

**LAKE WISSOTA BUSINESS PARK:
WETLAND DETERMINATION REPORT**



Prepared For:
Chippewa County Highway Department

Prepared By:
Jessica J. Pozarski
Environmental Specialist

With Oversight By:
Michael E. Dahlby
Chippewa County Land Conservation Department

October 1st, 2012

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	Mike Dahlby, County Forest Administrator and Public Liaison	

1.0 Introduction

Authorization:

BS Lawncare LLC was retained by Chippewa County to conduct a preliminary assessment of the presence of potential wetlands at the Lake Wissota Business Park property (Survey Area) located in Sections 28 and 33 of Township 29 North – Range 08 West, Chippewa County, Wisconsin (Figure 1).

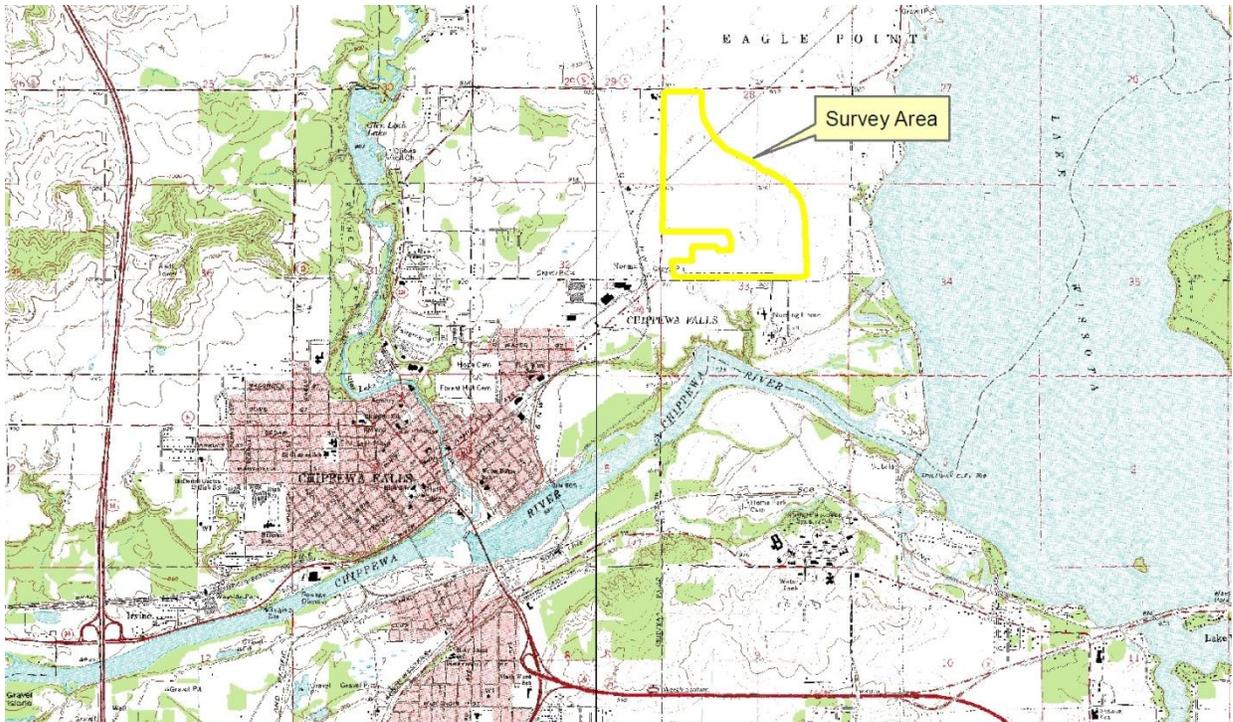


Figure 1. Lake Wissota Business Park Site Location.

Reason for Wetland Determination:

The Chippewa County Department of Administration requested that a wetland determination be conducted for the undeveloped areas within the Lake Wissota Business Park (Survey Area).

The purpose of the wetland determination was to assess the Survey Area to determine if wetlands are present at the current time and to serve as a basis for future wetland investigations if needed. This information is also intended to provide baseline information for perspective parties with interest in the Lake Wissota Business Park property.

Identification of Scientist:

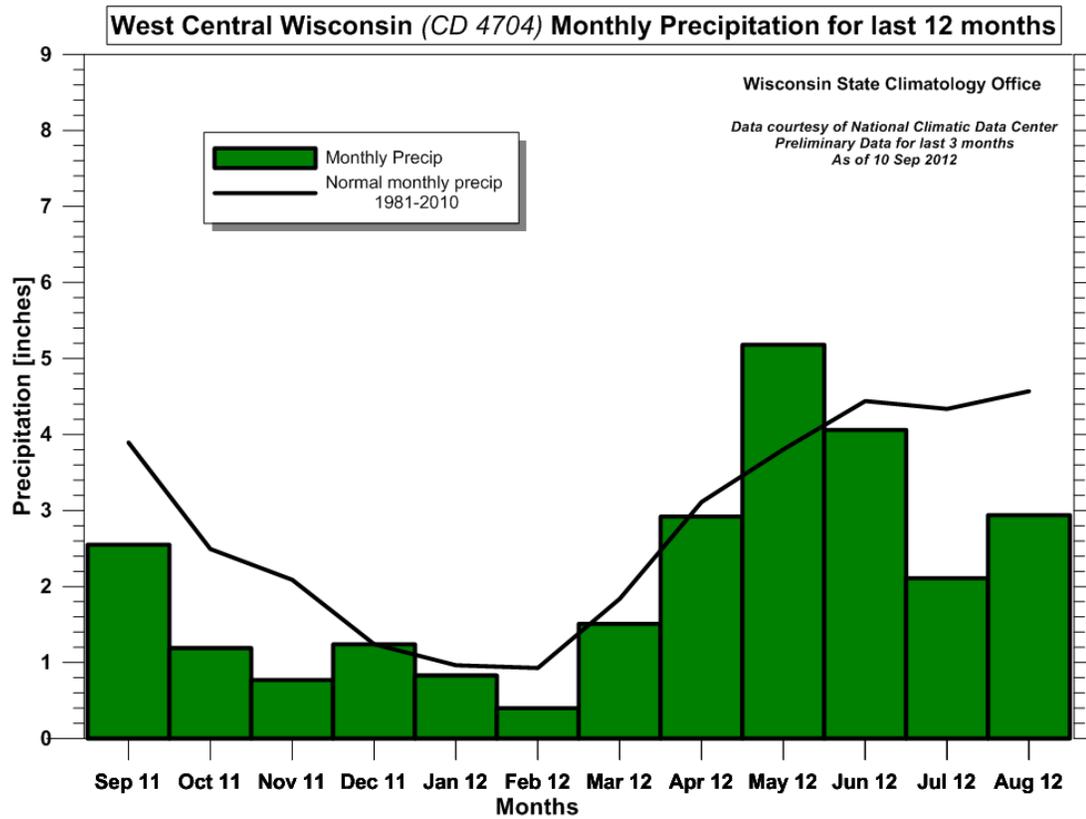
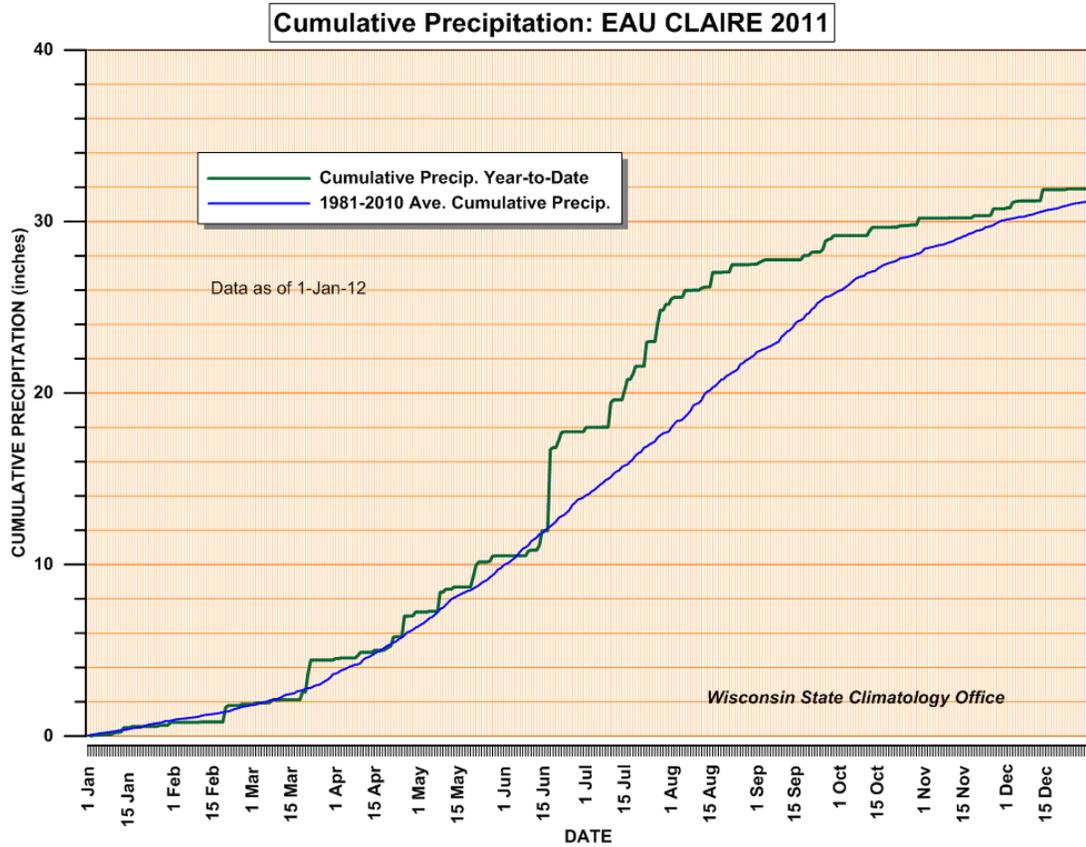
Jessica Pozarski, Environmental Specialist, conducted the initial investigation and prepared this report on behalf of Chippewa County. Mike Dahlby, Chippewa County Land Conservation Department – County Forest Administrator and Public Liaison conducted final determinations and collaborated on the report preparation. A copy of Jessica Pozarski's resume and a listing of Mike Dahlby's credentials are included in Appendix A.

Dates of Investigations:

Office preparation was conducted on August 31, 2012 and September 9, 2012. Initial field investigations were conducted at various times from September 10, 2012 to September 15, 2012. An additional site visit was conducted on September 21, 2012.

Monthly precipitation was below normal for eight of the twelve months prior to the field investigations. However, the cumulative precipitation for 2011 (i.e. most recent data published by WSCO) was near normal. The first graph below shows that the cumulative precipitation for Eau Claire, WI in 2011 was higher than normal. The second graph below shows that the months preceding the field investigations were dryer than normal for West Central Wisconsin. Recent

climate may impact the type of vegetation found during the investigation, however the recent dry conditions are not considered to affect soils or hydrology indicators in a way that decreases the reliability of the observations.



2.0 Determination Method

A wetland determination was conducted within the Survey Area. A wetland determination differs from a wetland delineation in that a determination identifies the presence or absence of wetland characteristics, whereas a delineation confirms the presence or absence of wetlands and delineates the boundary if a wetland is present. When determining the presence or absence of wetland characteristics, U.S. Army Corps of Engineers 1987 wetlands delineation protocol was referenced and considered. Mandatory wetland characteristics consist of hydrophytic vegetation, hydrology indicators, and hydric soil characteristics. Referenced material included the Wetland Delineation 1987 Corps of Engineers Manual (Wetland Training Institute, Inc., 2001), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0) (U.S. Army Corps of Engineers, 2012), the United States Department of Agriculture – Natural Resource Conservation Service (USDA-NRCS) Field Indicators of Hydric Soils in the United States (Version 6.0) (2006), and the Basic Guide to Wisconsin Wetlands and Their Boundaries (Wisconsin Coastal Management Program, 1995).

