BECHER HOPPE
330 N. 4th Street, Wausau, WI 54403-5417
715-845-8000 | becherhoppe.com

November 10, 2022

Mr. Jacob Druffner, Water Regulation Zoning Engineer Senior
Wisconsin Department of Natural Resources
Spooner Service Center
810 West Maple St.
Spooner, WI 54801-1255

Subject: 2022 Teal and Lower Lost Lake Dam Inspection Report
WDNR Field File # 57.23, Key Sequence # 1468

Dear Jacob:

Please accept this transmittal and the attached electronic files of the 2022 Dam Inspection Report and Checklist for the Teal and Lower Lost Lake Dam (Field File #57.23, Key Sequence #1468) located in Sawyer County. I conducted the inspection on November 8, 2022 for the purpose of determining if any damage occurred during of a tree which fell in the dams vicinity earlier this year. The inspection was performed in conformance with ss. 31.19(2) and ss. 31.19(4) Wisconsin State Statutes. The attached files include the report, photos, checklist and inspection certification. Although there were not many deficiencies found during the inspection, the following is a list of the recommendations/directives for correcting the few that deficiencies we did find and recommended dates for meeting compliance.

1) Establish an Emergency Action Plan (EAP) and Inspection, Operation, Maintenance Plan (IOM) with appropriate contact information and operational instructions…….December 31, 2023

2) Continue to keep the dam clear of debris as it floats down the flowage……..……..…….Ongoing

3) Establish 2 more benchmarks for the dam to establish better control……..……..…Summer 2024

Please feel free to contact me with any questions or concerns.

Sincerely,

Aaron Wallner, P.E.
Project Engineer
AJW/

2022 DAM SAFETY INSPECTION REPORT

Teal and Lower Lost Lake Dam
Teal River Flowage
Town of Round Lake, Sawyer County
Field File # 57.23
Key Sequence No. 1468

Prepared By:

Becher-Hoppe Associates, Inc.
330 N. 4th Street
Wausau, WI 54403-5417
Phone: 715-845-8000
www.becherhoppe.com
BHA Project Number: 2022.040

TEAL AND LOWER LOST LAKE DAM

FIELD FILE 57.23

DAM KEY SEQUENCE NO. 1468

TEAL RIVER FLOWAGE

SAWYER COUNTY, WI

2022 DAM SAFETY INSPECTION REPORT

DAM INSPECTION CHECKLIST

PHOTO DOCUMENTATION

TABLE OF CONTENTS

ATTACHMENTS

PURPOSE

The Teal and Lower Lost Lake Dam is listed under Wisconsin Department of Natural Resources (WDNR) records as a small dam. The dam functions as a water level regulation device that maintains the impoundment level about 3-foot above the natural level the outlet channel would create without the dam. The dam is currently owned by the U.S. Department of Agriculture and maintained by the Teal and Lower Lost Lake Association. In August of 2022, a large tree fell into the downstream portion of the principal spillway. The Owner requested that the Lake Association have the tree removed and the dam was to be inspected after removal. The tree was removed on August 30, and Becher Hoppe Associates was contracted shortly thereafter to conduct the Dam Safety Inspection. The purpose of this inspection report is to determine the condition of the dam and make recommendations for any necessary repairs or improvements.

DESCRIPTION OF THE DAM

Historic records indicate the dam was constructed about 1935 by the United States Forest Service (USFS). In 1954, the USFS planned to remove the dam, however the Lake Association petitioned that it remains. The USFS maintains ownership of the dam, however, general maintenance operations are the responsibility of the Lake Association. The current contact for the USFS is Kelly Scarbrough, Lands Program Manager (715) 362-1314, Kelly.scarbrough@usda.gov. The current contact for the Lake Association is Norm Bratteig, (715) 558-2043, bratteig@centurylink.net. The Appendix contains a Vicinity Map, Location Map and Aerial Map depicting the general location and surroundings. The left (east) and right (west) side of the dam as discussed in this report refer to directions while looking downstream.

WDNR records indicate the Teal and Lower Lost lake Dam has a structural height of 3 feet and a hydraulic height of 3 foot and impounds an estimated maximum of 140.0 acre-feet of water under normal flow conditions with a maximum storage of 450 acre

feet under flooding conditions. WDNR records also indicate the dam is a small dam under Wisconsin Administrative Code NR 333 Dam Design and Construction. No emergency action plan and inspection, operation and maintenance plans are known to exist.

