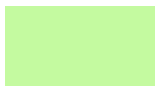


# Deer Lake Conservancy Projects

## Operation and Maintenance Manual

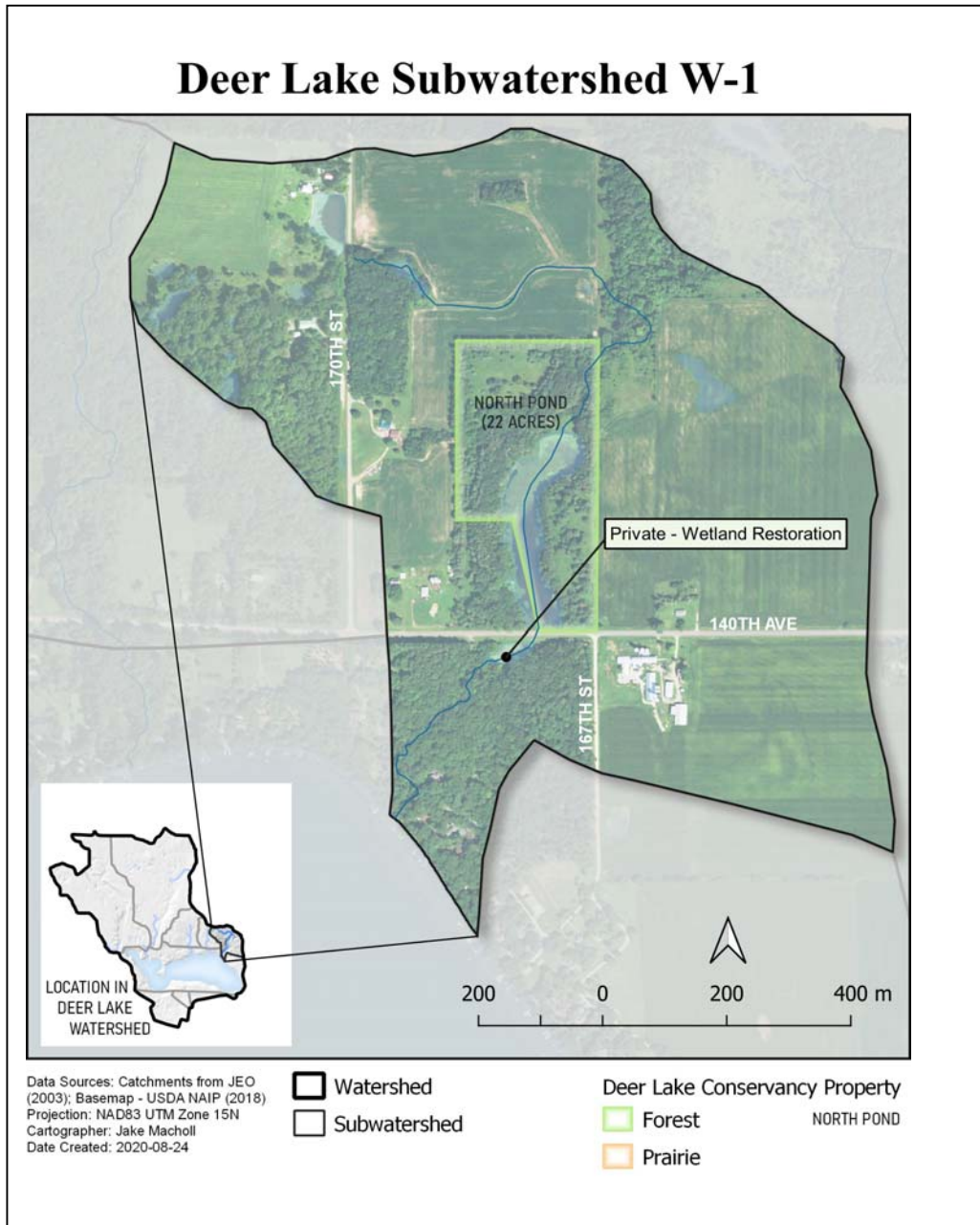


*Deer Lake Conservancy-Owned Parcels*

## WATERSHED 1: WETLAND RESTORATION

### Wetland Pond - PRIVATELY OWNED

This ½ acre wetland pond was initially created in 1999 by excavating 4,000 cubic yards of sediment. The pond was dewatered to allow removal of accumulated sediments in 2014. A riser pipe, installed to hold and release water from the pond slowly and allow nutrients to settle out, and ditch checks to settle sediment from upstream flow were added in 2015. Landowners allow access for Conservancy inspection and maintenance only.



**W1 Maintenance Requirements**

Inspect and remove debris from culvert openings (quarterly)  
Dredge accumulated pond sediments (10-15 years from 2015)

Pond bottom elevation 1121

Low level: 1123.79

Riser pipe: 1127.79

Remove accumulated sediment behind ditch checks (2035)

**Property Owner Information** (csa not recorded)

Tom and Barb Gartland (006008010000)

Barbara Richardson (006007980000)

**North Pond Property**

Trail development with stream and wetland crossings underway (2021)

