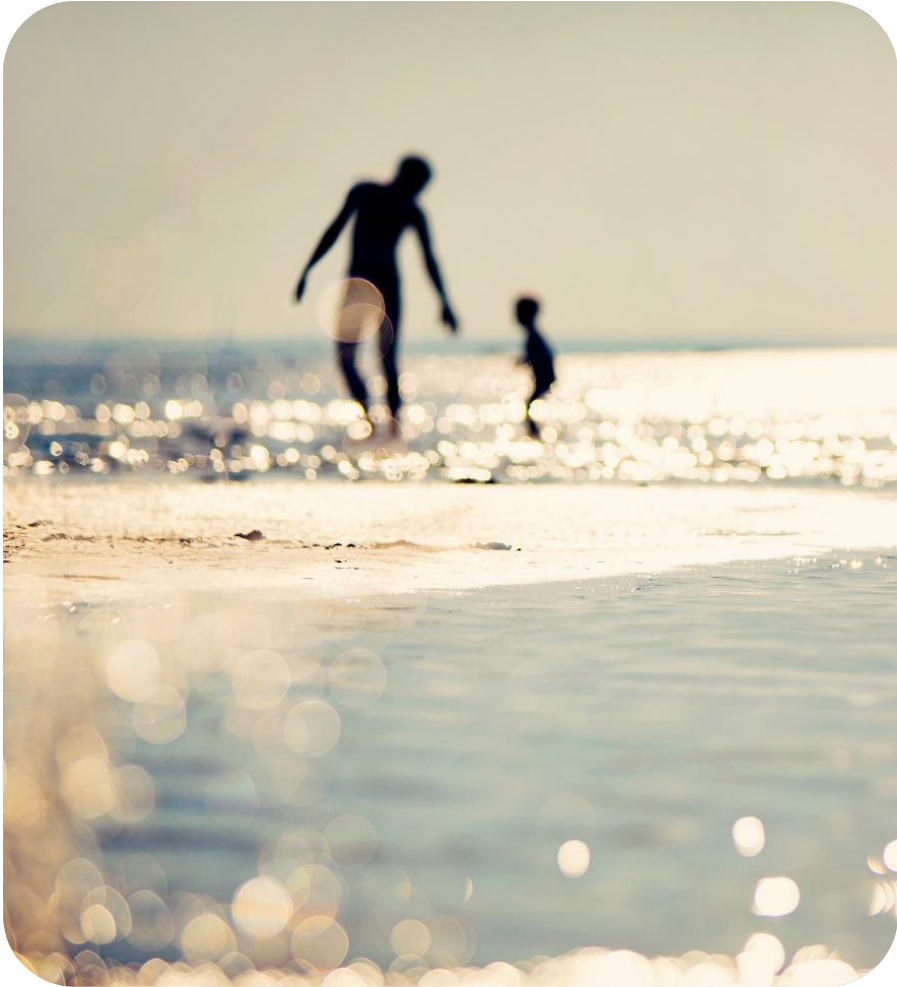
STEP 3: Complete Carlton County Shoreland Revegetation Plan – Site Diagram illustrating the mitigation activities selected above. The above stated activities shall follow the recommendations in the "Shoreline Restoration and Preservation Standards Guidance Document" approved by the Carlton County Board of Commissioners and "Shoreland Restoration Plan Requirements and Standards" to obtain the mitigation credit points.

S:\RECYCLING COORD\Shoreland\Education\Mitigation Packet\Shoreland Performance Standards Score Sheet.doc

It is a way to say yes!



Support



County Board/Board of Adjustment

Officials see the benefit of stricter standards.

DNR

Aligned state and local regulatory staff. With great communication!

Site visits!

Carlton Soil & Water Conservation District

Partnership with a bunch of carrots!

Funding opportunities

Incentives for following ordinance

County Attorney

Willingness to prosecute

Success

Communication

Partnerships

United Approach

Education

Support

Adaptive Management



Questions?

