

ORIGINAL



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December 22, 2009

The Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, DC 20426

FILED  
SECRETARY OF THE  
COMMISSION  
2009 DEC 30 A 11:45  
FEDERAL ENERGY  
REGULATORY COMMISSION

Re: *Oconto Falls Project, No. 2523, Flambeau Hydro, LLC*  
*Article 407, Purple Loosestrife Eurasian Watermilfoil Inventory*

Dear Secretary:

On behalf of N.E.W Hydro, Inc., and in accordance with the Purple Loosestrife Eurasian Watermilfoil Monitoring Plan per license article named above, North American Hydro Holdings, Inc. submits the annual Purple Loosestrife and Eurasian Watermilfoil Inventory for 2009 for the above named project. Copies of the inventory have been sent to the Wisconsin Department of Natural Resources and the US Fish & Wildlife Service and no comments have been received to date.

If you have any questions regarding this submission, please contact Mr. Richard Loeffler at 920-293-4628.

Sincerely,  
**NORTH AMERICAN HYDRO HOLDINGS, INC.**

FOR

Charles Alsberg  
Chief Executive Officer

Cc: FERC – CRO

09-12-22 ctm OFUP 2009 Loosestrife Milfoil Survey to FERC.doc

**Oconto Falls Upper Project Purple Loosestrife & Eurasian Watermilfoil Inventory  
July 30, & July 31, 2009  
FERC Project #2523 Article 407**

**NEW Hydro, Inc.  
116 State St.  
Neshkoro, WI 54960**

*Purple Loosestrife*

On July 30, 2009 and July 31, 2009, NEW Hydro, Inc. (NEW) performed an inventory of purple loosestrife plants at the Oconto Falls Upper Project in Oconto County, Wisconsin. The method of inventory as approved and modified by Federal Energy Regulatory Commission (FERC) Order of November 19, 1999 was defined as follows:

After Purple Loosestrife has bloomed in mid July to early August, the inventory should be conducted using a boat to survey the impoundment above the dam and on foot or by boat below the dam. County wetland maps will be used to determine other areas where Purple Loosestrife could be found on lands owned by NEW within the Project Boundary. These areas will be surveyed on foot. A pair of binoculars should be used to search for the purple flowered spikes of the plant. When plants are located, the person(s) inventorying should get close enough to make a positive identification without disturbing the plants or the immediate area around the plants as this could cause them to spread. A GPS receiver will be used to establish a GPS coordinate for the location of the plants. If it is not possible to get close enough to establish an accurate location, an approximate location will be established with reference to an established GPS coordinate. The plant should be inventoried by marking and numbering the location on a lake map along with notes approximating size of plants, stand area, percent cover, stem density, plant density, and location with reference to established GPS coordinates. Photos and/or videotape will be taken of the largest occurrences.

**Example:**

**#1 6' tall plants; 4' X 20'; 30% cover; 4 – 5 stems per plant; 4 plants; on shoreline N44° 52.9092' E88° 10.0000'; no photo**

**#2 5' - 7' tall plants; 10' X 10'; 25% cover; 4 – 5 stems per plant; in marsh 50 feet bearing 25° from N44° 52.5092' E88° 10.0000'; photo No. 1**

The area to be inventoried shall be the shoreline and lands owned by NEW within the Project Boundary as indicated on the Project Boundary map included as Exhibit G of NEW Hydro, Inc. Application For New License for the Oconto Falls Hydroelectric Project FERC Project #2523. The Project Boundary is shown as the water and shoreline of the impoundment from approximately 6000' upstream of the State Highway 32 bridge to approximately 500' downstream of the Project dam.

#### General Observations:

For purple loosestrife, the Oconto Falls Upper Project Boundary was divided into four distinctly different areas; the tailrace (from the dam to 500' immediately downstream of the dam on the east end of the impoundment), the main basin (from the dam to 2 miles upstream of the dam where the river narrows), the headwaters (from 2 miles upstream of the dam where the river narrows to the western point of the project boundary ~6,000 feet upstream of the Highway 32 bridge), and outlying project owned lands.

*The tailrace* was surveyed on foot and was found to contain no visible purple loosestrife plants.

*The main basin* was surveyed by boat and was found to contain no visible purple loosestrife plants.

*The headwaters* were surveyed by boat. Eight occurrences of purple loosestrife plants were observed in this area and are noted on the lake map and survey comments at the end of this report. One of these occurrences appears to be on project owned land and is so noted.

Sighting #1 (located on project owned land) was observed in 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 and 2009 and appears to have reduced in numbers and size of plants. In 2003, 2004, 2005, 2006, 2007, 2008, and 2009 all plants at this location were treated with an herbicide. In 2007, 2008, and 2009 *Galerucella* beetles were positively identified on a number of plants.

Sighting #2 was observed in 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007 and 2008 and appears to have reduced in density since 2005. The plants at this site have not been treated in any of the survey years due to their location in a low lying area and on private property. It should be noted that in 2006, the lower portion of the remaining plants appeared to have insect damage such as that produced by *Gallerucella* beetles. In 2009 no plants were observed at this location.

Sighting #3 was first observed in 2001 and in 2002 and 2003 seed heads on all of the plants were removed to reduce the possibility of spreading. In 2004, no plants were observed, but in 2005 they had returned. Seed heads were removed again in 2005. In 2006, 2007 and 2008 no plants were observed at this location. In 2009, one plant reoccurred at this site and was pulled and destroyed.

Sighting #4 was first observed in 2001. All plants were pulled and destroyed in 2001. No plants were observed in 2002, 2003, 2004, 2005, 2006, 2007, 2008 and 2009.

Sighting #5 was observed in 2002, 2003, 2004, 2005, and 2006. In 2007 and 2008, the number of plants at this site appeared to have been reduced in number and all plants were pulled. Minor beetle damage was noted in 2007. In 2009, no plants were observed at this location.

Sighting #6 was first observed in 2002. Seed heads were removed on all plants in 2002, 2003, and 2004. No plants were observed in 2005. All plants were pulled and destroyed in 2006, 2007 and 2008. In 2009, a total of 6 plants were found, pulled and destroyed. Beetle damage was noted in 2007, 2008 and 2009.

Sighting #7 was first observed in 2005. In 2006, 2007 and 2008 no plants were observed at this location. All plants were pulled and destroyed in 2005 and 2009.

Sighting #8 was first observed in 2005. All plants were pulled and destroyed in 2005. No plants were observed in 2006, 2007, 2008 and 2009 at this location.

Sighting #9 was first observed in 2006. All plants were pulled and destroyed in 2006 and 2007. In 2008, and 2009, no plants were observed at this location.

Sighting #10 was first observed in 2006 and all plants were pulled and destroyed. No plants were observed in 2007 and again in 2008. In 2009 three plants were pulled and destroyed at this location.

Sighting #11 was first discovered in 2007 where three plants were found at this site. All plants were pulled and destroyed. In 2008 and 2009 no purple loosestrife plants were found at this location.

Sighting #12 was first discovered in 2007 where one plant was found. One blooming plant was discovered in 2008 and again in 2009. All plants were pulled and destroyed in ???????.

Sighting #13 was first discovered in 2008 below the southeast corner of the Hwy. 32 bridge. In 2009, 2 plants were pulled and destroyed at this location.

Sighting #14 was first discovered in 2009. One plant was found. This plant was pulled and destroyed.

*The outlying project owned lands were first researched using aerial wetland maps to determine the areas conducive to purple loosestrife growth. These areas were then surveyed on foot and were found to contain no visible purple loosestrife plants.*

During the inventory, a video camcorder or digital camera was used to document new occurrences of purple loosestrife as noted in the survey comments at the end of this report.

### *Eurasian Watermilfoil*

On July 30, 2009, and July 31, 2009, NEW Hydro, Inc. performed an inventory of Eurasian watermilfoil plants at the Oconto Falls Upper Project in Oconto County, Wisconsin. The method of inventory as approved and modified by FERC Order of November 19, 1999 was defined as follows:

After Eurasian watermilfoil has developed in mid July to early August, the inventory should be conducted by boating transects in the impoundment above and below the dam. Number and locations of transects will be determined at the time of the first inventory and appropriately marked on the inventory lake map. A GPS receiver will be used to establish GPS coordinates for the beginning and endpoints of the transects. The person(s) inventorying should visually search areas with depths of 12 feet or less for the dense mats of the plants on and below the water surface. When plants are located, the person(s) inventorying should get close enough to make a positive identification without disturbing the plants or the immediate area around the plants as this could cause them to spread. If necessary, a sample may be taken for identification later. The plant should be inventoried by marking and numbering the location on a lake map along with notes approximating area that they cover, perimeter of bed, mat density, overall mat thickness, and location with reference to the GPS coordinates. Photos and/or videotape will be taken of the largest occurrences.

