Lincoln County

Shoreland Mitigation Guidebook

Revised 12-13-19

Mitigation is defined as balancing measures that are designed, implemented, and work to restore natural functions and values that are otherwise lost through development and human activities. Mitigation is required for some shoreland development proposals by state and county shoreland regulations.

A point system listing when mitigation points are needed and how they can be earned has been developed for Lincoln County. Permitted projects are those that result in a zero or positive balance of points. In no instance can these points be used to approve projects proposed below minimum state standards.

An affidavit will be drafted by Lincoln County staff outlining mitigation requirements. The affidavit must be recorded in the Lincoln County Register of Deeds office prior to granting a permit. Landowners have two years from the date an affidavit is signed to complete mitigation requirements.

Proposed Development Condition	Mitigation Required
Impervious surface coverage is greater than15% but less than 20%	2 points
Impervious surface coverage is from 20% to 30%	3 points
Lateral expansion of nonconforming principal structure within the shoreland setback	3 points
Re-location of nonconforming principal structure within the shoreland setback	1 point

Opportunities for Mitigation	Mitigation Points Earned
1. Removal of a structure within the shoreland setback (page 2)	Up to 3 points
2. Installation of a stormwater infiltration system (page 3)	3 points
3. Existing compliant shoreland buffer (page 6)	3 points
4. Active restoration (accelerated recovery) of a compliant shoreland buffer- 21.09(2) (page 6)	3 points
5. Passive restoration (natural recovery) of a compliant shoreland buffer-21.09(1) (page 7)	1 point
6. Partial restoration/preservation of a shoreland buffer (page 8)	2 points
7. Reducing width of allowable view and access corridor(s) (page 9)	1 point for every 15 foot reduction
8. Lot size is larger than prescribed minimum (page 10)	1 point for every 10,000 sq. ft. Increment of lot area which may not be subdivided from remaining parcel
9. Shoreline stabilization Practice (page 11)	3 points
10. Increasing shoreland setback of a proposed structure (page 12)	1 point for every 15 foot increase beyond required (maximum of 3 points)
11. Removal of an existing artificial sand beach with active restoration (accelerated recovery) of area (page 12)	1 point

1. Removal of a structure within the shoreland setback—Up to 3 points

Mitigation Intent: Improve and preserve water quality, natural scenic beauty, and natural shoreline habitat by reducing the amount of development and impervious surfaces near the shoreline.

Standards: A structure meeting the definition of Chapter 21 may be used to meet this mitigation opportunity. The size of the nonconforming structure shall determine the amount of points earned.

Structure Size	Mitigation Points Earned
0-250 square feet	1 point
250-500 square feet	2 points
Greater than 500 square feet	3 points

Photo courtesy of Robert Korth, UW-Extension Lakes Partnership

2. Installation of a stormwater infiltration system—3 points

A system that is designed to capture and infiltrate the accumulated water from a rainfall event.

Mitigation Intent: Improve and preserve water quality and reduce erosion potential by offsetting the impacts of surface run-off, impervious surfaces, and increased development in shoreland areas.

Infiltration Practices: Infiltration trenches, Infiltration chambers, drywells, grass swales, rain gardens and other comparable practices.

Underground System Design Standards:

- The plan for an underground stormwater system must be reviewed and stamped by a licensed engineer.
- An underground stormwater system, at a minimum, should capture and infiltrate the collected stormwater from the 5 year, 24 hour rain event and safely bypass flows produced by the 100-year, 24 hour rain event.
- Stormwater infiltration systems are not suitable on land containing impermeable soil types due to the inability for adequate infiltration.
- The system must be located outside of the shoreland buffer and at least 10 feet from building foundations.
- The bottom of the system should be at least 3 feet above groundwater and a minimum of 25 feet from drinking water wells.
- The design should be based on the scale of the proposed structure and contain an enforceable maintenance schedule.