The dam structure spans the full width of the river, about 70-foot wide, 3-foot tall, and about 4-foot wide. The base of the dam is concrete that was poured when the dam was first constructed, then covered in riprap. Although the top of the dam is at a relatively universal height, most of the flow overtops the dam at a 30-foot wide portion of the dam near the left embankment. The remaining 40-foot section of the dam near the right embankment is considered as the auxiliary spillway. .The dam outlet discharges to the Teal River which is met with the Moose Lake outlet 1 ½ mile downstream of the Teal Lower Lost Lake dam outlet.

The following narrative is a brief summary detailing some of the important items covered under the inspection checklist and other observations made during the inspection and records review. Photographs of the dam facilities taken during the inspection are also attached in the Appendix.

GENERAL

There is one documented benchmark, that we were not able to find while on site. The benchmark is a bronze table marked Public Service Commission of Wiscons, wet in top of an 8-foot granite boulder, 4-feet above ground level. The boulder is 75-feet upstream from the wasteway at the water's edge on the east bank.

Access to the dam is through a public boat launch which is maintain by the Lake Association. The dam is solely on USFS property, and no signs or security measures are present or necessary. The boat launch is just upstream, on the left hand side of the

dam. There is no way to easily access the right side of the dam. The attached maps show the dam location and vicinity.

EMBANKMENTS

The overflow banks appear to be somewhat wooded with brush ground cover. The stream banks appear to be dense ground cover and riprap that protects the embankments from erosion in the event of heavy rain or overtopping.

The upstream embankment toe is protected from wave action erosion by riprap and large rocks. No major embankment erosion or instabilities were observed during the inspection. Both the upstream and downstream embankment side slopes are sloped at about a relatively flat, 10% slope for 50-feet or so away from the stream bed, then they increased to a 3:1 slope. The only erosion noticed was within the boat launch area.

No seepage areas were observed along the embankment. In general, the embankment areas are well maintained and in good condition.

PRINCIPAL SPILLWAY

The dam outlet consists of what appears to be a line of riprap about 70-feet wide from the east bank to the west bank. The water typically overflows the left 30-feet of the dam under normal flow events. In heavier flow events, the full width of the dam is overtopped. Downstream of the dam in the principal spillway, there are 2 separate shelves of riprap that the water cascades down before entering the natural stream bed. Downstream of the initial riprap dam, thick vegetation has grown up on either side of the active flow area. In higher flow events, the full dam will overtop and this vegetation will be flooded. This area acts as the auxiliary spillway. The outlet structures are in good condition with minimal deterioration due to age.

AUXILIARY OVERFLOW SPILLWAY

Due to lack of access, there is not much info on the auxiliary spillway. I was able to observe that there is thick vegetation and riprap, similar to the principal spillway. In heavy flow events, the full dam is overtopped, and the principal and auxiliary spillways act as a single spillway.

OUTLET EROSION CONTROL & UNDERMINING

No significant erosion upstream or downstream of the dam embankment was observed other than that previously described. Medium to heavy riprap protect the upstream embankment from wave action.

Just downstream of the dam, on the left hand side, it is visible where the removed tree had fallen into the water. The tree had grown over the top of a large boulder and didn't have a sufficient root system. The tree has been cut and removed and only the stump remains.

RECOMMENDATIONS

In general, the dam is in good condition and requires minimal maintenance. The following recommendations are given based on the dam inspection and generally accepted dam safety standards:

1) The owners should establish an Inspection, Operation and Maintenance Plan and the Emergency Action Plan to be filed with the DNR. These could be very simple documents that outline who is responsible for operation and maintenance of the dam and contact information and instructions for any alternates from the lake association that might be appropriate for both normal operation and in the event of flooding, should the owner not be present during an event.

2) Regular maintenance should be done to the boat launch to prevent erosion. And the dam should be monitored throughout the year such the debris can be removed as it piles up along the riprap.

3) Provide alternate permanent benchmarks using the Public Service Commission Datum, which assumes the existing benchmark to be at an elevation of 100.92 feet.

Surface Water Data Viewer Map

Legend

- 2D Water Surface Elevation Grid
  - High : 937.629
  - Low : 853.184
- Dams
  - Dams with FERC License
  - Dams
- FERC Project Area Boundaries
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway
  - US Highway
- County and Local Roads
  - County HWY
  - Local Road
- Railroads
- Tribal Lands
- Rivers and Streams
- Intermittent Streams
- Lakes and Open water

