

Final grant
funded shoreline
restoration
plans/maps
AND
pre/post photos



BURNETT COUNTY
LAND & WATER CONSERVATION DEPARTMENT

7410 County Road K, #109

Siren, WI 54872

Telephone: (715) 349-2186 Fax: (715) 349-2102

LWCD@burnettcounty.org

**PLANTING UNDER PINE TREES – DEMONSTRATION PROJECT
REPORT 2010**



Introduction

Burnett County requires shoreline buffer restorations as part of certain Land Use Permit activities through Zoning as well as through voluntary participation in our Shoreline Incentives Program. The department generates many restoration plans throughout the course of a year and comes across various challenges to implementing these plans in the field. Follow-up site visits indicate the most difficult areas to establish a functional buffer are existing pine plantations or areas where large pines are well established creating a heavy needle thatch on the ground and greatly reducing the amount of available sunlight. This demonstration project was started as part of a grant from the Wisconsin DNR to try to determine the best plants for success in these areas as well as the most effective soil amendments.

Method and Scope

A red pine plantation was used as the study area as this offers the harsh growing conditions we needed. The plantation had already gone through one thinning harvest several years before the study, which took every third row of trees. There was little or no existing volunteer ground cover plant growth. We chose two separate plots, one plot would be located in shade but right on the edge of the plantation and one plot was located in the most shaded area in the middle of the plantation. After some discussion with Kevin Schoessow, Area Agricultural Development Agent for UWEX, we determined the challenges and our basic method. Heavy pine plantings

Challenges and Growing Conditions

We anticipated animal browsing could be a problem and therefore surrounded each plot with 3 foot high chicken wire to protect the plants. This effectively prevented the browse from mammals, however there was significant plant growth reduction due to insect damage. We did nothing to prevent insect damage to plants. Because of this some plants which exhibited strong growth were actually reduced in size later in the growing season. It was not determined what type of insects damaged certain plants. Some leaves were entirely removed by insects cutting the stems and some leaves were simply consumed up to the stem. Certain plants seemed more susceptible than others. There was no insect damage observed on Pennsylvania Sedge, however Big Leaf Aster and Dwarf Bush Honeysuckle were the two species which showed occasional insect damage.

An extensive watering system was set up to ensure plant growth and survival. This is often a big challenge when working with landowners. We had three years of extended drought prior to this test and finally received adequate moisture in 2010, throughout the entire growing season. We did not have to use the watering system at all.

Conclusions

It's important to note this is a two year project, spanning two growing seasons, therefore any conclusions we draw now may not be final, however it was clear that one plant and one type of amendment stood out in the data as the most productive. **Big Leaf Aster (*Aster macrophyllus*) exhibited the most vigorous growth**, both in terms of plant height and aerial coverage. **The square meter that showed the best growth for all species was the one amended with mushroom compost.** The sandy soil lacks organic matter, which helps to hold in soil moisture and apparently the addition of the compost increased the amount of moisture available to plants throughout the growing season. The other square meter plots did not show much difference in plant growth among the species we planted, however the square meter plot which had the needle thatch raked away did show more volunteer plants coming up, most of which were non-native perennials.

SIP COST SHARED PRACTICES 2009 -2016

First Name	Last Name	Prop Number	Road Name	Section	Town	Range	Township Name	Legacy Number	Waterbody	Date Cov Reg	CSA signed?	CSA amt	Linear feet protected	sq feet restored
CHRIS & DAWNETTE	✓ SNYDER	26270	W LIPSETT LAKE RD	13	39	14	RUSK	024311303700	LIPSETT LAKE	2009/09/16	2009/09/16	\$232.73	130	200
KEVIN & CATHERINE	✓ BOBENRIETH	30092	N DES MOINES LAKE RD	28	41	14	WEBB LAKE	038935002800	LONG LAKE	2011/08/24	2011/08/05	\$4,473.55	130	3112
DAVID & NANCY	✓ MOE	6931	GORDON ROAD	15	38	16	SIREN	030231503200	SILVER LAKE	2014/10/24	2015/03/03	\$1,291.91	130	6720
THOMAS & KATHLEEN	✓ GUTHRIE	23865	AZORAH LANE	18	38	14	DEWEY	008211802200	BASHAW LAKE	2015/05/01	2015/05/01	\$185.83	100	300
GARRY & CAROLE	✓ LOUFEK	29741	LONG LAKE TRAIL	34	41	16	SWISS	032533304900	LONG LAKE	2015/07/22	2015/07/15	\$878.44	293	100
GARRY & CAROLE	✓ LOUFEK	29727	LONG LAKE TRAIL	34	41	16	SWISS	032533304800	LONG LAKE	2015/07/22	2015/07/15		162	100
MARK & NAOMI	✓ OWEN	3209	W WEBB LAKE DRIVE	8	41	14	WEBB LAKE	038510804100	WEBB LAKE	2015/08/31	2015/08/28	\$181.93	110	675
LARRY & LINDA	✓ HOYER		MAHLEN COURT	35	41	16	SWISS	032922502500	MINERVA LAKE	2016/08/11	2015/09/24	\$961.34	92	

**BURNETT COUNTY
LAND & WATER CONSERVATION DEPARTMENT**

7410 County Road K, #109

Siren, WI 54872

Telephone: (715) 349-2186 Fax: (715) 349-2102

August 12, 2009

Christopher & Dawnette Snyder
2052 Irene Street
Roseville, MN 55113

Dear Christopher & Dawnette:

I am pleased to inform you that your property qualifies for the Burnett County Shoreline Incentives Program. Registering the enclosed *Shoreline Preservation Program Restrictive Covenant* will officially enroll you in the program. Thank you for your diligence in establishing native vegetation on your property.

When we talked on the telephone, I neglected to mention one concern that I have. You have spotted knapweed, a very invasive, non-native plant growing in your planted area. While this blue flower with silvery, green foliage is quite pretty, I would ask that you remove it. This plant will take over areas currently populated by other native plants, and I would hate for you to lose the progress you have gained. A card with identification information is enclosed. If you choose to pull the plant, gloves are recommended. Pulling with bare hands is believed to cause illness.

Another item to watch is to not trim along the shoreline in the no-touch zone. This vegetation is important to prevent erosion and stabilize the shoreline.

I understand that you are interested in increasing the density of some of the shadier areas of the buffer zone. We would like to offer you cost sharing to accomplish this task. Chris and I discussed supplementing this approximately 200 square foot area with additional seedling plantings. A cost share agreement with a budget of \$250 will support this effort. Choose plants from the Oak or Pine Forest list in the landowner guide.

The cost share agreement for the project is enclosed. The program will reimburse 70 percent of the cost of plants, materials, and installation after the project is completed. Your labor for planting is credited at \$10 per hour.

Shoreline Preservation Program Covenant

If you are interested in proceeding, the first step is to sign and register a Shoreline Preservation Program Restrictive Covenant. This will officially enroll you in the program. The cost share agreement may be signed any time after the covenant is registered.

Please review the covenant including the property legal description carefully. If the covenant is satisfactory, please sign it in black ink and have the signatures notarized. Each person listed on the deed must sign the covenant. **The covenant must be registered with the Burnett County**

SIP 2009
Yes
Sent 8/13/09
file in
C.O.
drawer

Register of Deeds Office by November 1, 2009 to qualify for the credit on year 2009 property taxes. The office is in Room 140 of the Government Center building just north of Siren at 7410 County Road K. The Register of Deeds mailing address is 7410 County Road K, #103; Siren, WI 54872. The telephone number is 715-349-2183. You will pay an \$11 fee to register a one-page document, and \$2 for each additional page.

