

**Draft 2015 Purple Loosestrife & Eurasian Watermilfoil Inventory
For the
Oconto Falls Upper Hydroelectric Project
Oconto County, Wisconsin
FERC Project #2523 License Article 407**



**Prepared For
Northeast Wisconsin Hydro, LLC**

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**Prepared By
Eagle Creek Renewable Energy
116 State Street
Neshkoro, Wisconsin 54960**

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APPENDIX A – EWM Survey Results and Maps

Purple Loosestrife:

On July 21, 2015, NEW Hydro, LLC (*Licensee*) performed an inventory of purple loosestrife plants at the Oconto Falls Upper Project in Oconto County, Wisconsin. The inventory is a requirement of license article 407 for the project. The method of inventory as approved and modified by the 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 – (PL):

On July 21, 2015 a meandered survey for purple loosestrife (*Lythrum salicaria*), was performed at the Oconto Falls Upper Hydroelectric Project in Oconto County, Wisconsin. The purpose of the survey is to inventory all purple loosestrife growing within the project boundaries. The survey was conducted using a boat on project waters and by land on project owned property.

Weather conditions at the time of the survey were hazy and warm with a light wind creating fair conditions for the survey. During the survey no purple loosestrife (PL) was located within the project boundary. The 2014 findings are consistent with the 2013 findings.

For the purple loosestrife survey, 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 and was found to contain no visible purple loosestrife plants.

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.

A comparison of PL quantities from all sites within the Oconto Falls project beginning in 2011 to 2015 resulted in the following;

In 2011 there were a total of six PL sites containing approximately 47 plants versus only four PL sites with only 22 plants in 2012. Of the four sites located in 2012, three contained damage from Galerucella beetles (Cella) and one was undetectable due to its location on private property. In 2013 2014, 2015 no purple loosestrife plants were observed.

At the Oconto Falls project there are approximately eighteen sites where purple loosestrife once existed with the potential that PL has been eradicated.

Eurasian Watermilfoil:

On July 21, 2015 NEW Hydro, LLC (*Licensee*) performed an inventory of Eurasian Watermilfoil plants (EWM) at the Oconto Falls Upper Project in Oconto County, Wisconsin. The inventory is a requirement of license article 407 for the project. 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 – (EWM):

Monitoring for Eurasian Watermilfoil (EWM) at the Oconto Falls Project began in 2000. Data has been collected annually on EWM distribution throughout the project. Eight transect sites, established in 2000 have been sampled annually through 2014 along with annual inspections of project waters where EWM mats/beds are visually located. Details and locations are noted in Appendix A of this report.

Annual reports have shown that EWM has been found growing in the waters of the Oconto Falls project in all survey years. Results of the 2014 survey indicate densities of EWM are slightly reduced but remain consistent with previous surveys.

For the Eurasian Water milfoil survey, the Oconto Falls Upper Project was divided into three 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).

Eurasian Watermilfoil plants were found in the **tailrace** of the Oconto Falls project. An area of established plants was located below the County Highway CC Bridge. The plants were dispersed in a shallow area and were not considered a mat or bed of EWM.

Eight transects were established in the **main basin** in 2000 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 a survey rake. 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. A (0) was used if no EWM was found. In addition, areas of weed growth were searched while skirting the perimeter of the weed beds and shoreline.

EWM was primarily detected at sampling locations with depths less than 5'. The

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 EWM 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 Transects spreadsheet in "Appendix A" of this report to show these observations.

Since 2000, a total of fourteen mats/beds containing EWM have been identified within the project boundary. No new mats were found in 2013. Mats #1 through #4 were first identified in 2000. Mat #5 was found in 2001. Mats #6 and #7 were found in 2003. Mat #8 was found in 2005. Mats #9 through #11 were found in 2006. Mat #12 was found in 2008. Mats #13 and #14 were found in 2009. All fourteen mats/beds were discovered visually. All of these mats were interspersed with other types of aquatic plants and all of them had Eurasian Watermilfoil densities as noted in the survey comments in "Appendix A" of this report. Mats #1 through #10 are located in the **main basin**. The **headwaters** contain mats #11, #12, #13, and #14.

Each year during the survey the furthest upstream infestation of EWM is noted in the annual report. Since the baseline was established in 2000, EWM has made a constant progression upstream. In 2015, the furthest upstream infestation that could be located was just upstream of Larson Bridge Road.