Notes

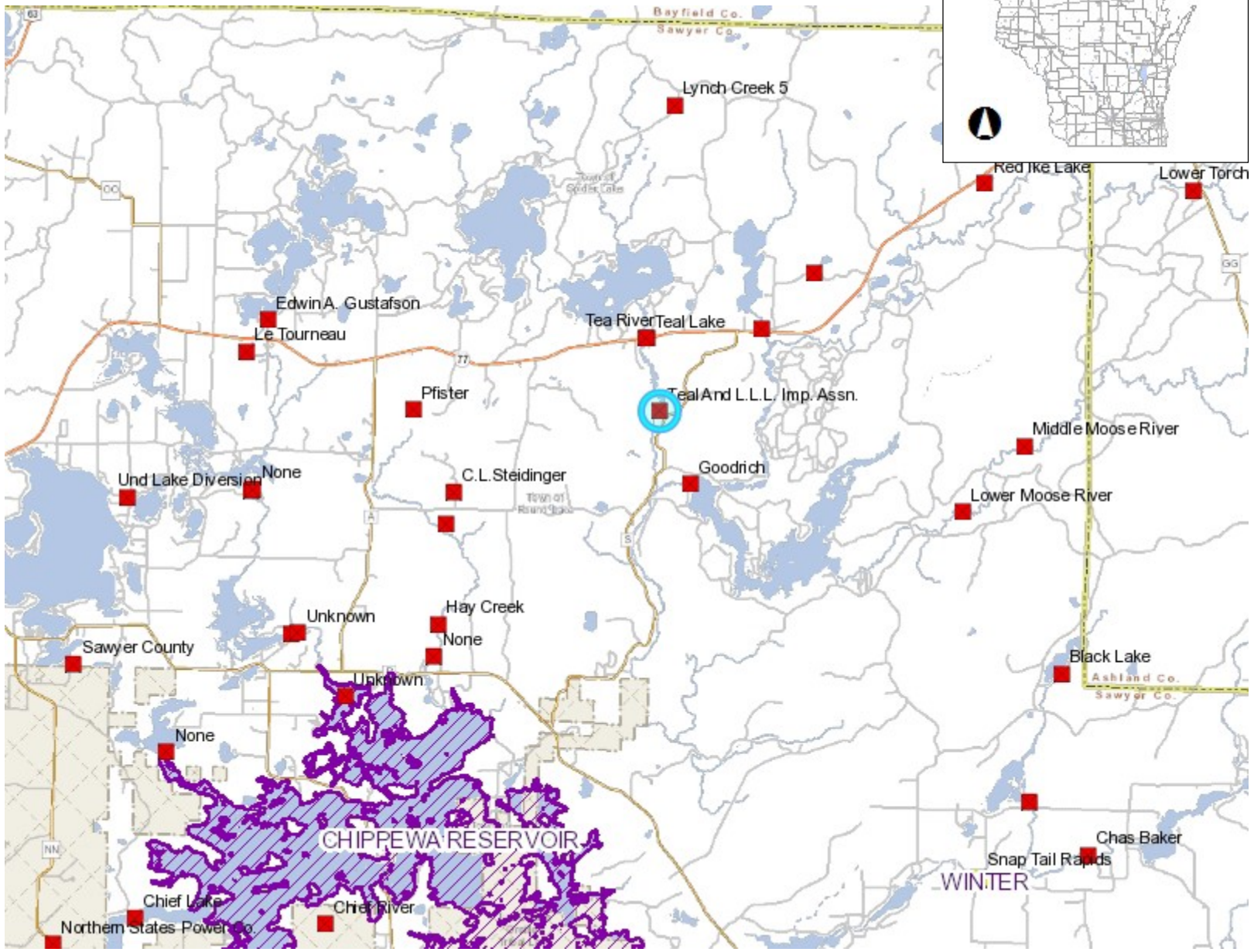
1.4 0 0.68 1.4 Miles

NAD_1983_HARN_Wisconsin_TM

1: 43,048

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: http://dnr.wi.gov/legal/

Surface Water Data Viewer Map



Legend

- 2D Water Surface Elevation Grid
  - High : 937.629
  - Low : 853.184
- Dams
  - Dams with FERC License
  - Dams
- FERC Project Area Boundaries
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway
  - US Highway
- County and Local Roads
  - County HWY
  - Local Road
- Railroads
- Tribal Lands
- Rivers and Streams
- Intermittent Streams
- Lakes and Open water

Notes

5.4 0 2.72 5.4 Miles

NAD_1983_HARN_Wisconsin_TM

1: 172,191

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: http://dnr.wi.gov/legal/

Surface Water Data Viewer Map

Legend

2D Water Surface Elevation Grid

- High : 937.629
- Low : 853.184

Dams

- Dams with FERC License
- Dams

- FERC Project Area Boundaries
- Municipality
- State Boundaries
- County Boundaries

Major Roads

- Interstate Highway
- State Highway
- US Highway

County and Local Roads

- County HWY
- Local Road

- Railroads
- Tribal Lands
- Rivers and Streams
- Intermittent Streams
- Lakes and Open water
- Index to EN_Image_Basemap_Leaf_Off