Cost Share Agreement

Please sign the agreement and have it notarized. All individuals listed on the deed must sign the agreement. Initial and date each page in the boxes provided. Please return the original cost share agreement and the counter receipt from the Register of Deeds Office to the Land and Water Conservation Department. Dave Ferris, the County Conservationist will sign the agreement, and a copy will be returned to you upon request. **Costs of plants and supplies purchased before the agreement is signed are not eligible for reimbursement.** The enclosed handout provides more information about cost share procedures.

You will be reimbursed for the registration fee at the time the \$250 per parcel enrollment payment is made to you. This will take 4 to 7 weeks from the time your covenant is registered and plantings are verified. The Register of Deeds office will provide you with a counter receipt to show that the agreement will be recorded. The cost share for planting will be reimbursed after plantings are verified and receipts and the cost share tracking form is received by the Land and Water Conservation Department.

Please take the counter receipt to the Land and Water Conservation Department in Room 180. You will be given a natural shorelines shirt and a sign for each parcel that is registered in the program. Additional shirts are available to participants for \$30 each.

Installing a sign to promote the program and your efforts to preserve natural shoreline is optional. If you choose to have a sign, we ask that you post it facing the shoreline at the edge of your buffer. The signpost should be pounded in at least two feet deep to make sure that it is stable. Attach the sign with the hardware provided after the signpost is buried.

We encourage current participants to sponsor new enrollments. Please talk with your lake neighbors or lake association about the program. If your sponsorship results in a signed covenant, you are eligible for a thank you gift of one of the following: another Natural Shorelines shirt or hat or a *Lakescaping for Wildlife and Water Quality* book.

Feel free to contact me (715-268-9992) or Dave Ferris (715-349-2186) if you have any questions about the program.

Sincerely,

Cheryl Clemens
Consultant to Burnett County

CC: Dave Ferris, County Conservationist

SNYDER
26270 W LIPSETT LAKE ROAD
BEFORE RESTO – August 2009



BEFORE RESTO – June 2010





AFTER PLANTINGS – July 2016



BURNETT COUNTY
LAND & WATER CONSERVATION DEPARTMENT

7410 County Road K, #109

Siren, WI 54872

Telephone: (715) 349-2186 Fax: (715) 349-2102

July 6, 2011

Richard and Arlene Gritton
30092 N. Des Moines Lake Rd.
Danbury, WI 54830

Dear Richard and Arlene:

Thank you for your willingness to consider native plantings and infiltration practices to reduce runoff and erosion at your Long Lake property. A restoration plan including a site diagram and narrative describe a native shoreland buffer planting, a rain garden, and a rock infiltration pit. Please review the plan, and contact me if you have any questions or concerns. **You might want to begin by looking at the site diagram and reading the project summary on page 3.**

While we are providing detailed instructions for the planting, expect lots of help in selecting and laying out plants and supervising project installation. We plan to do this as a demonstration project. As such, I will guide you, the contractor, and volunteers through these instructions. Your main task would be to be sure that the plants are watered after they are planted.

Your project is eligible for financial assistance because of a special program to encourage native plants on Long and Des Moines Lake. The project will pay for 70% of the cost of the planting. Another funding source offers the same cost share rate to install the rain garden and rock infiltration pit. All are important to solving your erosion problem. The rain garden and rock pit will capture and infiltrate water, and the shoreland buffer planting will stabilize the bank.

Participating in the cost sharing requires registering a covenant that states the buffer on your property will be maintained according to the plan we have provided. This allows for a 30 foot wide viewing and access corridor and requires that the buffer zone extend back at least 35 feet from the high water mark. Exceptions to this distance are made when the structure is close to the water like yours is, and they are reflected on the site diagram.

Cost Share Agreement

A cost share agreement is the next step for the project. A cost share agreement is a contract between yourselves and Burnett County. The budget for the cost share agreement is estimated for the shoreland buffer. We would need to get a landscaper bid for the rain garden and rock infiltration pit. I can provide an example cost share agreement without the budget detail if you would like to see one.

We would work to find volunteers to plant. Fridays generally work well, and August is a good time to plant. Would August 5 or 12th work for you? Please contact me if you have any questions about the plan or the cost sharing. My telephone number is 715.268.9992 and email is harmonyenv@amerytel.net.

Sincerely,

Cheryl Clemens, Shoreline Restoration Consultant

Revised 8/04/11

RESTORATION PLAN¹

Richard and Arlene Gritton
30092 N. Des Moines Lake Rd.
Long Lake

Project Summary

The **rain garden** intercepts and infiltrates runoff water from the neighbor's lot. It is created by digging out a shallow garden and using the material to create a berm to direct and hold water in the garden. The garden is planted with the native shrubs bush honeysuckle and grey dogwood. Compost is used in the garden to better retain water and allow the shrubs to grow.

Cost estimate: to be obtained from landscaper

The **rock infiltration pit** is created next to the driveway with a hole dug 4 feet deep beginning 1 foot from the existing asphalt. Because water pools at the end of the driveway, removal of the last 2 feet of pavement is recommend. A 1 foot deep trench is dug at the end of the driveway which is lined with filter fabric and a layer of clean rock. A drain tile is place along the length of this trench which angles back to the infiltration pit. Depending upon elevations, it may be necessary to move this trench further back in the asphalt. The pit itself is lined with filter fabric and filled with rock. There will be rock at the surface which will extend 7 feet from the driveway along 16 feet of its length. Excess sand excavated from the pit can be used for the rain garden berm and to smooth the shoreland buffer slope.

Cost estimate: to be obtained from landscaper

The **shoreland buffer planting** uses grasses, flowers, and shrubs adapted to the dry conditions along your hillside. Erosion control blanket will be used to secure the slope once it is raked smooth. Shrubs are scattered throughout the planted area – mostly near the base of the slope. A few shorter shrubs are planted closer to the house. Pictures of some of these plants are circled in enclosed plant lists.

Cost Estimate: \$3,529.50

Landowner share (30%): \$1,059

Buffer Restoration

To qualify for cost sharing, the restored buffer must generally extend from the ordinary high water mark 50 feet inland on Class 2 lakes such as Long Lake. Exceptions are made when the structure is closer than 50 feet from the ordinary high water mark like yours is.

Buffers consist of two major components: the first component (normally **35 feet deep**) is a **no-touch, natural vegetation zone**, and the second component is a minimum maintenance zone. A single viewing/access corridor up to 30 feet wide may cross both zones perpendicular to the shore.

Vegetation removal (including mowing and trimming) and land disturbing activities are prohibited in the no-touch zone. Limited pruning and mowing are allowed in the viewing/access corridor and the minimum maintenance zone. Walkways, pathways, and stairs must be located in the viewing/access corridor; and piers, wharfs, and lifts must be placed in water immediately in front of the corridor.

¹prepared by Cheryl Clemens, Harmony Environmental, on behalf of the Burnett County Land and Water Conservation Department. Questions may be directed to Dave Ferris, Burnett County Conservationist, LWCD (715-349-2186) or to Cheryl (715-268-9992).