Review of Existing Information:

Several sources of physical site information were reviewed in the office and considered during in-field investigation, including:

- USDA Aerial Photography from May 16, 1939; October 9, 1951; May 5, 1981; and May 31, 1999 (Figures 2 and 3)
- Wisconsin Wetland Inventory Map for Sections 28 and 33 of T29N R08W, Chippewa County (Figure 4)
- USDA-NRCS Wetland Inventory Maps For Sections 28 and 33 of T28N R10W, Chippewa County (Figure 4)
- Web Soil Survey of Chippewa County (Figure 3)
- USGS 7.5 Minute 1:24,000 “Chippewa Falls, WI” and “Lake Wissota, WI” Quadrangles (Figure 5)

Aerial Photography:

A time series of historical aerial photographs from 1939, 1951, 1981, and 1999 are included as Figures 2 and 3. These aerial views show that the entire Survey Area was historically used for cultivated agricultural production. These photos were taken during seasonal periods when soil moisture conditions are generally visible on aerial photos. This historical time series does not show depressions or surface drainage features that would be indicative of poor drainage (i.e. potential wetlands).

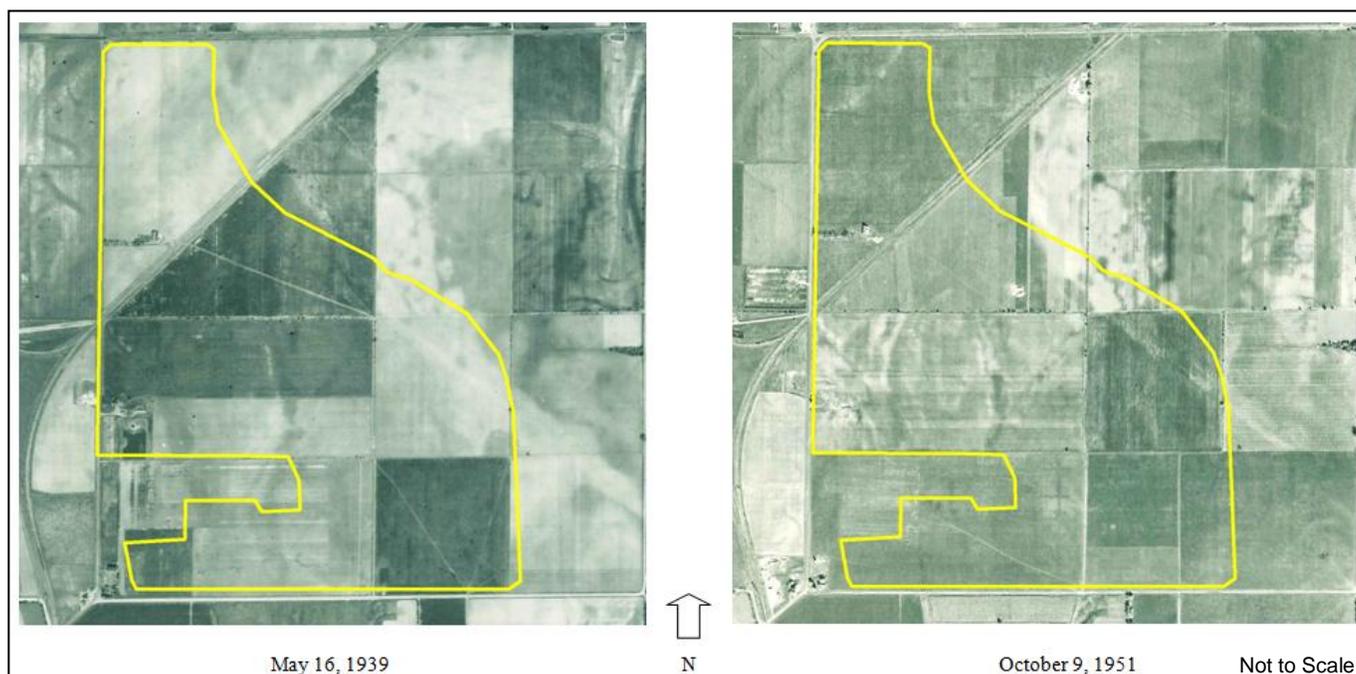


Figure 2. Aerial photographs from May 16, 1939 and October 9, 1951. The approximate location of the Survey Area is outlined in yellow.

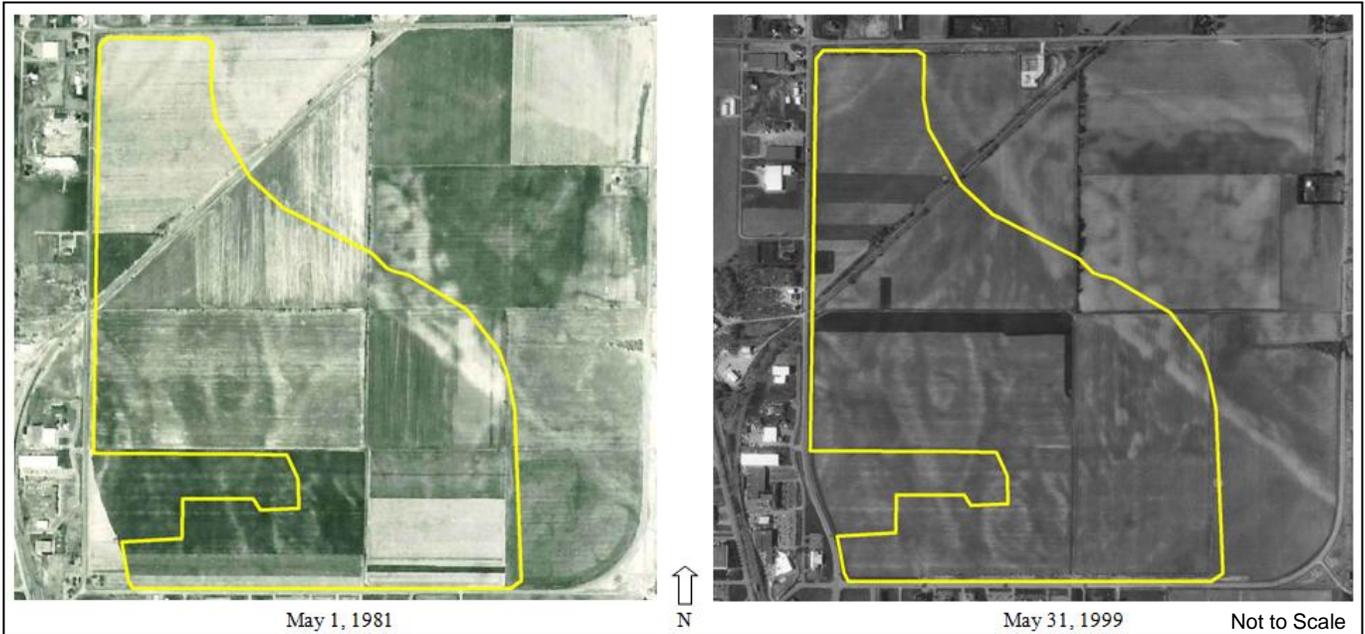


Figure 3. Aerial photographs from May 1, 1981 and May 31, 1999, which are typically wetter times of the year. The approximate location of the Survey Area is outlined in yellow.