Example:

#1 40' X 20'; 3' depth; perimeter N44° 52.8925' E88° 10.0000'  
N44° 52.8860' E88° 10.0000', N44° 52.8860' E88° 09.9953', N44°  
52.8925' E88° 09.9953'; 50% density; 3' thick; no photo

#2 8' X 10'; 10' depth; N44° 52.9008' E88° 10.0000', N44°  
52.8995' E88° 10.0000', N44° 52.8995' E88° 09.9980', N44°  
52.9008' E88° 09.9980'; 25% density; 8' thick; photo No. 1

The area to be inventoried shall be that within the Project Boundary as indicated on the Project Boundary map included as Exhibit G of NEW Hydro, Inc. Application for New License for the Oconto Falls Hydroelectric Project FERC Project #2523. The project boundary is shown as the water and shoreline of the impoundment from approximately 6000' upstream of the State Highway 32 bridge to approximately 500' downstream of the Project dam.

#### General Observations:

For Eurasian watermilfoil, the Oconto Falls Upper Project Boundary was divided into three distinctly different areas; the tailrace (from the dam to 500' immediately downstream of the dam on the east end of the impoundment), the main basin (from the dam to 2 miles upstream of the dam where the river narrows), and the headwaters (from 2 miles upstream of the dam where the river narrows to the western point of the project boundary ~6,000 feet upstream of the Highway 32 bridge).

Water clarity at the Project at the time of the survey was limited to 1' – 2'. It was determined at that time to use a 14" wide garden rake with a 5.5' handle for shallow areas and a 14" wide garden rake attached to an 18' aluminum pole for deeper areas. In the past, a throw rake (garden rake with a rope attached) was used to retrieve weed samples, but the 18' handle gives better control and cuts down on sampling time. For 2000 and 2001 surveys, no weed growth of any kind was retrieved from waters deeper than 10', so sampling at the 15' depth was discontinued.

The *main basin* was inventoried first followed by the *headwaters* and, finally, the *tailrace*.

**The tailrace** was surveyed visually and with the use of a rake mounted on an 18' aluminum pole. No Eurasian watermilfoil plants were found.

**The main basin** was surveyed visually and with the use of a 14" wide garden rake with a 5.5' handle for shallow areas and a 14" wide garden rake attached to an 18' aluminum pole for deeper areas. Eight transects were established in 2000 in this area with sample points at 1.5', 5', and 10' depths. Each sample point of each transect was an 8' circle divided into quadrants. Each quadrant was sampled using one of the rakes. If the teeth of the rake contained less than 50% Eurasian watermilfoil, a rating of 1 was assigned, and if 50% or more, a rating of 2 was assigned. In addition, areas of weed growth were visually searched while skirting the perimeter of weed beds and shoreline.

No weed samples of any kind were detected at the 10' depth. On the sampling date, boat traffic was light and observations of floating segments of Eurasian watermilfoil was not as common as in past years. Special attention was paid to each of the boat landings.

The northeast boat landing near the hydroelectric plant is within mat #9 and a few floating strands were observed here. Eurasian watermilfoil was also observed on the apron of the landing.

The north boat landing immediately east of the north swimming beach had a few floating strands of Eurasian watermilfoil near the landing with no plants appearing to be growing from the bottom. There appeared to be a few strands of Eurasian watermilfoil on the apron of the landing.

The boat landing at the West Park is within mat #5 and a few Eurasian watermilfoil plants were found floating around the landing and dock, and a few were observed on the apron of the landing.

No Eurasian watermilfoil was detected at sampling locations with depths greater than 5'. Those occurrences at 5' depth and less were easily identified without the use of dredging techniques as the plants had grown to the surface and most had reddish tops.

In past years, some sampling points did not yield any Eurasian watermilfoil plants, although there may have been some plants floating on the surface and/or growing from the bottom within 25' of the sampling point. In 2002, a column was added to the survey sheet at the end of this report to show these observations.

Fourteen mats containing Eurasian watermilfoil were identified within the project boundary of which mats #1, #2, #3, and #4 were first identified in the 2000, mat #5 was first identified in 2001, mats #6 and #7 were first identified in 2003, mat

#8 was first identified in 2005, mats #9, #10, and #11 were first identified in 2006, and mat #12 was first identified in 2008. Two new mats were identified in 2009 and were labeled mat #13 and mat #14. All fourteen mats were discovered using the visual search method. All of these mats were interspersed with other types of plants and all of them had Eurasian watermilfoil densities as noted in the survey comments at the end of this report. Mats #1 through #10 are located in the *main basin* while mats #11, #12, #13 and #14 are located in the *headwaters*.

Mat #1 was first observed in 2000 and remained the same size and density through 2003. It decreased in size in 2004 and, in 2005, was not visible at all. The mat reappeared in 2006. It remained the same size in 2007, 2008, and 2009. The density of this mat has declined in 2009.

Mat #2 was first observed in 2000 and remained the same size and density through 2003. It decreased in size in 2004 and, in 2005, was not visible at all. The mat reappeared in 2006. It increased in size and density during 2007. The size and density of this mat did not changed from 2007 to 2008. In 2009 the mat size and density has again declined.

Mat #3 was first observed in 2000, it increased in size and density through 2003. In 2004, a drastic reduction in density was observed while its size remained the same. In 2005, its density reduced further to where it could be considered the same as when it was first observed in 2000 while the size remained the same size as in 2004. In 2006, it remained the same size, but increased in density from 2005. It remained the same size but increased in density during 2007. In 2008 the size of this mat more than doubled in length from 2007. It has gained in length both upstream and downstream, although the width remains the same as well as the density. In 2009, the survey crew divided mat #3 into two sections (east & west) to produce a more accurate report. Mat #3 east – is smaller in size compared to 2008 measurements and lesser densities than previous years with some area's appearing sparse at best. Mat #3 west – has remained the same size, but shows a decline in density in 2009.

Mat #4 was first observed in 2000, it increased in size and density through 2003. In 2004, a drastic reduction in density was observed while its size remained the same. In 2005, its density reduced further to where it could be considered the same as when it was first observed in 2000 while the size remained the same size as in 2004. In 2006, it remained the same size, but increased in density from 2005. It remained the same size but decreased in density during 2007. The size again remained the same for 2008, but with heavier densities to the northeast and lighter densities to the northwest of the mat. In 2009 the mat is remaining the same size, but with lighter densities.

Mat #5 was first observed in 2001. It increased in size and density through



2003. In 2004, a drastic reduction in density was observed while its size remained the same. In 2005, its density reduced further to where it could be considered the same as when it was first observed in 2001 while the size remained the same as in 2004. In 2006, it remained the same size, but increased in density. In 2007, it decreased in size but increased in density. For 2008 the length increased slightly to the northwest and the density remained the same as in 2007. The 2009 survey found the size of mat has declined and the density is lighter than the previous year.

Mat #6 was first observed in 2003. In 2004, it remained the same size but reduced in density. In 2005, its size and density remained the same. In 2006, its size and density increased. In 2007, it increased in size and density until it joined with mat #8 to form one continuous mat. In 2008, the mat grew further out into the impoundment and denser than in 2007. For 2009, the size of this mat has declined along with mat densities. As like the previous year, mat #6 has remained joined with mat #8. This has created a continuous area of Eurasian Watermilfoil from the N. Flatley Ave. swimming beach to the boat barrier adjacent to the dam and powerhouse.

Mat #7 was first observed in 2004. It was not visible in 2005 and reappeared in 2006. In 2007 and 2008 it was not visible. In 2009, this mat could not be located once again.

Mat #8 was first observed in 2005. In 2006, 2007 and 2008 it increased in size and density. In 2009, the mat remained the same size but the density has increased. This mat remains joined with mat #6 to form one continuous mat.

Mat #9 was first observed in 2006. In 2007, it increased in size, but the density remained the same. In 2008, there was a slight increase in the density and the mat reached out approximately 25' from the shoreline, greater in width than in 2007. In 2009 the mat has not changed in size, but has increased in density.

Mat #10 was first observed in 2006. In 2007, it remained the same size but increased in density. The mat size for 2008 remained the same as in 2007 but has a greater density than in the previous year. In 2009 the mat size has increased considerably but the density is lighter than the previous year.

The headwaters were surveyed visually and with the use of a 14" wide garden rake with a 5.5' handle. Four mats were observed in this part of the project boundary.