The 2015 EWM weed densities are generally consistent with 2013 and 2014. but did not reduce the level observed in 2012. Mat size, in 2015, also shows a general consistency with years past with the exception of 2012 when a significant decrease in EWM density and mat size was observed.

Floating segments of EWM were found during the survey, so special attention was paid to each of the boat landings. All public boat landings located within the project boundaries were inspected for EWM and all were found to have individual strands or broken fragments of EWM on the launch ramp. The canoe takeout located near the Highway 32 Bridge was checked and no EWM was found at that location.

Miscellaneous:

Previous to initially launching into Oconto Falls Upper Hydroelectric Project waters, the survey boat and survey equipment were treated with a bleach solution to prevent the possible spread of invasive species from other locations. After the survey was completed and before launching into other waters, the survey boat and survey equipment were again treated with a bleach solution. Weeds were removed from boat and trailer after each recovery and before leaving the boat launch and any water remaining in the hull was drained.

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APPENDIX A
EWM Survey Results and Maps



Eurasian Watermilfoil Survey - Transects

Project: Oconto Falls Upper #2523 **Datum:** WGS 84
Date: 7/21/2015 **Page:** 1 of 1
Crew: JK & PR

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'	1	1	1	1	4	#
	5	OFUP TS01B	N44°52.7343'	W088°09.4323'	1	0	0	1	2	#
	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'	1	1	1	1	4	
	5	OFUP TS02B	N44°52.7357'	W088°09.2024'	1	1	1	1	4	#*
	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'	0	0	0	0	0	#
	5	OFUP TS03B	N44°52.6269'	W088°09.1521'	1	2	1	1	5	#
	10	OFUP TS03C	N44°52.6540'	W088°09.1324'	0	0	1	0	1	#
4	5	OFUP TS03D	N44°52.6842'	W088°09.1117'	1	2	2	1	6	#
	10	OFUP TS03E	N44°52.7166'	W088°09.0910'	0	0	0	0	0	
	1.5	OFUP TS04A	N44°52.5970'	W088°09.0412'	0	1	1	0	2	
5	5	OFUP TS04B	N44°52.6102'	W088°09.0244'	0	0	0	0	0	#
	10	OFUP TS04C	N44°52.6183'	W088°08.9994'	0	0	0	0	0	#
	1.5	OFUP TS05A	N44°52.8430'	W088°09.0258'	0	0	0	0	0	#*
6	5	OFUP TS05B	N44°52.8408'	W088°09.0274'	1	0	0	0	1	#
	10	OFUP TS05C	N44°52.8383'	W088°09.0359'	0	1	0	0	1	#
	1.5	OFUP TS06A	N44°52.8919'	W088°09.2443'	1	0	1	0	2	#
7	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	
	(a) 1.5	OFUP TS07A	N44°52.8467'	W088°09.4100'	0	0	0	0	0	#
8	(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	
	1.5	OFUP TS08A	N44°52.7965'	W088°09.6999'	0	0	0	0	0	#
8	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

Datum: WGS 84

Date: 7/21/2015

Crew: JK and PR

Note - Italicised GPS points were not used in this survey

Mat #	Depth	GPS point	Latitude	Longitude	Comments
1	2'-5'	OFUP EW01-A	N44°52.7679'	W088°08.9863'	Located immediately on the east side of the swimming beach and following the shoreline to the boat launch docks to the southeast. In previous years this mat has measured approx. 180' x 20' and extended out from shore in the 2' - 5' depth range. In 2012 there was no visible mat and no visible EWM at this location. In 2013 mat is reestablished, and interspersed with plants other than EWM. EWM was approximately 15% of total plants. In 2014 the mat again decreased in size and was made up of approximately 15% EWM. In 2015 the mat showed littel change from 2014
		OFUP EW01-B	N44°52.7729'	W088°08.9940'	
		OFUP EW01-C	N44°52.7892'	W088°09.0109'	
2	N/A	OFUP EW02-A	N44°52.8133'	W088°09.0233'	Located immediately on the west side of the swimming beach northwest to where State Hwy. 22 meets the lakeshore. The mat originally measured approximately 695' x 20' and extended out from shore in the 2' - 5' depth range. In 2012, no mat was located only sparse individual plants were observed. In 2013 the mat reestablished, and was interspersed with plants other than EWM. EWM was approximately 15% of total plants. In 2014 the mat appres to be consistant with 2103 findings. In 2015 the mat appears to have decreased slightly in size with native plants still present.
		OFUP EW02-B	N44°52.8286'	W088°09.0265'	
		OFUP EW02-C	N44°52.8437'	W088°09.0283'	
3	0' - 5'	OFUP EW03-O	N44°52.887'	W088°09.245'	Located on the north shore beginning 500 feet upstream from where State 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 long x 30' wide and runs parallel to shore in the 2' - 5' depth range. Eurasian Watermilfoil was interspersed with other weeds in the area. Total mat density was 25% - 30% of which less than 10% is Eurasian Watermilfoil. Mat #3 west is 1 mile x 30' wide and runs parallel to shore in the 2' - 5' depth range. This mat is also interspersed with other weeds. Of the total plants observed at this location in 2012, less than 10% was identified as Eurasian Watermilfoil. No observed changes in 2013. No observed changes in 2014. In 2015 the mat is not continus with areas of individual plants and low density weed growth. EWM appears to be less that less than 10% of the total population .
		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'			