Extensive buckthorn control effort underway

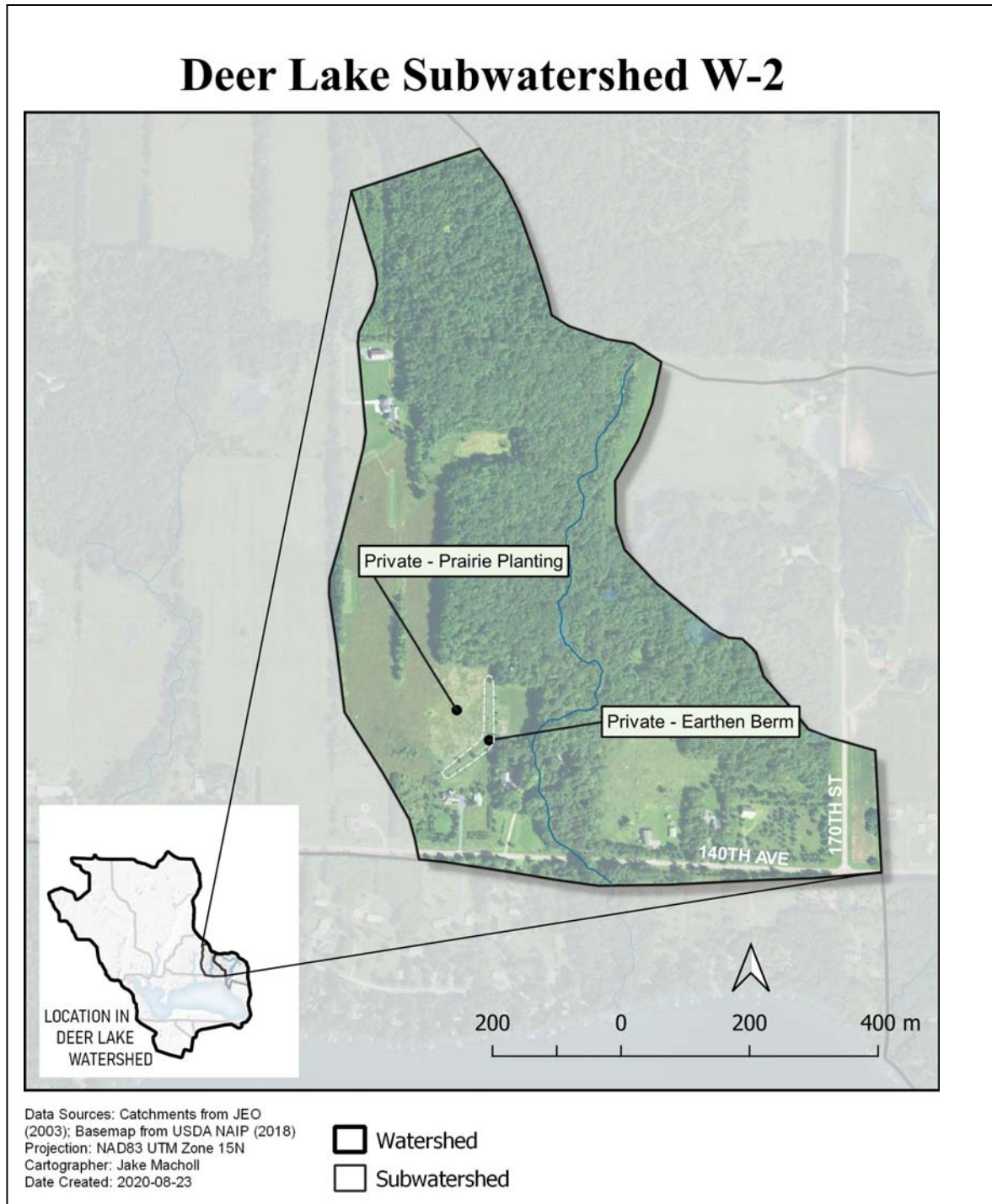
Runoff and erosion control projects on east side of pond underway (2021)



## WATERSHED 2: SEDIMENT BASIN

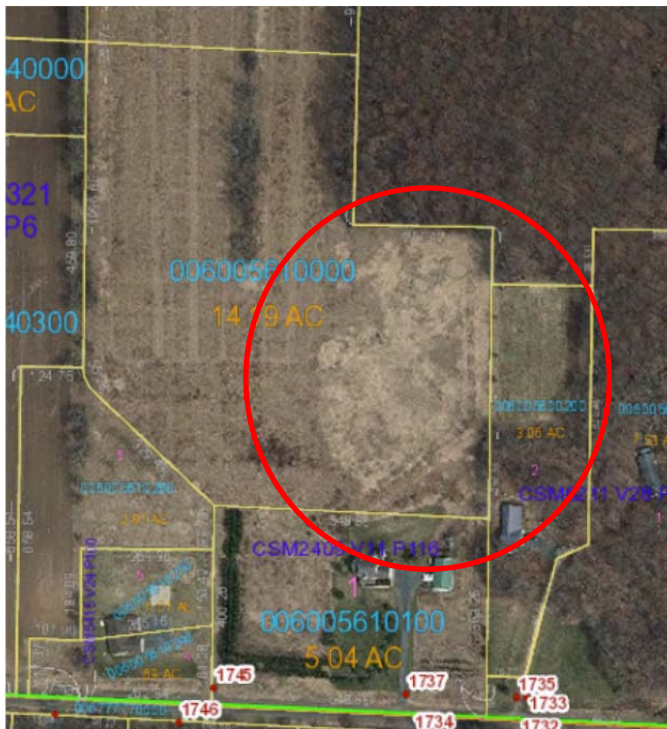
### Sediment Basin PRIVATELY OWNED

A large earthen berm created a five-acre holding basin when constructed in 1997. The 13-15 acre prairie planted above the basin in 1998 further slows and absorbs runoff water. This property is privately owned. Cost share agreement with Polk County expired in 2008.





*Basin and outlet trash rack*



*Earthen dam (circled in red) creates sediment basin and prairie*

### **W2 Maintenance Requirements**

**Sediment Basins:** Inspect and remove debris from trash racks on basin inlets and outlets (after snow melt and significant rain events). Inspect earthen dams (annually) and remove litter, trees, and shrubs as needed. Eliminate burrowing rodents from the structure.

**Prairie:** Periodic burning or mowing to remove woody vegetation and invasive species.

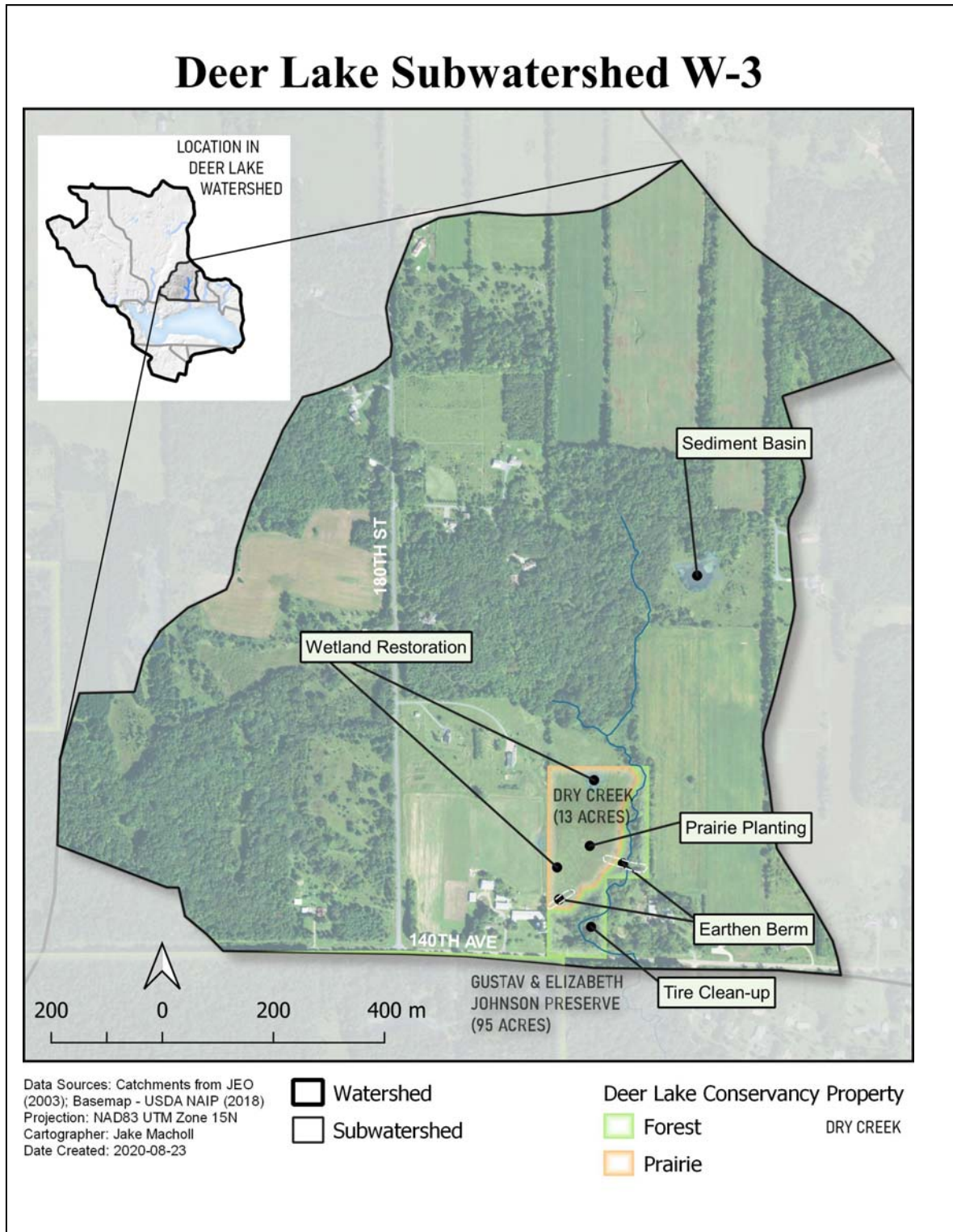
Permission for access required from property owner, Randy and Tawny Christenson (006005610000) and an adjacent property owner.