Mat #11 was first observed in 2006. In 2007, it remained the same size and decreased in density. When surveyed in 2008, the size and density of this mat had not changed from the previous year. The 2009 survey found a large increase in the size of this mat and only a slight increase in density.

Mat #12 was first observed in 2008. In 2009 this mat has increased in length by ~388'. The densities of this mat also show a large increase over 2008 figures.

Mat #13 was first observed in 2009 and is the furthest mat upriver to date.

Mat #14 was first observed in 2009

Observations of individual plants within the project boundary indicate that no further infestation upstream has been detected during the 2009 survey as compared to the 2008 survey. The furthest upstream point where Eurasian Watermilfoil has been located is GPS point N44°52.996' W88°12.091' (Datum: WGS84) which is ~3.1 miles upstream from the dam and ~0.3 miles downstream from the Larson Bridge.

Eurasian watermilfoil weed densities, overall, decreased from 2008 to 2009. Mat size, overall, appears to be about the same as in 2008, but two new mats have developed in the headwaters area of the project boundary.

**Purple Loosestrife Survey**

**Project:** Oconto Falls Upper #2523

**Datum:** WGS 84

**Date:** 7/30 -7/31/2009

**Crew:** RAL & CTM

Sighting #	GPS point	Latitude	Longitude	Plant Height	Stand Area	Comments
1	66 OFUP PL001	N44°53.0397'	W088°13.7630'	1' - 5'	75 - 100 Plants	First observed in 2000. Located ~30 yards bearing 0° (north) of GPS point on the north side of a marshy slough. Appears to be on a snowmobile trail, as snowmobile trail signs are on either side of slough opening into the river channel. There are 75 -100 plants with 1 - 2 stems per plant. Plants are thinly spread out throughout the entire slough. Most plants were not blooming. These plants are all located on project owned lands. Video tape in 2000. Video taken of damaged plants in 2005. Galerucella beetles were positively identified on plants in 2007, 2008 and 2009. All plants sprayed with herbicide in 2003, 2004, 2005, 2006, 2007, 2008 and 2009. Beetle damage ranged from no damage to heavy damage.
2	67 OFUP PL002	N44°52.8626'	W088°14.9756'	N/A	N/A	First observed in 2000. Located ~30 yards bearing 180° (south) of GPS point on the south side of a marshy slough located directly west of the HWY 32 wayside boat landing. Video in 2000. No treatment in 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, and 2008. No plants observed in 2009.
3	78 OFUP PL003	N44°53.012'	W088°13.614'	5'	1 Plant	First observed in 2001. Located ~10 yards bearing 0° (north) of GPS point on the left side of the river. Video in 2001. Seed heads removed in 2002 and 2003. No plants visible in 2004. Reappeared in 2005, and pulled. No plants observed in 2006, 2007, and 2008. Reappeared in 2009, and pulled. No beetle damage.
4	79 OFUP PL004	N44°52.943'	W088°14.809'	N/A	N/A	First observed in 2001. Located near the waters edge on the northeast side of the HWY 32 bridge. Video in 2001. No plants observed in 2002, 2003, 2004, 2005, 2006, 2007, 2008 or 2009. All plants pulled in 2001.

**Purple Loosestrife Survey**

**Project:** Oconto Falls Upper #2523  
**Date:** 7/30 -7/31/2009  
**Crew:** RAL & CTM

**Datum:** WGS 84

Sighting #	GPS point	Latitude	Longitude	Plant Height	Stand Area	Comments
5	178 OFUP PL005	N44°53.029'	W088°13.524'	N/A	N/A	First observed in 2002. Located on the edge of the far side of a slough ~30 - 60 yards northwest of waypoint 178. Recorded on video in 2002. No treatment in 2002, 2003, 2004, and 2005. All plants pulled in 2006, 2007, and 2008. In 2007 and 2008, all plants showed minor beetle damage. No plants observed in 2009.
	267 OFUP PL006	N44°53.059'	W088°13.549'	N/A	N/A	
	268 OFUP PL007	N44°53.057'	W088°13.562'	N/A	N/A	
	269 OFUP PL008	N44°53.056'	W088°13.578'	N/A	N/A	
	270 OFUP PL009	N44°53.050'	W088°13.615'	N/A	N/A	
	139 OFUP PL010	N44°53.055'	W088°13.530'	N/A	N/A	
6	179 OFUP PL011	N44°52.895'	W088°12.805'	2' - 3'	6 Plants	First observed in 2002. Located on left side of river ~10' due north of the waypoint on the bank. Beetle damage in 2007, 2008, and 2009. No plants observed in 2005. Video in 2002. Seed heads removed in 2002, 2003, and 2004. All plants pulled in 2006, 2007, 2008 and 2009.
7	264 OFUP PL012	N44°53.024'	W088°13.439'	2' - 3'	2 Plants	First observed in 2005. Located on left side of river ~10' due north of the waypoint on the bank. Heavy beetle damage. No plants observed in 2006, 2007, and 2008. All plants pulled in 2005 and 2009.
8	265 OFUP PL013	N44°53.024'	W088°13.439'	N/A	N/A	First observed in 2005. Located ~10' due south of the waypoint on the bank west of HWY 32 bridge. No plants observed in 2006, 2007, 2008 and 2009. All plants pulled in 2005.
9	120 OFUP PL014	N44°52.915'	W088°14.823'	N/A	N/A	First observed in 2006. Located ~10' due south of the waypoint on the bank east of HWY 32 bridge. No plants observed in 2008 and 2009. All plants pulled in 2006 and 2007.

**Purple Loosestrife Survey**

09-11-03 CTM OFUP 2009 Loosestrife Survey form.xls

**Project:** Oconto Falls Upper #2523**Datum:** WGS 84**Date:** 7/30 -7/31/2009**Crew:** RAL & CTM

Sighting #	GPS point	Latitude	Longitude	Plant Height	Stand Area	Comments
10	116 OFUP PL015	N44°52.915'	W088°52.915'	2' - 5'	3 Plants	First observed in 2006. Located on the left side of river ~10' due north of the waypoint. Beetle damage in 2009. No plants observed in 2007 and 2008. All plants pulled in 2006 and 2009.
11	121 OFUP PL016	N44°52.643'	W088°15.762'	N/A	N/A	First observed in 2007. Located ~10' due south of waypoint on small island in river. No plants observed in 2008 and 2009. All plants pulled in 2007.
12	122 OFUP PL017	N44°53.050'	W088°13.863'	3'	1 plant	First observed in 2007. Located on the left side of river, ~10' due north of waypoint. No old cane. No damage. All plants pulled in 2007, 2008 and 2009.
13	OFUP PL018	N44°52.914'	W088°14.829'	1' - 2'	2 plants	First observed in 2008. Located below the southeast corner of the HWY 32 bridge at the waypoint. No old cane in 2009. All plants pulled in 2008 and 2009.
14	OFUP PL019	N44°52.898'	W088°14.868'	3'	1 Plant	First observed in 2009. Located ~80' west of the HWY 32 bridge on the right side of river at the waypoint. No old cane in 2009. No beetle damage in 2009. All plants pulled in 2009.

