4TH ANNUAL MONITORING REPORT

FOR THE

LAKE BELLE VIEW RESTORATION PROJECT

BELLEVILLE, WISCONSIN

JUNE 2015

PHOTO BY MONTGOMERY ASSOCIATES

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TABLE OF CONTENTS

1 GENERAL 2
2 VEGETATION MANAGEMENT SUMMER OF 2014 2
3 WETLAND/FLOODPLAIN FOREST RESTORATION 2
4 NEW HABITAT AREA RESTORATION – SEEDING AND PLANTING 3
5 LAKE LEVEL MONITORING 5
6 IN LAKE WATER QUALITY MONITORING 5
7 ADDITIONAL RESTORATION AND MONITORING ACTIVITIES 6

LIST OF ATTACHMENTS

APPENDIX A

SUMMER 2014 MONITORING REPORT FOR LAKE BELLE VIEW RESTORATION PROJECT – ERC

APPENDIX B

ERC WETLAND DELINEATION - 2014

APPENDIX C

NES 2015 DETAILED IMPLEMENTATION PLAN FOR SEEDING/PLANTING

APPENDIX D

2014 LAKE WATER LEVELS – CONTINUOUS MONITORING - MARS

APPENDIX E

LAKE BELLE VIEW AIS CARP REMOVAL PROGRESS REPORT - SEPTEMBER 2014

1 GENERAL

The Lake Belle View Restoration Project is on-going. The summer of 2015 was the third full growing season of the post-construction restoration and mitigation activities and the fourth year since construction completion in the spring of 2011. Vegetation management activities continued throughout the summer conducted by NES Ecological Services and monitoring of the progress of the restoration continued with a team of consultants hired by the Village of Belleville (Montgomery Associates, Agrecol Environmental Consulting and Eco-Resource Consulting). This summary report documents the various restoration and monitoring activities associated with the Lake Belle View Restoration Project during the Summer of 2014. This report also documents the implementation details of the spring 2015 prescribed burn and climax seeding and tree planting activities.

2 VEGETATION MANAGEMENT SUMMER OF 2014

Vegetation Management Activities in 2014:

Vegetation management activities continued in the spring of 2014. NES Ecological Service performed invasive species control activities in spring, summer, and fall on the New Habitat Areas and the Berm. The following activities were implemented:

- May:
  - Reed Canary Grass treatment on berm and new habitat areas
- June:
  - Thistle control on new habitat areas
  - Sweet clover control on berm
- July
  - Thistle control on new habitat areas
  - Purple loosestrife control on berm and new habitat areas
- August
  - Purple loosestrife control on berm and habitat areas (mainly on berm)
- September
  - Buckthorn and Honeysuckle cut and treatment in existing wooded areas
- October
  - Thistle control on new habitat areas and berm

3 WETLAND/FLOODPLAIN FOREST RESTORATION

Monitoring Report

The wetland/floodplain forest restoration areas were evaluated for diversity, extent and dominance of native and invasive species. This was done by Eco-Resource Consulting, LLC using meander surveys in summer of 2014.

The performance standards outlined in the Restoration and Mitigation plan for the Lake Belle View Restoration project by Montgomery Associates, 2010 calls for 40% total plant cover by native species and at least 30% of the installed native species present.

The ERC report (*Appendix A*) found that of the 53 species found during the July 2014 meander survey, 70% were native. 10 of the 13 species installed originally were present, which is more than 70% presence.

The monitoring results indicate that the project is still on the right track, easily meeting the performance standards for the third growing season.

Wetland Delineation

The Army Corps of Engineers permit special condition 12 calls for a wetland delineation to determine the successful establishment of 11.6 acres of wetlands within the wetland habitat restoration area. This wetland delineation was delayed by 1 year and was implemented on July 22, 2014 by Eco-Resource Consulting, LLC (See *Appendix B*). The primary objective of the wetland delineation was to provide the location and spatial boundary of jurisdictional wetlands on the mitigation area. The following table shows the proposed mitigation zones compared to the actual wetland delineation:

	Pre-Project (Acres)	Proposed Project (per mitigation plan) (Acres)	As-Built w/ wetland delineation (Acres)
Lake Bed	22.0	0	0
Wetland	0.92	11.6	12.0
Non-Wetland	0.0	6.6	7.1
Berm	0.0	4.5	3.2
Total	22.9	22.7	22.3

As indicated in the table above, approximately 12.0 acres of wetlands were created as part of this project which meets the Army Corps of Engineers requirements for wetlands restored on site.