Raingarden Design: The following publications can be used as a guide for the design and installation of a rain garden. *(Available in the Lincoln County Zoning Office)*

1. University of Wisconsin Extension publication "Rain Gardens, A how-to manual for homeowners" UWEX Publication- GWQ037 https://learningstore.uwex.edu/Assets/pdfs/GWQ037.pdf
2. Natural Resources Conservation Service publication "Rain Gardens". https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_011366.pdf

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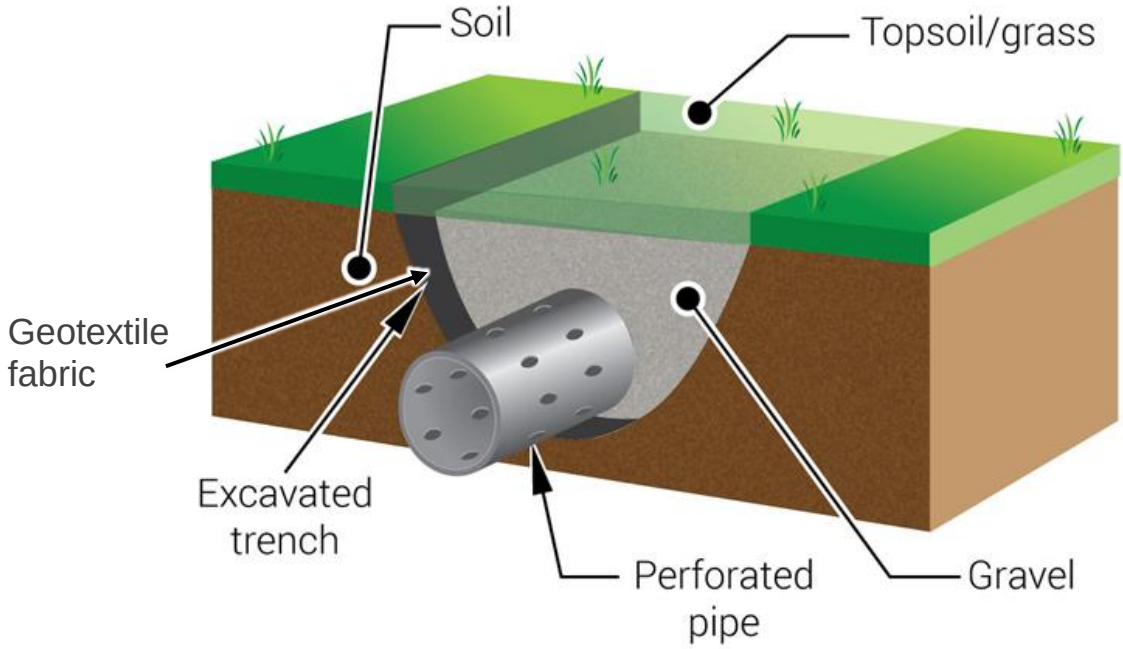
Infiltration Trench Example



(engineeringclicks.com)