# OCONTO FALLS UPPER #2523 PURPLE LOOSESTRIFE SURVEY 2009



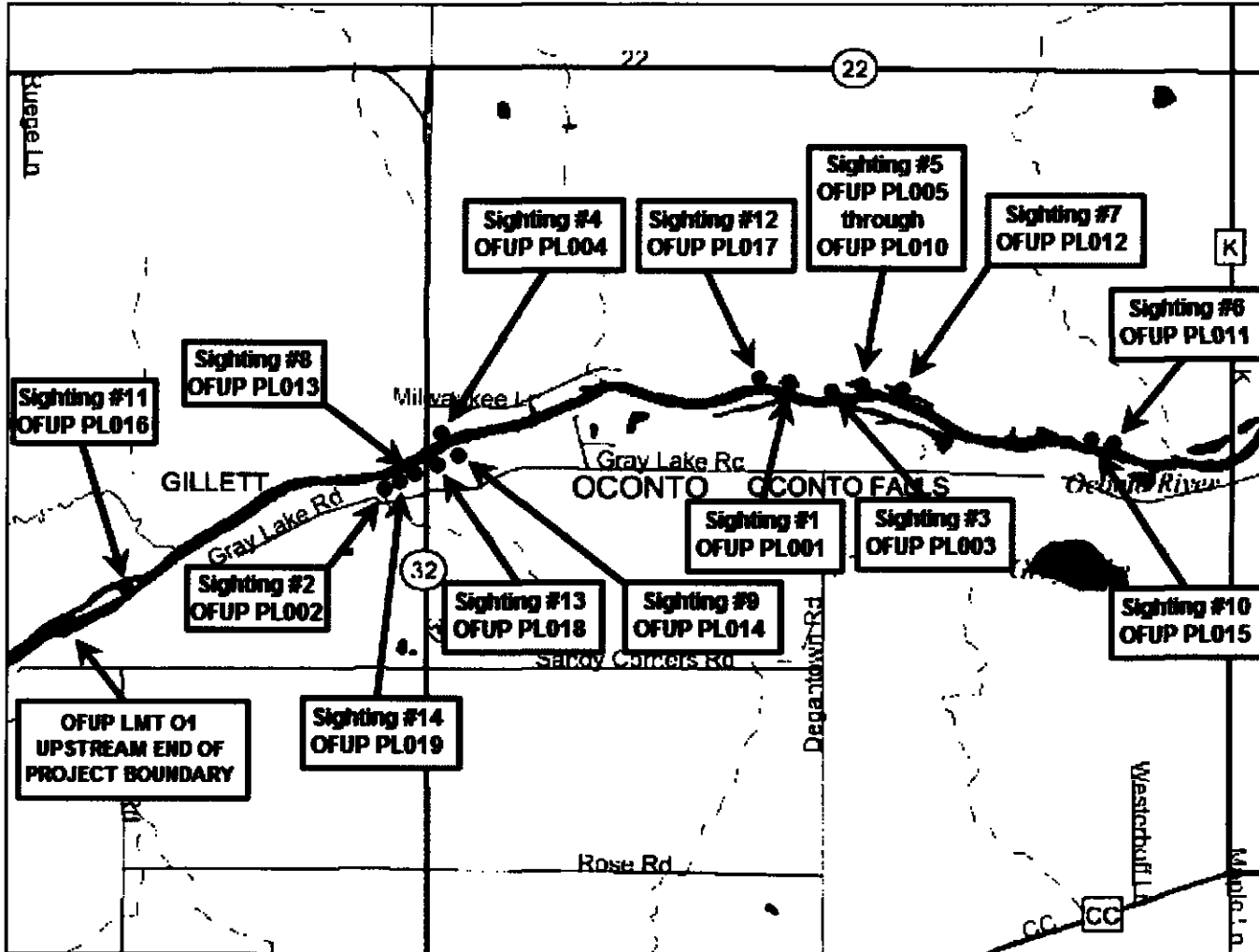
## Legend

- Dams
- Major Highways
  - Interstate
  - State Highway
  - U.S. Highways
  - County Roads
  - Local Roads
  - 24K County Boundaries
- Civil Towns
  - Civil Town
  - 24K Open Water
  - 24K Rivers and Shorelines
- Intermittent
- Fluctuating
- Perennial
- Cities and Villages
  - Village
  - City

● Purple Loosestrife Observed in 2009

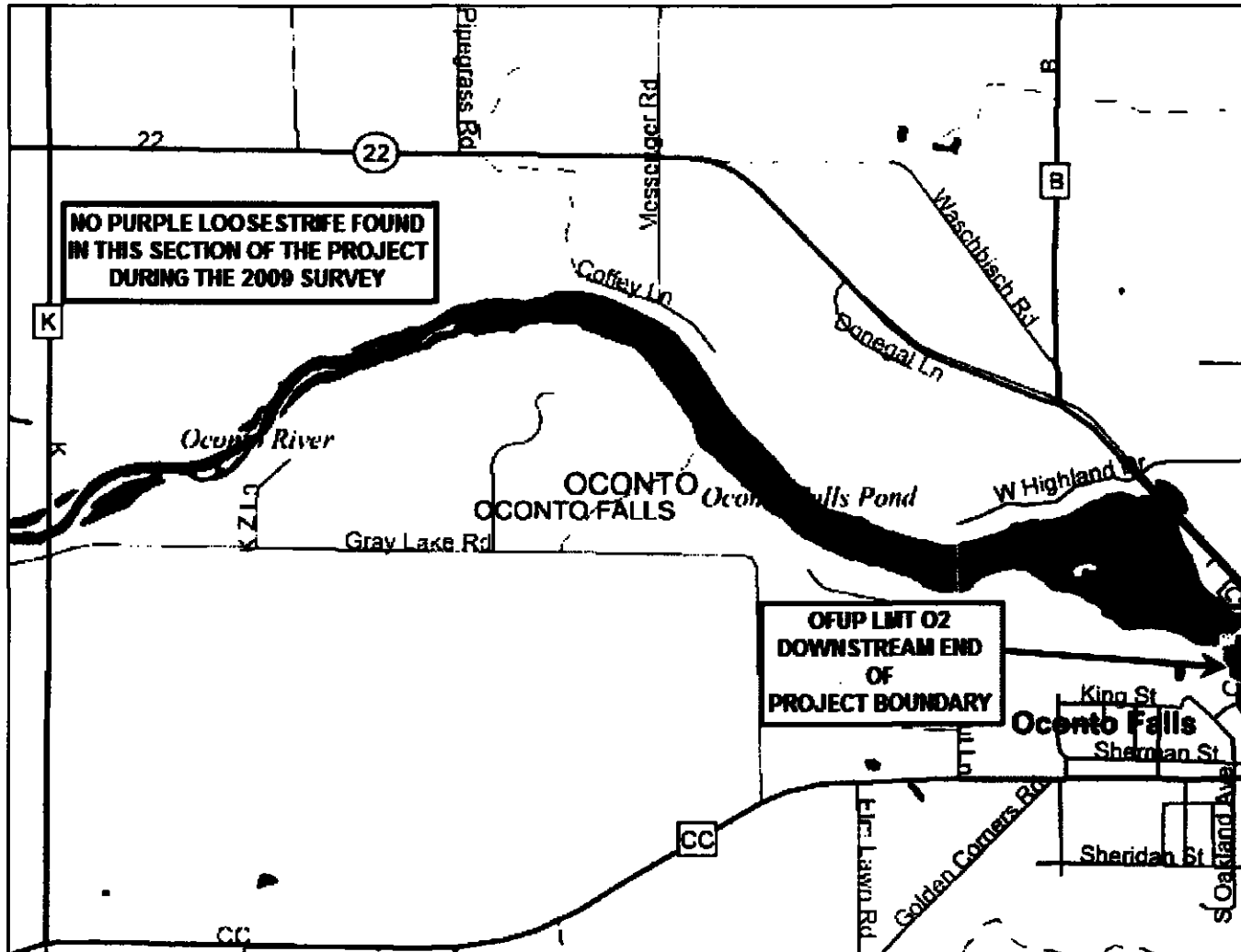
● Purple Loosestrife Observed in Previous Years and not in 2009

Scale: 1:26,671



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# Oconto Falls Upper #2523 Purple Loosestrife Survey 2009



## Legend

- Dams
- Major Highways
- Interstate
- State Highway
- U.S. Highways
- County Roads
- Local Roads
- 24K County Boundaries
- Civil Towns
- Civil Town
- 24K Open Water
- 24K Rivers and Shorelines
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- City