The no-touch zone must be established and maintained from the ordinary highwater mark and extend at least 35 feet inland. Exceptions are made to this distance because of the location of your home. Please see the site diagram for more detail. The back of the no-touch zone is marked with a row of X's. Ten to fifteen feet of clearance are allowed from the house. **The enclosed *Shoreline Buffer Restoration Guide for Landowners* provides planting instructions, plant lists and sources, and additional guidance for your restoration project.**

Viewing Corridor

The approximate location of the viewing corridor is indicated on the site plan. This may be moved if you wish as long as the stairs are included. We highly recommend that you do not trim vegetation to the south of the stairs because of the erosion present. Areas of bare soil should be mulched to prevent erosion. The mulch should stay in place after the infiltration pit is installed.

No Touch, Natural Vegetation Zone

Allow area both above and below the ordinary high water mark to grow with no mowing or trimming – except extending in front of the viewing corridor.

Groundcovers

Follow instructions for planting seedlings found on page 12 of the landowner guide. Watering seedlings regularly the first year is critical to their survival. Mid August to late September and mid May to mid June are good times to plant seedlings.

Area 21: The plan specifies an erosion control blanket to stabilize the eroding bank at the ordinary high water mark. The eroded bank will be evened before the erosion blanket is installed. (1,790 ft²)

1. Smooth out area so that it is free of gullies and ridges. Some sand from the excavated pit can be used to fill in eroded areas.
2. Seed 4 ounces of Canada wild rye seed or establish a temporary cover of oats or annual rye grain by seeding with about 1 pound of seed.
3. Install an erosion control mat.
4. Stake mat or netting in place using 6 inch or longer no. 8 gauge or heavier wire staples to hold it in place. Staples should be paced every 3 feet along the edge and where the nets or mats overlap.
5. You may need to replace mulches, mats, and nets after periods of prolonged rainfall.
6. Plant plugs of seedlings through mulch spaced 12 inches apart. Allow leaves to provide additional mulch cover in the fall.
7. Water plants regularly to ensure seedling survival (daily if possible the first several weeks).

Choose seedlings from the Woodland Edge list on page 28 of the landowner guide. A few of those listed below are also from the Prairie/Upland Meadow list on page 21. Substitutions should be made only from the Woodland Edge list.

Recommended grasses (use at least 50% grasses to stabilize the bank) (1050 plants) – 22 flats

Little bluestem

Big bluestem

Sideoats grama

Recommended flowers (1050 plants) – 22 flats

Black-eyed Susan	<i>Rudbeckia hirta</i>	yellow
Fireweed	<i>Epilobium angustifolium</i>	pink not available
Pearly everlasting	<i>Anaphalis margaritacea</i>	white
Rough blazing star	<i>Liatris aspera</i>	pink not available
Slender beard tongue	<i>Penstemon gracilis</i>	white not available
Smooth blue aster	<i>Aster laevis</i>	blue

Substitutions

Prairie phlox	pink
False sunflower/yellow oxeye	yellow
Nodding onion	pink
Anise Hyssop	purple
Leadplant	blue
Mountain mint	white
Bergamot	lavender
Spiderwort	blue

Area 22:

Leave existing vegetation in place. Mulch bare areas with leaves or straw before planting. Plant seedlings from the **Pine or Oak Forest** list on page 26 of the landowner guide. The recommendations include native flowers and Pennsylvania sedge, a native grass-like plant. The sedge grows to about one foot tall.

Recommended plants (700 plants)

Big-leaf aster	<i>Aster macrophyllus</i>	3 flats of 48
Columbine	<i>Aquilegia Canadensis</i>	3 flats of 48
Harebell	<i>Campanula rotundifolia</i>	2 flats of 48 not available
Pennsylvania sedge	<i>Carex pensylvanica</i>	10 flats of 32

Shrubs

Plant at least 23 shrubs scattered throughout the buffer following the general guidance in the restoration plan. Recommendations for placement and species are indicated on the site plan. You may make substitutions from the **Pine or Oak Forest** list on page 27 of the landowner guide. Choose at least 2 different shrub species. Do not substitute non-native shrubs. Be sure to avoid all honeysuckles other than the bush honeysuckle *Diervilla lonicera*. These can be invasive in forested areas. **Honeysuckles other than this species will be required to be removed from the planting.**

You may trim up to a two-foot diameter circle around newly planted shrubs and trees for the first year or two to give them a good start. **Protect newly planted shrubs with wire cages to prevent deer browsing.**

Cost Estimate for buffer zone:

Seedlings (2800 @ \$.75)	\$2,100
Shrubs (23 @ \$15)	\$345
Canada wild rye seed	\$10
Erosion blanket (1790 ft ²) (720 X 3 = 2160)	\$180
Soil amendment	\$40
Straw (67 ft ³ @ \$.50)	\$33.50
Labor (50 hours @ \$10)	\$500
Subtotal	\$3,208.50
10% contingency	\$ 321
TOTAL	\$3,529.50

Landowner share (30%): \$1,059

Note that some of these costs may be offset by volunteer labor.

2880 square feet

130 feet of shoreline

Rain Garden

The rain garden would be positioned to capture water from the neighbor's house. The first step would be to remove the rock at the property line which currently diverts water further down the hill. A berm would then be created to direct water and hold it in a rain garden. The sand excavated from the rain garden would be used to create the berm.

The garden is shown on the site plan. The flat bottom of the garden is 4 feet by 10 feet with sides that slope to a depth of 8 inches. The garden is excavated an additional 10 inches to allow for 6 inches of compost worked into the soil and 4 inches of wood chips at the surface.

Shrubs are chosen for a simple, attractive planting. Pennsylvania sedge, a grass-like plant is used to revegetate the berm and side slopes. Annual rye will be planted to provide immediate coverage under the erosion blanket and stabilize the berm quickly.

Installing rain gardens

The process for installing the rain gardens is outlined in detail in the *Rain Gardens: A how-to manual for homeowners* publication which is included with this plan. The basic steps are as follows:

1. **Contact Diggers Hotline.** At least 3 days before you plan to start digging, contact Diggers Hotline to make sure that your excavation won't interfere with any underground utility lines. You can call them at 811 or do an online Email-a-Locate from the following website:
<http://www.diggershotline.com/disclaimer.htm>
2. **Install a silt fence.** A silt fence should be installed before any soil is moved or exposed. This is essential in order to prevent sediment from washing into the lake.
3. **Dig the rain garden** (page 12). Your rain garden should end up being 8 inches deep and perfectly level at its base. Dig to a depth of 18 inches then incorporate 6 inches of compost. The edges of the garden should slope from ground level to the garden's base at a ratio of approximately 2:1.
4. **Level the rain garden** (page 12). It is essential that the base of the rain garden is flat in order to prevent uneven pooling of water within the garden. To maximize infiltration capacity, the water must soak into the ground evenly throughout the garden's base. The top edge should be level as well; a low spot could cause channelization of the overflow. Prevent soil compaction by avoiding the use of heavy equipment.
5. **Making the berm** (page 14). A berm on the downslope side of the rain garden will prevent water from over-topping the garden's sides and flowing down your yard and into the lake. The soil removed to dig out the base of the garden may be used to create the berm. See the site diagram for cross-section sketches with berm height. The berm can be planted with lawn grass, but an erosion control blanket, such as a Futerra® F4 Netless® excelsior blanket, should be used until the grass has taken root.