Information on Mapped Wetlands:

Review of the existing wetland inventory from the DNR and USDA-NRCS indicates that wetlands do not appear to have existed historically within or directly adjacent to the Survey Area.

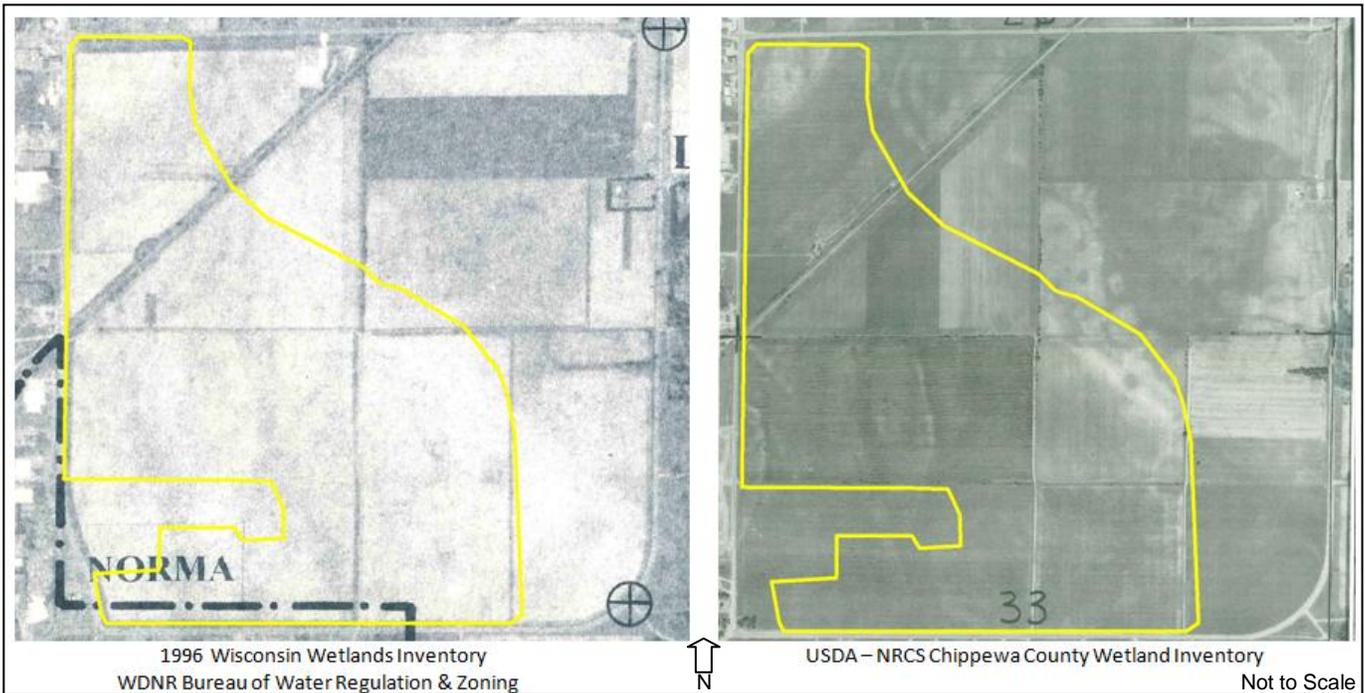


Figure 4. The Wisconsin Wetland Inventory Map for T29N R08W, Chippewa County (DNR Bureau of Water Regulation and Zoning, 1996) and the USDA-NRCS Wetland Inventory Maps for Sections 28 and 33, T29N R08W. The Survey Area (outlined in yellow) does not contain mapped wetlands.

Information on Soils:

The Web Soil Survey Map (Figure 5) shows that all of the soils mapped within the Survey Area are moderately well to excessively drained soils that are not considered a hydric soil unit. A mapped hydric soil is a soil map unit that contains components that are likely to meet the hydric soil definition. A hydric soil is a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. The Survey Area is comprised of the following seven soils:

BIA – Billett sandy loam; well drained; not a hydric soil unit.

BuA – Burkhardt sandy loam; excessively drained; not a hydric soil unit.

CkB – Chetek sandy loam; somewhat excessively drained; not a hydric soil unit.

RpA & RpB – Rosholt loam; well drained; not hydric soil units.

SbA – Sattre loam; well drained; not a hydric soil unit.

ScB – Scott Lake sandy loam; moderately well drained; not a hydric soil unit.

Information on Hydrology:

The USGS Quadrangles (Figure 5) shows that there are no surface drainage patterns, wetlands, or marsh areas identified within the Survey Area.