● Purple Loosestrife Observed in 2009

● Purple Loosestrife Observed in Previous Years and not in 2009

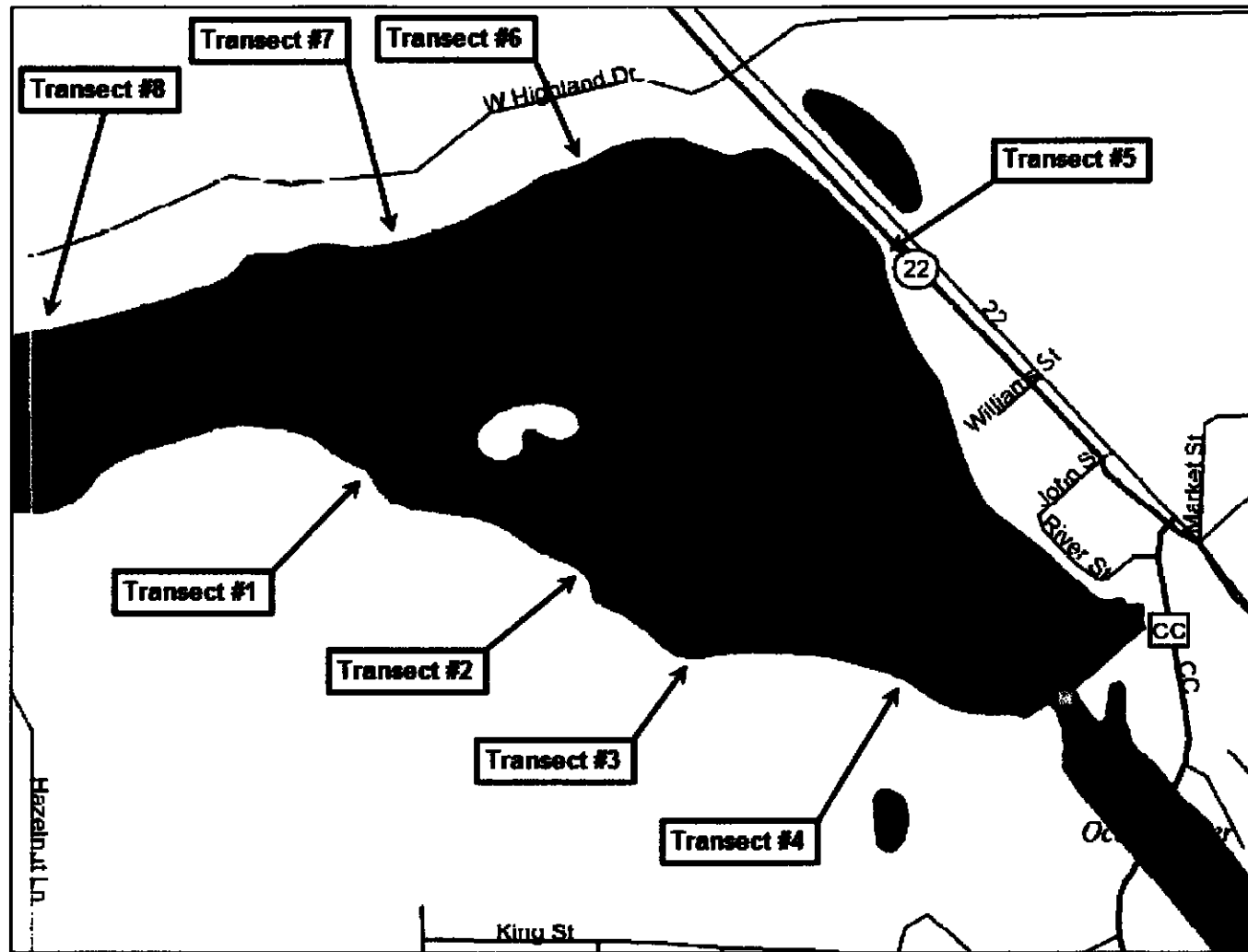
Scale: 1:26,000

0 2500 5000 7500 ft.

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# Oconto Falls Upper #2523 Eurasian Watermilfoil

## Transect Location Map 2009



### Legend

- Dams
- Major Highways
  - Interstate
  - State Highway
  - U.S. Highways
  - County Roads
  - Local Roads
- 24K County Boundaries
- Civil Towns
  - Civil Town
- 24K Open Water
- 24K Rivers and Shorelines
  - Intermittent
  - Fluctuating
  - Perennial
- Cities and Villages
  - Village
  - City

0 700 1400 2100 ft.

Scale: 1:7,000

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**Eurasian Watermilfoil Survey - Transects**

09-11-07 RAL CTM OFSU 2009 Milfoil Survey form.xls

**Project:** Oconto Falls Upper #2523  
**Date:** 7/31/2009  
**Crew:** RAL & CTM

**Datum:** WGS 84  
**Page:** 1 of 1

Eurasian watermilfoil growing from bottom within 25' of sample point = #  
 Eurasian watermilfoil floating within 25' of sample point = \*

1<50%      1<50%      1<50%      1<50%  
 2≥50%      2≥50%      2≥50%      2≥50%

Transect #	Depth	GPS point	Latitude	Longitude	Quad 1	Quad 2	Quad 3	Quad 4	Rating	Within 25'
1	1.5	OFUP TS01A	N44°52.7195'	W088°09.4319'	0	0	0	0	0	
	5	OFUP TS01B	N44°52.7343'	W088°09.4323'	0	1	1	1	3	# *
	10	OFUP TS01C	N44°52.7684'	W088°09.4185'	0	0	0	0	0	
2	1.5	OFUP TS02A	N44°52.6616'	W088°09.2612'	0	0	0	0	0	#
	5	OFUP TS02B	N44°52.7357'	W088°09.2024'	1	2	1	2	6	# *
	10	OFUP TS02C	N44°52.7716'	W088°09.1844'	0	0	0	0	0	
3	1.5	OFUP TS03A	N44°52.6085'	W088°09.1567'	1	0	1	1	3	# *
	5	OFUP TS03B	N44°52.6269'	W088°09.1521'	0	1	1	1	3	#
	10	OFUP TS03C	N44°52.6540'	W088°09.1324'	0	0	0	0	0	
	5	OFUP TS03D	N44°52.6842'	W088°09.1117'	1	1	1	1	4	#
	10	OFUP TS03E	N44°52.7166'	W088°09.0910'	0	0	0	0	0	
4	1.5	OFUP TS04A	N44°52.5970'	W088°09.0412'	1	0	1	0	2	# *
	5	OFUP TS04B	N44°52.6102'	W088°09.0244'	1	0	1	1	3	# *
	10	OFUP TS04C	N44°52.6183'	W088°08.9994'	0	0	0	0	0	
5	1.5	OFUP TS05A	N44°52.8430'	W088°09.0258'	1	1	0	1	3	# *
	5	OFUP TS05B	N44°52.8408'	W088°09.0274'	1	1	1	1	4	# *
	10	OFUP TS05C	N44°52.8383'	W088°09.0359'	0	0	0	0	0	
6	1.5	OFUP TS06A	N44°52.8919'	W088°09.2443'	0	0	1	1	2	#
	5	OFUP TS06B	N44°52.8890'	W088°09.2434'	0	0	0	0	0	#
	10	OFUP TS06C	N44°52.8808'	W088°09.2402'	0	0	0	0	0	
7	(a) 1.5	OFUP TS07A	N44°52.8467'	W088°09.4100'	1	1	0	0	2	#
	(a) 5	OFUP TS07B	N44°52.8433'	W088°09.4100'	0	0	0	0	0	#
	(a) 10	OFUP TS07C	N44°52.8400'	W088°09.4083'	0	0	0	0	0	
8	1.5	OFUP TS08A	N44°52.7965'	W088°09.6999'	1	0	1	0	2	#
	5	OFUP TS08B	N44°52.7952'	W088°09.6999'	0	0	0	0	0	
	10	OFUP TS08C	N44°52.7887'	W088°09.6960'	0	0	0	0	0	

(a) = offset of ~75ft east from original transect due to willow tree fallen in water - latitude and longitude reflect offset