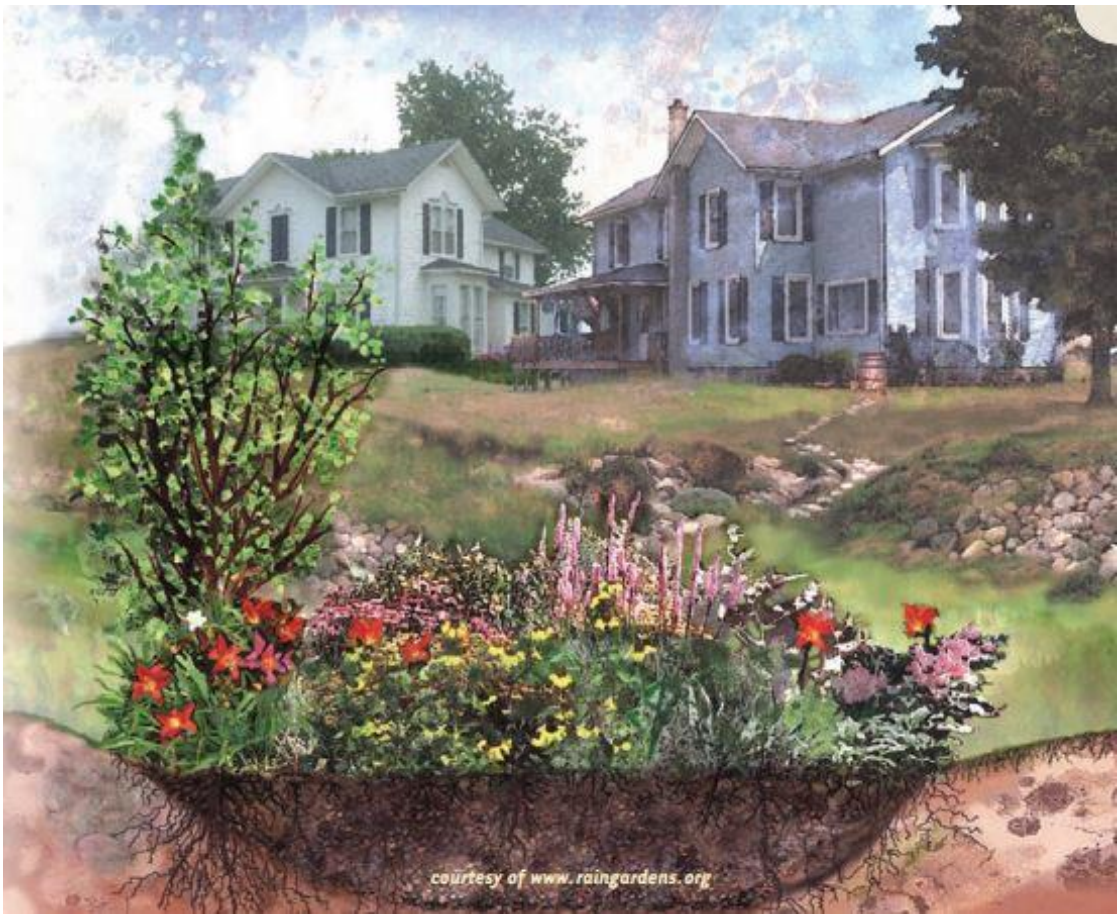
Infiltration Chamber or Drywell Example

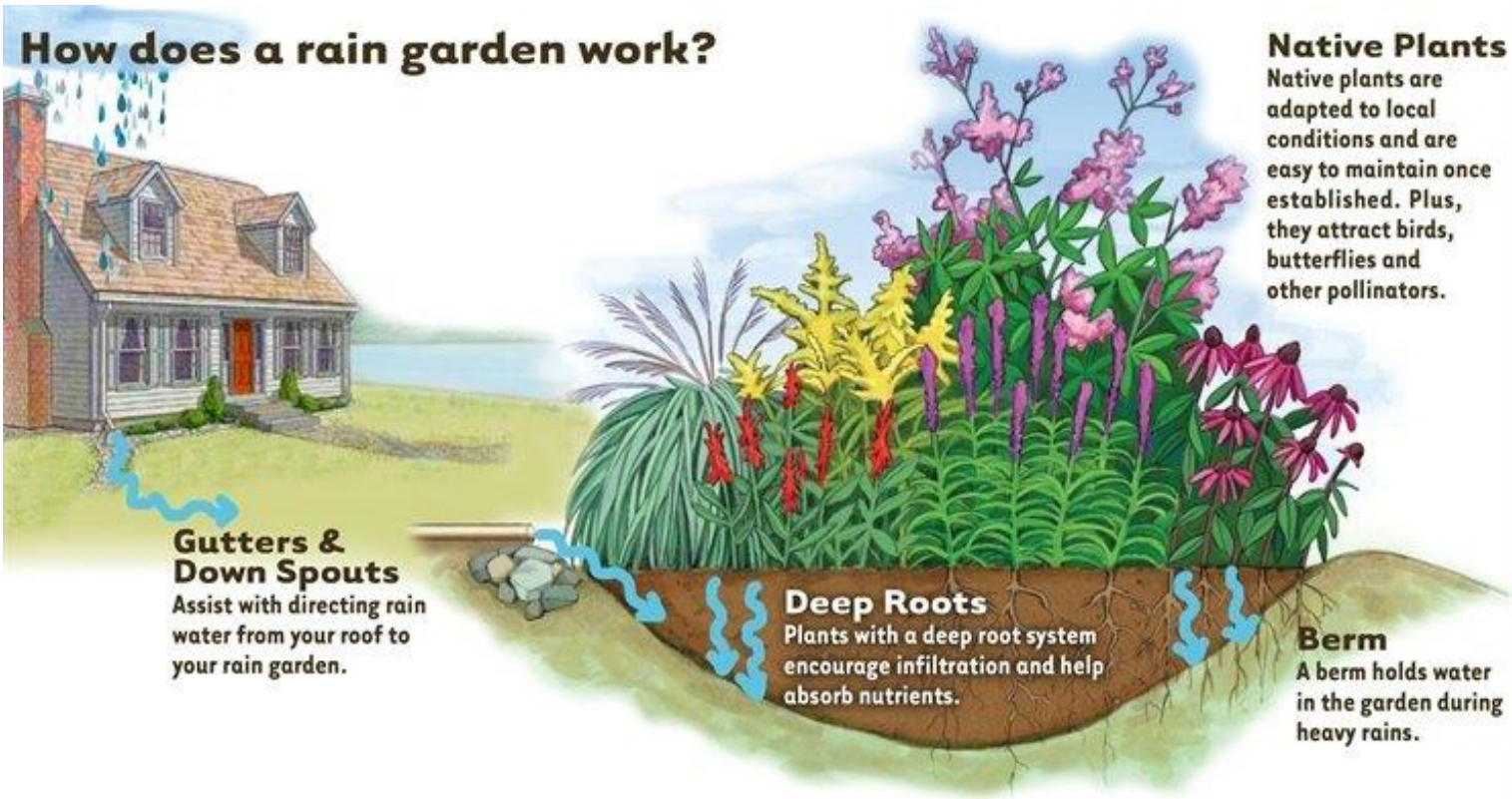
(ndspro.com)