**Maintenance agreement signed 4/14/1998. Attached to cost share agreement effective for 10 years.**

**WATERSHED 3: DRY CREEK SEDIMENT BASINS**

**North Sediment Basin PRIVATELY OWNED**

**South Sediment Basin (Earthen Berm on map) and Prairie CONSERVANCY OWNED**



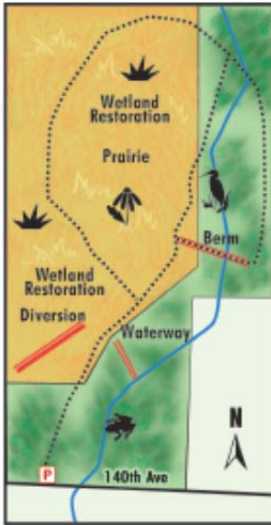


# Dry Creek



## Sediment Basins

Earthen berms were constructed to capture runoff water from agricultural drainages. The ponds that form behind the berms allow dirty water to settle, and release clean water slowly. By reducing the rate of flow, downstream erosion is also decreased. The pond created by the earthen berm reaches the base of the trees more than 100 feet north of the dam during periods of peak runoff. A second pond with a permanent pool of over an acre is located on private property to the north.



1/2 mile of trails



## Wetland Restorations

Wetlands were restored by removing drainage tiles installed to increase the land available for farming. These wetlands now serve to capture runoff water and provide habitat for pond-dwelling creatures.



## Prairie Restoration

Ten acres of native prairie were planted here in 1999. Prairies provide habitat for butterflies and grassland birds. Burning is used occasionally to reduce growth of weeds, shrubs, and trees.



## Tire Clean-up

Over twenty truckloads of discarded tires were removed from the stream bed as part of this project. A water diversion directs clean runoff away from a farmstead and down a rock waterway to the stream.

## Dry Creek Maintenance Requirements

**Sediment Basins:** Inspect and remove debris from basin outlets (quarterly). Inspect earthen dams (annually) and remove trees and shrubs as needed. North basin owners: Frederick and Barbara French (00600555000, need permission for access)

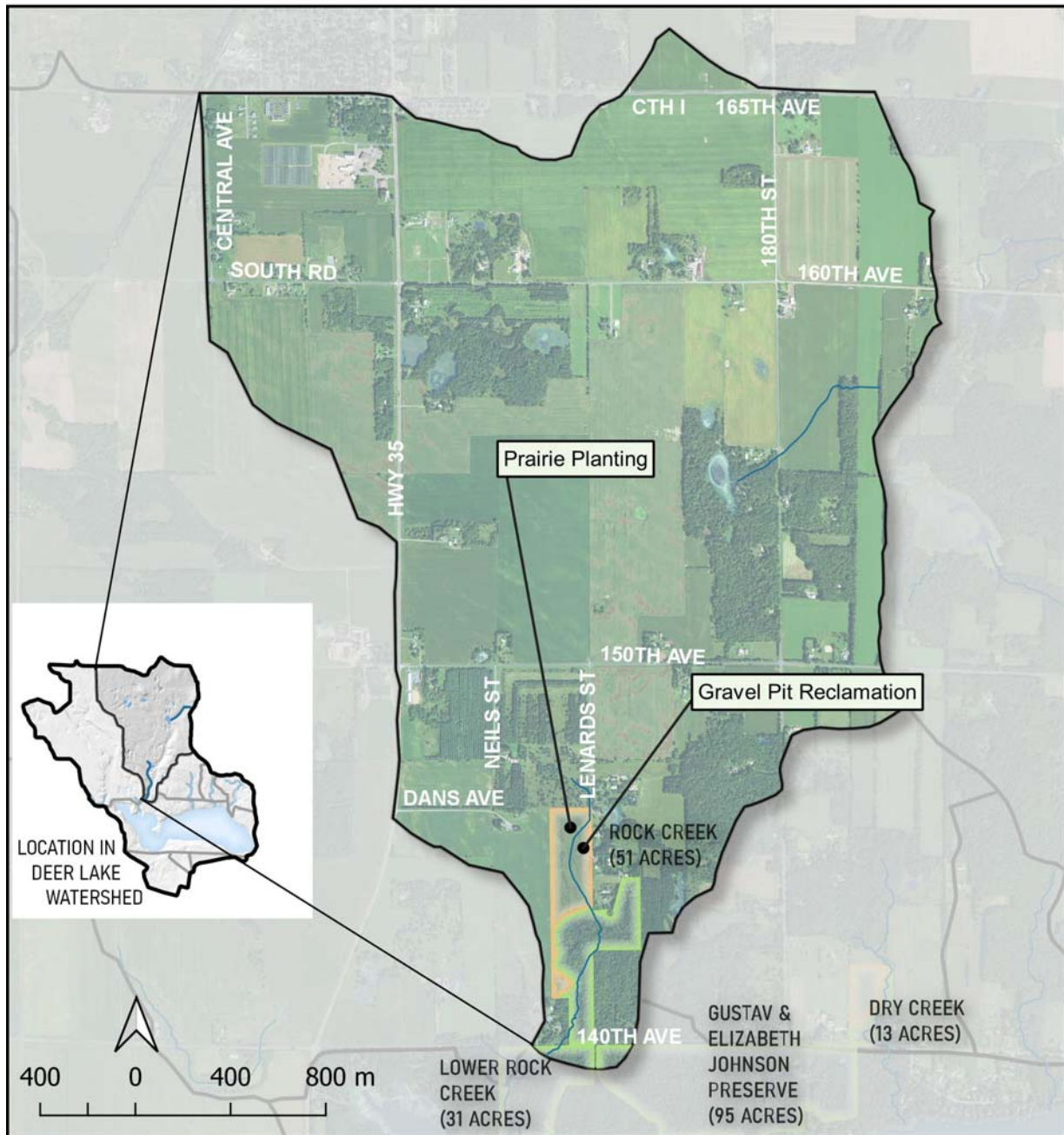
**Prairie:** Periodic burning keeps tree, shrub, and weed growth down. The prairie was most recently burned in 2011. Repeat burnings are needed if shrubs and small trees emerge. It was last burned by WI DNR, but this service is no longer available. Prairie Restoration, Scandia, MN is the likely contractor for subsequent burns.