4 New Habitat Area Restoration – Seeding and Planting

April 2010 Mitigation Plan

The mitigation plan outlined in the MARS Report from April 2010 outlines in general the following restoration sequence for the new habitat areas:

- Construction Phase: construction of the berm, dredging the lake sediment and the construction of the habitat areas (Complete Fall 2011)

- Initial Restoration Phase: Stabilization of new habitat areas with native grasses and fast growing forbs to allow for more invasive species control options (growing seasons 2012, 2013, and 2014)
- Prescribed Burn Phase: Preparing areas for enhancement of plant diversity after 2-3 growing seasons (Complete Spring 2015)
- Climax seeding and tree seeding/planting: Enhance herbaceous species diversity and start the restoration of the wetland areas to a forested floodplain habitat (ongoing Spring 2015).

2015 Detailed Seeding and Tree Planting

The climax seeding and tree seeding/planting plan outlined in the April 2010 mitigation plan had prescribed in general the species and seeding/planting rates for the native forbs and trees to be installed as part of the mitigation plan. A more specific implementation plan for seeding and tree planting adapted to the various habitat zones was prepared by NES Ecological Services in the spring of 2015. The implementation plan defines two habitat zones: a mesic/wet mesic community for upland areas and wet meadow/floodplain forest community as defined by the wetland delineation.

Appendix C shows the three documents from NES Ecological Services outlining the implementation plan:

1. Proposed Species Lists for Lake Belle View in the Village of Belleville
2. Proposed Work Plan for 2015 dated January 29, 2015
3. Detail Work Plan for Tree Installation dated February 20, 2015

Below is a listing of the highlights of the plan:

- Two climax seeding mixes were developed for the implementation plan; one for each habitat zone. The seeding rates were consistent with the mitigation plan. During implementation some overlap in seeding was performed in the zone between the two habitat zones to allow for a transition zone consistent with the original mitigation work plan.
- Wetland areas were planted with bare root stock of available tree species at a density higher than proposed in the mitigation plan with the ultimate goal of creating and enhancing the wetland/floodplain forest community already existing in this area. In order to improve survivability of the installed seedlings, Tubex tree protectors were installed around each seeding.
- Instead of using bare root seedling stock dispersed evenly through the upland areas which would restrict prairie species maintenance and jeopardize the success of the tree species installation, in consultation with WDNR forestry staff, fewer, larger trees and shrubs were installed. This would continue the successful establishment of a prairie community in the uplands with the ultimate goal of an Oak-Savana upland community.

The following activities are anticipated for year 2015 and 2016:

- Continued vegetation management including the control of invasive and non-native species using spot herbicide treatment;
- Continued monitoring of the establishment of and diversity of native species.

5 LAKE LEVEL MONITORING

Continuous water level monitoring was continued in 2014. Water level loggers were installed in two location: by the control structure to Lake Belle View and immediately west of the separation berm as it connects to Community Park on the Sugar River impoundment upstream of the old Belleville Dam. The loggers were launched on April 9, as soon as ice had broken and continued throughout the year until December 5th.

In May, the lake levels were drawn down to approximately 853.5 to implement a carp seining operation as part of the Lake fisheries and emergent vegetation management. Carp is still posing a threat to the establishment of a diverse floodplain lake fisheries community and the WDNR, the Village and the consultant team decided to implement a strategy to significantly reduce the carp population in the lake to allow for more time for carp predators to establish. The lake drawdown took approximately 5 days to complete and the lake was kept low for about three weeks when the drawdown gates on the control structure were closed and the lake was allowed to naturally fill back up. The overall duration of the lower lake levels was approximately 2.5 months.

The results of the monitoring can be seen in *Appendix D*. The graph shows daily median water levels for the Lake and the River as well as the accumulative precipitation at the Dane County Regional Airport in Madison. The median water levels were 858.07 and 857.70 for the Lake and the River respectively. The mean for the Lake level was 857.45 which is somewhat lower than the median due to the lake drawdown period. However, the Lake levels are still within the +/- 0.5' range from the normal water level of 858 and within +/- 0.5' of the annual median stage of the Sugar River.

6 IN LAKE WATER QUALITY MONITORING

Establishment of in-lake rooted vegetation and fisheries in Lake Belle View continues as part of the whole restoration project efforts with Dave Marshall and Richard Wedepohl providing monitoring support and management guidance. *Appendix E* contains a progress report describing the activities in 2014.

As part of a Wisconsin Department of Natural Resources (WDNR) Aquatic Invasive Early Detection and Response grant, the Village of Belle View, through a cooperative agreement with WDNR, hired a commercial fisherman to remove nuisance common carp in Lake Belle View. The carp removal effort was established for eradication and disposal and not for commercial sale. To improve seining catch rates, the lake was drawn down in the spring. Over a three day harvest/channel herding effort, 2,200 lbs of carp were removed from the lake.

Water quality data collected after the lake was refilled demonstrated continued turbid conditions in the lake. Trophic State Index values indicate that a significant water quality change did not occur after the carp removal. Borderline hypereutrophic conditions persisted in the lake in 2014. However, lake users reported improved water quality and this appeared to reflect a decline in nuisance Cyanobacteria blooms.

Results nearshore fish shocking surveys conducted in May and September 2014 demonstrated that common carp are still abundant in the lake and that commercial harvest efforts should continue. Also, As part of citizen outreach and encouragement to harvest carp in the lake, a carp fishing contest was organized as part of the annual Lakefest event.

7 Additional Restoration and Monitoring Activities

In addition to the restoration and monitoring activities discussed above, the Village of Belleville has also shown initiatives in implementing additional monitoring and restoration activities to increase the amenities of the newly restored lake. Below is some of the additional work being implemented:

- The Village has been working with college students in designing new and imporved boat launch and handicap accessible fishing piers for the Lake and the River. The Village has also received grants from the DNR to implement the construction of these improvements to lake and river access.
- The Village has been supporting an effort by the Upper Sugar River Association and the WDNR working on raising beetle as natural biocontrol for purple loosestrife infestation on the Sugar River side of the berm. This effort will hopefully reduce the continued threats of purple loosestrife infestation in the project area and improve biodiversity in the area.
- The Village has also received grants from the WDNR to purchase a lake aerator to reduce the probability of winter fish kills in the lake due to low dissolved oxygen levels.
- The Village worked closely with the WDNR, US Fish and Wildlife Services, concerned local residents, NES Ecological Services and the Consultant Team, to implement an adaptation to the seeding and planting operations to protect the bald eagle pair that nested and successfully hatched eaglets in the new habitat areas. The Village dedication to the continued improvement of terrestrial and aquatic habitat continues as local residents show increased interest in the recreational opportunities in the beautiful amenity in the community.

APPENDIX A

SUMMER 2014 MONITORING REPORT FOR LAKE BELLE VIEW RESTORATION PROJECT

SUMMER 2014
MONITORING REPORT
FOR
LAKE BELLE VIEW RESTORATION PROJECT

Prepared for:

The Village of Belleville
Belleville, Wisconsin

Prepared by:

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Table of Contents

	Page
Introduction	3
Methods	3
Performance Standards	4
Discussion	4
Wildlife and other notes	5
References	6

List of Tables

Table 1. Lake Belle View Species Coverage, July, 2014

Table 2. Lake Belle View Comparison of Species Number and Percentage of Native Species Between 2012, 2013, and 2014.