(tetoomey.com)

Rain Garden Example

A shallow depression landscaped with native vegetation designed to capture and infiltrate stormwater.





3. Existing compliant shoreland buffer—3 Points

A shoreland buffer is the area of protected vegetation located between the ordinary high water mark (OHWM) and at least 35 feet inland. An existing compliant shoreland buffer should contain three distinct layers including a native tree canopy, shrub layer, and groundcover layer, except for closed canopy forest types such as pine and hemlock. Shoreland buffers may include a cleared view and access corridor, measuring up to 35% of the parcel frontage, consistent with 21.09(2) of the Lincoln County Shoreland Ordinance.

Mitigation Intent: Shoreland buffers prevent erosion, reduce sedimentation, provide fish and wildlife habitat and filter stormwater run-off protecting water quality and aesthetics.

Standards: See 21.08(2) of the Lincoln County Shoreland Ordinance.

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4. Active restoration (accelerated recovery) of a shoreland buffer—3 Points

The active restoration of a shoreland buffer involves planting native vegetation at suitable densities and restricting mowing, trimming, and raking from the ordinary high water mark to a point that is at least 35 feet inland. A compliant shoreland buffer should contain three distinct layers including a native tree canopy, shrub layer, and groundcover layer, except for closed canopy forest types such as pine and hemlock. Shoreland buffers may include a cleared view and access corridor, measuring up to 35% of the parcel frontage, consistent with 21.08(2) of the Lincoln County Shoreland Ordinance.

Mitigation Intent: Shoreland buffers prevent erosion, reduce sedimentation, provide fish and wildlife habitat and filter stormwater run-off protecting water quality and aesthetics.

Standards: See 21.09(2) of the Lincoln County Shoreland Ordinance. All active shoreland buffer restorations shall meet the following standards:

- Plantings shall be native to Wisconsin or cultivars of native species if approved by Land Services staff
- Trees shall be planted to a density of at least one stem per 100 square feet of area.
- Shrubs shall be planted to a density of at least 2 stems per 100 square feet of area, except for closed canopy forest types.
- Ground cover shall be restored to the extent practicable.
- Mowing and vegetation removal is prohibited within restoration areas, except activities allowed in 21.08(2)

(County staff photos)

5. Passive restoration (natural recovery) of a shoreland buffer—1 point

Passive restoration of a shoreland buffer involves restricting mowing, raking, and trimming and allowing natural regeneration of the landscape to occur from the ordinary high water mark (OHWM) to at least 35 feet inland. A passive shoreland buffer restoration is only applicable on sites where tree, shrub and ground cover layers are already present in adequate densities and the site is suited for natural regeneration. A compliant shoreland buffer should contain three distinct layers including a native tree canopy, shrub layer, and groundcover layer, except for closed canopy forest types such as pine and hemlock. Shoreland buffers may include a cleared view and access corridor, measuring up to 35% of the parcel frontage, consistent with 21.08(2) of the Lincoln County Shoreland Ordinance

Mitigation Intent: Shoreland buffers prevent erosion, reduce sedimentation, provide fish and wildlife habitat and filter stormwater run-off protecting water quality and aesthetics.