Notes

1.4 0 0.68 1.4 Miles

NAD_1983_HARN_Wisconsin_TM

1: 43,048

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: http://dnr.wi.gov/legal/

Certification for Dam Inspection

Local Dam Name (PRINT): Teal and Lower Lost Lake Dam

DNR Field File #: 57.23

I certify that I have completed the checklist truthfully and factually:

Certifier's Name (print): Aaron Wallner

Company Name: Becher Hoppe Associates

Signature: [signature]

Date: 11-11-22

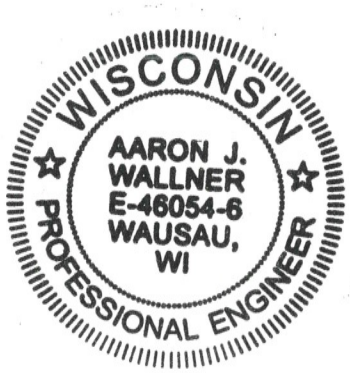
Multidisciplinary: I am experienced in the technical disciplines or I am working with other professionals experienced in the technical disciplines to properly inspect this dam and appurtenant works. Technical disciplines, in addition to general civil engineering, may include geotechnical, geological, hydrologic, structural, and mechanical:

(Yes) No

Engineer's Wisconsin Registration Number: E-46054-6

Expiration Date: 7-31-2024

Engineer's Seal (optional):



Name of Dam:	Teal and Lower Lost Lake Dam	Date:	11-8
Inspectors:	Aaron Wallner	F.F #:	57.23
Owner's Name:	U. S. F. S.	Key Seq #:	1468
Street:	County Rd. S		
City, State, Zip Code:	Round Lake, WI, 54843		
County:	Sawyer	Phone:	715-845-0426
Weather and Site conditions:	Sunny	Email:	awallner@beckerhoppe.com

GENERAL

	Item	N	P	Notes/ Observations	Action M	Action I	Action R
1	Monuments/Benchmarks						
	Location:			Large Boulder, East Bank, 75' upstream of dam			
	Elevation:						
	Datum:			- was not found			
2	Pool Level			Water was at normal pool ≈ 9" deep			
	Normal/Operating:						
	Maximum:			10"			
	Minimum:			8"			
	Staff Gage			No gage			
3	Access Road						
				Gravel road w/ boat launch upstream of dam			
4	Signage/ Security						
	Portage/route:						
	Dam Warning:						
	Downstream Hazard:			none			
	Fencing/Railings/Catwalks:						

Additional Comments:

- May want to add additional DM's

- keep gravel boat launch maintained

N= Noted; P= Photo; M= Monitor
I= Investigate; R= Repair
F.F.= Field File; RT = Right; LT = Left
U/S = Upstream; D/S = Downstream

Action Suggestion
1. Requires immediate action
2. Plan to do soon
3. Do when convenient

EMBANKMENTS (Cont.)

	Item	N	P	Notes/ Observations	Action M	Action I	Action R
4	**Slope Protection**			No problem ☐ Not applicable ☐ Could not inspect ☐			
	A. Type (none, riprap, wave berm, concrete slabs, loose formed concrete/asphalt):			Rip rap & large river rock on both banks Flat slopes w/ vegitation further beyond rip rap			
	B. Condition:			Good			
5	**Other**		✓	No problem ☐ Not applicable ☐ Could not inspect ☐			
	A. Rodent burrows (few, many) Location:			None			
	B. Ruts Length/ Width/ Depth: Location:			None			
	C. Other			None			
6	**Alignment**		X	No problem ☐ Not applicable ☐ Could not inspect ☐			
	A. Vertical Low area: Elevation Difference: Location:			No displacement observed			
	B. Horizontal			No displacement observed			
	C. Width Too narrow: Location:			No displacement observed			
7	**Toe**		✓	No problem ☐ Not applicable ☐ Could not inspect ☐			
	Cracks/Slumps: Embankment drains: Type/Flow: Location: Seepage/ Wetness: Hummocky:			None observed			
8	**Seepage**		✓	No problem ☐ Not applicable ☐ Could not inspect ☐			
	Wet area: Boil: Sinkhole: Aquatic vegetation: Rust colored deposits: Other: Sediment in Flow: Flowrate: Location:			None Observed			

N= Noted; **P**= Photo; **M**= Monitor
I= Investigate; **R**= Repair
F.F.= Field File; **RT** = Right; **LT** = Left
U/S = Upstream; **D/S** = Downstream

Action Suggestion
1. Requires immediate action
2. Plan to do soon
3. Do when convenient

Additional Comments: