
To: Mary Gansberg
Wisconsin Department of
Natural Resources
2984 Shawano Avenue
Green Bay, WI 54313

From: Melissa Curran
Stantec Consulting Services Inc.
1165 Scheuring Road
De Pere, WI 54115

File: AIS Grant AIRR-165-14
Stantec Project 193703791

Date: February 28, 2016

Reference: ***Aquatic Invasive Species Control Grant AIRR-165-14 – Project Summary
Little Manitowoc River, Manitowoc County, Wisconsin***

Lakeshore Natural Resource Partnership (LNRP) was awarded grant funding in 2013 (AIRR-165-14) to treat the invasive European subspecies of common reed grass (*Phragmites australis* subsp. *australis*) within the Little Manitowoc River Restoration Project Area (the "Project Area"). This technical memorandum summarizes results of invasive treatments performed under the Aquatic Invasive Species (AIS) Control Grant for Early Detection and Response awarded to LNRP. The following sections provide background information, treatment results and a discussion of treatment success.

BACKGROUND

The Project Area is situated along the Little Manitowoc River from County Road B to its confluence with Lake Michigan near Maritime Drive in the City of Manitowoc, Manitowoc County, Wisconsin. The Project Area encompasses more than 1.5 miles of stream and 232 acres of adjacent habitat, and includes land owned by the City of Manitowoc. Two community parks (Indian Creek Park and Lincoln Park Zoo and Conservancy) and one special use facility (Little Manitowoc River Walkway) are located within the Project Area (Figure 1). The Project Area is bordered on the north by Albert Drive, on the west by County Road B (N. 8th St.), and on the southeast by Lake Michigan. The Project Area is bordered by a golf course on the east and by residential properties on the southwest. State Highway 42 and Reed Avenue bisect the southern portion of the project area. Currently, some portions of the Project Area are accessible to the public via paved walkways and mowed paths. Additional recreational trails are proposed. A variety of amenities and recreational opportunities are available within the three public properties that comprise the Project Area, as detailed below.

Indian Creek Park comprises 46.41 acres of partially wooded, rolling terrain along the Little Manitowoc River. The park features a natural spring and offers opportunities for hiking, birdwatching, and other outdoor activities.

Lincoln Park Zoo and Conservancy is the largest park in the City of Manitowoc, comprising 115 acres, including a zoo, picnic areas, tennis courts and 45 acres of conservancy land.

Little Manitowoc River Walkway is a 5.24-acre special use facility located along the Little Manitowoc River and Lake Michigan. This site offers scenic vistas, wildlife areas and passive recreational amenities such as paved walkways, fishing areas, benches, picnic areas, parking and wildlife viewing areas.

In November 2012, Stantec completed a riparian habitat assessment within the Project Area for purposes of identifying, documenting, and mapping community types, assessing habitat quality, and mapping problematic invasive plant species. This baseline information was used in developing

Reference: ***Aquatic Invasive Species Control Grant AIRR-165-14 – Project Summary
 Little Manitowoc River, Manitowoc County, Wisconsin***

management strategies for the Little Manitowoc Coastal Wetland Restoration project. The majority of the Project Area remains undeveloped and includes a variety of vegetation types consisting of both native and non-native plant assemblages. Invasive common reed grass occupies approximately 3.5 acres within the Project Area (see Figures 1-3).

MANAGEMENT RESULTS

Invasive common reed grass within the Project Area was assessed annually and treated with aquatic-approved herbicides by Stantec staff from 2013 to 2015. The City of Manitowoc was tasked with removing the dead Phragmites stems by cutting and/or burning post treatment. After the initial treatment in 2013, Fireman from the City of Manitowoc and Silver Creek performed burns at three treatment locations within Indian Creek Park during the week of May 4, 2014. The burns effectively removed the standing dead Phragmites to encourage regrowth and make follow-up treatments easier. Additional burns and/or mowing were not necessary during subsequent years.

All chemical treatments were performed by certified and licensed pesticide applicators within the state of Wisconsin for aquatic applications. Treatment occurred when the plants were preparing for dormancy and were most susceptible to herbicide action (typically August through October).

Foliar application techniques utilizing low volume backpack sprayers and UTV (Utility Task Vehicle) mounted sprayers were used as the primary method of treatment within the Project Area. The foliar application method is advantageous where invasive common reed grass density is high, the target vegetation is greater than 8 ft. in height, and potential to impact sensitive resources is low. Table 1 provides details regarding the treatment dates, locations, methods and herbicide concentrations.

Table 1. Invasive Common Reed Grass Treatment Summary

Treatment Date(s)	Location (see attached figures)	Treatment Method	Trade Name, Concentration, Total Herbicide Volume Applied	Assessment/Treatment Notes
10/16/13 10/17/13	Nine polygons totaling approximately 3.5 acres	Foliar	Habitat 1% 315 fl. oz.	Initial treatment of small to large common reed grass monocultures.
9/19/14 9/22/14	Several polygons with scattered stems – approximately 1000+ stems	Foliar	Habitat 1.5% 176 fl. oz.	2013 treatment successful at reducing dense monoculture. 2014 treatment included several new patches in addition to initial treatment area.
9/17/15	Several polygons with scattered stems – approximately 1000+ stems	Foliar	Habitat 1% 20 fl. oz.	2015 treatment included several new patches in addition to initial treatment area. Continued treatment beyond 2015 is recommended.

Reference: ***Aquatic Invasive Species Control Grant AIRR-165-14 – Project Summary
Little Manitowoc River, Manitowoc County, Wisconsin***

Overall the abundance and distribution of invasive common reed grass has been significantly reduced as a result of treatment efforts. Scattered stems were still observed in 2015, suggesting that three years of chemical treatment is not sufficient to effectively eradicate this species from the Project Area.

DISCUSSION

Stantec performed invasive common reed grass herbicide treatments within the Project Area on behalf of LNRP with support of their WDNR AIS Early Detection and Response grant funding. Treatments were initiated in fall 2013 to treat monocultures of invasive common reed grass observed during a site reconnaissance visit performed in November, 2012. Total invasive common reed grass acreage within the Project Area was initially estimated at 3.5 acres. Follow-up treatments were performed in 2014 and 2015 to target re-growth and newly-identified populations. The location and approximate number of stems were recorded annually during the follow-up treatments in an effort to evaluate the previous year's success (Figures 2 and 3). A significant decrease in the number of invasive common reed grass stems was noted in many of the populations; however, most populations required some level of follow-up treatment annually. Additionally, new populations continued to emerge adjacent to actively treated areas. In order to successfully control invasive common reed grass for the long term, Stantec recommends LNRP continue monitoring the Project Area for invasive common reed grass and perform ongoing, long term treatment to continue the efforts initiated as part of this project.

Please contact me or Jim Kettler (920-304-1919, jim@lnrp.org) if you need any additional information regarding the invasive treatments performed as a part of this project.

STANTEC CONSULTING SERVICES INC.



Melissa Curran
Environmental Scientist/Botanist
Phone: (920) 592-8400
Fax: (920) 592-8444
Melissa.Curran@stantec.com

Attachments: Photographs
Figures 1-3
Treatment Records

c. Jim Kettler (jim@lnrp.org) – electronic copy

Photographs



Photo 1. Illustrating 2013 treatment area



Photo 2. Pre-treatment conditions in 2013

Photographs



Photo 3. Pre-treatment conditions in 2013, adjacent to Lincoln Park Zoo



Photo 4. Second year (2014) treatment conditions. Site mowing and burning completed by City of Manitowoc.

Photographs



Photo 5. Second year (2014) - Note re-growth from burned area.



Photo 6. Second year (2014) treatment conditions. Note standing dead stems near Zoo.

Photographs



Photo 7. Third year (2015) treatment conditions. Note standing dead stems.



Photo 8. Third year (2015) treatment conditions. Note standing dead stems.

Photographs



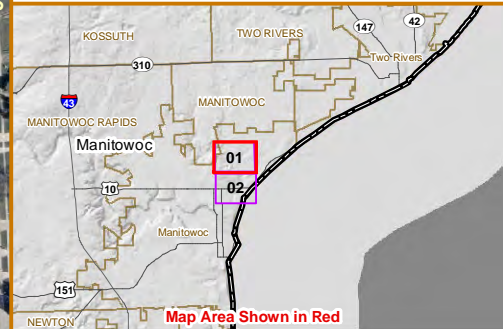
Photo 9. Third year (2015) treatment conditions – no re-growth observed in high water levels.



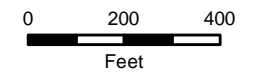
Photo 10. Third year (2015) treatment conditions at Lake Michigan shoreline – no re-growth observed in high water levels.

Figure 1. Community Types
Little Manitoowoc River
Habitat Assessment

- *Code - Description
- A - Sedge Meadow
 - B - Shallow Marsh
 - C - Floodplain Forest
 - D - Wet Meadow
 - E - Disturbed Upland
 - F - Shrub-carr
 - G - Disturbed Upland
 - H - Upland Shrub
 - I - Mesic Forest
 - J - Upland Shrub
 - K - Mesic Forest
 - L - Emergent Marsh
 - M - Mesic Forest
 - N - Wet Forest
 - O - Mesic Prairie



Location
Manitowoc Co., WI



Project Information

Project Number: 193702187
Last Modified: March 05, 2013

Legend

- Study Area
- Community Type*
- X Spring
- Invasive Species**
- Common reed grass (*Phragmites australis*)
- Japanese knotweed (*Polygonum cuspidatum*)
- DNR 24k Hydrography**
- ~ Perennial Stream
- - - Intermittent Stream

Data Sources include: Stantec, WDNR and WDOT.
Orthophotography: 2010 WROC.



	Initials	Date
Prepared by	AB	12/14/2012
Peer Review by	MP	12/14/2012
Final Review by		

DRAFT

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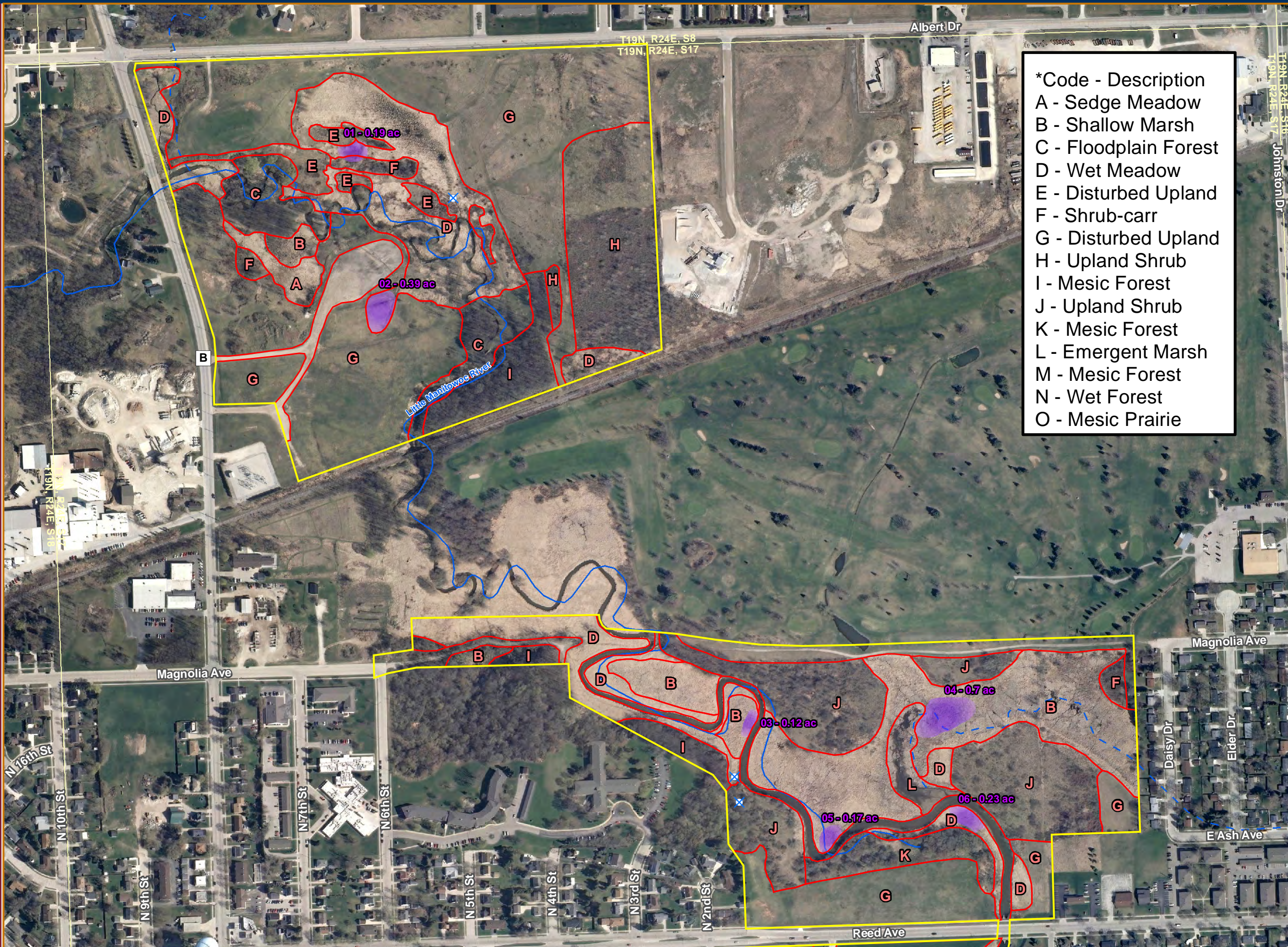
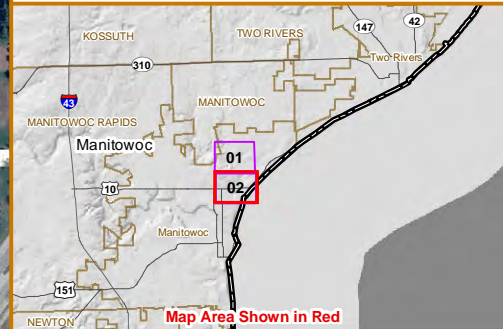
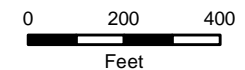