Standards: See 21.09(1) of the Lincoln County Shoreland Ordinance. Passive restoration is not applicable on sites containing large concentrations of invasive species, areas where sod has been installed, on sites that have been stripped of the native seed bank, highly disturbed sites, or sites with eroding soil.

(UWEX)

(WDNR)

6. Partial restoration and/or preservation of a shoreland buffer—2 points

A partial shoreland buffer restoration involves actively restoring or preserving half of a compliant shoreland buffer. There are two options for meeting this requirement:

Option One: The entire length of shoreline frontage may be restored or preserved to a depth of at least 17 feet from the OHWM minus a viewing and access corridor (Figure 1).

Option Two: Half of the length of shoreline frontage may be restored or preserved to a depth of 35 feet from the OHWM minus a viewing and access corridor (Figure 2).

Shoreland buffers may include a cleared view and access corridor, measuring up to 35% of the parcel frontage, consistent with 21.08(2) of the Lincoln County Shoreland Ordinance.

Mitigation Intent: Shoreland buffers prevent erosion, reduce sedimentation, provide fish and wildlife habitat and filter stormwater run-off protecting water quality and aesthetics. The presence of any amount of vegetation along the shoreline is beneficial to the waterway.

Standards: See 21.09(2) of the Lincoln County Shoreland Ordinance for active restoration requirements. The following two diagrams outline the partial shoreland buffer requirement.

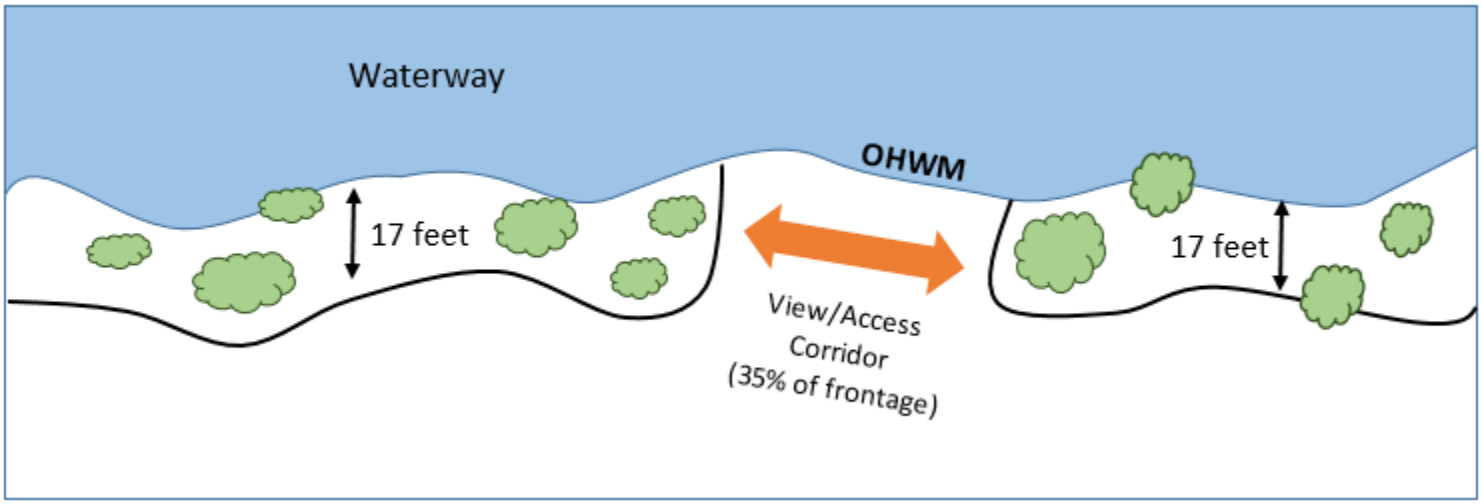

Figure 1. Entire shoreline is restored to a depth of 17 ft. from OHWM, minus a viewing and access corridor measuring 35% of total frontage.