6. **Plant the rain garden** (page 16). Plants are indicated on the site diagram. Begin by laying down 4 inches of wood mulch. To plant, separate the mulch, dig a hole, sprinkle organic soil amendment, and place the shrub or plug in the hole. Press the soil gently around the plug and replace the mulch, being careful to keep mulch ½ inch from the stem of plants. Plant the seedlings through the erosion control blanket. Seedlings should be planted at a density of 1 per square foot. Shrubs should be planted as indicated on the plan.
7. **Water immediately after planting.** Plan to water daily for the first few weeks or until the plants are well established. If plants wilt or droop, a repeated watering during the day may be necessary. Once plants are established, water only if prolonged dry periods occur.

Information for maintaining your rain garden is also included in the Rain Gardens publication (page 17). Like all gardens, it will require some weeding and watering. This is especially important during the first year or so after the garden is installed. Since the plants are native, however, they should require minimal care once established.

Quantity estimate

Erosion control blanket (berm and side slopes) (220 square feet) extra from planting

Shrubs (11)

Pennsylvania Sedge (220)

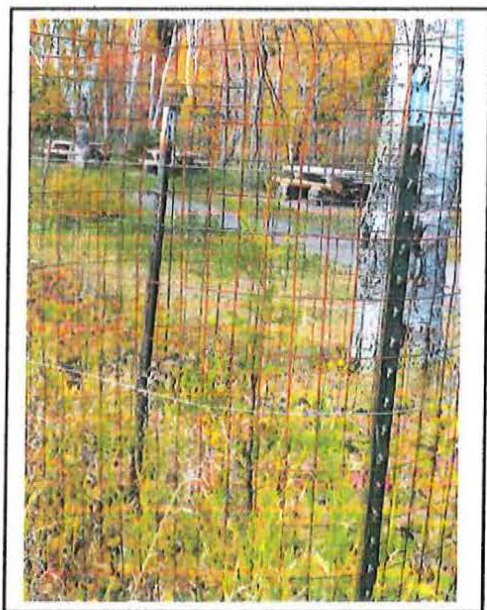
Annual Rye (2 ounces)

Compost (40 X 0.5 = 20 cubic feet)

Mulch (40 X .33 = 13.5 cubic feet)

Fencing and posts to protect shrubs (rain garden base perimeter) 30 feet – 6 posts

Labor/Equipment Rental



Examples of fencing to protect from deer

Infiltration Pit

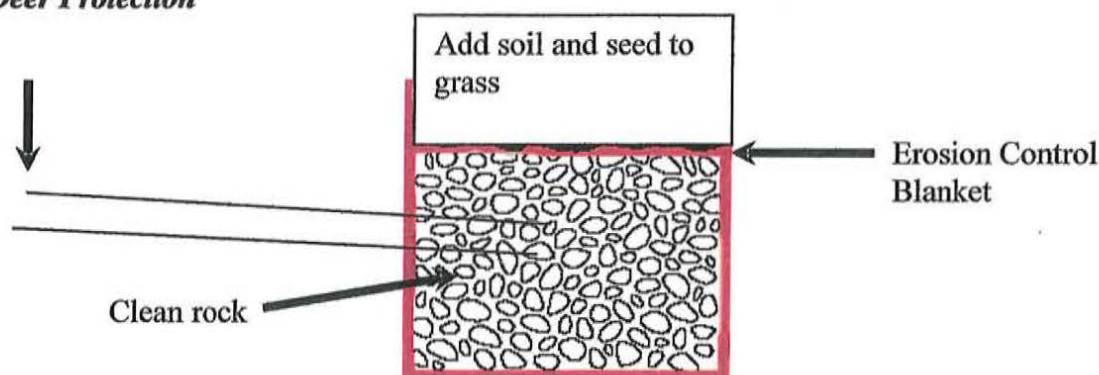
Rock infiltration pits are filled with 3/4 to 2-inch washed rock; water is stored in the empty spaces between the rocks. A rock infiltration pit, as described on page 23 of the *Guide for Landowners*, is an effective way to capture stormwater runoff and encourage infiltration.

The site diagram indicates the proposed location for the infiltration pit. A trench to divert water to the pit is also shown on the site diagram. This may need to be moved further uphill depending upon elevations measured on site.

The size of an infiltration pit is a function of the area that drains to it. The combined area of your garage and the asphalt draining to the trench is 2,000 square feet. With the rapid infiltration rates in sand, a pit with a capacity of 380 cubic feet should be fine. The pit would be 4 feet deep, 6 feet wide, and 16 feet long. The dimensions are limited because of the need to dig back from existing trees.



E Deer Protection



Constructing a rock infiltration pit

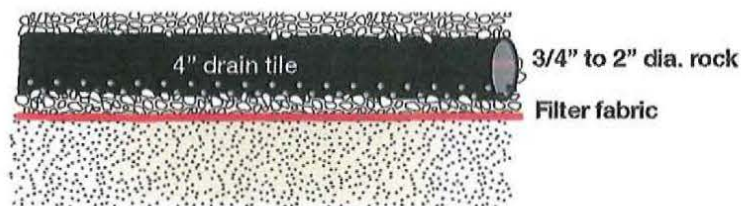
1. Dig a pit of the specified size. Begin the hole 1 foot from the edge of the asphalt. In your case, the dimensions should be 6 by 16 by 4 feet.
2. Line the pit with filter fabric.
3. Fill the pit with clean, 3/4 to 2 inch washed rock, stopping approximately 4 inches from the top.
4. Add a horizontal layer of filter fabric on top of the rock.
5. Cover the filter fabric with soil to the surface. Add soil over the filter fabric, seed to no mow grass and cover with staked erosion blanket.

B. Maintaining a rock infiltration trench

Regularly remove pine needles, fallen leaves, and any other debris that collects on the surface of the infiltration area. A leaf blower may work well to accomplish this task.

Drain Tile

Drain tile directs water from the trench at the end (or middle) of the driveway to the infiltration pit. The trench is lined with filter fabric. The tile will sit on a bed of rock and be covered by rock. It will need to slope downhill to the infiltration pit. Two side-by-side PVC drain tile will be used. They will direct water to a collection basin. Sediment and debris will need to be removed periodically from the collection basin. Each pipe will continue to a clean out area.



Quantity Estimates

Rock (3/4" – 2")	15 yards
Filter Fabric (15 foot width) – trench 6 ft, pit 28 ft. =	34 ft.
PVC Drain Tile (4")	25 ft.
Erosion Control Blanket	
Labor/Equipment Rental	

Additional detail is specified in the Rivers North Proposal

Use the directions and symbols found on the back of this page to complete the diagram

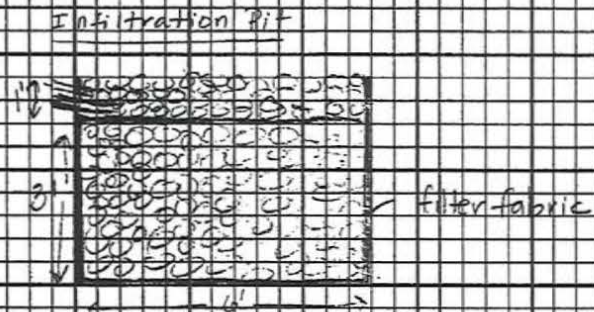
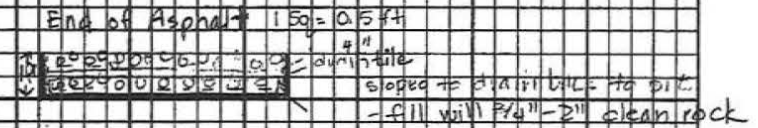
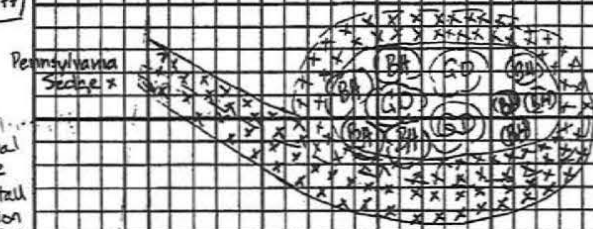
Please indicate North by drawing an arrow.