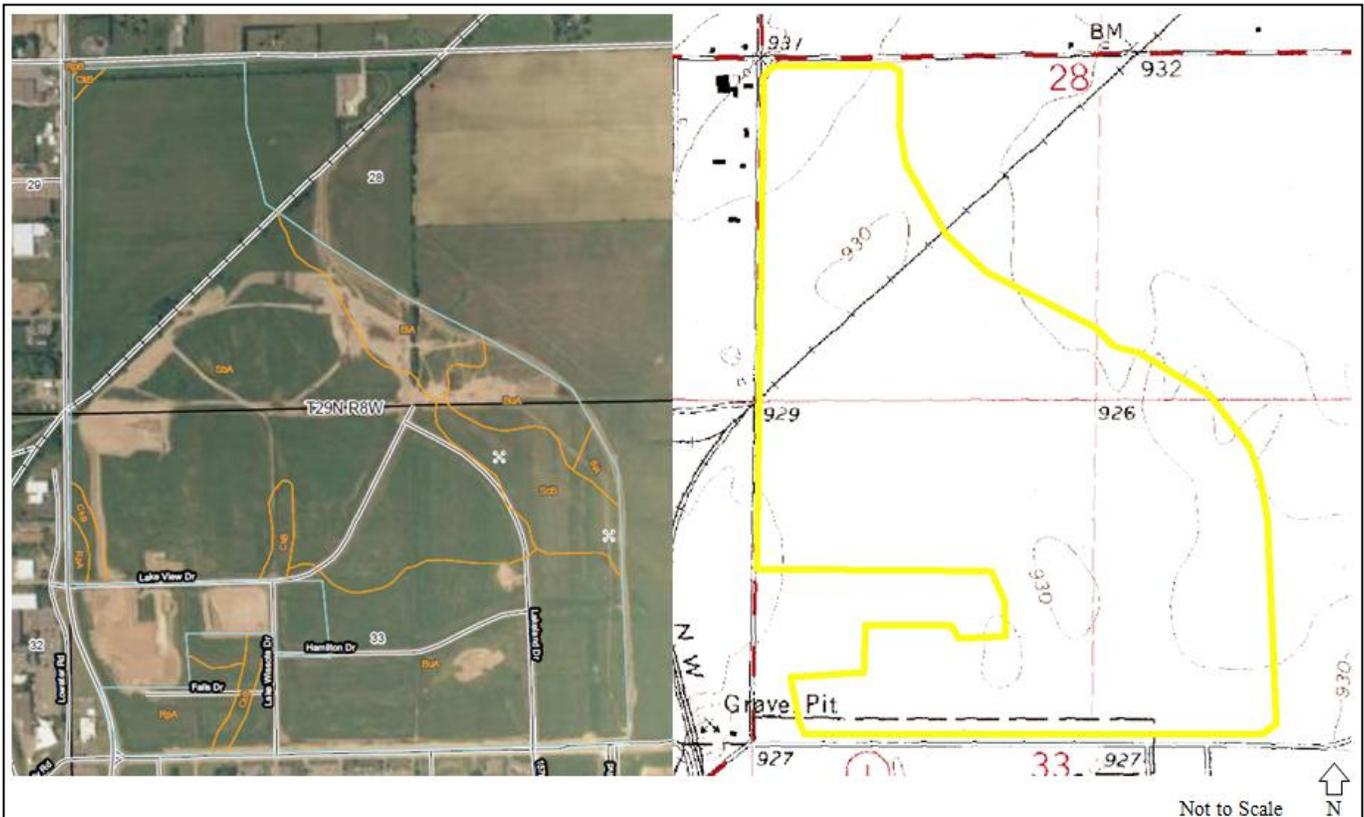


Figure 5. The Web Soil Survey of Chippewa County (left) and the USGS 7.5 Minute 1:24,000 “Chippewa Falls, WI” and “Lake Wissota, WI” Quadrangles (right). The Survey Area is outlined in yellow. There are no hydric soil map units or surface drainage patterns identified within the Survey Area.

2.0 Determination Method (Continued)

Description of In-field Methods:

The Survey Area was initially assessed for potential wetlands by examining the plant communities and site topography. The site was surveyed along transects through the entire Survey Area using an ATV. When suspect areas were observed, vegetation and surface hydrology were investigated to determine if potential wetlands were present and approximate locations of potential wetlands were field sketched. Final determinations of potential wetland areas were conducted by Mike Dahlby, Chippewa County Land Conservation Department – County Forest Administrator and Public Liaison.

Vegetation was identified using ‘Wetland Plants and Plant Communities of Minnesota and Wisconsin’ (Eggers and Reed, 1997), ‘Newcomb’s Wildflower Guide’ (Newcomb, 1977), ‘Trees of Northern United States and Canada’ (Farrar, 1991), ‘Wildflowers of Wisconsin and the Upper Midwest’ (Black and Judziewicz, 2007), and previous plant identification experience. Wetland hydrology was examined through surface observations of primary and secondary indicators of wetland hydrology. During final determinations soil characteristics were also investigated for hydric soil indicators using a sharpshooter.

No sample points or data forms were conducted and wetland boundaries were not identified during the wetland determination. The road right of way (ROW) was not considered to be within the Survey Area.

3.0 Results and Discussion

No wetlands are present throughout most of the study area. Several isolated areas exhibit wetland characteristics. However, these areas are within constructed stormwater facilities or the road ditch conveyance system. No indicators of wetland hydrology or soils were found outside of constructed stormwater facilities or the road ditch conveyance system. It would appear that all of these isolated wetland conditions are a direct result of site development and are not original to the site.

The area identified as Area 7 on Figure 6 required a more detailed investigation to determine whether the area was wetland or non-wetland. A detailed investigation was conducted by Mike Dahlby. Mr. Dahlby determined this area to be a non-wetland isolated depression created by site development activities.

Site Description:

The Survey Area has been disturbed by previous agricultural and development activities. The site was actively farmed until the early 2000’s. Since then, permanent stormwater drainage features and roads were constructed for future development and the majority of the site was left to vegetate naturally. The majority of the site is upland composed of typical early successional vegetation. The north portion of the Survey Area is used for agricultural research purposes and is vegetated by *Zea mays* (corn), *Glycine max* (soybean), *Bromus inermis* (smooth brome), *Trifolium pratense* (red clover), *Lotus corniculatus* (bird’s foot trefoil), *Ambrosia artemisiifolia* (common ragweed), and *Medicago sativa* (alfalfa).

Common herbaceous plants observed throughout the Survey Area consisted of smooth brome, *Solidago canadensis* (Canadian goldenrod), *Asclepias syriaca* (common milkweed), *Poa compressa* (Canada bluegrass), *Symphotrichum pilosum* (white oldfield American-aster), bird’s foot trefoil, and *Melilotus albus* (white sweet-clover).

Common early successional trees and shrubs that were identified throughout the Survey Area consisted of *Populus deltoids* (Eastern cottonwood), *Acer negundo* (box elder), *Ulmus Americana* (American elm), *Ulmus pumila* (Siberian elm), *Rhus hirta* (staghorn sumac), *Robinia pseudoacacia* (black locust), and *Fraxinus pennsylvanica* (green ash).

Area 7 (shown on Figure 6) contained a plant community that included *Typha latifolia* (broad-leaf cattail), *Phalaris arundinacea* (reed canary grass), *Juncus effuses* (common rush), *Persicaria sp.* (smartweed sp.), and *Rumex crispus* (curly dock). This area was determined to be non-wetland by Mr. Dahlby based on his evaluation that neither wetland hydrology nor soils existed within the area at the time of the final determination. Mr. Dahlby’s judgment is that the area does not appear to be wetland or exhibit any wetland functional value. However, it would be advisable to re-examine the area prior to development within this immediate location.