**Trails:** Trails are mown every 2 weeks during the growing season.

**Parking Lot:** The parking lot is not plowed in the winter. Repairs may include additional gravel driveway mix and fence replacement/repair.

**Signs:** Inspect annually and replace as needed.

# Deer Lake Subwatershed W-4



Data Sources: Catchments from JEO (2003); Basemap - USDA NAIP (2018)  
 Projection: NAD83 UTM Zone 15N  
 Cartographer: Jake Macholl  
 Date Created: 2020-08-24

- Watershed
- Subwatershed

- Deer Lake Conservancy Property
- Forest
  - Prairie
- ROCK CREEK



# Rock Creek



## Prairie Restoration

About fifty species of native flowers and grasses were planted to create this 20-acre prairie in 1998. Its erosive soils had been farmed in row crops for decades, causing tons of soil to wash into the west basin of Deer Lake. The sturdy stems and deep roots of native prairie plants now help to slow runoff water and hold soil in place.

A list of flowers and grasses planted here is available from the Deer Lake Conservancy. Plant guides may be checked out at the St. Croix Falls Public Library.



## Gravel Pit Reclamation

Removal of sand and gravel left an open scar on the landscape and created potential for soil erosion. The area was reshaped and seeded in 1998.

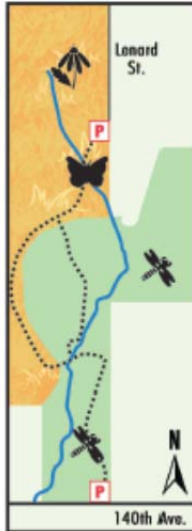


## Woodland and Springs

The trail enters the woods at the south end of the prairie. This area has cool spring ponds that supply fresh water to the lake. The large trap rock boulders carried by the glaciers and deposited along the trail are a reminder of the power of water and ice.

## Land Management

The Conservancy owns this 51-acre property including the woods to the south. It was originally purchased thanks to a generous donation from Jim and Sylvia Earl and dedicated as a memorial to Margaret H. Earl. The Department of Natural Resources holds a conservation easement on the property ensuring it will remain undeveloped to protect Deer Lake waters forever.



## Rock Creek Maintenance Requirements

**Prairie:** Periodic burning keeps tree, shrub, and weed growth down. The prairie was burned in 2015 and 2020. Prairie Restoration, Scandia, MN has completed most recent burns. Tree and shrub removal may be needed as a follow-up to burning.

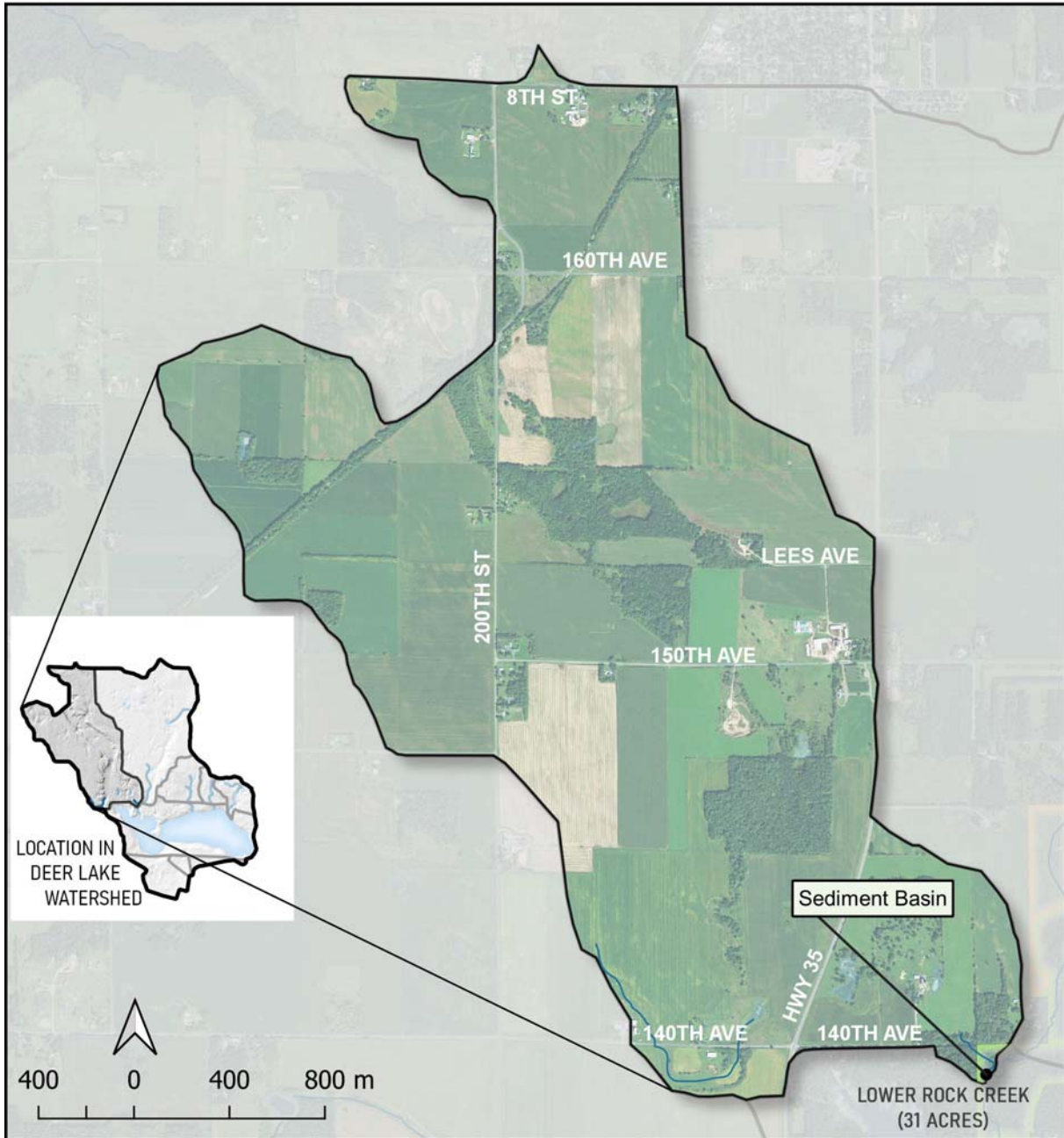
**Trails:** Prairie trails are mown every 2 weeks during the growing season. Current mower is Steve Ward. Leaves are blown from woodland trails each fall. Windfall trees are removed as needed. Cut trees and branches are burned on-site in the winter. Culverts under trails are inspected each year and repaired as needed.