**Eurasian Watermilfoil Survey - Mat Descriptions**

**Project:** Oconto Falls Upper #2523  
**Date:** 7/30/2009 & 7/31/2009  
**Crew:** RAL & CTM

**Datum:** WGS 84

**Note - Italicised GPS points were not used in this survey**

Mat #	Depth	GPS point	Latitude	Longitude	Comments
1	0' - 5'	OFUP EW01-A	N44°52.7679'	W088°08.9863'	Located from immediately on the east side of the swimming beach to boat launch docks to the east. Mat is ~180' x 20' and extends out from shore in the 2' - 5' depth range. Mat is interspersed with other weeds. Total Mat density is ~20% - 40% of which ~40% - 80% is Eurasian Watermilfoil.
		OFUP EW01-B	N44°52.7729'	W088°08.9940'	
		OFUP EW01-C	N44°52.7892'	W088°09.0109'	
2	0' - 5'	OFUP EW02-A	N44°52.8133'	W088°09.0233'	Located from immediately on the west side of the swimming beach to where HWY 22 meets the lakeshore to the east. Mat is ~780' x 20' and extends out from shore in the 2' - 5' depth range. Mat is interspersed with other weeds. Total Mat density is ~25% - 30% of which ~5% - 10% is Eurasian Watermilfoil.
		OFUP EW02-B	N44°52.8286'	W088°09.0265'	
		OFUP EW02-C	N44°52.8437'	W088°09.0283'	
		OFUP EW02-D	N44°52.894'	W088°09.130'	
3	0' - 5'	OFUP EW03-O	N44°52.887'	W088°09.245'	Located on north shore beginning ~500 feet upstream from where HWY 22 meets the lakeshore. In 2009, the survey crew divided mat #3 into two sections (Mat # 3 east & Mat # 3 west) to produce a more accurate report. Mat # 3 east is ~.7 miles x 30' wide and runs parallel to shore in the 2' - 5' depth range. This mat is interspersed with other weeds. Total Mat density is ~25% - 30% of which ~5% - 10% is Eurasian Watermilfoil. Mat # 3 west is ~1 mile x 30' wide and runs parallel to shore in the 2' - 5' depth range. The Mat is interspersed with other weeds. Total Mat density is ~10% - 80% of which ~10% - 60% is Eurasian Watermilfoil.
		OFUP EW03-P	N44°52.868'	W088°09.309'	
		OFUP EW03-I	N44°52.837'	W088°09.914'	
		OFUP EW03-J	N44°52.843'	W088°09.959'	
		OFUP EW03-A	N44°52.8465'	W088°09.9786'	
		OFUP EW03-B	N44°52.8541'	W088°10.0106'	
		OFUP EW03-C	N44°52.8613'	W088°10.0369'	
		OFUP EW03-D	N44°52.8675'	W088°10.0597'	
		OFUP EW03-E	N44°52.8805'	W088°10.0931'	
		OFUP EW03-F	N44°52.8952'	W088°10.1251'	
		OFUP EW03-G	N44°52.9184'	W088°10.1610'	
		OFUP EW03-H	N44°52.9358'	W088°10.1870'	
		OFUP EW03-K	N44°52.964'	W088°10.217'	
		OFUP EW03-L	N44°52.984'	W088°10.230'	
		OFUP EW03-M	N44°53.030'	W088°10.300'	
		OFUP EW03-N	N44°53.094'	W088°10.386'	
OFUP EW03-Q	N44°53.287'	W088°10.571'			
OFUP EW03-R	N44°53.094'	W088°10.386'			
4	4' -5'	OFUP EW04-A	N44°53.0944'	W088°10.4541'	Located in center of river ~1400 yards upstream from the West Side Park boat landing on the south side of the impoundment in Oconto Falls. Mat is ~2050' x ~200' and is in
		OFUP EW04-B	N44°53.1284'	W088°10.4607'	
		OFUP EW04-C	N44°53.1601'	W088°10.4738'	

**Eurasian Watermilfoil Survey - Mat Descriptions**

**Project:** Oconto Falls Upper #2523  
**Date:** 7/30/2009 & 7/31/2009  
**Crew:** RAL & CTM

**Datum:** WGS 84

**Note - Italicised GPS points were not used in this survey**

Mat #	Depth	GPS point	Latitude	Longitude	Comments
		OFUP EW04-D	N44°53.2086'	W088°10.5103'	the center of the river. Mat is interspersed with other weeds. Total Mat density is ~50% - 95% of which ~5% - 50% is Eurasian Watermilfoil. Heaviest concentrations of Eurasian Watermilfoil are located on the south and west sides of the mat with lighter concentrations on the north and east sides.
		OFUP EW04-E	N44°53.1968'	W088°10.5389'	
		OFUP EW04-F	N44°53.1701'	W088°10.5475'	
		OFUP EW04-G	N44°53.1220'	W088°10.5007'	
		OFUP EW04-H	N44°53.1081'	W088°10.4868'	
		OFUP EW04-I	N44°53.233'	W088°10.533'	
		OFUP EW04-J	N44°53.256'	W088°10.555'	
		OFUP EW04-K	N44°53.277'	W088°10.585'	
		OFUP EW04-L	N44°53.303'	W088°10.650'	
		OFUP EW04-M	N44°53.303'	W088°10.791'	
5	0' - 5'	<i>OFUP EW05-H</i>	N44°52.778'	W088°10.002'	
		<i>OFUP EW05-A</i>	N44°52.756'	W088°09.898'	
		<i>OFUP EW05-B</i>	N44°52.743'	W088°09.859'	
		<i>OFUP EW05-C</i>	N44°52.735'	W088°09.810'	
		<i>OFUP EW05-D</i>	N44°52.720'	W088°09.750'	
		<i>OFUP EW05-E</i>	N44°52.715'	W088°09.702'	
		<i>OFUP EW05-F</i>	N44°52.723'	W088°09.673'	
		<i>OFUP EW05-G</i>	N44°52.728'	W088°09.643'	
6	2' -5'	OFUP EW06-A	N44°52.765'	W088°09.253'	Located east of the island in the impoundment ~600 yards east of the West Side Park boat landing on the south side of the impoundment in Oconto Falls. Mat is ~2500' x ~200' interspersed with other weeds. Total Mat density is ~10% - 50% of which ~5% - 30% is Eurasian Watermilfoil.
		OFUP EW06-B	N44°52.759'	W088°09.218'	
		OFUP EW06-C	N44°52.746'	W088°09.186'	
		OFUP EW06-D	N44°52.736'	W088°09.154'	
		OFUP EW06-E	N44°52.718'	W088°09.125'	
		OFUP EW06-F	N44°52.700'	W088°09.109'	
		OFUP EW06-G	N44°52.684'	W088°09.094'	
		OFUP EW06-H	N44°52.681'	W088°09.095'	
		OFUP EW06-I	N44°52.680'	W088°09.134'	
		OFUP EW06-J	N44°52.686'	W088°09.172'	
		OFUP EW06-K	N44°52.680'	W088°09.184'	
		OFUP EW06-L	N44°52.671'	W088°09.183'	
		OFUP EW06-M	N44°52.650'	W088°09.146'	
		OFUP EW06-N	N44°52.629'	W088°09.119'	

**Eurasian Watermilfoil Survey - Mat Descriptions**

**Project:** Oconto Falls Upper #2523  
**Date:** 7/30/2009 & 7/31/2009  
**Crew:** RAL & CTM

**Datum:** WGS 84

**Note - Italicised GPS points were not used in this survey**

Mat #	Depth	GPS point	Latitude	Longitude	Comments
		OFUP EW06-O	N44°52.623'	W088°09.088'	
		OFUP EW06-P	N44°52.619'	W088°09.051'	
		OFUP EW06-Q	N44°52.623'	W088°09.027'	
		OFUP EW06-R	N44°52.608'	W088°09.005'	
		OFUP EW06-S	N44°52.580'	W088°08.986'	
7	0' - 5'	<i>OFUP EW07-A</i>	N44°53.042'	W088°10.468'	Located ~1250 yards upstream from the West Side Park boat landing on the south side of the impoundment in Oconto Falls. No Eurasian Watermilfoil was found at this location in the 2009 survey.
		<i>OFUP EW07-B</i>	N44°53.007'	W088°10.425'	
		<i>OFUP EW07-C</i>	N44°52.996'	W088°10.411'	
8	2' - 5'	OFUP EW08-A	N44°52.743'	W088°09.595'	Located west of the island in the impoundment ~150 yards east of the West Side Park boat landing on the south side of the impoundment in Oconto Falls. Mat is ~1500' x ~100' interspersed with other weeds. Total Mat density is ~10% - 50% of which ~5% - 30% is Eurasian Watermilfoil.
		OFUP EW08-B	N44°52.755'	W088°09.547'	
		OFUP EW08-C	N44°52.761'	W088°09.488'	
		OFUP EW08-D	N44°52.763'	W088°09.407'	
		OFUP EW08-E	N44°52.766'	W088°09.313'	
		OFUP EW08-F	N44°52.765'	W088°09.253'	
9	2' - 5'	OFUP EW09-A	N44°52.623'	W088°08.831'	Located at the east end boat ramp nearest the hydroelectric plant. Mat is ~600' x ~20'. Total Mat density is ~10% - 40% of which ~20% - 90% is Eurasian Watermilfoil.
		OFUP EW09-B	N44°52.631'	W088°08.852'	
		OFUP EW09-C	N44°52.651'	W088°08.891'	
		OFUP EW09-D	N44°52.684'	W088°08.936'	
		OFUP EW09-E	N44°52.707'	W088°08.955'	
10	2' - 5'	OFUP EW10-A	N44°53.343'	W088°10.790'	Located in the center of the river ~2200 yards upstream from the West Side Park boat landing on the south side of the impoundment in Oconto Falls. Mat is ~985' x ~610' and is in the center of the river. Mat is interspersed with other weeds. Total Mat density is ~50% - 80% of which ~40% - 75% is Eurasian Watermilfoil.
		OFUP EW10-B	N44°53.353'	W088°10.845'	
		OFUP EW10-C	N44°53.353'	W088°10.882'	
		OFUP EW10-D	N44°53.341'	W088°10.899'	
		OFUP EW10-E	N44°53.336'	W088°10.871'	
		OFUP EW10-F	N44°53.333'	W088°10.838'	
		OFUP EW10-G	N44°53.337'	W088°10.809'	
		OFUP EW10-H	N44°53.315'	W088°10.679'	
		OFUP EW10-I	N44°53.320'	W088°10.814'	
11	2' - 5'	OFUP EW11-A	N44°53.305'	W088°10.960'	Located ~2475 yards upstream from the West Side Park boat landing on the south side of the impoundment in Oconto Falls.
		OFUP EW11-B	N44°53.323'	W088°10.979'	