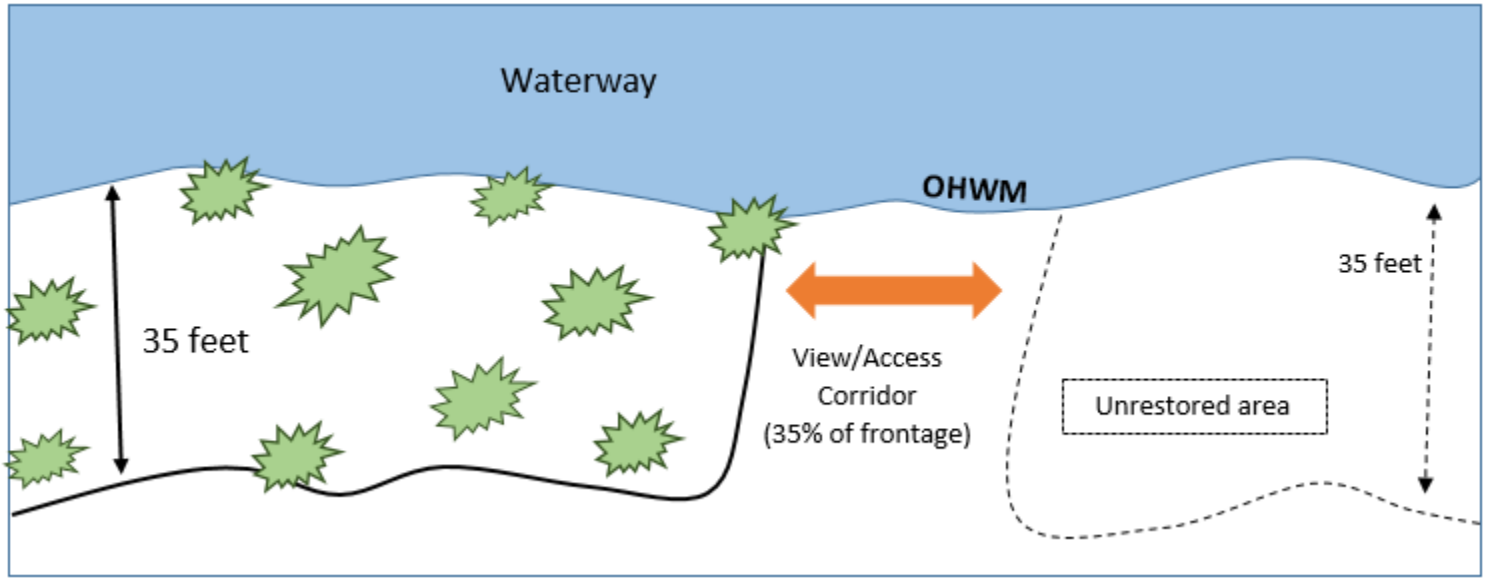

Figure 2. Only half the required buffer is restored to a depth of 35 feet from OHWM.

7. Reducing width of view and access corridor(s)—1 point for every 15 foot reduction

The width of a view and access corridor located within an existing compliant shoreland buffer may be reduced through active restoration, passive restoration, or by maintaining existing vegetation already present in acceptable densities. The allowable width for cleared view and access corridor(s) is listed in 21.08(2) of the Lincoln County Shoreland Ordinance.

Mitigation Intent: Shoreland buffers prevent erosion, limit sedimentation and provide filtering so as to protect and enhance water quality and to provide a diverse shoreland habitat area. The additional vegetation within a shoreland buffer by reducing an opening to the water will provide for more fish and wildlife habitat, stormwater filtering, and erosion control.

Standards: see 21.09(1) of the Lincoln County Shoreland Ordinance if passive restoration is used to reduce the width of a view and access corridor. See 21.09(2) of the Lincoln County Shoreland Ordinance if active restoration is used to reduce the width of a view and access corridor. A compliant shoreland buffer should contain three distinct layers including a native tree canopy, shrub layer, and groundcover layer, except for closed canopy forest types such as pine and hemlock.