Figure 1. Community Types
Little Maniwoc River
Habitat Assessment

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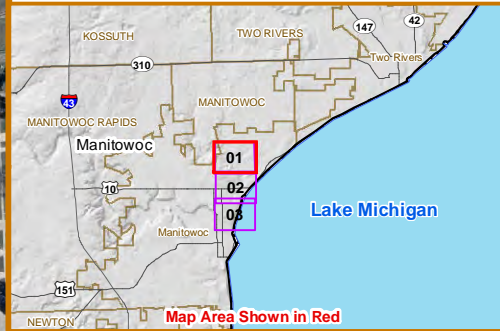
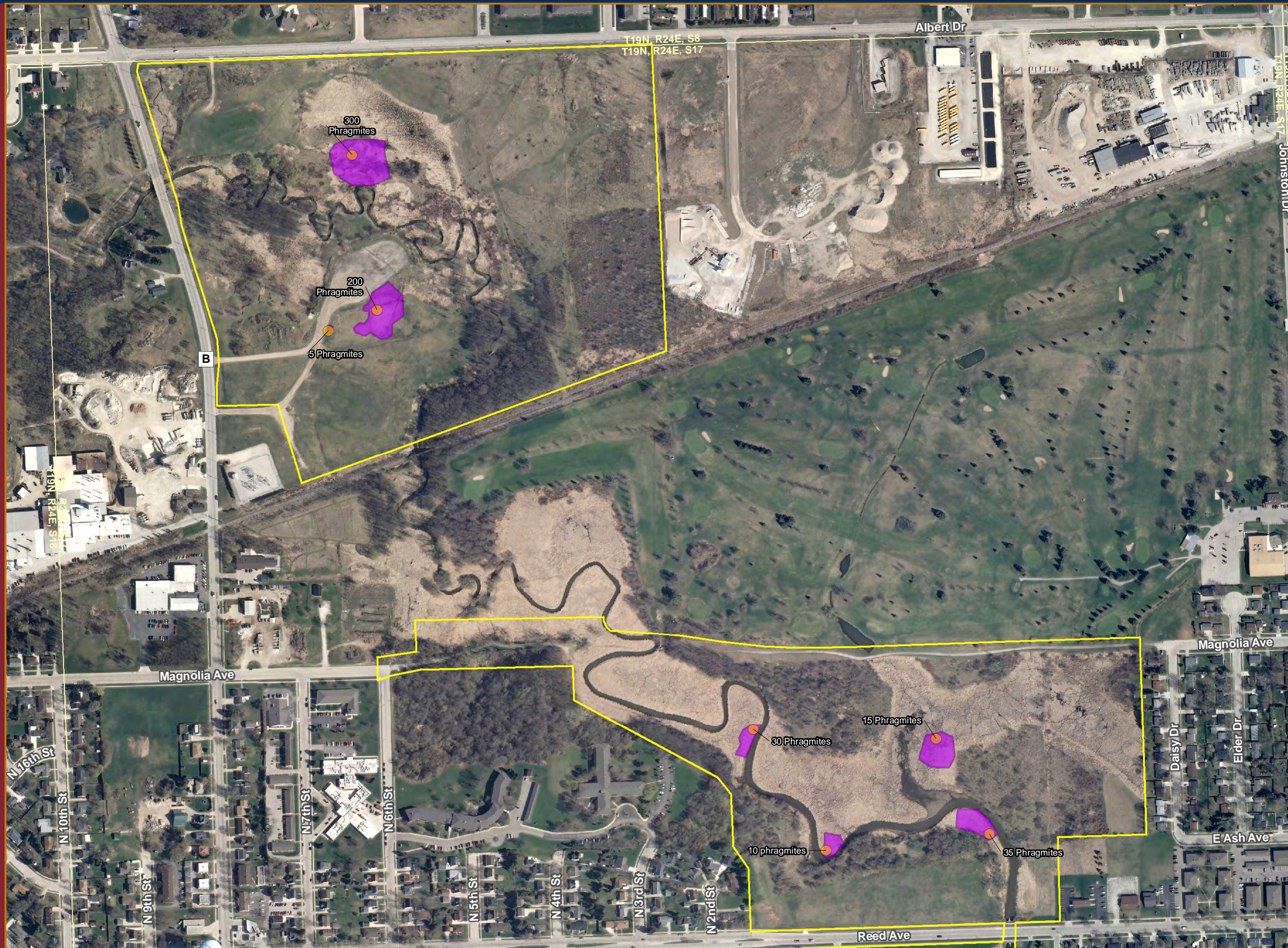
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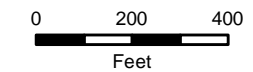
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Figure 2. 2014 Field Collected Phragmites Data Little Manitowoc River Habitat Assessment



Location
Manitowoc Co., WI



Project Information

Project Number: 193702187
Last Modified: October 08, 2014

Legend

- Study Area
- Field Delineated Phragmites Stand
- 2013 Point Location
- 2014 Point Location
- 2013 Area
- 2014 Area

Data Sources include: Stantec, WDNr and WDOT.
Orthophotography: 2010 WROC.



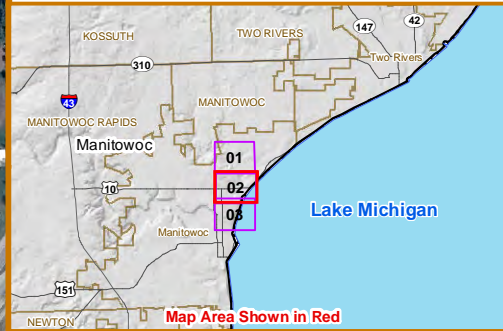
	Initials	Date
Prepared by	AB	10/08/2014
Peer Review by		
Final Review by		

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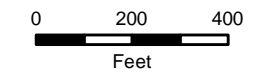
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Figure 2. 2014 Field Collected Phragmites Data Little Manito woc River Habitat Assessment



Location
Manitowoc Co., WI



Project Information
Project Number: 193702187
Last Modified: October 08, 2014

Legend

- Study Area
- Field Delineated Phragmites Stand
- 2013 Point Location
- 2014 Point Location
- ✱ 2013 Area
- ✱ 2014 Area

Data Sources include: Stantec, WDNr and WDOT.
Orthophotography: 2010 WROC.