**Invasive Species Removal:** Extensive buckthorn has been removed along the trails and much more remains. Most recent contractor is Dan Caine, Habitat Creations, Clear Lake, WI. Dead buckthorn is cut and burned in the winter by volunteers.

**Parking Lot:** Repairs may include additional gravel for parking lot (Trap Rock Class 5) and trails (Modified Trap Rock for rigidity) and fence replacement/repair. Contractor for gravel installation is Cross Country Excavating. The north parking lot is not plowed in the winter. The south parking lot on 140<sup>th</sup> Ave. is plowed by a contractor hired by either Century Link or Polk Burnett Electric to access their equipment.

**Signs:** Inspect annually and replace as needed.

# Deer Lake Subwatershed W-5



Data Sources: Catchments from JEO (2003); Basemap - USDA NAIP (2018)  
 Projection: NAD83 UTM Zone 15N  
 Cartographer: Jake Macholl  
 Date Created: 2020-08-23

- Watershed
- Subwatershed

- Deer Lake Conservancy Property
- Forest
  - Prairie
- LOWER ROCK CREEK

# Lower Rock Creek

Rock Creek, the largest intermittent stream which flows to Deer Lake, travels through this property entering the lake at a natural lagoon – an important wetland habitat area.

The Lower Rock Creek property trails link to adjacent trails on the Rock Creek property and the Johnson Preserve. Lower Rock Creek trails provide striking views of the ravine and steeply sloping forest.



The Lower Rock Creek property provides the opportunity for the Deer Lake Conservancy to achieve its goal of 65% reduction of watershed total phosphorus loading since 1996. According to the project engineer, a sediment basin that captures agricultural runoff on the Lower Rock Creek Property can meet the goal: leading to an even cleaner Deer Lake!



*This 32-acre parcel meets that lake in a WDNR-designated Sensitive Habitat Area along 500 feet of shoreline.*

## Lower Rock Creek Maintenance Requirements

### Sediment Basin:

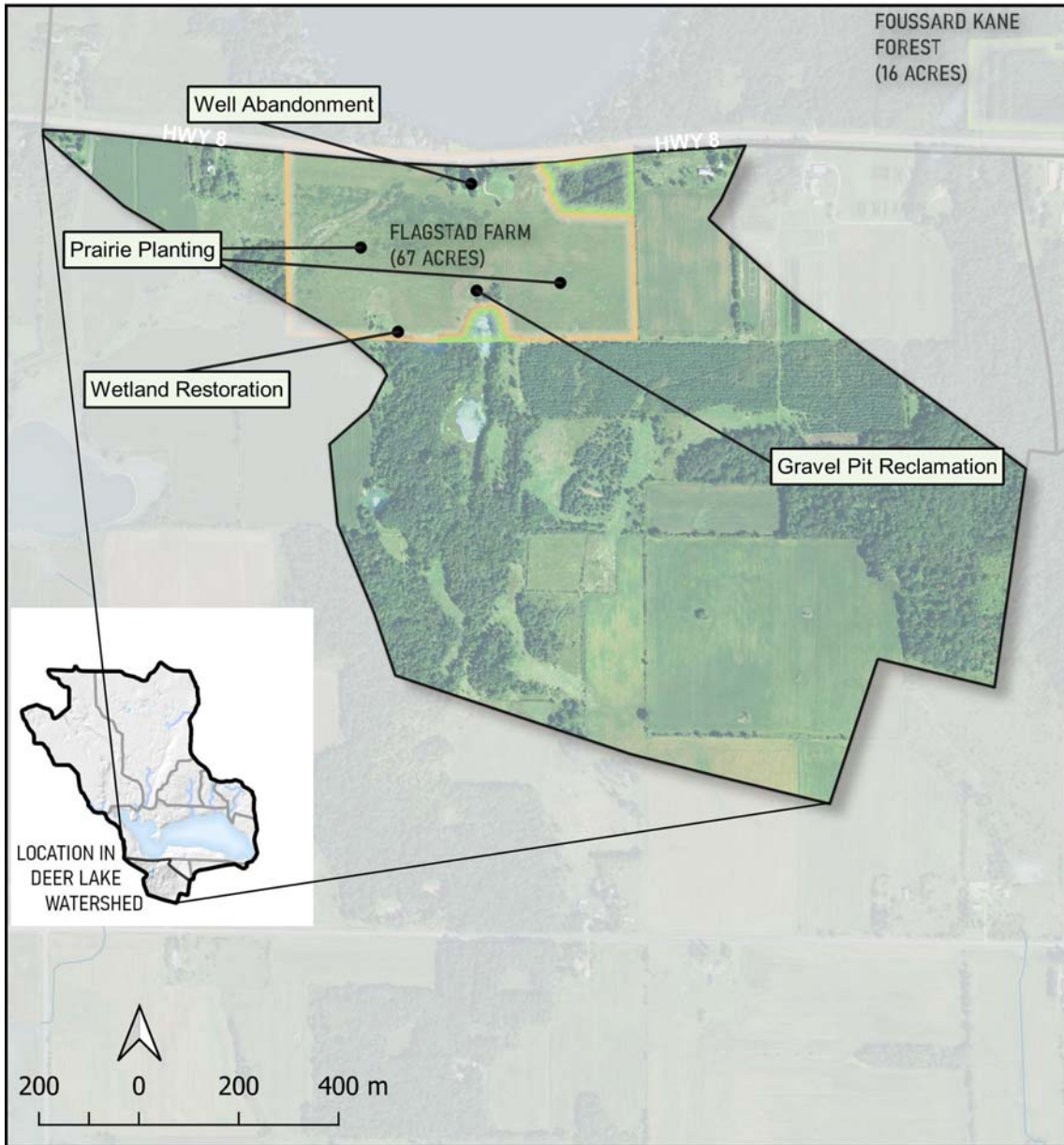
1. Remove debris from the tile inlet to prevent clogging of the underground outlet system.
2. Correct and maintain the embankment to its original cross section and top elevation.
3. Remove excessive accumulated sediment in the storage area.
4. Remove any trees, brush, sediment, or other obstructions from the outlet pipe area.
5. Replace damaged or missing animal guards.
6. Inspect the downstream toe of the embankment annually. If there are wet areas or seeps at the downstream toe of the embankment, it could be a serious problem. Ask for assistance to evaluate the seepage.
7. Check tile inlet, embankment, and pipe outlet after heavy rains for possible damage. Inspect annually for damage from normal use.