List of Figures

Figure 1. Habitat Zones

Figure 2. July 31, 2014 Meander Survey Path

Introduction

Eco-Resource Consulting, LLC, conducted a field investigation of the native plant community restoration around Lake Belle View on July 31, 2014. The areas surveyed included the emergent aquatic bed, an area from two feet below water level to the shoreline (-2 to 0 feet elevation), the wet meadow, an area from the shoreline to two feet of elevation above the shoreline (0 to + 2 feet elevation), the wet mesic prairie, an area from two feet to five feet elevation above the shoreline (+2 to + 5 feet elevation), and the mesic prairie area greater than five feet of elevation above the shoreline (> 5 feet elevation). The original plan called for the emergent aquatic bed to occupy 9.4 acres of shallow water, the wet meadow, 11.1 acres of wetland; the wet prairie, 4.1 acres, and the mesic prairie, 3.9 acres of upland (Figure 1).

The restoration area is composed of dredge spoils from the construction of Lake Belle View. The area was dredged during September 2010 and March 2011. Grading activities were completed in November 2011. The emergent area was seeded in June 2011 and a dormant seeding using native plant seed appropriate to the community type was conducted in December 2011. Eco-Resource Consulting was assigned the task of evaluating the success of the restoration during the growing seasons from 2012 –2015 pursuant to State and Federal permit conditions. This survey focuses on the plant species and communities the third year after seeding.

Methods

To assess the vegetation, a meander survey of the entire restoration area was conducted. Two field personnel traveled along the meander survey path(s) (Figure 2) and recorded all species encountered. Although the meander path was continuous, it was conducted so that all habitat types were included. Figure 2 shows the paths in each habitat type. Each species encountered was assigned a vegetative cover class for each habitat type.

The 2009 survey (Montgomery Associates, 2009) defined vegetative cover class as an estimated percent cover of a species in a habitat zone based on visual observation over the entire habitat zone. The table below provides the ranges of percent cover and the cover class value or ranking.

Cover Class	% Cover
1	1-10%
2	11-25%
3	26-50%
4	51-75%
5	76-90%
6	91-100%

The percent cover assigns every species observed a cover class rating of 1 to 6. A cover class rating of 6 indicates a species was found and was dominant or co-dominant in the habitat zone. A cover rating of 1 indicates the species was found in low density throughout the habitat zone. Our estimates of cover class are also included in Table 1 describing the plant communities in the four habitat types and two loop surveys.

Performance Standards

After one growing season, areas seeded with the native cover crop shall have 70% total plant cover with no bare areas larger than 10 square feet. After two full growing seasons, seeded areas shall have 80% total plant cover and 20% cover by native species. After three full growing seasons, seeded areas shall have 40% total cover by native species and at least 30% of the installed species shall be present (Montgomery Associates, 2010).

The following species were planted as the Initial Cover Seed Mixes.

Andropogon gerardii (Big Bluestem)
Bromus ciliatus (Fringed Brome)
Elymus virginicus (Virginia Wild Rye)
Eupatorium perfoliatum (Boneset)
Glyceria grandis (Reed Manna Grass)
Helenium autumnale (Sneezeweed)
Leersia oryzoides (Rice Cutgrass)
Oenothera biennis (Evening Primrose)
Panicum virgatum (Switchgrass)

Poa palustris (Fowl Bluegrass)
Rudbeckia hirta (Black-eyed Susan)
Scirpus atrovirens (Green Bulrush)
Verbena hastata (Blue Vervain)

*Avena spp (Oats) was used as an annual cover or nurse crop and will not be included in assessing the Performance Standard of 30% of installed species shall be present.

There were 13 native species planted in the initial seed installation and ten (10) of these species are present in the restoration for a 77% presence rate, exceeding the Performance Standard of 30%. By the third year after planting, based species number, all habitat areas exceeded the performance standard of having 40% native species. The emergent habitat had the highest native species percentage with 89% and the mesic prairie had the lowest with 68%. The total restoration contained 70% native species in the 2014 survey (Table 2). There were virtually no un-vegetated areas except where herbicides were used to control non-native species.

Discussion

A species list was compiled within each habitat community type to estimate plant species coverage. Table 1 lists species found and coverage in the meander survey and meander loops 1 and 2. A total of 53 species were encountered with 16 species being non-native. This compares with 75 species found in 2013 with 30 species being non-native. Several factors could account for the drop in number of observed species. Only one survey was done in 2014 versus two in 2013 so early and late flowering species may not have been as evident. Also, as the restoration matures many annual and biennial species may be declining in presence. Non-native species accounted for 30% of the flora. This compares to 40% in 2013.