Wetland Characteristics within Constructed Stormwater Facilities and Road Ditch Conveyance System:

A total of six areas, which exhibit wetland characteristics, were identified within the Survey Area (Figure 6). These areas are located near culvert outlets within existing permanent stormwater drainage features. These stormwater drainage features consist of stormwater infiltration basins and road ditches (outside the road ROW), developments that are managed pursuant to the stormwater plan and permit.

It is the investigators professional judgment that none of these six areas preclude future development within the Lake Wissota Business Park. The following is included for the sake of comprehensive reporting.

Area 1: is located within a stormwater infiltration basin near a culvert outlet. Plant species observed included *Persicaria sp.* (smartweed sp.), *Symphyotrichum lateriflorum* (calico aster), and *Rumex crispus* (curly dock). Soil appeared saturated at the surface.

Area 2: is located within a stormwater infiltration basin near a culvert outlet. Plant species observed included *Typha angustifolia* (narrow-leaf cattail), *Lemna minor* (common duckweed), *Phalaris arundinacea* (reed canary grass), and *Scirpus cyperinus* (wool grass). Standing water was observed in Area 2.

Area 3: is located within a stormwater infiltration basin near a culvert outlet. Plant species observed included *Persicaria sp.* (smartweed sp.) and *Symphyotrichum lateriflorum* (calico aster). Soil appeared saturated at the surface.

Area 4: is located within a stormwater infiltration basin near a culvert outlet. Plant species observed included *Schoenoplectus tabernaemontani* (soft-stem bulrush), *Persicaria sp.* (smartweed sp.), and *Panicum dichotomiflorum* (fall panic grass). Soil appeared saturated at surface.

Area 5: is located within a road ditch near a culvert outlet. Plant species observed included *Phalaris arundinacea* (reed canary grass), *Scirpus cyperinus* (wool grass), and *Rumex crispus* (curly dock). Soil appeared saturated at surface.

Area 6: is located within a road ditch near a culvert outlet. Plant species observed included *Scirpus cyperinus* (wool grass), *Phalaris arundinacea* (reed canary grass), *Schoenoplectus tabernaemontani* (soft-stem bulrush), and *Leersia oryzoides* (rice cut grass). Standing water was observed in Area 6.

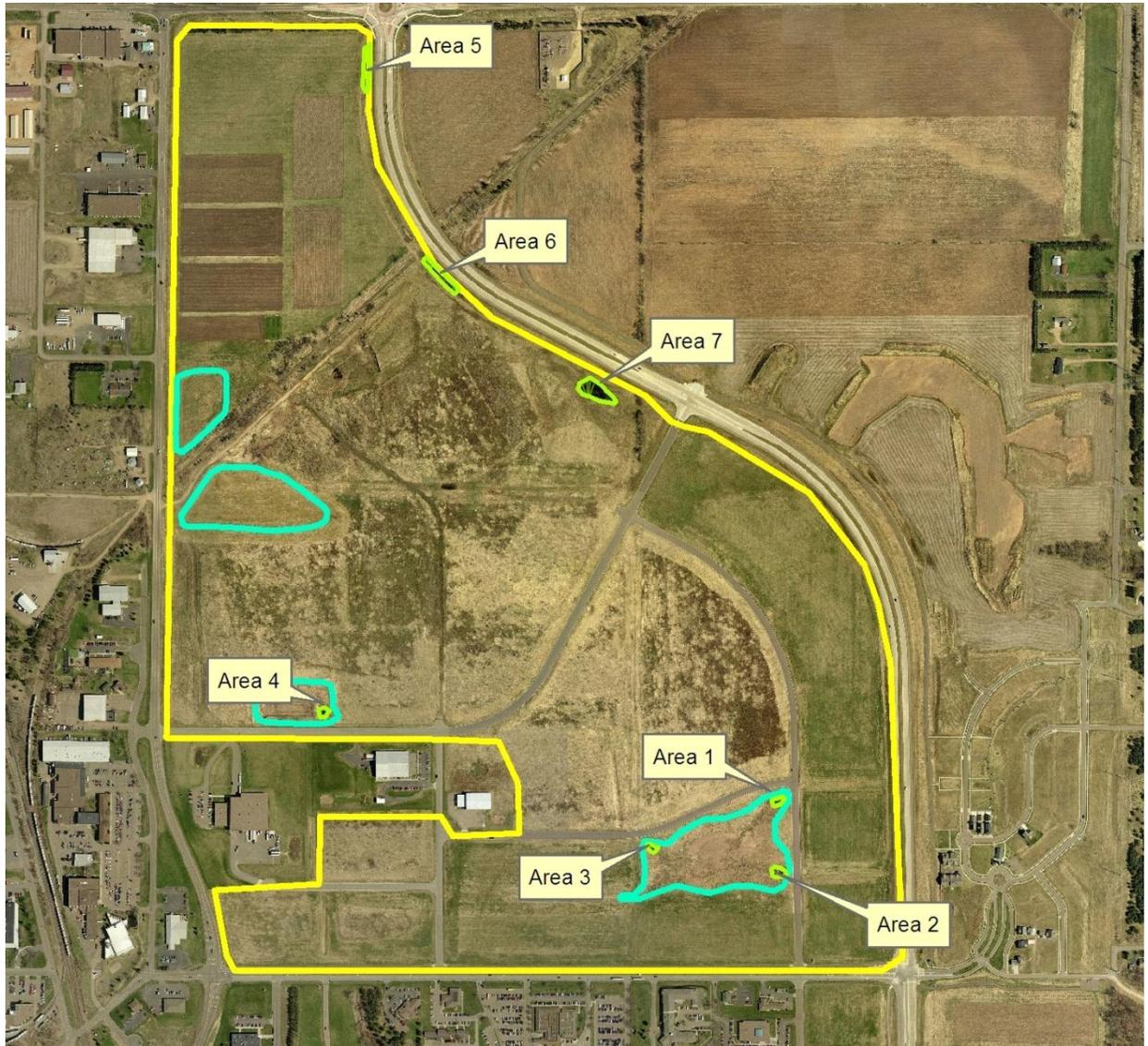


Figure 6. Areas with wetland characteristics within the Survey Area investigated by Jessica Pozarski, Environmental Specialist and Mike Dahlby of the Chippewa County Land Conservation Department are outlined in green. Major stormwater facilities (except constructed swales and sewers) are outlined in blue. May 2011 Chippewa County aerial imagery provided by Pictometry International Corporation.