### ROCKS OVER INLET AND OUTLET REPAIRED IN 2021.

8. Replace or repair any component of the underground outlet system that may be damaged by equipment or storm events.
9. Maintain vegetative cover
10. Eliminate all burrowing rodents.

**Trails:** Clear fallen trees. **Install cross drainage to reduce erosion.**

## Deer Lake Subwatershed W-6



Data Sources: Catchments from JEO (2003); Basemap - USDA NAIP (2018)  
 Projection: NAD83 UTM Zone 15N  
 Cartographer: Jake Macholl  
 Date Created: 2020-08-24

Watershed  
 Subwatershed

Deer Lake Conservancy Property  
 Forest  
 Prairie  
 FLAGSTAD FARM

## Flagstad Farm

The Conservancy acquired the Flagstad Farm Preserve, a 70-acre parcel on the south side of Deer Lake, in August 2002 to prevent development of the parcel and to allow water quality improvements. Purchase of the property also initiated Conservancy involvement with a Department of Transportation plan that could result in U.S. Highway 8 moving from within approximately 15 feet of the lake to a full half mile south of the lake in this area.



### Prairie Restoration

Row-cropped farm fields draining directly to the lake through three large culverts were planted to native prairie grasses and flowers in June 2003. This conversion will significantly reduce pollutant loading to the lake. Seeds for the 100+ prairie species planted here were collected and grown within 50 miles of the prairie restoration site creating one of the largest local-ecotype prairies in the state.



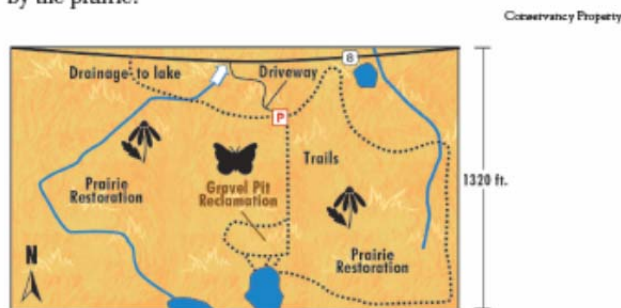
### Gravel Pit Reclamation

The Conservancy hauled out three truckloads (five tons) of scrap metal and other garbage, and then had the area shaped and seeded to native prairie. Native lupine now covers the hill.



### Wetland Restoration

Plugging a drainage ditch along the southern property boundary resulted in additional water-holding capacity in a pond and decreased agricultural runoff to Deer Lake, which is now filtered by the prairie.



## Flagstad Farm Maintenance Requirements

**Prairie:** Periodic burning keeps tree, shrub, and weed growth down. The prairie was burned in 2016 and 2020. It should be burned every 5 years or as small trees appear. Removal of small trees may be needed following burning. Prairie Restoration, Scandia, MN completed most recent burns.

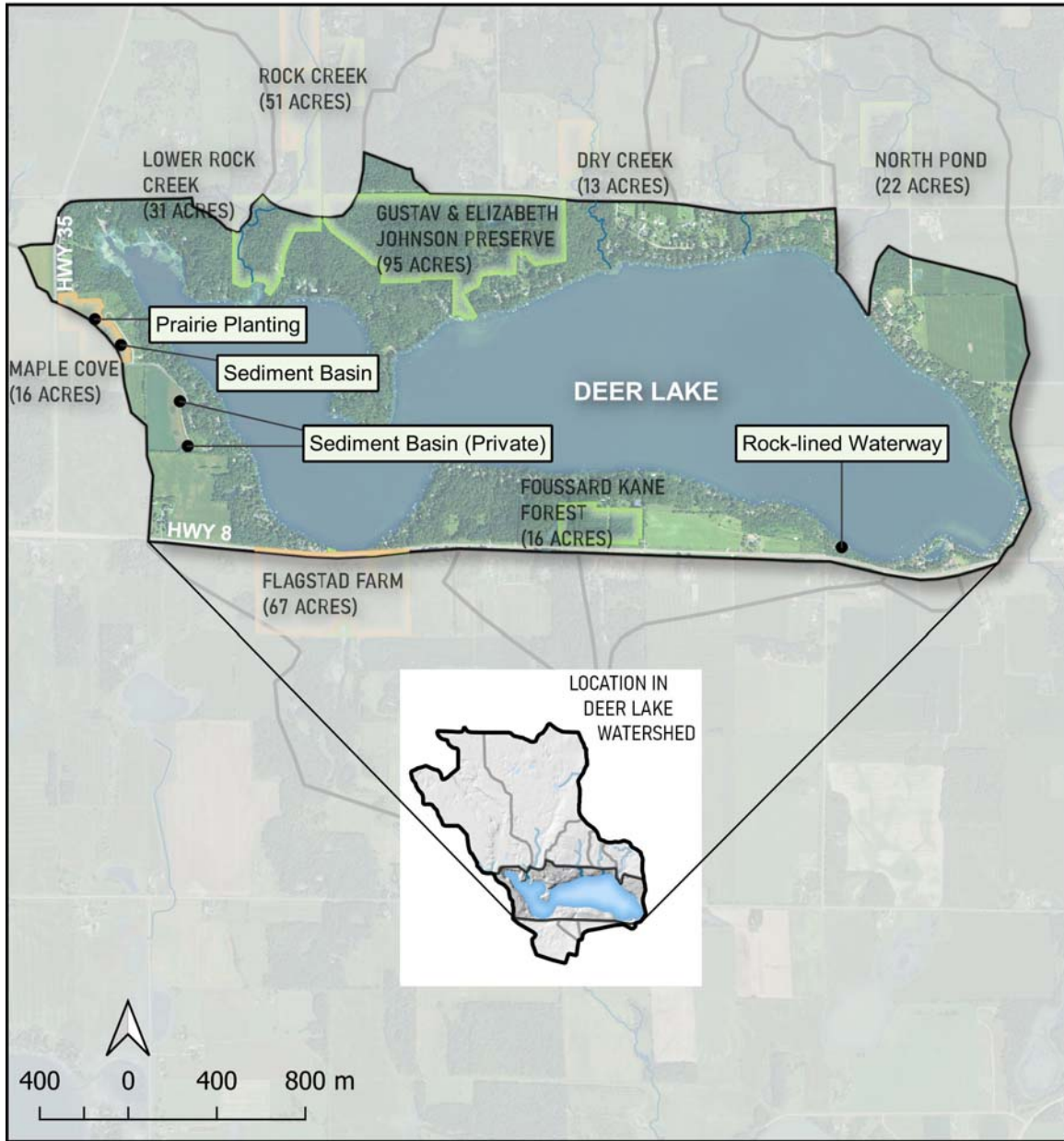
**Trails:** Prairie trails are mown every 2 weeks during the growing season. Current mower is Steve Ward.