Rain
Garden
Top View
1 sq = 1 ft

- Seed Annual Rye
- Install Erosion Blanket
- Plant Sedge

Rain
Garden
Side
View

1 sq = 0.5 ft



Landscapeer _____ Phone Number 715.268.9992

Worksheet Completed By Cheryl Clemens

Date 7/06/11

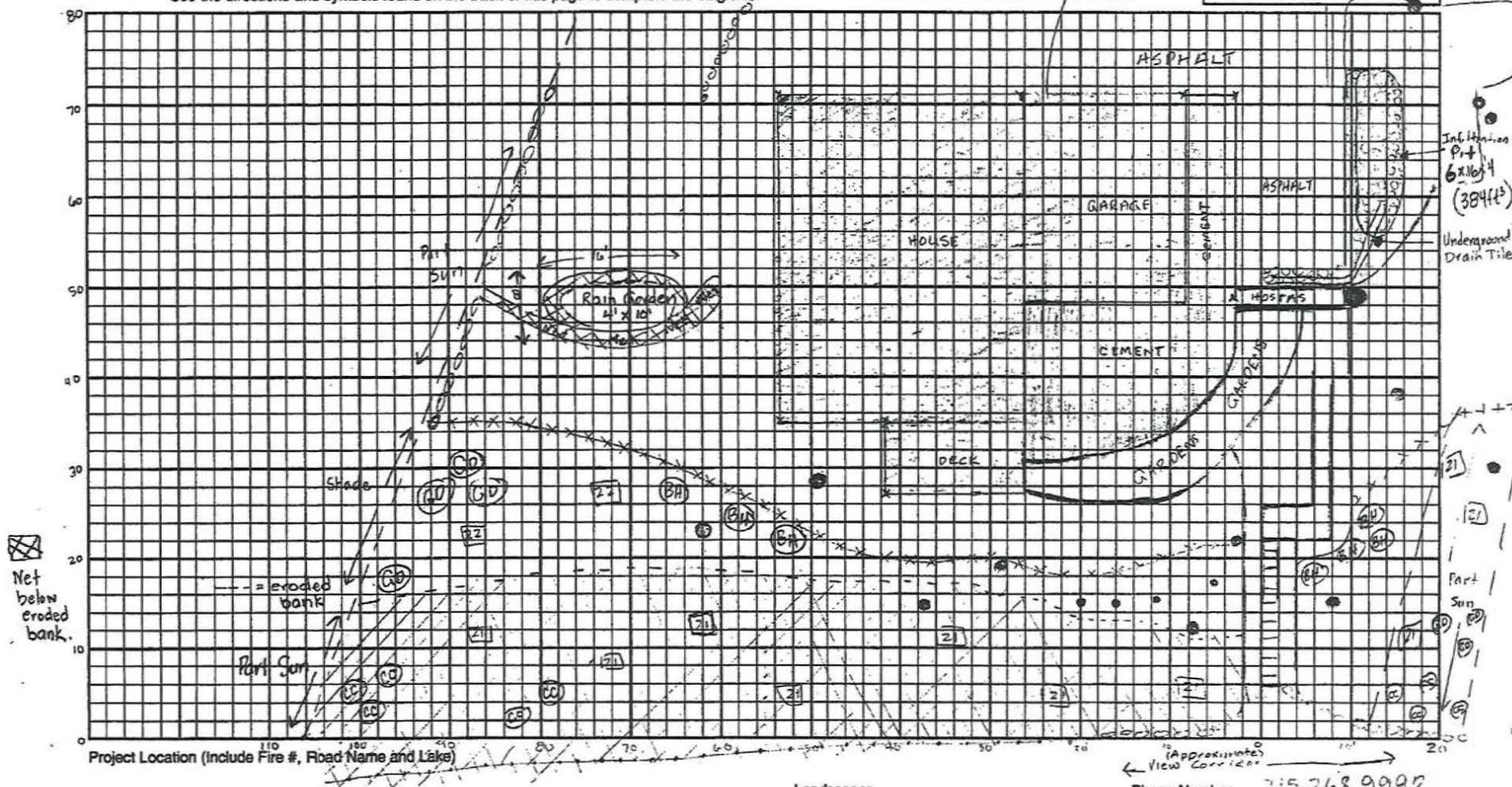
For office use only | Plan Approved By: _____
Date: _____

Buffer Restoration Plan - Site Diagram

Use the directions and symbols found on the back of this page to complete the diagram

Scale: 1 inch = 10 Feet

Please indicate North by drawing an arrow.



Net below eroded bank.

Project Location (Include Fire #, Road Name and Lake)

30092 N. Des Moines Lake Rd Long Lake

Owner Gritton, Richard and Arlene Phone Number 715.259.3113

Landscape

Phone Number 715.268.9992

Worksheet Completed By Cheryl Clements

Date 7/06/11

For office use only

Plan Approved By:

Date:

Vegetation Specifications

List the plants selected for the project and the number to be planted.

(Include all Trees, Shrubs, and Ground Cover)

TREES

Tree Name	Number of Trees
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

SHRUBS

Shrub Name	Number of Shrubs
11 CC = Chokecherry (9)	
12 BH = Bush Honeysuckle (7)	
13 GD = Grey Dogwood (7)	
14	
15	
16	
17	
18	
19	
20	

EROSION CONTROL PRACTICES

Draw on site plan

- ☐ Silt Fence
☐ Mulch
☒ Erosion Blanket
☐ Hay Bales
☐ Other

- ☐ Runoff Diversions
☐ Shoreland Erosion Protection
 (Biologs, Riprap, etc.)