Picture A. Typical upland plant community. Facing northeast from corner of Lake Wissota Drive and CTH I.



Picture B. Typical upland early successional trees and shrubs. Facing southwest from Lakeland Drive.



Picture C. Stormwater facility Area 1 (page 7), facing southwest.



Picture D. Stormwater facility Area 2 (page 7), facing northwest.



Picture E. Stormwater facility Area 3 (page 7), facing southeast.



Picture F. Stormwater facility Area 4 (page 7), facing west.



Picture G. Stormwater facility Area 5 (page 7), facing south.



Picture H. Stormwater facility Area 6 (page 7), facing southeast.



Picture I. Area 7 (discussed on page 6), facing northwest.

4.0 Conclusion

No wetlands area present within the areas available for future development. Though Area 7 does not appear to be wetland or exhibit any wetland functional value, it would be advisable to re-examine the area prior to development within this immediate location. It would be advisable that managers of future projects contact appropriate regulatory authorities to confirm regulatory requirements (or lack thereof).

The Project Manager should confirm whether County, State, and Federal Permits are required. A listing of appropriate Agency contacts follows: (COUNTY, STATE, AND FEDERAL AGENTS HAVE FINAL AUTHORITY FOR DETERMINATION OF WETLAND BOUNDARIES AND NEED FOR REGULATORY PERMITS.)

<u>Chippewa County</u> Zoning Administrator Doug Clary 711 N. Bridge Street, Room 09 Chippewa Falls, WI 54729 (715) 726-7940	<u>WI Dept. of Natural Resources</u> Water Management Specialist Stacy Steinke 1300 West Clairemont Ave. P.O. Box 4001 Eau Claire, WI 54702-4001 (715) 839-1600
<u>WI Dept. of Transportation</u> Environmental Coordinator Troy Staplemann 718 West Clairemont Ave. Eau Claire, WI 54701 (715) 836-3911	<u>U.S. Army Corps of Engineers</u> St. Paul District, Regulatory Branch Dan Munson 190 Fifth Street East St. Paul, MN 55101-1638 (651) 290-5880

5.0 Resources Cited

- Black, Merel R. & E.J. Judziewicz. 2007. Wildflowers of Wisconsin and the Upper Midwest. Cornerstone Press.
- Eggers, Steve D. & Donald M. Reed. 1997. Wetland Plants and Plant Communities of Minnesota and Wisconsin. Second Edition. U.S. Army Corps of Engineers, St. Paul District, MN.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- Farrar, John Laird. 1991. Trees of Northern United States and Canada. Wiley-Blackwell.
- Lichvar, Robert W. and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC.
- Newcomb, Lawrence. 1977. Newcomb's Wildflower Guide. Little Brown and Company.
- Pictometry International Corporation. 2011. Chippewa County aerial imagery.
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed September 4, 2012.
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Map Unit Legend Chippewa County, Wisconsin. Available online at <http://soildatamart.nrcs.usda.gov> . Accessed September 4, 2012.
- U.S. Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- USDA, Natural Resources Conservation Service (USDA-NRCS). 2006. Field Indicators of Hydric Soils in the United States Version 6.0. G.W. Hurt and L.M. Vasilas (eds.). US Department of Agriculture, Natural Resources Conservation Service, in cooperation with the National Technical Committee for Hydric Soils.
- USDA, Soil Conservation Service (USDA-NRCS). 1989. Soil Survey of Chippewa County, Wisconsin.
- USDA, Natural Resources Conservation Service (USDA-NRCS). Wetland Inventory Maps For Sections 28 and 33, T29N R08W Chippewa County, Wisconsin.
- United States Geological Survey. 1972. 7.5 Minute 1:24,000 "Chippewa Falls, WI" and "Lake Wissota, WI" Quadrangles.
- Wetland Training Institute, Inc. 2001. Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual. Glenwood, NM. WTI 01-2 143 pp.
- Wisconsin Coastal Management Program. 1995. Basic Guide to Wisconsin Wetlands and Their Boundaries. Contributing Author – Wisconsin Department of Administration. PUBL-WZ-029-94. Madison, WI.
- Wisconsin Department of Natural Resources, Bureau of Water Regulation and Zoning. 1996. Wisconsin Wetland Inventory Map for T29N R08W Chippewa County.

APPENDIX A

QUALIFICATIONS

JESSICA J. POZARSKI

- Education:** University of Wisconsin - Eau Claire, Eau Claire, WI
BACHELOR OF SCIENCE IN BIOLOGY, DECEMBER 2007
Cum Laude Graduate Cumulative GPA: 3.42
- Experience:** Stantec (Natural Resources Consulting), Rice Lake, WI October 2010 – August 2012
ENVIRONMENTAL SPECIALIST. Assisted with numerous wetland delineations including fieldwork, reporting, and FSA slide reviews. Completed erosion control plans and State/Federal permit applications. Conducted erosion control and compliance monitoring. Assisted with mitigation site planning, monitoring, restoration, invasive species removal, and reporting. Conducted endangered and threatened species surveys and surveyed for invasive species. Conducted PM₁₀ air sampler calibration and assisted with sand plant annual hazardous material reporting.
- Wisconsin Department of Natural Resources, Eau Claire, WI May 2007 – October 2010
FISHERIES TECHNICIAN. Conducted electroshocking, fyke net, and gill net surveys. Collected biological data, completed stream habitat assessments, and assisted with macroinvertebrate surveys. Independently updated the biological database and completed maps using ArcGIS. Maintained fences and livestock access areas along trout streams and assisted with equipment maintenance.
- Tetra Tech, Chippewa Falls, WI November 2007 – April 2009
ENVIRONMENTAL TECHNICIAN. Independently conducted soil and groundwater sampling at leaking underground storage tank (LUST) sites, entered and analyzed results from groundwater samples, and assisted with report preparation. Prepared Petroleum Environmental Cleanup Fund Act (PECFA) bids, claim submittals, and closure applications. Completed figures and maps using AutoCAD and assisted with resistivity and double-ring infiltration tests. Conducted multiple surveys and tasks for the National River and Steam Assessment (NRSA) project directed by the United States Environmental Protection Agency (USEPA) including:
- Assisted with site reconnaissance, conducted electroshocking surveys, and collected sediment on multiple wadable streams in Texas.
 - Calibrated multi-parameter water quality meter, collected in situ measurements, measured water clarity, and visually estimated physical habitat characteristics on the Mississippi River. Collected periphyton, benthic macroinvertebrates, and water samples. Filtered fecal indicators, chlorophyll-a, and periphyton.
- University of Wisconsin - Eau Claire, Eau Claire, WI December 2005 – May 2007
WATER QUALITY ANALYST. Worked independently to measure lake temperature, dissolved oxygen, pH, and collected water samples. Completed chemical analysis on samples to measure water quality based on previously established standards and evaluated plankton species and density.
- University of Wisconsin - Eau Claire, Eau Claire, WI May 2006 – May 2007
AQUATIC PLANT RESEARCH TECHNICIAN. Held a lead role in completing research on aquatic plant communities and creating a research plant collection. Responsible for identifying all collected aquatic plants to the species level. Assisted in developing a research protocol for future aquatic plant surveys and helped create a plant identification field guide for future research students. Created and presented a poster about aquatic plant research.