**Invasive Species Removal:** Trees and shrubs may be cut in between prairie burns. Herbicides may be used to control weed species not controlled by fire.

**Parking Lot:** Repairs may include additional gravel driveway mix and fence replacement/repair. The parking lot is plowed in the winter.

**Signs:** Inspect annually and replace as needed.

# Deer Lake Direct Drainage Area



Data Sources: Catchments from JEO (2003); Basemap - USDA NAIP (2018)  
 Projection: NAD83 UTM Zone 15N  
 Cartographer: Jake Macholl  
 Date Created: 2020-08-24

- Watershed
- Subwatershed

- Deer Lake Conservancy Property**
- Forest
    - FOUSSARD KANE FOREST
    - JOHNSON PRESERVE
    - LOWER ROCK CREEK
    - MAPLE COVE
  - Prairie

## The Johnson Preserve

### East Pond and Stream Stabilization

#### Anderson Lake Pond/Culvert



*This 95-acre parcel has 425 feet of lakefront.*

The Andersen family established the Gustav and Elizabeth Johnson Preserve in 1996. The Preserve was formalized when Julian Andersen donated a conservation easement to the West Wisconsin Land Trust in 2016 and sold the property to the Deer Lake Conservancy in early 2017. The Preserve is now available for generations of Deer Lake residents and the public to enjoy for years to come.

The Preserve's wetland ponds and shallow wet depressions capture significant watershed runoff, preventing delivery of sediments and nutrients to the lake and allowing infiltration to recharge the springs which feed the lake. A 2016 Conservancy project on the very east side of the property further increased water holding-capacity of a pond to reduce downstream erosion to Dry Creek and Deer Lake.

The trails that wind through the property showcase the many native woodland plants, birds, and animals that call the Preserve home. The Preserve will be managed to support these species including the Red Shouldered Hawk, listed as Threatened in Wisconsin. Results of biologist surveys of Preserve plant and animal life and the management plan are available on the Conservancy website.

#### **Maintenance Requirements**

**East Pond Riser pipe:** inspect and remove debris (quarterly)

**East Pond Stream Stabilization Ditch Checks:** inspect (quarterly) and repair as needed. Watch for slumping of intermittent streambank (repaired in 2021). Ditch checks on private property, current owner: Robert and Mary Crosby, 00600883000

**Anderson Lane Culvert:** inspect quarterly to ensure inlet and outlet are free of debris.

**Trails:** Prairie trails are mown every 2 weeks during the growing season. Current mower is Steve Ward. Leaves are blown from woodland trails each fall. Windfall trees are removed as needed. Cut trees and branches are burned on-site in the winter.

#### **Land Management Plan:**

Provides objectives and recommendations for management which also apply to Lower Rock Creek:

- Maintain standing dead wood and fallen branches
- Allow some conifer trees to mature
- Remove invasive species

**Johnson Preserve Landmark Conservancy Conservation Easement:** Landmark conducts annual inspections and contacts projects manager prior to visit. Easement precludes subdivision and development and the operation of motorized vehicles except for maintenance.

## DIRECT DRAINAGE PROJECT

Direct drainage projects began in 2006, and DNR grants support installation of project through 2021. Direct drainage projects focus on both neighborhood runoff problems and runoff from waterfront property.

## NEIGHBORHOOD RUNOFF PROJECTS

Operation and maintenance responsibilities are outlined in signed cost share agreements

### **Schletty / US DOT Highway 8 Right of Way (2009) (technically W7)**

Location: South of US Highway 8, either side of 170<sup>th</sup> Street

Maintenance responsibilities are not clear. Early correspondence suggests the DLC would be responsible for maintenance. Did not find O&M agreement. Contact made with DOT, awaiting response.

Expected maintenance requirements:

- Inspect basins and culvert inlets and outlets twice each year.
- Remove debris accumulated near culvert inlet. Check for slope stability, repair any eroded areas.
- When sediment reaches ½ of design capacity, remove accumulated sediment.

### **Prokop Sediment Basin (installed in 2007)**

S 1880 Peer Avenue, Parcel number 044006390400

- Check for erosion and stability of structures two times each year, once after spring runoff. Stabilize and reshape eroded areas immediately.
- Measure sediment depth in forebays annually. Remove sediment when it reaches or exceeds 1 foot of depth, or a minimum of every 10 years.
- Clear trees from embankments.
- Inspect and correct any deficiencies in inlets and outlets twice each year.

### **S Deer Lake Circle Basins: Stacy J Ludwig Revocable Trust**

Parcel number 00601585000

Original owners: Michael and Linda Givens

- Remove pine needles, leaves, and other debris that collect in the infiltration basins.
- Cut or remove buckthorn and invasive trees from the infiltration basins.



**Frigo/Town of Balsam Lake:** Charles and Penny Moorse  
Parcel number 006-01595-0000

Original Owners: Ray and Ellen Frigo

- Frequent inspections should be made initially – preferably after every significant rainfall (1/2 inch or greater). The frequency of inspections can be reduced if experience shows they aren't necessary. A minimum of two inspections per year should be made, in late spring and late fall.
- When the three foot deep sump has lost half of its sediment storage capacity, i.e., when 1.5 feet of sediment has accumulated, it should be pumped or manually cleaned. The dome grate should be inspected more frequently, with any accumulated debris removed in order to maintain drainage capacity.
- When an average depth of more than 12 inches of sediment has accumulated in the Underground Infiltration Tank/Pipe, it should be pumped or manually cleaned.