GROUND COVER

Plant List	Area	No. of Plants
21 (part son) Woodland Edge	2140ft ²	2140
22 River Oak forest (shade)	740ft ²	740
23		
24		
25		
26		
27		
28		
29		
30		

Attach additional pages if necessary

Shoreland Revegetation Plan Legend:

	Property Line
	Ordinary High Water Mark
	Viewing Corridor/Access
	Buffer Boundary
	"No-Touch" Boundary
	Existing Channelized Drainage
	Existing Trees
	Existing Shrubs
	Existing Groundcover
	Existing Structures
	New Trees (Corresponds to Plant List Number)
	New Shrubs (Corresponds to Plant List Number)
	New Ground Cover (Corresponds to Plant List Number)

What to include in your plan:

- ❖ Boundary of the buffer
- ❖ Location of ordinary high water mark
- ❖ Location of viewing/access corridor
- ❖ Existing shrubs and trees
- ❖ Locations of shrubs and trees to be planted
- ❖ Areas where native groundcovers will be planted
- ❖ Erosion control practices to be installed during buffer establishment
- ❖ Practices to eliminate channelized flow in the buffer
- ❖ Source of water for watering plants
- ❖ Location of existing primary structures within the buffer zone

BEFORE – June 13, 2011



PLANTING THE BUFFER – August 12, 2011



30092 N Des Moines Lake Road, Town of Webb Lake
PID#038-9350-02-800
Long Lake

Shoreline restoration cost shared through SIP Grant

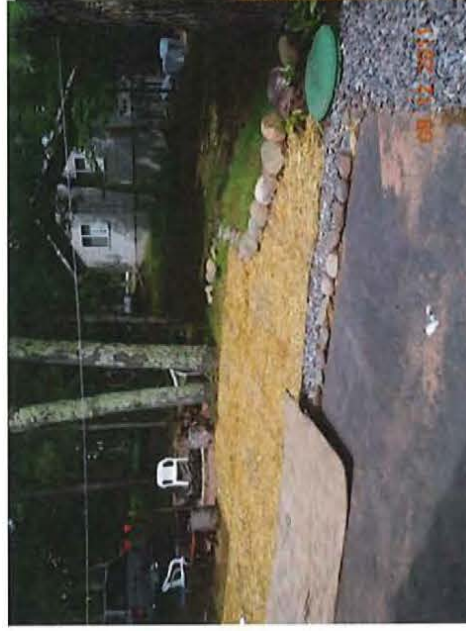
Buffer follow up review: July 19, 2012



RAIN GARDEN



INFILTRATION PIT



BURNETT COUNTY
LAND & WATER CONSERVATION DEPARTMENT

7410 County Road K, #109

Siren, WI 54872

Telephone: (715) 349-2186 Fax: (715) 349-2102

June 30, 2015

Larry & Linda Hoyer
29741 Mahlen Court
Danbury, WI 54830

Dear Larry and Linda:

Thank you for inviting us to visit your property for the Burnett County Shoreline Incentives Program. It was nice to meet you both. As I mentioned during the visit, the program provides financial incentives for establishing and maintaining buffers of natural vegetation next to Burnett County lakes and rivers. Natural vegetative buffers protect water quality by slowing and filtering runoff water, provide critical wildlife habitat next to the water, and screen structures from the water. There is also financial and technical assistance available to reduce runoff from waterfront property.

The vegetation protection (shoreline buffer) requirements are as follows:

The buffer must extend from the ordinary high water mark 50 feet inland on Class 2 lakes such as Minerva Lake.

Buffers consist of two major components: the first component (35 feet deep) is a no-touch, natural vegetation zone, and the second component is a minimum maintenance zone. The 35 feet begins at the ordinary high water mark and extends inland. A single viewing/access corridor up to 30 feet wide may cross both zones perpendicular to the shore on each parcel. Vegetation removal, cutting, trimming, and land disturbing activities are prohibited in the no-touch zone. Limited pruning and mowing are allowed in the viewing/access corridor and the minimum maintenance zone. Walkways, pathways, and stairs must be located in the viewing/access corridor; and piers, wharfs, and lifts must be placed in water immediately in front of the corridor.

Properties enrolled in the Shoreline Incentives Program must meet the requirements and be maintained according to the Burnett County Shoreland Ordinance and the Buffer Preservation and Restoration Standards. Incentives to participate include cost sharing where the county pays 70% of the cost of native plantings to restore the natural shoreline buffer, an enrollment payment of \$250, and an annual property tax rebate of \$50 for each parcel.

We discussed planting that would be needed to qualify for the Shoreline Incentives Program. It would involve planting mostly from the Oak or Pine Forest list from the landowner guide I provided at the visit.

Please let me know if you are interested completing this planting to qualify for the Shoreline Incentives Program on your property. If you are, I can return to take measurements and draw up a restoration plan for you. The plan would include planting native groundcovers and shrubs to establish a natural vegetation zone on all but 30 feet of the property from the ordinary high water mark to 35 feet inland. If you do decide to enroll in the program and wish to remain eligible for cost sharing, do not take any steps to complete the restoration plan until you are enrolled in the program and a cost share agreement is signed. Enrollment involves signing and recording a permanent restrictive covenant that states that the natural buffer zone extent will be maintained. A cost share agreement is a contract for reimbursement of expenses. **Expenses incurred before both parties have signed a cost share agreement will not be eligible for reimbursement.**

Runoff Management

Technical and financial assistance is also available for reducing runoff and erosion from your property. This may be completed in addition to or separately from enrollment in the Shoreline Incentives Program. We discussed the following projects which can be eligible for 70% cost sharing from Burnett County.

- Seeding native prairie below the house
- Diversions from rain gutter downspouts (required above prairie prior to seeding) using underground drain tile
- Rock trail diversions through broad-based gravel dips

A cost share agreement is also required prior to beginning these projects if you wish to remain eligible for cost sharing. The agreement requires keeping projects in place for at least 10 years.

I would need to return to measure the area for native prairie seeding if you are interested. You might look at Prairie Restoration or Prairie Nursery as potential sources of seed mixes. Contact information is found on page 20 of the landowner guide. You would probably want a savanna mix (for part shade on the edges), but short grass prairie would also be ok.

Estimating costs for the rain gutter diversions would be pretty simple. We would just need distances from downspout to the woods.

You might get an estimate from a landscaper regarding the broad-based dips. We discussed potential locations along the trail for these. If you want to have the landscaper come up and make suggestions and provide an estimate, please have them flag the location they are proposing and I will review.

Whether or not you decided to participate in the program, feel free to contact me (715-268-9992 or harmonyenv@amerytel.net) if you have any questions.

Sincerely,

Cheryl Clemens
Shoreline Restoration Consultant
CC: Dave Ferris, County Conservationist

REVISED 9/18/2015

CA - 3/5 16
DIV - 2/5 14

Hoyer personal costs for runoff control, north and west of house to existing wood chip path, approximately 3000 square feet. South of house between berms, approximately 2000 square feet.

Seed bed preparation (kill vegetation and raking smooth)	3 hours	Critical Area
Seeding, (short grass prairie mix and annual rye), firming and rolling	3 hours	CA
Installation of mulch products (curlex mat and wattle)	4 hours	CA (2.4) Div (1.6)
1# seed mix (Prairie Nursery) (includes shipping for both prairie mix and no-mow mix)	\$226.30	CA
10# no-mow grass mix	\$ 73.32	Diversion
1# annual rye (The Granary, Webster)	\$ 2.11	CA
7- 8'x90' Curlex blankets (no net) (American Excelsior)	\$357.58	CA (214.55) Div (143.03)
500 bio-degradable turf staples (Am. Excel)	\$ 73.15	CA (43.89) Div (29.26)
1- 9"x25' straw wattle (Brock White-Superior)	\$ 30.50	CA

Critical Area

Hours	$3 + 3 + 2.4 = 8.4 \times 12 =$	100.80
Seed		226.30
Erosion Blankets		2.11
staples		214.55
wattle		43.89
		30.50
		<hr/> 618.15

Diversion

Hours	1.6 @ 12	19.20
No-mow grass		73.32
Erosion Blanket		143.03
staples		29.26
		2240.00
		<hr/> 264.81
		* \$ 2504.81

PROPOSAL

Shadtree Landscaping
2120 100th St
Milwaukee, WI 53208
715-625-3329

Proposed by:

Larry + Linda Hoyer

3974 Mahlen Ct

Dunbury 54830

715-654-3446 715-680-4714 llhoyer@gmail

Job Name

Job Location

Date

Estimate

Price of Plans

Item number, quantity, specifications and estimated cost:

On right side of house (to lake) 2 swales from walkway to woods angling down the hill. Berm on downhill side, compacted, covered with mulch and rock in swale. 2 drainpipes on south from downspouts to woods and 2 downspouts "Yed" together going to woods on N side

* \$2240 plus tax

Mulch to cover between swales (widespread)

\$1,375 OR

Mulch dumped (Larry + Linda spread)

\$675

plus tax

We propose hereby to furnish material and labor to complete in accordance with the above specifications for the work at:

with payments to be made as follows: upon completion

All materials to be used shall conform with the following specifications: All materials shall be delivered to the job site in accordance with the above specifications. All materials shall be delivered to the job site in accordance with the above specifications. All materials shall be delivered to the job site in accordance with the above specifications.

Respectfully submitted
Dan Christensen

This proposal is valid for 60 days from the date of acceptance.


ACCEPTANCE OF PROPOSAL

The above prices, specifications and conditions are satisfactory and we hereby accept. You are authorized to do the work as specified. Payments will be made as outlined above.

Signature

Date of Acceptance

Signature


Prairie Seeding
Minerva Lake

Larry + Linda
Hoyer
29741 Mahlen
Ct.

SWISS

41-16-35-5 15-465-023000

Deed Doc # 329507

.60 AC

LT13

Map # 0199777

41-16-35-5 15-465-024000

Deed Doc # 368151

.51 AC

LT14

Map # 0199777

41-16-35-5 15-465-025000

Deed Doc # 368151

.54* AC

LT15

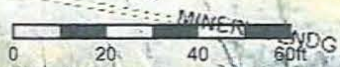
Map # 0199777

pathway
swale+berms

downspout
diversions

MAHLEN CT

41-16-35-5
Deed D



DISCLAIMER: This map is not guaranteed to be accurate, correct, current, or complete and conclusions drawn are the responsibility of the user.

HOYER
29741 MAHLEN COURT
BEFORE RESTO - JUNE 2015



AFTER PLANTING – June 2016





BURNETT COUNTY
LAND & WATER CONSERVATION DEPARTMENT

7410 County Road K, #109

Siren, WI 54872

Telephone: (715) 349-2186 Fax: (715) 349-2102

LWCD@burnettcounty.org

September 19, 2016

Mark and Naomi Owen
165 Linden Drive
Apple Valley, MN 55124

Dear Mark and Naomi:

Thank you for inviting us to visit your property 3209 W Webb Lake Drive for the Burnett County Shoreline Incentives Program. It was nice to meet you both at our visit on August 8th.

The Shoreline Incentives Program provides financial incentives for establishing and maintaining buffers of natural vegetation next to Burnett County lakes and rivers. Natural vegetative buffers protect water quality by slowing and filtering runoff water, provide critical wildlife habitat next to the water, and screen structures from the water. Properties enrolled in the program must meet the requirements and be maintained according to the Burnett County Shoreland Ordinance and the Buffer Preservation and Restoration Standards.

The vegetation protection (shoreline buffer) requirements are as follows:

The buffer must extend from the ordinary high water mark 50 feet inland on Class 1 lakes such as Webb Lake.

Buffers consist of two major components: the first component (35 feet deep) is a no-touch, natural vegetation zone, and the second component is a minimum maintenance zone. The 35 feet deep no touch zone begins at the ordinary high water mark and extends inland. A single viewing/access corridor up to 30 feet wide may cross both zones perpendicular to the shore on each parcel. Vegetation removal, cutting, trimming, and land disturbing activities are prohibited in the no-touch zone. Storage of anything that might preclude growth of vegetation is also not allowed in the no-touch zone. Limited pruning and mowing are allowed in the viewing/access corridor and the minimum maintenance zone. Walkways, pathways, and stairs must be located in the viewing/access corridor; and piers, wharfs, and lifts must be placed in water immediately in front of the corridor.

Incentives to participate include cost sharing where the county pays 70% of the cost of native plantings to restore the natural shoreline buffer, an enrollment payment of \$250, and an annual property tax rebate of \$50 for each parcel.

Your property is very close to meeting program standards. The no-touch portion of the buffer zone currently extends about 30 back at the top of the stairs. It would need to be expanded to at least 35 feet back in all but the 30 foot wide viewing and access corridor.

We discussed the potential of planting this area with native plants. At our meeting I provided a shoreland buffer restoration guide and shared the appropriate plant lists (Oak or Pine Forest list for the shady areas and Prairie Upland Meadow for the sunny areas) We also noted that blueberries are present, and would be appropriate to plant in the buffer zone. You could interplant additional natives in existing tall growth along the hillside. Best times for planting are late summer (August 15 to September 15) and late spring (May 15 to June 15). You might consider mulching the area to be planted next year with 4 inches of mown leaves yet this fall.

If you wish to have a portion of your plant costs covered, please contact us first because we need to set up an agreement to cover the costs before they are incurred. **Expenses incurred before both parties have signed a cost share agreement will not be eligible for reimbursement.**

To qualify for the cost sharing, you would first need to enroll in the program. Enrollment involves signing and recording a permanent restrictive covenant that states that the natural buffer zone will be maintained.

Whether or not you decided to participate in the program, feel free to contact me (715-268-9992 or harmonyenv@amerytel.net) if you have any questions or wish to enroll in the program.

Sincerely,

Cheryl Clemens
Shoreline Restoration Consultant

CC: Dave Ferris, County Conservationist

OWEN
3209 W WEBB LAKE DRIVE
BEFORE RESTO - August 2014



BEFORE RESTO – June 2015



AFTER PLANTING – June 2016



Garry & Carole Loufek
29727 and 29741 Long Lake Trail
Native Shrub Planting

The *Shoreland Buffer Restoration Guide for Landowners* provides additional information including planting instructions, plant sources, and plant lists. We provided this booklet previously. Instructions for planting shrubs are included page 11 of the landowner guide. It is not necessary to remove any existing vegetation except for the non-native, invasive spotted knapweed we discussed removing.

Milorganite is recommended as a soil amendment. It will provide nutrients and organic matter, and will also detract animals. **Fencing around planted shrubs is recommended to prevent deer browsing.** Regular watering is also critical.

Plants must be chosen only from lists of plants native to Burnett County. Because of shade and dry conditions, shrubs from the Woodland Edge/Oak Pine Barrens are recommended.

Cost Estimate

Native Plantings

Shrubs (29727: 20 @ \$15)	\$300
Shrubs (29741: 72 @ \$15)	\$1080
Soil amendment	\$12
<u>Owner labor (20@ \$12)</u>	<u>\$240</u>
Subtotal	\$1632
<u>Contingency (10%)</u>	<u>\$163</u>
TOTAL	\$1795

County share:	\$1256.50
Landowner share:	\$538.50 (including approximately \$240 labor credit)

LOUFEK
29741 & 29727 LONG LAKE TRAIL
BEFORE RESTO – June 2015



AFTER RESTO – June 2016



Tom and Kathleen Guthrie
23865 Azorah Lane
Bashaw Lake
Native Planting

The *Shoreland Buffer Restoration Guide for Landowners* provides additional information including planting and seeding instructions, plant sources, and plant lists. This booklet was provided at our visit.