Experience: (continued)	Wisconsin Department of Transportation, Wisconsin Rapids, WI ENVIRONMENTAL LTE. Assisted with delineating, monitoring, and evaluating previously constructed wetland mitigation and proposed restoration sites. Assisted in the preparation of yearly reports on wetland mitigation bank sites. Assisted in invasive species studies of purple loosestrife and endangered species surveys of karner blue butterflies.	Summer 2005
Continuing Education, Certificates, & Licenses:	<ul style="list-style-type: none">• WDNR Endangered and Threatened Species Permit #784, expires 1/28/2012• Aquatic & Mosquito Commercial Pesticide Applicator Cert. #088134, expires 6/31/2016• Individual Commercial Pesticide Applicator License #270937-CA, expires 12/31/2012• UW-L Basic Wetland Delineation Training Course, 2011• Wisconsin DNR Karner Blue Butterfly HCP Monitoring Training, 2011• American Red Cross Standard First Aid, CPR/AED Adult, CPR Child & Infant, 2012• Boater Safety Training Certificate, 2009• 40-hour Emergency Management Training, Hazardous Materials - Managing the Incident, 2008• Chainsaw Safety, 2007	
Special Skills:	<ul style="list-style-type: none">• Knowledgeable in wetland delineation methodology and criteria outlined in 1987 Manual and Midwest and Northcentral/Northeast Regional Supplements.• Plant and fish species identification skills.• Trained in the use of many different water sampling devices and techniques, including a bailer, water level indicator, conductivity meter, D.O. meter, and secchi disk.• Ability to operate GPS units and associated software including ArcView and ArcGIS.• Advanced computer skills; ability to operate both Macintosh and Windows operating systems as well as being very experienced with Adobe Illustrator and Microsoft Office applications including Word, Excel, PowerPoint, and Photo Editor.• Well developed leadership, public speaking, and written communication skills along with ability to work well independently or as part of a team. Reliable, able to follow directions, and willingness to learn with a strong initiative and motivation to get a job done.• Able to back a trailer, operate a boat, tractor, skid steer, mini-excavator, ATV, and chainsaw.• Avid outdoors woman accustomed to withstanding adverse environmental conditions with well developed wildlife identification skills including large and small mammals and birds.	
References:	<p>TIM KING, PWS, Associate/Senior Scientist Stantec Consulting Services, Inc. 610B West Avenue Rice Lake, WI 54868 Cell Phone: (715) 651-9084 E-mail: Tim.King@stantec.com</p> <p>ERIC OLESON, Environmental Department Manager Tetra Tech 1837 CTH OO Chippewa Falls, WI 54729 Cell Phone: (715) 828-1476 E-mail: Eric.Oleson@tetrattech.com</p> <p>ROBERT HUJIK, Fisheries Team Supervisor Wisconsin Department of Natural Resources P.O. Box 4001 Eau Claire, WI 54702-4001 Telephone: (715) 839-3731 E-mail: Robert.Hujik@Wisconsin.gov</p>	

(Michael E. Dahlby) Credentials

Employed with the Chippewa County Land Conservation Department since April 2001. Primary responsibilities include, but are not limited to:

- Management of the County’s Conservation Reserve Enhancement Program
- Management of County conservation easement projects with private landowners
- Wetland identification, delineation, and consultation with private landowners

Education

Bachelor of Science Degree	University of Wisconsin-Stevens Point	May 1995
<ul style="list-style-type: none">• Major: Watershed Management• Minor: Soil Science• Graduate: 25 graduate-level credit hours at UWSP in geomorphology, groundwater geochemistry, soils, geographical information systems, and independent studies in surface water quality.		

Advanced Coursework

<u>Wetland Characteristics & Classification</u>	UW- Stevens Point	Spring 1994
<u>Basic Wetland Delineation</u>	UW-La Crosse Continuing Education/ Extension et al	August 2001
<u>Advanced Wetland Delineation</u>	UW-La Crosse Continuing Education/ Extension et al	August 2001
<u>Soil & Site Evaluation Training</u>	Chippewa Valley Technical College	December 2001
<u>Basic Plant Identification</u>	UW-La Crosse Continuing Education/ Extension et al	June 2002
<u>Critical Methods in Wetland Delineation</u>	UW-La Crosse Continuing Education/ Extension et al	March 2007
<u>Advanced Wetland Delineation</u>	UW-La Crosse Continuing Education/ Extension et al	July 2007

Wetland - Related Professional Experience

Drafted “Working Agreement For Wetland Delineation Services – Between Chippewa County Zoning Department and Chippewa County Land Conservation Department, October 2001”. Performed 28 formal wetland investigations pursuant to working agreement, since October 2001. Investigations include preliminary review of resource inventory data, on-site delineation of subject wetland boundaries following 1987 USCOE Protocol, using real-time differential GPS to map wetland boundaries, and preparing formal wetland investigation reports.

Involved with 16 Wetland Restoration Projects totaling approximately 420 acres of restored wetlands.