**Eurasian Watermilfoil Survey - Mat Descriptions**

**Project:** Oconto Falls Upper #2523  
**Date:** 7/30/2009 & 7/31/2009  
**Crew:** RAL & CTM

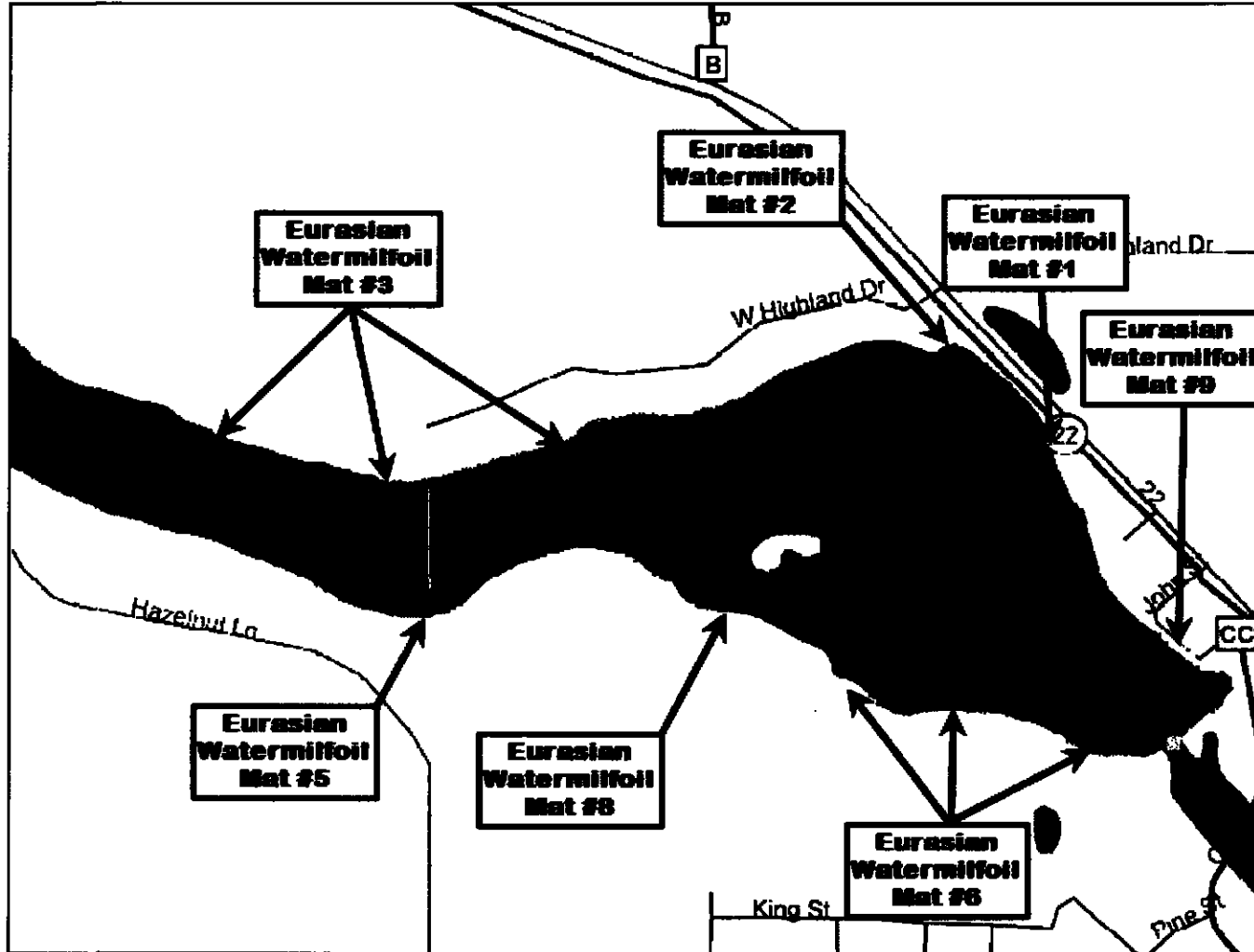
**Datum:** WGS 84

**Note - Italicised GPS points were not used in this survey**

Mat #	Depth	GPS point	Latitude	Longitude	Comments
		OFUP EW11-C OFUP EW11-D OFUP EW11-E OFUP EW11-F OFUP EW11-G OFUP EW11-H OFUP EW11-I OFUP EW11-J	N44°53.332' N44°53.327' N44°53.304' N44°53.259' N44°53.245' N44°53.246' N44°53.156' N44°53.309'	W088°11.055' W088°11.134' W088°11.228' W088°11.325' W088°11.329' W088°11.372' W088°11.719' W088°10.911'	Mat is ~3810' x ~300' and is on the south side of the river. Mat is interspersed with other weeds. Total Mat density is ~30% - 50% of which ~10% - 75% is Eurasian Watermilfoil.
12	2' - 5'	OFUP EW12-A OFUP EW12-B OFUP EW12-C OFUP EW12-D	N44°53.293' N44°53.274' N44°53.259' N44°53.243'	W088°11.320' W088°11.358' W088°11.398' W088°11.474'	Located ~2880 yards upstream from the West Side Park boat landing on the south side of the impoundment in Oconto Falls. Mat is ~738' x ~30' and is on the north side of the river at a power line crossing. Mat is interspersed with other weeds. Total Mat density is ~25% - 85% of which ~5% - 75% is Eurasian Watermilfoil.
13	2' - 5'	OFUP EW13-A OFUP EW13-B OFUP EW13-C OFUP EW13-D	N44°53.003' N44°52.995' N44°52.996' N44°52.997'	W088°11.943' W088°12.027' W088°12.074' W088°12.128'	Located ~560 yards downstream from the County K bridge on the the south side of the river. Mat is ~807' x 30' wide and runs parallel to shore in the 2' - 5' depth range. The Mat is interspersed with other weeds. Total Mat density is ~30% - 50% of which ~10% - 75% is Eurasian Watermilfoil.
14	2' - 5'	OFUP EW14-A OFUP EW14-B	N44°53.184' N44°53.116'	W088°11.726' W088°11.782'	Located ~1158 yards downstream from the County K bridge on the the north side of the river. The Mat is ~478' x 30' wide and runs parallel to shore in the 2' - 5' depth range. Mat is interspersed with other weeds. Total Mat density is ~30% - 50% of which ~10% - 75% is Eurasian Watermilfoil.

# Oconto Falls Upper #2523 Eurasian Watermilfoil

## Mat Locations 2009



### Legend

- Dams
- Major Highways
  - Interstate
  - State Highway
  - U.S. Highways
  - County Roads
  - Local Roads
- 24K County Boundaries
- Civil Towns
  - Civil Town
  - 24K Open Water
  - 24K Rivers and Shorelines
- Intermittent
- Fluctuating
- Perennial
- Cities and Villages
  - Village
  - City