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## Waterfront Projects

Progress:

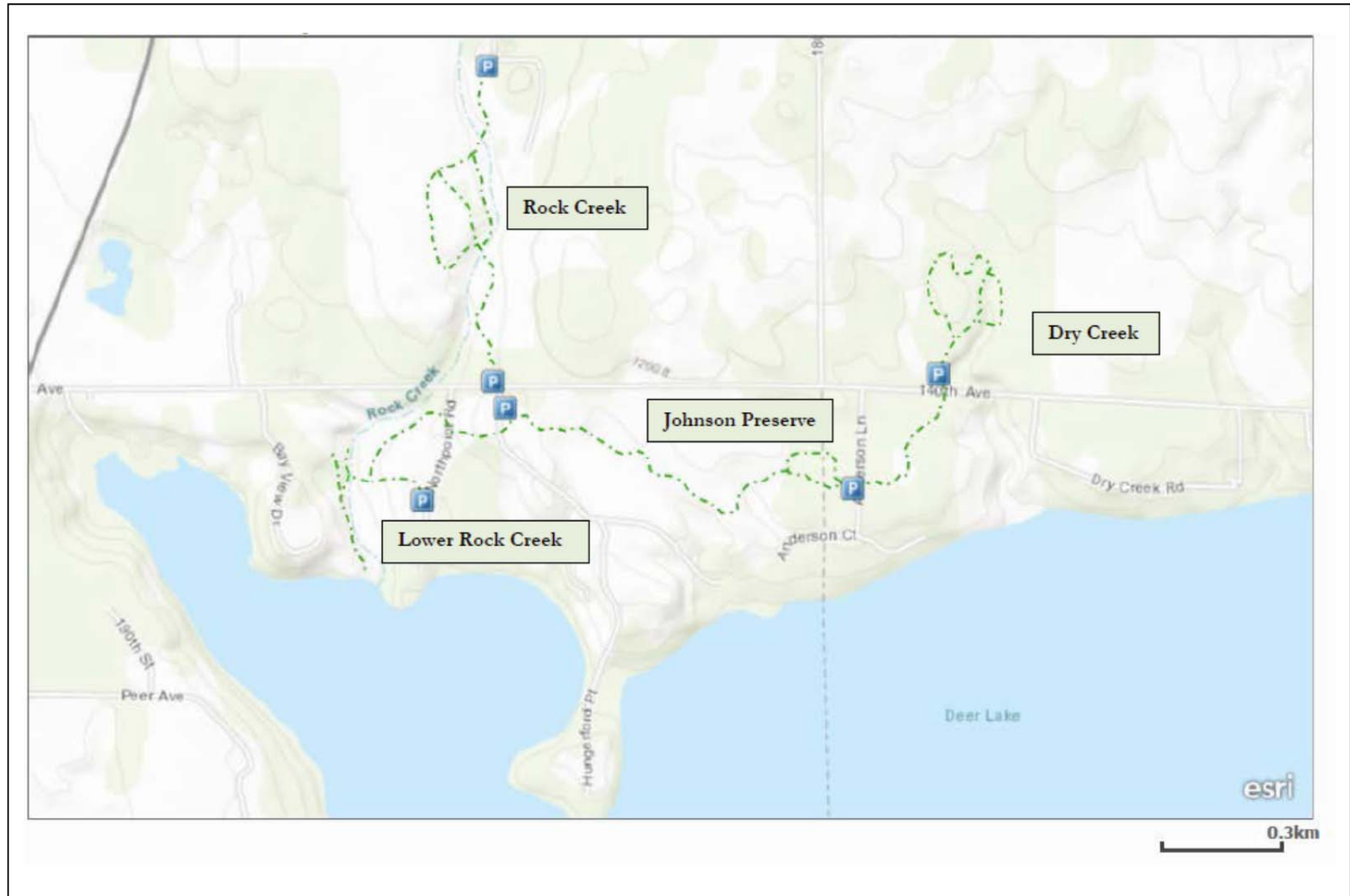
- Waterfront visits and recommendations: 123 properties.<sup>1</sup> There are about 280 property owners on Deer Lake.
- Waterfront projects installed: 45 properties.<sup>2</sup> Property owners are responsible for operation and maintenance.

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<sup>1</sup> Many properties had multiple visits

<sup>2</sup> Plus five repeat projects on same property, does not include neighborhood projects

# TRAILS





## MAINTENANCE ISSUES 2021

Signs in need of repair: Dry Creek, Rock Creek (north parking) - underway

W1 – remove potential blockage from North Pond outlet

W2 Prairie uncertain status – private owner did not want to burn

Repair Lower Rock Creek pond inflow and outflow - completed, trail erosion – install cross drainage

Repair rock checks Robert and Teri Crosby property - completed

Assign maintenance and back-up maintenance responsibilities, conduct training - completed

## MAINTENANCE CONTACTS

### Deer Lake Conservancy

Jim Miller, Projects Manager

715-483-3338

### Harmony Environmental

Cheryl Clemens, Projects Consultant

715-268-9992

[harmonyenv@amerytel.net](mailto:harmonyenv@amerytel.net)

Digital design and operation and maintenance documents on file

### Excavation and Gravel

Cross Country Excavating

715-294-3141 (office)

Greg Rivard

715-760-0528 (cell)

Justin Rivard (cell)

715-760-0858

[Xcountry@centurytel.net](mailto:Xcountry@centurytel.net) (to send documents, not best means of contact)

### Landmark Conservancy

Andrew Norman, Stewardship Manager

Sara Norman, Outreach Coordinator

500 East Main St.

Menomonie, WI 54751

715-235-8850

[sara@landmarkwi.org](mailto:sara@landmarkwi.org)

### Mowing

Steve Ward

715-483-3443

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DEER LAKE CONSERVANCY INSPECTION REPORT

The Deer Lake Conservancy shall maintain a record of all inspections that contains the following:

Date(s) of inspection \_\_\_\_\_

WATERSHED \_\_\_\_\_

DLC PROPERTY OR PARCEL NUMBER \_\_\_\_\_

OWNER IF NOT DLC \_\_\_\_\_

Names of inspectors and participants \_\_\_\_\_

\_\_\_\_\_

PRACTICE INSPECTED \_\_\_\_\_

FEATURES INSPECTED \_\_\_\_\_

CONDITIONS OBSERVED \_\_\_\_\_

(include photographic documentation)

MAINTENANCE WORK REQUIRED AND SCHEDULE TO ADDRESS O&M NEEDS \_\_\_\_\_

DEER LAKE CONSERVANCY INSPECTION REPORT - EXAMPLE

The Deer Lake Conservancy shall maintain a record of all inspections that contains the following:

Date(s) of inspection July 6, 2020

WATERSHED 1 DLC PROPERTY OR PARCEL NUMBER South and North Pond

OWNER IF NOT DLC Barb Richardson, Tom and Barb Gartland

Names of inspectors and participants Jim Miller, Jay Michels, Cheryl Clemens

PRACTICE INSPECTED Ditch checks and wetland pond

FEATURES INSPECTED Culvert inlets north of 140<sup>th</sup> and exiting pond, ditch check sediment accumulation

CONDITIONS OBSERVED Boggy material/sediment accumulating in front of culvert draining north pond is partially blocking pond outflow, potential for further blockage

Little sediment accumulation behind ditch checks

(include photographic documentation)

MAINTENANCE WORK REQUIRED AND SCHEDULE TO ADDRESS O&M NEEDS

- ✓ Excavate accumulated sediment
- ✓ Install fence in front of culvert to prevent further blockage
- ✓ TENTATIVELY PLANNED ALONG WITH W1 DIVERSION PROJECT, RESCHEDULE WITH DIVERSION PROJECT POSTPONED