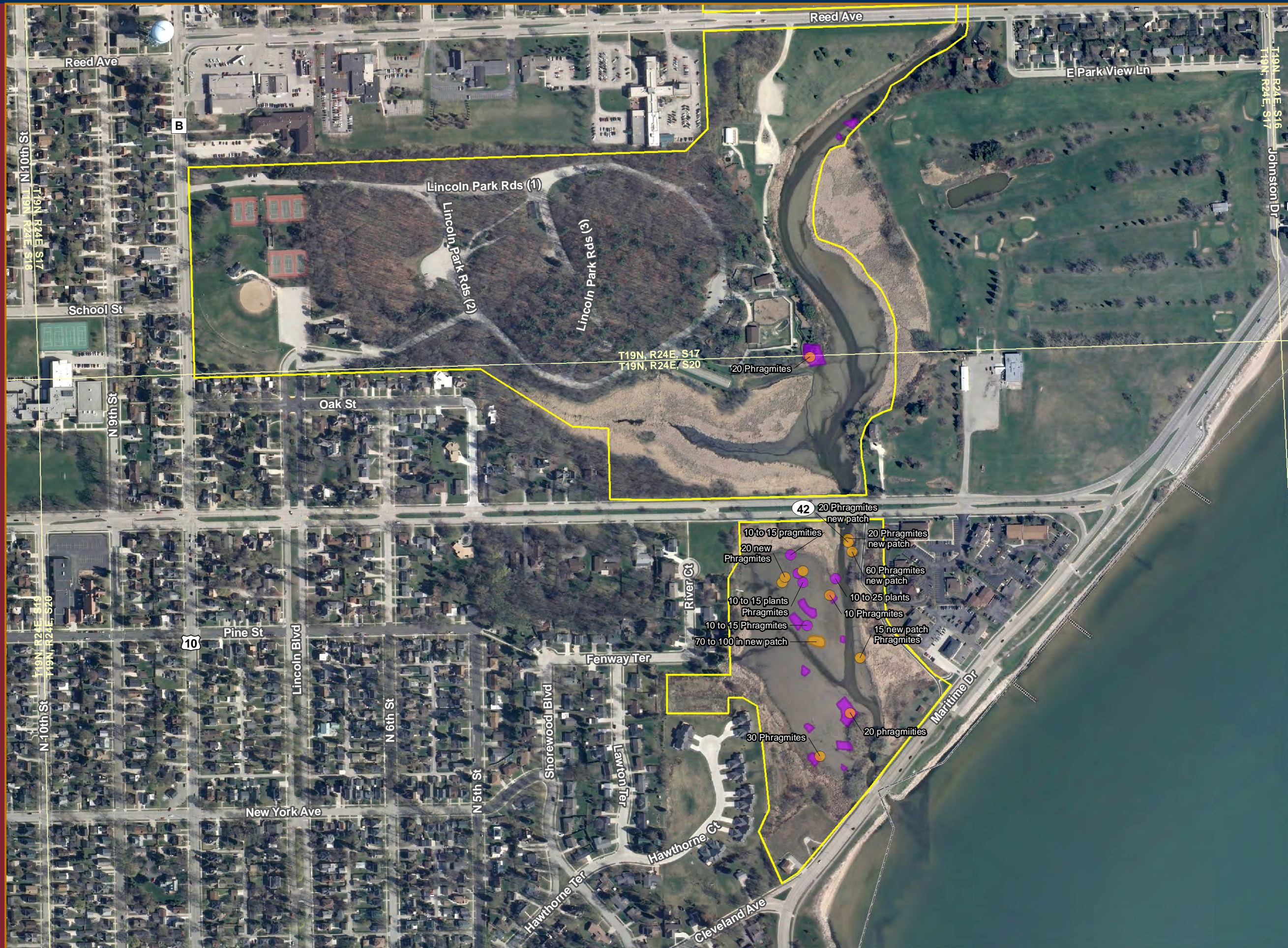


	Initials	Date
Prepared by	AB	10/08/2014
Peer Review by		
Final Review by		

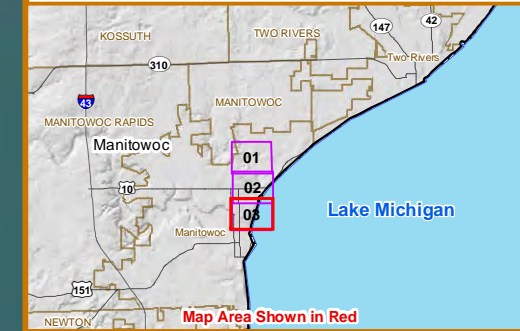
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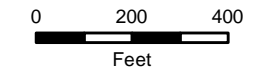
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**Figure 2. 2014 Field Collected Phragmites Data
Little Manitowoc River
Habitat Assessment**



Location
Manitowoc Co., WI



Project Information
Project Number: 193702187
Last Modified: October 08, 2014

Legend

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 - 2014 Point Location
 - ✕ 2013 Area
 - ✕ 2014 Area

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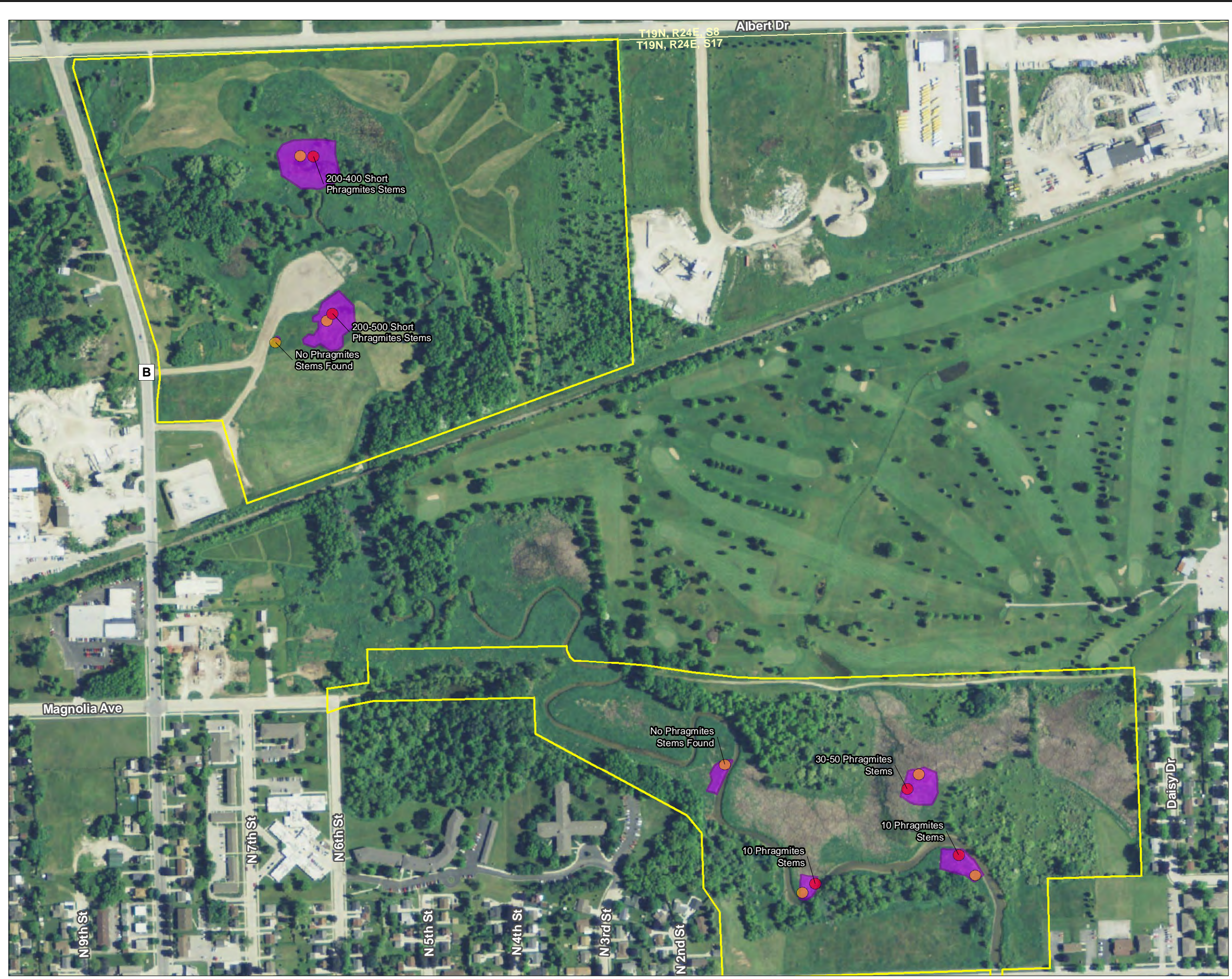
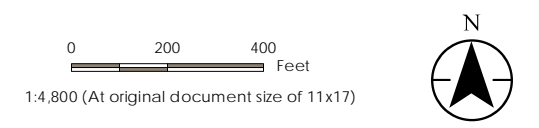