Planting is recommended only if you are able to water the newly planted area regularly (at least every other day for 30 minutes) for the first 2 months after planting if completed in the spring and at least the first month if completed in August or September. Instructions for planting seedlings are included page 12 of the landowner guide. It is not necessary to remove any existing vegetation (and, in fact, discouraged). Mulch with partially composted leaves.

The entire area to be planted is about 300 square feet. These are bare areas that haven't grown back even with not mowing since last fall.

You may choose plants from the Oak or Pine Forest List in the landowner guide.

Recommended plants

Big leaf aster	<i>Aster macrophyllus</i>
Pennsylvania sedge	<i>Carex pensylvanica</i>

Cost Estimates

Native Plantings

Seedlings (300 @ 1)	\$300
Soil amendment	\$5
Owner labor (5@ \$12)	\$60
Subtotal	\$365
Contingency (10%)	\$37
TOTAL	\$402

County share:	\$281
Landowner share:	\$120 (including approximately \$60 labor credit)

Restoration area: 300 square feet

You might also try vegetating the view corridor with a no-mow grass. This non-native grass mix consists of fine fescue grasses and is available on line at <http://www.prairienursery.com/store/index.php> or ionxchange.com. Instructions for planting are available on-line.

GUTHRIE

23865 AZORAH LANE

BEFORE RESTO – July 2014



AFTER PLANTINGS – August 2016



David & Nancy Moe
6931 Gordon Road

Native Prairie Seeding/Critical Area Stabilization

Amounts below are calculated for about 6,000 square feet. Adjust amounts proportionately if this is not an appropriate amount. Area was not measured.

Recommended seed mix: Savanna/Woodland Mixes

These plants will reach 2-3 feet tall and are suited to partial shade. Some of the flowers in the mixes may do better than others.

Seed mixes are available on the following web sites:

<http://Prairieresto.com>

Savanna Wildflower mix (5 ounces): \$70

And

Savanna Grass mix (2 lbs): \$85

Canada Wild Rye: ½ pound: \$18

Prairie Restorations also has a store in Scandia, MN on Highway 97 east of Forest Lake

<http://lonxchange.com>

Savanna Woodland Mix (2 lbs): \$250

(this mix has a higher diversity of flowers)

Options for Seeding Dates

Best time to seed is when soil reaches 55 degrees (mid May) through June 20

Can seed into early August if seeds are watered daily (consider automatic timer)

Fall seed after seeds will no longer germinate (after mid October)

Removing Weeds

While removing weeds may be desirable, it is understood that you wish to plant into existing vegetation.

Planting Seeds

1. **Rake lightly** to expose soil for planting seed—about 1 to 2 inches deep.
2. **Select seed.** Use 2 pounds of seed for 6,000 square feet. Greater amounts of seed will result in denser growth and better chances for success. If desired, add 1 ounce of Canada wild rye per 1,000 square feet as a companion seeding or cover crop. The rye will germinate readily to help hold the soil in place and indicate areas where seeding has been successful. Canada wild rye is a short-lived native perennial grass.
3. **Mix seeds with slightly moist sand.** Fill an ice cream pail or similar one-gallon bucket ¾ full with moist, but not wet, sand. Add up to 4 ounces of seed and mix

well. The seeds will adhere to the sand so they can be spread more thinly and evenly. Repeat this step with each batch of the seed.

4. **Broadcast the seed/sand mixture.** Walk in straight, parallel lines to distribute half of the total seed/sand mixture over the entire planting area. Sow the remaining half of the mix by repeating this step, walking perpendicular to the line of first pass. This will assure good seed distribution throughout the planting area. The sand will also make it easier to see places that have not been seeded.
5. **Press seed in** by tamping down the soil with a rake or lightly raking the seeds in. You can also walk over the seeded areas to press the seeds in. Avoid compacting the soil too much, though, as this will decrease oxygen levels and reduce seed germination.
6. **Mulch lightly** with ½ inch of clean, weed-free straw. Do not use field hay as it contains numerous weed seeds. Soil must be visible between the straw stems or the mulch is too thick to allow seedlings to grow. Mulching will be limited by existing vegetation.
7. **Water immediately following seeding.** Don't forget this important step to give your plants a good start! Plan to water daily, preferably in the morning, for the first few weeks or until plants are well established. Check to see that the soil is moist beneath the mulch. Water occasionally into the fall.

Cost Estimate (for \$6,000 ft²)

Prairie Seed: 2-3 lbs.:	\$275
Straw (4.5 yards):	\$125
Straw delivery:	\$85
<u>Landowner labor (\$8 @ 20)</u>	<u>\$160</u>
Total Cost	\$645

Burnett County would cover 70% of total cost with a cost share agreement.

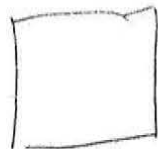
The cost share agreement must be signed before work begins.

The project is paid by reimbursement, so you would need to keep track of hours in site preparation and planting and provide receipts from purchases.

8/01/14

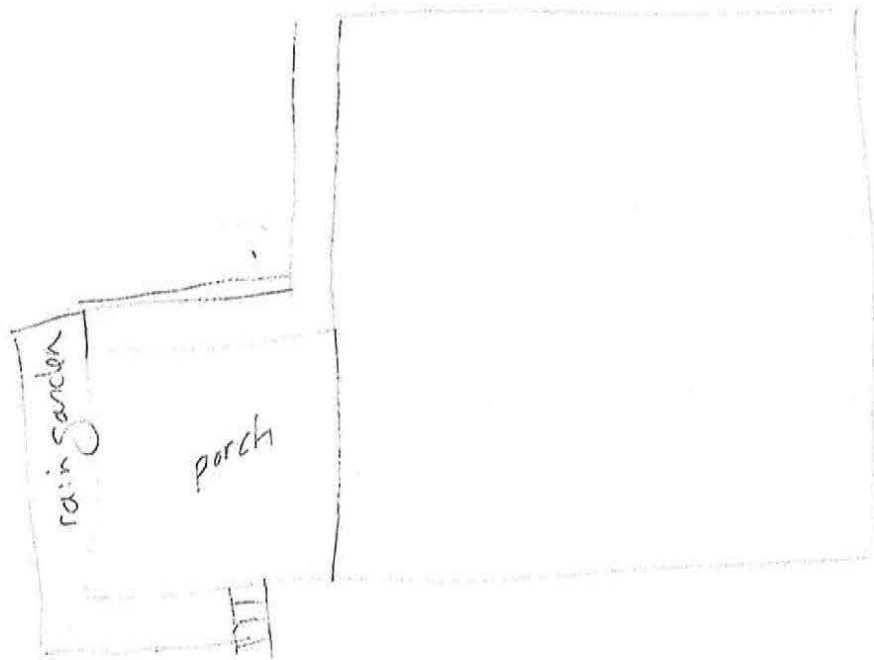
Moe

House @ 79'



(rock inf.)
or

108' 0
Hirsh



driveway/
diversion

capture

for
garden

70/30

prairie
seedling

70/30

prairie
seedling

prairie

buffer area

70/30

shrub
planting

3-4 ft

seedling
planting

flowers/
butterflies

MOE

6931 GORDON ROAD

BEFORE RESTO - August 2014



MOE

6931 GORDON ROAD

AFTER PLANTING – September 2015