Eurasian Watermillfoil Survey - Mat Descriptions

Project: Oconto Falls Upper #2523

Datum: WGS 84

Date: 7/21/2015

Crew: JK and PR

Note - Italicised GPS points were not used in this survey

Mat #	Depth	GPS point	Latitude	Longitude	Comments
		OFUP EW03-R	N44°53.094'	W088°10.386'	

Eurasian Watermilfoil Survey - Mat Descriptions

Project: Oconto Falls Upper #2523

Datum: WGS 84

Date: 7/21/2015

Crew: JK and PR

Note - Italicised GPS points were not used in this survey

Mat #	Depth	GPS point	Latitude	Longitude	Comments			
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 previous years this mat measured 2050' x 200' and is located in the center of the river. In 2012 this mat was still in place but densities of EWM were at times, nonexistent. In 2013 total mat density is 50% - 95% of which 20 - 50% is Eurasian Watermilfoil. Heaviest concentrations of Eurasian Watermilfoil are located on the south and east side of the mat. Only the southeastern tip of the mat had densities of EWM reaching 50%. 2014 observance is consistent with 2013. Little to no change in 2015			
		OFUP EW04-B	N44°53.1284'	W088°10.4607'				
		OFUP EW04-C	N44°53.1601'	W088°10.4738'				
		OFUP EW04-D	N44°53.2086'	W088°10.5103'				
		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'	OFUP EW05-H	N44°52.778'	W088°10.002'	This mat is located west of the boat landing at West Side Park in Oconto Falls. The mat can be found on the south side of the impoundment and extends 350' x 50' upstream (west) of the boat landing. In 2013 Eurasian Watermilfoil was observed growing on the outside edge of an existing mat of submergent weed growth in the 3' - 6' depth range. Total mat density is 30% - 60% of which 20% - 35% is Eurasian Watermilfoil. No changes observed in 2014. No changes observed in 2015			
		OFUP EW05-A	N44°52.756'	W088°09.898'				
		OFUP EW05-B	N44°52.743'	W088°09.859'				
		OFUP EW05-C	N44°52.735'	W088°09.810'				
		OFUP EW05-D	N44°52.720'	W088°09.750'				
		OFUP EW05-E	N44°52.715'	W088°09.702'				
		OFUP EW05-F	N44°52.723'	W088°09.673'				
		OFUP EW05-G	N44°52.728'	W088°09.643'				
		6	2' -5'	OFUP EW06-A		N44°52.765'	W088°09.253'	Located southeast of the island in the impoundment 600 yards east of the West Side Park boat landing and on the south side of the impoundment in Oconto Falls. Mat is 2500' x 200' and has not changed in size in 2013. The mat is interspersed with other weeds. In 2014 total mat density is significantly reduced and is made up of approximately 10% Eurasian Watermilfoil. Mat #6 is no longer joined with Mat 8. Little change in 2015
				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'						
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'						

Eurasian Watermilfoil Survey - Mat Descriptions

Project: Oconto Falls Upper #2523

WGS 84

Date: 7/21/2015

Datum:

Crew: JK and PR

Note - Italicised GPS points were not used in this survey

Mat #	Depth	GPS point	Latitude	Longitude	Comments
7	0' - 5'	OFUP EW06-R	N44°52.608'	W088°09.005'	Located 1250 yards upstream from the West Side Park boat landing on the south side of the impoundment in Oconto Falls. This mat could not be located in 2007, 2008, 2009, 2010, 2011, 2012 and 2013 and 2014.
		OFUP EW06-S	N44°52.580'	W088°08.986'	
		OFUP EW07-A	N44°53.042'	W088°10.468'	
		OFUP EW07-B	N44°53.007'	W088°10.425'	
		OFUP EW07-C	N44°52.996'	W088°10.411'	
8	2' - 5'	OFUP EW08-A	N44°52.743'	W088°09.595'	This mat is located west of the island in the impoundment and 150 yards east of the West Side Park boat landing. The mat measures approximately 1100 x 100' and is interspersed with other weeds. The mat density appears reduced in 2014 with less than 25% is Eurasian Watermilfoil. Mat #8 is no longer joined with mat #6 . Little to no Change in 2015
		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 boat ramp northeast of the hydroelectric plant. Previously measuring 515' x 15'; this mat could not be found in 2012. in 2013 no mat was observed but sparse individual Eurasian Watermilfoil plants could be seen in the area. 2014 No mat was observed
		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'	
		OFUP EW09-F	N44°52.702'	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 in Oconto Falls. The size of mat #10 has remained approximately 985' x 610' since 2009 and was interspersed with other weeds. In 2012, no mat could be found only small pockets of Eurasian Watermilfoil with a density of less than 10%. I 2013 mat 10 reemerged with EWM making up less than 20% of the total plant population. 2014 observations are constant with 2013. No change in 2015
		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'	
		OFUP EW10-J	N44°53.305'	W088°10.960'	
11	2' - 5'	OFUP EW11-A	N44°53.323'	W088°10.979'	Located 2475 yards upstream from the West Side Park boat landing on the south side of the impoundment in Oconto Falls. In previous years, this mat had reached a length of 4400' x 30' and was located on the south side of the river. In 2012 only 237' x 30' could be considered an EWM mat and was interspersed with other weeds. In 2013 total mat density is 20% - 40% of which 15% - 20% is Eurasian Watermilfoil. 2015 observations are constant with 2014 and 2013
		OFUP EW11-B	N44°53.332'	W088°11.055'	
		OFUP EW11-C	N44°53.332'	W088°11.134'	
		OFUP EW11-D	N44°53.327'	W088°11.228'	
		OFUP EW11-E	N44°53.304'	W088°11.325'	
		OFUP EW11-F	N44°53.259'	W088°11.329'	
		OFUP EW11-G	N44°53.245'	W088°11.329'	
		OFUP EW11-H	N44°53.246'	W088°11.372'	

Eurasian Watermilfoil Survey - Mat Descriptions

Project: Oconto Falls Upper #2523

Datum:

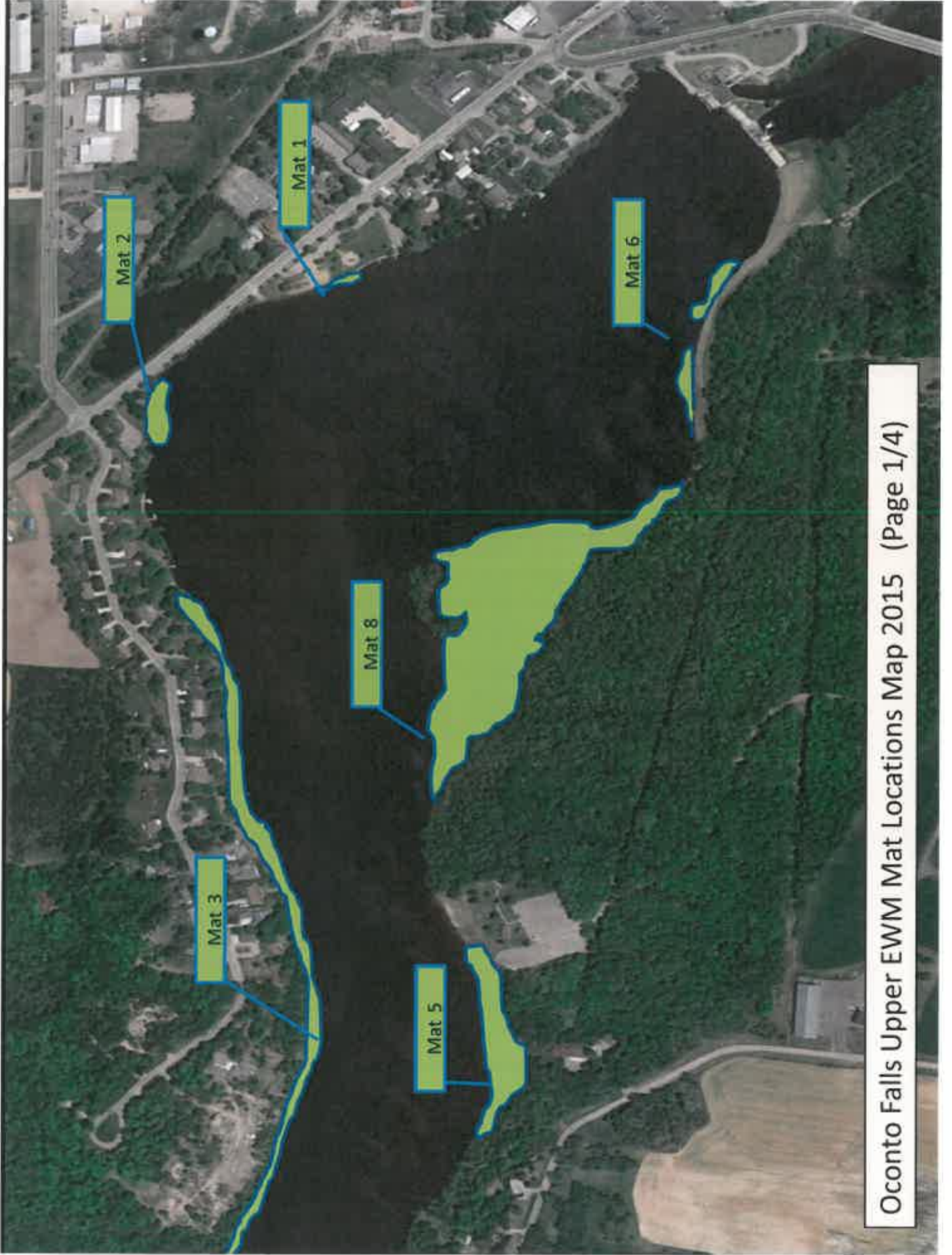
WGS 84

Date: 7/21/2015

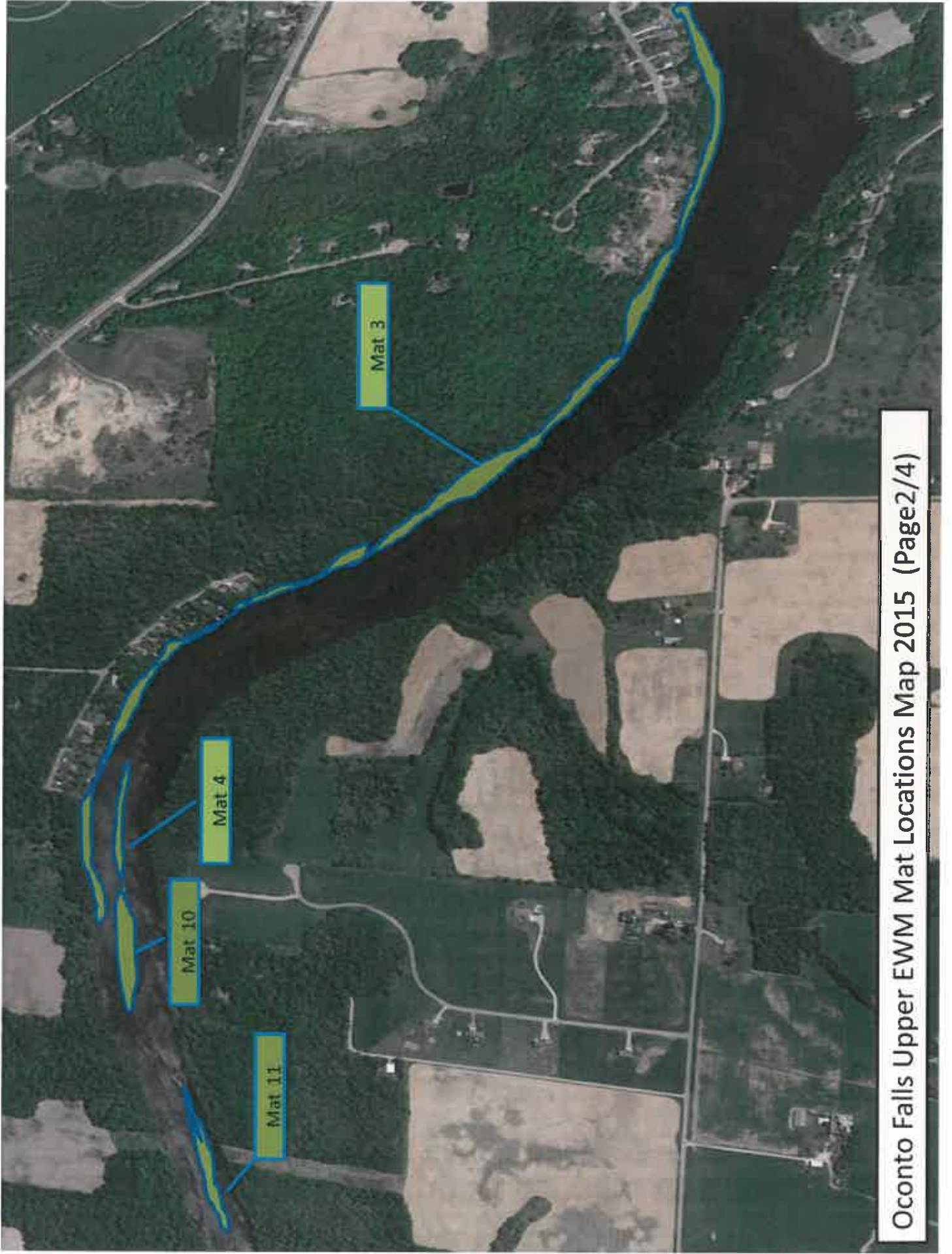
Crew: JK and PR

Note - Italicised GPS points were not used in this survey

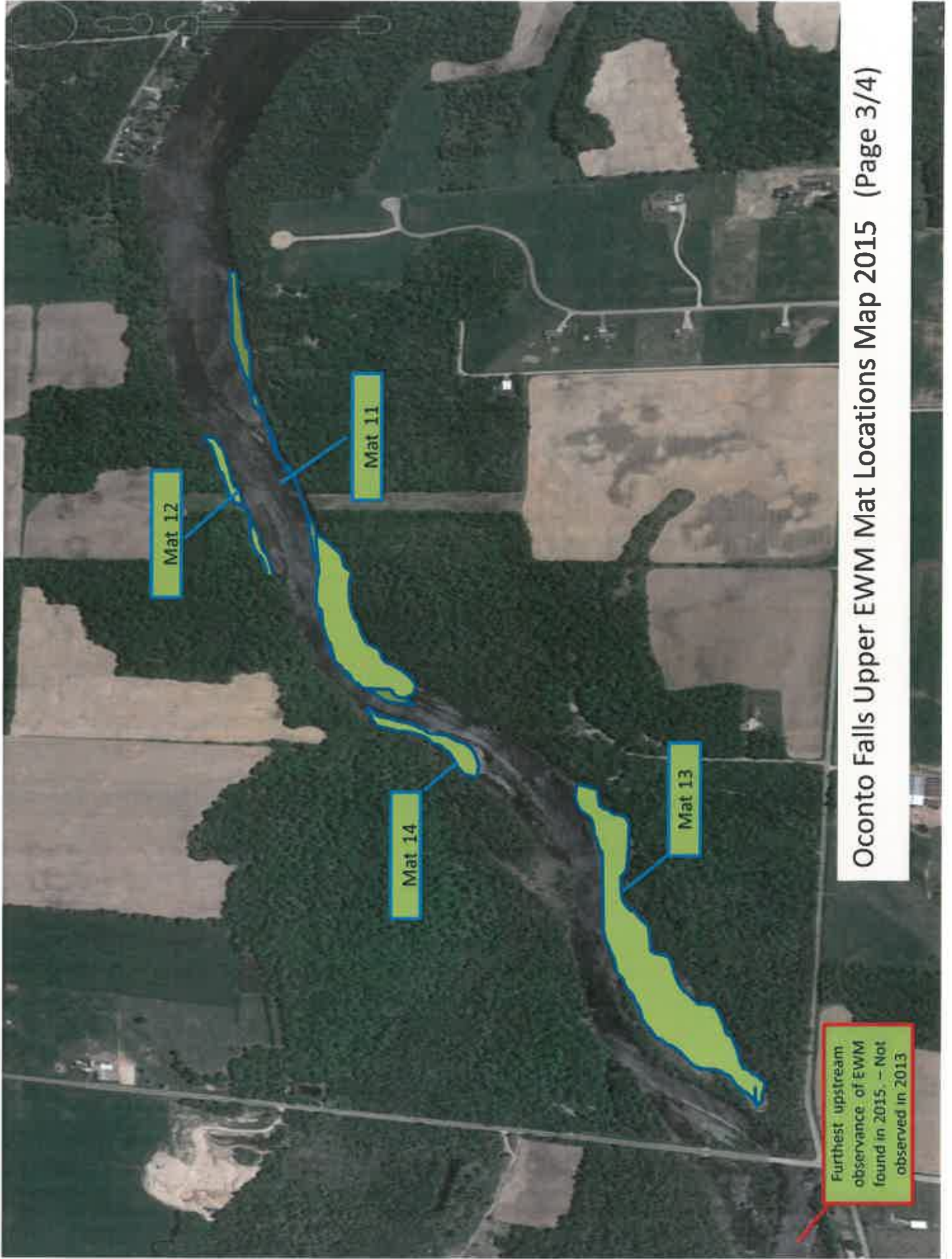
Mat #	Depth	GPS point	Latitude	Longitude	Comments
12	2' - 5'	OFUP EW11-I	N44°53.156'	W088°11.719'	Located 2880 yards upstream from the West Side Park boat landing in Oconto Falls. In past years this mat measured approximately 738' x 30' and is on the north side of the river at a power line crossing. In 2012 the length of this mat was only 398' and it was interspersed with other weeds. Total mat density was 35% - 85% of which 50% - 60% is Eurasian Watermilfoil. In 2013 was approximately 500' in length with similar mat density as in 2012. EWM makes up approximately 50% if the total plant population. 2014 observations are consistent with 2013. No changes in
		OFUP EW11-J	N44°53.309'	W088°10.911'	