(University of Wisconsin- Extension)

8. Lot size is larger than the prescribed minimum—1 point for every 10,000 square foot increment of lot area which may not be subdivided from remaining parcel

Minimum prescribed lot area is listed in 21.07(1) of the Lincoln County Shoreland Ordinance or Chapter 17 if there is an underlying zoning district. The underlying zoning district lot size requirements shall only apply when they impose greater restrictions than listed in the Shoreland Ordinance.

Mitigation Intent: Larger lot sizes afford more protection against pollution of the adjacent body of water by reducing the overall amount of impervious surfaces, structures, and intensity of use of the shoreland area.

Standards: Refer to the minimum prescribed lot area listed in 21.07(1) of the Lincoln County Shoreland Ordinance for townships without comprehensive zoning. Refer to the minimum lot size for the applicable zoning district listed in Chapter 17 of the Lincoln County Ordinances for properties in townships with comprehensive zoning. For example: a parcel of land is zoned rural residential 1 (RR-1) and the minimum lot size required is 30,000 square feet. One mitigation point may be earned if the lot area measures at least 40,000 square feet and an affidavit is recorded in the register of deeds restricting any subdivision of the parcel of land.

Example:

The following property measures 1.26 acres, or about 54,900 square feet. The minimum lot size in Harrison is 30,000 square feet. A deed restriction can be drafted which will prevent subdivision of the land into new parcels. By keeping this shoreline parcel intact, the landowners gain up to 2 mitigation points. One for the first 10,000 square foot increment beyond the lot minimum of 30,000 square feet and a second point for the other 10,000 foot increment.

9. Shoreline Stabilization Practice—3 points

A shoreline bank which is eroding, undercut, or otherwise failing from factors such as wave action, a lack of plant root structures, deteriorating sea walls, etc. may be stabilized using approved practices to meet this choice.

Mitigation Intent: Prevent erosion and protect the shoreline to benefit long-term property values and water quality. Re-establish the connection between the water's edge and the land for nearshore insects, animals, birds, reptiles, and amphibians. Reduce the velocity and impact of wave action on the adjacent shoreline. Restore natural shoreline vegetation to promote natural landscapes and improved erosion control.

Standards: Installation of a shoreline stabilization structure or practice located at the OHWM including rock rip-rap, sea walls, bulkheads, bio-logs, live staking, or other approved practices. A shoreline stabilization practice must be approved by obtaining a permit from the Land Services Department. Staff will review the plan to ensure it meets applicable regulations prior to issuing the approval. All shoreline stabilization projects shall comply with the provisions of Chapter 30, Wis. Stats and Lincoln County Ordinance, Chapter 21. This choice may be available for cost share services through the Lincoln County Land Conservation Program.

Restored/ stabilized shoreline (County staff photo)

10. Increasing the required shoreland setback for structures—1 point for every 15 foot increase beyond required (maximum of 3)

Increase the required shoreland setback for structures on a property. The minimum setbacks for structures are listed in 21.07(4) or, if applicable, 21.07(5) of the Lincoln County shoreland ordinance.

Mitigation Intent: Reduce impacts to a waterway associated with development activities by locating structures further from the shoreline.

Standards: All structures on the property must meet the increased setback, except for those exempt in 21.07(6). The required setback for a structure is listed in 21.07(4) or, if applicable, 21.07(5) of the Lincoln County shoreland ordinance. Exempt structures listed in 21.07(6) are not subject to the increased setback requirements placed on a parcel.

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11. Removal of an existing artificial sand beach at least 200 sq. ft. in size within 35 feet of the OHWM with active restoration (accelerated recovery) of area—1 point

The removal of an existing sand beach which is not naturally occurring, within 35 feet of the ordinary high water mark, followed with active restoration of the area where the beach was removed.

Mitigation Intent: Reduce bank recession, restore diverse fish and wildlife habitat, and stabilize the ground in near shore areas.

Standards: An existing beach must have been artificially created and be located within 35 feet of the OHWM of the waterway to qualify for this mitigation choice. Complete removal of all artificial components of the beach including sand, decorative elements, and edging or border materials is required. The ground in the area where the beach is removed must be amended with top soil or compost prior to establishing native vegetation. The density of plants required to actively restore the area where the beach is removed is subject to 21.09(2) of the Lincoln County shoreland ordinance.

Existing 25 'x 10' artificial, man-made beach located above the OHWM (County staff photo)