Figure No. **3**
 Title **2015 Field Collected Phragmites Data**

Client/Project
 Little Manitowoc River Estuary Restoration
 Manitowoc, Wisconsin

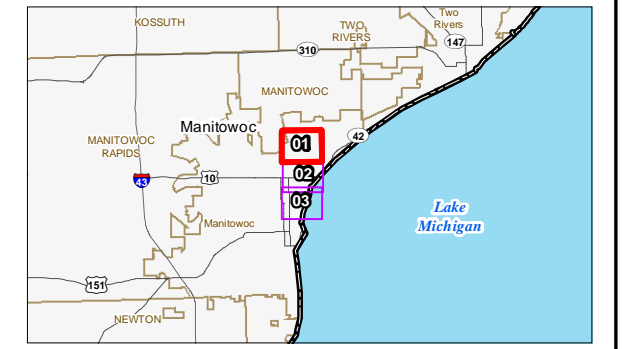
Project Location 193702187
 C. of Manitowoc, WI Prepared by AB on 2015-10-22
 Technical Review by MP on 2015-10-22
 Independent Review by XX on 2015-xx-xx



Legend

- Study Area
- Phragmites Treatment Areas*
- 2013 Point Location
- 2014 Point Location
- 2015 Point Location
- 2013 Area
- 2014 Area
- 2015 Area

*All Displayed Comments Pertain to 2015 Field Surveys



- Notes
1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
 2. Data Sources Include: Stantec, WisDOT
 3. Orthophotography: 2013 NAIP



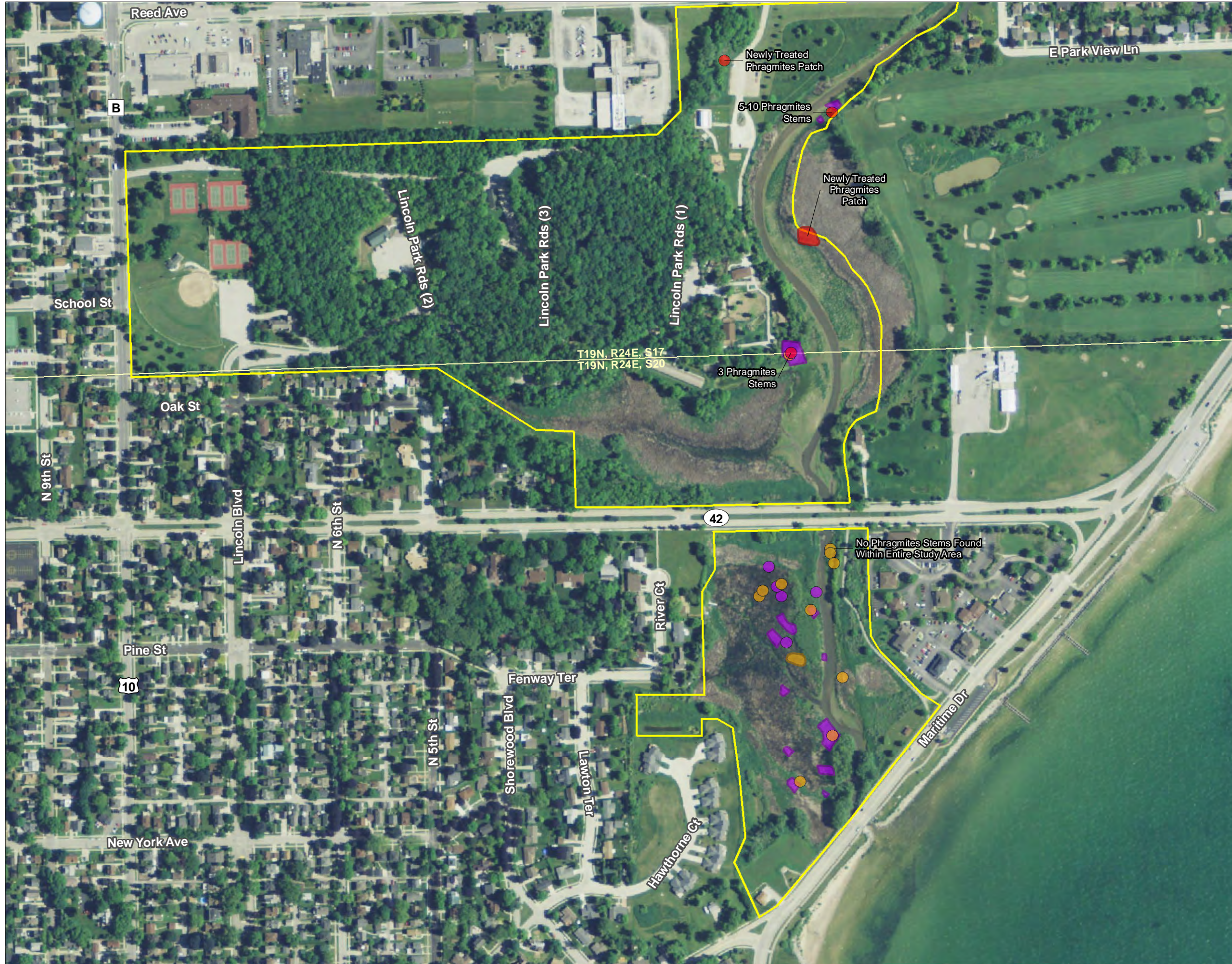
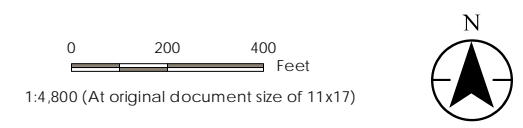