		OFUP EW12-A	N44°53.293'	W088°11.320'	
		OFUP EW12-B	N44°53.274'	W088°11.358'	
13	2' - 5'	OFUP EW13-C	N44°53.259'	W088°11.398'	The furthest EWM mat upriver to date. The mat is located approx. 560 yards downstream from the County K. highway bridge and on the the south side of the river. In previous years this mat measured 807' x 30' wide and ran parallel to shore in the 2' - 5' depth range. In 2013 it measured approximately 400' x 30'. Total mat density was 50% - 60% of which 10% - 40% is Eurasian Watermilfoil. 2014 observations are consistent with 2013. Little change in 2015
		OFUP EW13-D	N44°53.243'	W088°11.474'	
		OFUP EW13-A	N44°53.003'	W088°11.943'	
		OFUP EW13-B	N44°52.995'	W088°12.027'	
14	2' - 5'	OFUP EW14-C	N44°52.996'	W088°12.074'	Mat #14 located 1158 yards downstream from the County K. highway bridge on the the north side of the river. In previous years mat #14 measured approximately 509' x 30' wide and ran parallel to shore in the 2' - 5' depth range. This mat is interspersed with other weeds. In 2013, mat #14 measured approximately 300 x 30'. Total mat density is 30% - 50% of which 30% - 40% is Eurasian Watermilfoil. 2015 observations are consistent with 2014 and 2013
		OFUP EW14-B	N44°52.997'	W088°12.128'	
		OFUP EW14-A	N44°53.184'	W088°11.726'	
		OFUP EW14-C	N44°53.116'	W088°11.782'	



Oconto Falls Upper EWM Mat Locations Map 2015 (Page 1/4)



Oconto Falls Upper EWM Mat Locations Map 2015 (Page 2/4)



Oconto Falls Upper EWM Mat Locations Map 2015 (Page 3/4)

Furthest upstream observation of EWM found in 2015 – Not observed in 2013



Furthest upstream observance of EWM found in 2011. – Not observed in 2013, 2014 – Observed again in 2015

Approximate Survey Limits

Oconto Falls Upper EWM Mat Locations Map 2015 (Page 4/4)

APPENDIX B
Agency Correspondence