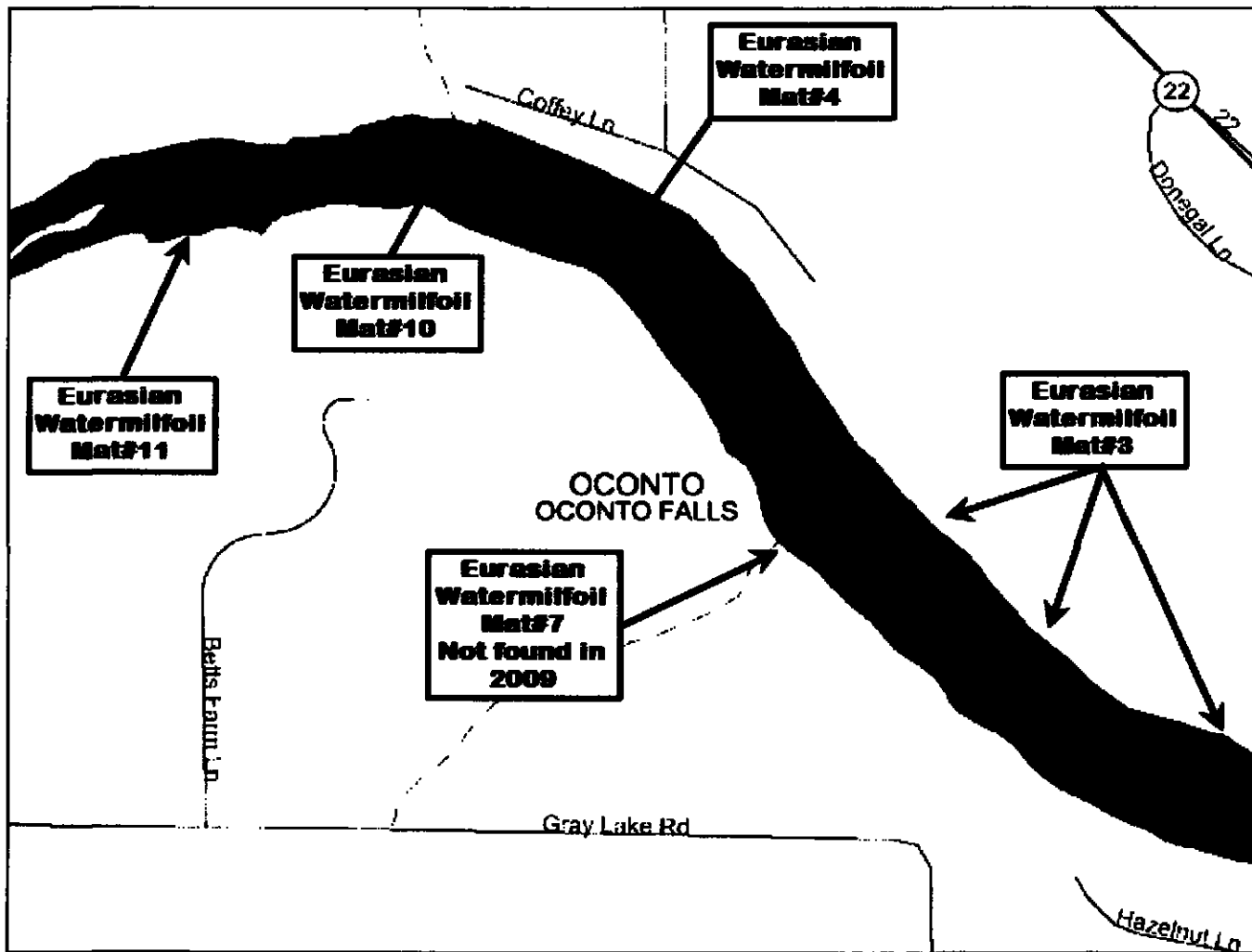
0 950 1900 2850 ft.

Scale: 1:9,790

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# Oconto Falls Upper #2523 Eurasian Watermilfoil

## Mat Locations 2009



### Legend

- Dams
- Major Highways
  - Interstate
  - State Highway
  - U.S. Highways
  - County Roads
  - Local Roads
- 24K County Boundaries
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  - Civil Town
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  - Village
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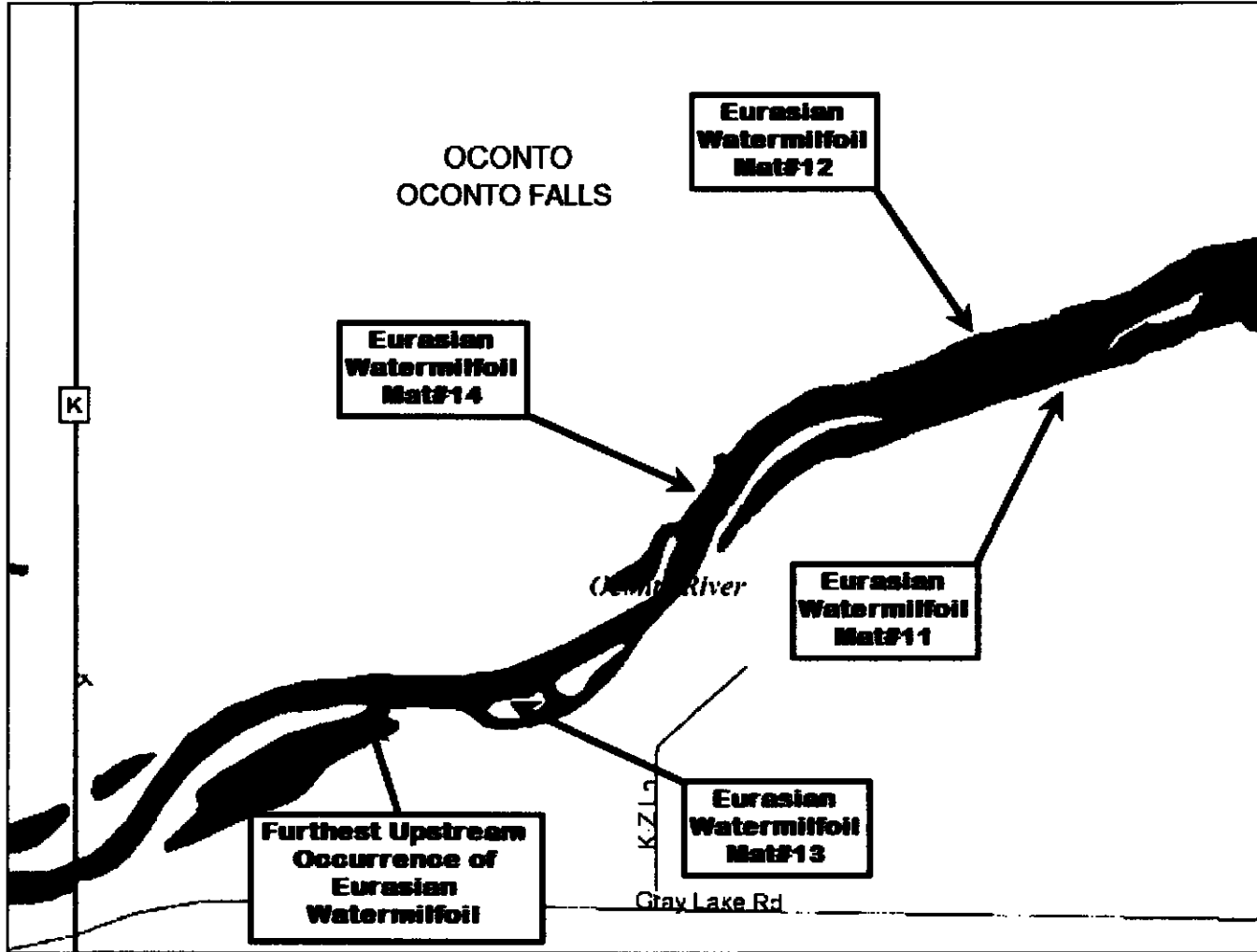
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Scale: 1:9,791

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# Oconto Falls Upper #2523 Eurasian Watermilfoil

## Mat Locations 2009



### Legend

- Dams
- Major Highways
  - Interstate
  - State Highway
  - U.S. Highways
  - County Roads
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- Intermittent
- Fluctuating
- Perennial
- Cities and Villages
  - Village
  - City

0 950 1900 2850 ft.

Scale: 1:9,791

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North American Hydro Holdings, Inc.  
116 State Street, P.O. Box 167, Nashboro, WI 54960 USA  
Tel 920-293-4628 Fax 920-293-8087 Email nah@nahydro.com Web www.nahydro.com

November 20, 2009

Mr. James Reyburn  
Water Quality Biologist  
Wisconsin Department of Natural Resources  
Northeast Region Headquarters  
P.O. Box 10448  
2984 Shawano Ave.  
Green Bay, WI 54307-0448

Ms. Louise Clemency  
Field Supervisor  
U.S. Fish and Wildlife Service  
2661 Scott Tower Drive  
New Franken, WI 54229

**Re: Oconto Falls (Upper)  
FERC Project, No. 2523  
N.E.W. Hydro, Inc.  
Article 407, Purple Loosestrife & Eurasian Watermilfoil Inventory**

Dear Mr. Reyburn and Ms. Clemency:

Attached is a copy of our "Purple Loosestrife & Eurasian Watermilfoil Inventory" for 2009. This annual report has been prepared to comply with Article 407 of the project's federal hydropower license and is being filed with the Federal Energy Regulatory Commission.

We invite you to review and comment, but we respectfully request that any written response be provided to us within thirty days of this letter. Please contact me at 920-293-4628 ext. 18 if you wish to discuss or have any questions.

Sincerely,  
North American Hydro Holdings, Inc.  
Agent for Licenses

**FOR** Charles Alsberg  
Executive Vice President

Attachment: Oconto Falls Upper, Project No. 2523 Purple Loosestrife Inventory/Eurasian Watermilfoil Inventory for 2009.