Figure No. **3**
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Client/Project
 Little Manitowoc River Estuary Restoration
 Manitowoc, Wisconsin

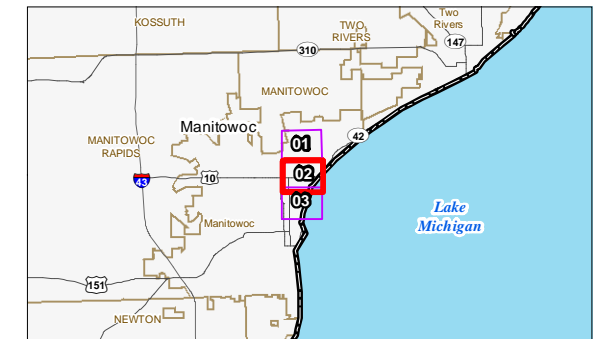
Project Location 193702187
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 Independent Review by XX on 2015-xx-xx



Legend

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- 2013 Area
- 2014 Area
- 2015 Area

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 3. Orthophotography: 2013 NAIP



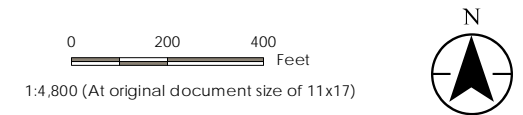
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Figure No. **3**
 Title
2015 Field Collected Phragmites Data

Client/Project
 Little Maniwoc River Estuary Restoration
 Manitowoc, Wisconsin

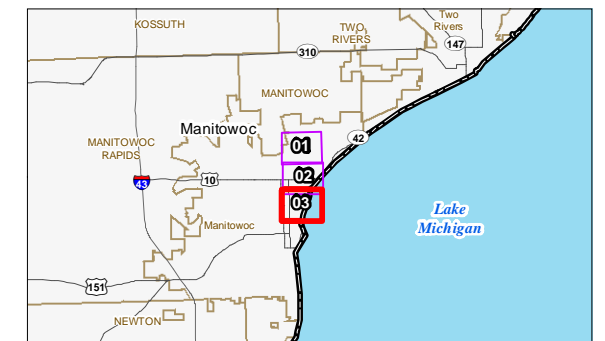
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Legend

- Study Area
- Phragmites Treatment Areas*
- 2013 Point Location
- 2014 Point Location
- 2015 Point Location
- 2013 Area
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- 2015 Area

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- Notes
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POST - HERBICIDE APPLICATION RECORD (rev. 7/17/12)

SITE AND APPLICATOR INFORMATION:

PROJECT NAME:	Mini House Program Update		DATE:	10-16 / 10-17-2013		PREPARER'S INITIALS:	MBA / LRB	
PROJECT NUMBER:			PROJECT MGR:	70				
APPLICATION METHOD:	3.5 G Backpack Sprayer					Granular	Low Volume Bottle / Wick	
APPLICATOR(S):	Matt Angerhofer (148004-CA - WI; 95529709 - IL) Sarah Kraszewski (254632-CA - WI; 95528676 - IL) Bryan Thiermann (259033-CA - WI; 95535207 - IL) Jay Delmedico (255311-CA - WI; 95528817 - IL) Justin Streicher (267695-CA - WI; 95542962 - IL) Michael Nied (2793578 - CA; 95550378 - IL) Mark Krus (95551223 - IL) Aaron Feggstad (209716-CA - WI; 95529167 - IL) Eric Johnson (CA 9553429 - IL; F222361 - IN) Donn Lesko (95535268 - IL; RT238526 - IN) David Bart (9553520 - IL; F238525 - IN) Logan Bliss (279359 - CA; 95550377 - IL) Ty Hoffman (95551218 - IL)							
TIME:	12-5 / 8-4	TEMP:	50°	50°	WIND:	(MPH)	5-10	FULL SUN - PARTLY SUNNY - OVERCAST

HERBICIDE INFORMATION:

Product Name	Product A.I.	EPA Reg. NO.	REI (Hrs)	Acres	Amount (fluid oz)	Rate **
Weedone LV4 EC	2,4-D	228-139-71368	12 hrs			
Milestone	Aminopyralid	62719-519	12 hrs			
Transline	Clopyralid	62719-259	12 hrs			
Tahoe or Garlon/Element 3A	Triclopyr amine	228-520 / 62719-37	48 hrs			
Tahoe or Garlon/Element 4E	Triclopyr ester	228-517 / 62719-40	12 hrs			
Plateau	Imazapic	241-365	12 hrs			
Select Max	Clethodim	59639-132	24 hrs			
Poast	Sethoxydim	7969-58	12 hrs			
Gly Star Plus	Glyphosate	42750-61	12 hrs			
Aquaneat	Glyphosate	228-365	12 hrs			
Rodeo	Glyphosate	62719-324	12 hrs			
Habitat	Imazapyr	241-426	12 hrs	3.5	315	1 1/2

** Record % active ingredient for spot applications and pints / quarts per acre for boom sprayer applications.

TREATMENT TYPE:

<input checked="" type="checkbox"/> Non-Selective			
Was an herbicide plan completed prior to application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
<input type="checkbox"/> Spot Application	<input type="checkbox"/> Broadleaf-specific	<input type="checkbox"/> Grass-specific	<input type="checkbox"/> Post-Planting Weed Control
Purpose of Application:			<input checked="" type="checkbox"/> General Invasive Species Control

TREATMENT AREA INFORMATION:

Were Signs Installed? Yes No (If no, explain why):

Total Acres Treated: 3.5

Upland / non-aquatic acres:

Total Shoreline Treated (linear feet), if applicable: None

Was Herbicide Applied to Standing / Flowing Water? Yes No

Did Applicator(s) Check for Adverse Impacts to Aquatic Areas Immediately After Application? Yes No

If yes, was there evidence of adverse impacts or movement of product out of the treatment area? Yes No

SPECIES TARGETED DURING SPOT APPLICATIONS:

Broadleaf Species:	Ag Broadleaf Weeds:	Grasses:	Woody Species:
<input type="checkbox"/> Birds-foot Trefoil	<input type="checkbox"/> Docks	<input type="checkbox"/> Barnyard Grass	<input type="checkbox"/> Buckthorns
<input type="checkbox"/> Burdock	<input type="checkbox"/> Lambsquarters	<input checked="" type="checkbox"/> Common Reed Grass	<input type="checkbox"/> Bush Honeysuckles
<input type="checkbox"/> Cattails	<input type="checkbox"/> Mustards	<input type="checkbox"/> Other Exotic Perennial Grasses	<input type="checkbox"/> Crabs
<input type="checkbox"/> Chickweeds	<input type="checkbox"/> Pigweeds	<input type="checkbox"/> Foxtails	<input type="checkbox"/> Cut-stumps
<input type="checkbox"/> Clovers	<input type="checkbox"/> Ragweeds	<input type="checkbox"/> Reed Canary Grass	<input type="checkbox"/> Dogwoods
<input type="checkbox"/> Crown Vetch	<input type="checkbox"/> Velvet Leaf	<input type="checkbox"/> Other:	<input type="checkbox"/> Hawthorns
<input type="checkbox"/> Dame's Rocket	<input type="checkbox"/> Other:	<input type="checkbox"/> Other:	<input type="checkbox"/> Highbush Cranberry
<input type="checkbox"/> Garlic Mustard	<input type="checkbox"/> Other:		<input type="checkbox"/> Japanese Barberry
<input type="checkbox"/> Hawkweeds			<input type="checkbox"/> Multiflora Rose
<input type="checkbox"/> Japanese Knotweed			<input type="checkbox"/> Locusts
<input type="checkbox"/> Leafy Spurge			<input type="checkbox"/> Oriental Bittersweet
<input type="checkbox"/> Purple Loosestrife			<input type="checkbox"/> Privets
<input type="checkbox"/> Queen Anne's Lace			<input type="checkbox"/> Tree-of-Heaven
<input type="checkbox"/> Spotted Knapweed			<input type="checkbox"/> White Mulberry
<input type="checkbox"/> Sweet Clovers			<input type="checkbox"/> Other:
<input type="checkbox"/> Tall Goldenrod			<input type="checkbox"/> Other:
<input type="checkbox"/> Teasels			
<input type="checkbox"/> Thistles			
<input type="checkbox"/> Wild Parsnip			
<input type="checkbox"/> Other:			
<input type="checkbox"/> Other:			

- Reminders:**
1. Carry your herbicide applicator license with you when applying herbicide.
 2. ALWAYS FOLLOW THE HERBICIDE LABEL - THE LABEL IS THE LAW
 3. Placard treated areas with appropriate signage at public access points.
 4. Record amount of herbicide applied on the 2012 Equipment and Materials Unit Log.



Stanlec

POST - HERBICIDE APPLICATION RECORD (rev. 06/13/2014)

SITE AND APPLICATOR INFORMATION:

PROJECT NAME:	<i>4MPD Maniboro</i>	DATE:	<i>9-22-14</i>	PREPARER'S INITIALS:	<i>LB</i>
PROJECT NUMBER:	<i>193782187</i>	PROJECT MGR:	<i>70 Gal. Boom Sprayer</i>		
APPLICATION METHOD:	<i>3.5 G Backpack Sprayer</i>		<i>Nikki Hastelle (Non-Aquatic Trainee)</i>	<i>Granular</i>	<i>Low Volume Bottle / Wick</i>
			<i>Eric Johnson (CA 9553429 - IL; F222361 - IN)</i>	<i>Michael Adamski (PO 03158794)</i>	
			<i>Justin Streicher (267695-CA - WI; 95542962 - IL)</i>	<i>David Bart (CA 9553520 - IL; F238525 - IN)</i>	
APPLICATOR(S):	<i>X Logan Bliss (279389-CA; 95550377 - IL)</i>		<i>Mark Krus (CO 95551223 - IL)</i>	<i>Jay Demedico (255311-CA - WI)</i>	
	<i>Bylan Thiermann (259033-CA - WI; 95535207 - IL)</i>		<i>Aaron Winn (CO 95556786)</i>	<i>Aaron Faggstad (209716-CA - WI)</i>	
	<i>Kyle Luther (254489-CA - WI; 95563874 - IL)</i>		<i>Mathew Stepijk (CA 95563549)</i>	<i>James Scharl (224355-CA - WI)</i>	
	<i>Tom Lamppa (296773-CA - WI; 95563097 - IL)</i>		<i>Xochilli Lopez (CA 95549623)</i>	<i>Josh Sulman (1527498-CA - WI)</i>	
TIME: <i>10:00 AM</i>	TEMP: <i>60°F</i>	WIND: (MPH)	<i>NA</i>	<i>FULL SUN - PARTLY SUNNY - OVERCAST</i>	

HERBICIDE INFORMATION:

Product Name	Product A.I.	EPA Reg. NO.	REI (Hrs)	Acres	Amount (fluid oz)	Rate **
Weedone LV4 EC	2,4-D	228-139-71368	12 hrs			
Milestone	Aminopyralid	62719-519	12 hrs			
Transline	Clopyralid	62719-259	12 hrs			
Element 3A	Triclopyr amine	62719-37	48 hrs			
Rellegate	Triclopyr BEE	228-521	12 hrs			
Element 4E	Triclopyr ester	62719-40	12 hrs			
Escort XP	Metsulfuron methyl	352-439	4 hrs			
Rifle	Dimethylamine salt of dicamba	34074-861	24 hrs			
Streamline	Aminocycloachlor and Metsulfuron methyl	352-848	na			
Plateau	Imazapic	241-365	12 hrs			
Select Max	Clethodim	59639-132	24 hrs			
Intensity	Clethodim	34704-864	24 hrs			
Poast	Sethoxydim	7969-58	12 hrs			
Gly Star Plus	Glyphosate	42750-61	12 hrs			
Aquaneat	Glyphosate	228-365	12 hrs			
Rodeo	Glyphosate	62719-324	12 hrs			
Habitat	Imazapyr	241-426	12 hrs	<i>4</i>	<i>136 oz</i>	<i>1.50/gal</i>

** Record % active ingredient for spot applications and pints / quarts per acre for boom sprayer applications.

TREATMENT TYPE:

Non-Selective

Was an herbicide plan completed prior to application? **Yes** **No**

Spot Application Broadleaf-specific Grass-specific

Purpose of Application: Planting Preparation Post-Planting Weed Control General Invasive Species Control



POST - HERBICIDE APPLICATION RECORD (rev. 04/24/2014)

SITE AND APPLICATOR INFORMATION:

PROJECT NAME:	Mantuae Hwy	DATE:	9/19/2014
PROJECT NUMBER:		PROJECT MGR:	MOJ
APPLICATION METHOD:	3.5 G Backpack Sprayer		
	<input checked="" type="checkbox"/> Matt Angerhofer (148004-CA - WI; 95529169 - IL) <input type="checkbox"/> Bryan Thiermann (259033-CA - WI; 95535207 - IL) <input type="checkbox"/> Justin Streicher (267695-CA - WI; 95542962 - IL) <input type="checkbox"/> Logan Bliss (278359 - CA; 95550377 - IL) <input type="checkbox"/> Aaron Feggestad (209716 - CA - WI) <input type="checkbox"/> Kyle Luther (254898 - CA - WI; IL) <input type="checkbox"/> Tom Lamppa (296773 - CA - WI)		
APPLICATOR(S):			
TIME: 10	TEMP: 65°	WIND: (MPH) 5-10	FULL SUN - PARTLY SUNNY - OVERCAST

HERBICIDE INFORMATION:

Product Name	Product A.I.	EPA Reg. NO.	REI (Hrs)	Acres	Amount (fluid oz)	Rate **
Weedone LV4 EC	2,4-D	228-139-71368	12 hrs			
Milestone	Aminopyralid	62719-519	12 hrs			
Transline	Clopyralid	62719-259	12 hrs			
Tahoe or Garlon/Element 3A	Triclopyr amine	228-520 / 62719-37	48 hrs			
Tahoe or Garlon/Element 4E	Triclopyr ester	228-517 / 62719-40	12 hrs			
Plateau	Imazapic	241-365	12 hrs			
Select Max	Clethodim	59639-132	24 hrs			
Poast	Sethoxydim	7969-58	12 hrs			
Gly Star Plus	Glyphosate	42750-61	12 hrs			
Aquaneat	Glyphosate	228-365	12 hrs			
Rodeo	Glyphosate	62719-324	12 hrs			
Habitat	Imazapyr	241-426	12 hrs	2	40	1.5/ga

** Record % active ingredient for spot applications and pints / quarts per acre for boom sprayer applications.

TREATMENT TYPE:

Non-Selective
 Spot Application
 Broadleaf-specific
 Grass-specific
 Post-Planting Weed Control
 General Invasive Species Control

Was an herbicide plan completed prior to application? Yes No

TREATMENT AREA INFORMATION:

Were Signs Installed? Yes No (If no, explain why):

Total Acres Treated: 4.4
 Upland / non-aquatic acres:
 Aquatic (wetland, shoreline, etc.) acres:

Total Shoreline Treated (linear feet), if applicable:

Was Herbicide Applied to Standing / Flowing Water? Yes No

Did Applicator(s) Check for Adverse Impacts to Aquatic Areas Immediately After Application? Yes No

If yes, was there evidence of adverse impacts or movement of product out of the treatment area? Yes No

SPECIES TARGETED DURING SPOT APPLICATIONS:

Broadleaf Species:	Ag Broadleaf Weeds:	Grasses:	Woody Species:
<input type="checkbox"/> Birds-foot Trefoil	<input type="checkbox"/> Docks	<input type="checkbox"/> Barnyard Grass	<input type="checkbox"/> Buckthorns
<input type="checkbox"/> Burdock	<input type="checkbox"/> Lambsquarters	<input checked="" type="checkbox"/> Common Reed Grass	<input type="checkbox"/> Bush Honeysuckles
<input type="checkbox"/> Cattails	<input type="checkbox"/> Mustards	<input type="checkbox"/> Other Exotic Perennial Grasses	<input type="checkbox"/> Crabs
<input type="checkbox"/> Chickweeds	<input type="checkbox"/> Pigweeds	<input type="checkbox"/> Foxtails	<input type="checkbox"/> Cut-stumps
<input type="checkbox"/> Clovers	<input type="checkbox"/> Ragweeds	<input type="checkbox"/> Reed Canary Grass	<input type="checkbox"/> Dogwoods
<input type="checkbox"/> Crown Vetch	<input type="checkbox"/> Velvet Leaf	<input type="checkbox"/> Other:	<input type="checkbox"/> Hawthorns
<input type="checkbox"/> Dame's Rocket	<input type="checkbox"/> Other:	<input type="checkbox"/> Other:	<input type="checkbox"/> Highbush Cranberry
<input type="checkbox"/> Garlic Mustard	<input type="checkbox"/> Other:		<input type="checkbox"/> Japanese Barberry
<input type="checkbox"/> Hawkweeds			<input type="checkbox"/> Multiflora Rose
<input type="checkbox"/> Japanese Knotweed			<input type="checkbox"/> Locusts
<input type="checkbox"/> Leafy Spurge			<input type="checkbox"/> Oriental Bittersweet
<input type="checkbox"/> Purple Loosetrife			<input type="checkbox"/> Privets
<input type="checkbox"/> Queen Anne's Lace			<input type="checkbox"/> Tree-of-Heaven
<input type="checkbox"/> Spotted Knapweed			<input type="checkbox"/> White Mulberry
<input type="checkbox"/> Sweet Clovers			<input type="checkbox"/> Other:
<input type="checkbox"/> Tall Goldenrod			<input type="checkbox"/> Other:
<input type="checkbox"/> Teasels			
<input type="checkbox"/> Thistles			
<input type="checkbox"/> Wild Parsnip			
<input type="checkbox"/> Other:			
<input type="checkbox"/> Other:			

Reminders:

1. Carry your herbicide applicator license with you when applying herbicide.
2. ALWAYS FOLLOW THE HERBICIDE LABEL - THE LABEL IS THE LAW
3. Placard treated areas with appropriate signage at public access points.
4. Record amount of herbicide applied on the 2012 Equipment and Materials Unit Log.

Notice: Completion of this form is a condition of the permit and provides records required by WDNR (NR 107) and DATCP (ATCP 29.21 and 29.22). The Department may not issue you future permits unless you complete and submit this form. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. Stats.].

Submit this form: (1) immediately if any unusual circumstances occurred during treatment
 (2) as soon after treatment as possible, no later than 30 days
 (3) by October 1 if no treatment occurred

Completion of this form along with the permit satisfies the requirements of WDNR (NR 107) and DATCP (ATCP 29.21 and 29.22).

General Permit Information

Permit Number NE	Waterbody Name (including ponds, e.g., Smith Pond) Adjacent to Little Manitowoc River and Lake Michigan		
County Manitowoc	Permit Holder Name (Customer Name) Matt Angerhofer		
Permit Holder Address 209 Commerce Prkw	City Cottage Grove	State WI	ZIP Code 53527

Treatment Information

Treatment Date (mm/dd/yyyy) 09/17/2015	Starting Time (24 hr) 0900	Ending Time (24 hr) 1800	Water Temp (°C) N/A	Ambient Air Temp (°C) 70 F
Wind Speed (mph) 5-10	Wind Direction west	Expected Duration of Chemical Residuals 2 to 3 weeks		

Adverse Conditions Noted (i.e., dead fish, spawning fish, algae bloom, etc.)
 N/A

If adverse conditions noted, indicate corrective actions taken
 N/A

Onsite Supervision Present? Yes No If Yes, Supervisor Name

Mixing and Loading Site Location (if other than business site or from prepackaged retail container or applied with equipment with a total capacity of not more than 5 gallons liquid or 50 pounds dry)
 On site

Herbicide Treatment and Water Use Restrictions Signs Posted In Accordance With NR 107? Yes No

Applicator shall provide each customer with a free copy of each pesticide label used (if requested)

Applicator Information

Individual or Business Name Stantec Consulting Services	Telephone Number (608)839-1998
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Street Address
209 Commerce Prkw

City Cottage Grove	State WI	ZIP Code 53527
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Individuals Making Pesticide Application:	Last Name	First	Certification #
<i>Captan, chn's 92671</i>	Angerhofer	Matt	63227
	Eliason	Brett	97785
	Linton	Alexander	91997

Name of Person Completing Form Matt Angerhofer	Signature <i>Matt R Angerhofer</i>	Date Signed 10/15/15	DNR Use Only Date Received
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