A terrestrial smartweed was a dominant species in the emergent zone. This is probably due to drawdowns done for carp control. Some aquatic species found in the 2013 survey were not found in 2014.

The wet-meadow and the mesic prairie had the most total species. Of the two, the wet meadow had the least number of non-native species. The wet-meadow is a “border line” habitat between the emergent and wet-mesic prairie so it supports species from both wetter and drier habitats.

Sneezeweed, rice cutgrass, and blue vervain were the most common species in the restoration. The highly invasive reed canary grass was found only in small amounts and no purple loosestrife was found in the restoration in 2014.

Wildlife and other notes

During the field investigation, there was a variety of wildlife observed. The majority of the wildlife observed were birds and included: Canada geese (*Branta canadensis*), mourning dove (*Zenaida macroura*), red-tailed hawk (*Buteo jamaicensis*), killdeer (*Charadrius vociferus*), American crow (*Corvus brachyrhynchos*), various sparrows, sedge wren (*Cistothorus platensis*), black-capped chickadee (*Poecile atricapillus*), red-winged blackbird (*Agelaius phoeniceus*), American robin (*Turdus migratorius*), common yellowthroat (*Geothlypis trichas*), great blue heron (*Ardea herodias*), and belted kingfisher (*Megaceryle alcyon*). There were several insect species observed during the investigation that included: bumble bee (*Bombus sp.*), crickets, grasshoppers, moths, dragonfly, damselfly, monarch butterfly (*Danaus plexippus*), and mosquitoes. The only observed reptile was a painted turtle (*Chrysemys picta bellii*).

References

Montgomery Associates – Resource Solutions. 2009. Wetland and aquatic plant assessment for the Lake Belle View/Sugar River Restoration Project. Cottage Grove, WI. 8 pg.

Montgomery Associates-Resource Solutions. 2010. Mitigation and Restoration Plan for the Lake Belle View Restoration Project (revised). Cottage Grove, WI. 46 pg.

Wetter, M.A., T.S. Cochrane, M.R. Black, H.H. Iltis, and P.E. Berry. 2001. Checklist of the Vascular Plants of Wisconsin. Technical Bulletin No. 192. Wisconsin Department of Natural Resources, Madison, Wisconsin. 258 pg.

Table 1. Lake Belle View Species Coverage, July, 2014[1,2]

Scientific Name	Common Name	Emergent Zone	Wet-Meadow Zone	Wet-Mesic Prairie Zone	Mesic Prairie Zone	Loop-1	Loop-2
Ambrosia artemisiifolia	common ragweed		1				
Andropogon gerardii	big blue-stem		1	1			
Asclepias incarnata	swamp milkweed		1		1		
Aster novae-angliae	New England aster			1	1	2	2
Bromus inermis	smooth brome grass					1	1
Cirsium arvense	Canada thistle		1	2	1		
Cirsium vulgare	bull thistle			1	1		
Convolvulus arvensis	bindweed				1		
Conyza canadensis	horseweed		1		2		
Echinacea pallida	purple coneflower		1	1			
Echinochloa crusgalli	barnyard grass				1		
Elymus canadensis	Canadian wild rye				1		
Elymus virginicus	Virginia wild rye		2	1	2	2	2
Epilobium coloratum	cinnamon willow-herb		2				
Erigeron annuus	daisy fleabane		1		1		
Eupatorium maculatum	joe-pye-weed		1			1	
Eupatorium perfoliatum	boneset	2	2	2	2	1	
Fraxinus pennsylvanica	green ash				1		
Hackelia virginiana	stickseed		1		1		
Helenium autumnale.	common sneezeweed		4	5	5	4	4
Impatiens capensis	jewel weed		2				
Leersia oryzoides	rice cut grass	4	5	3	3	3	3
Lemna minor	small duckweed	2					
Medicago sativa	alfalfa		1				
Melilotus alba	white sweet-clover		1				
Mentha arvensis	field mint		1	1	1		
Modarda fistulosa	bee balm		1		3		
Panicum virgatum	switch grass		1	1	1	1	1

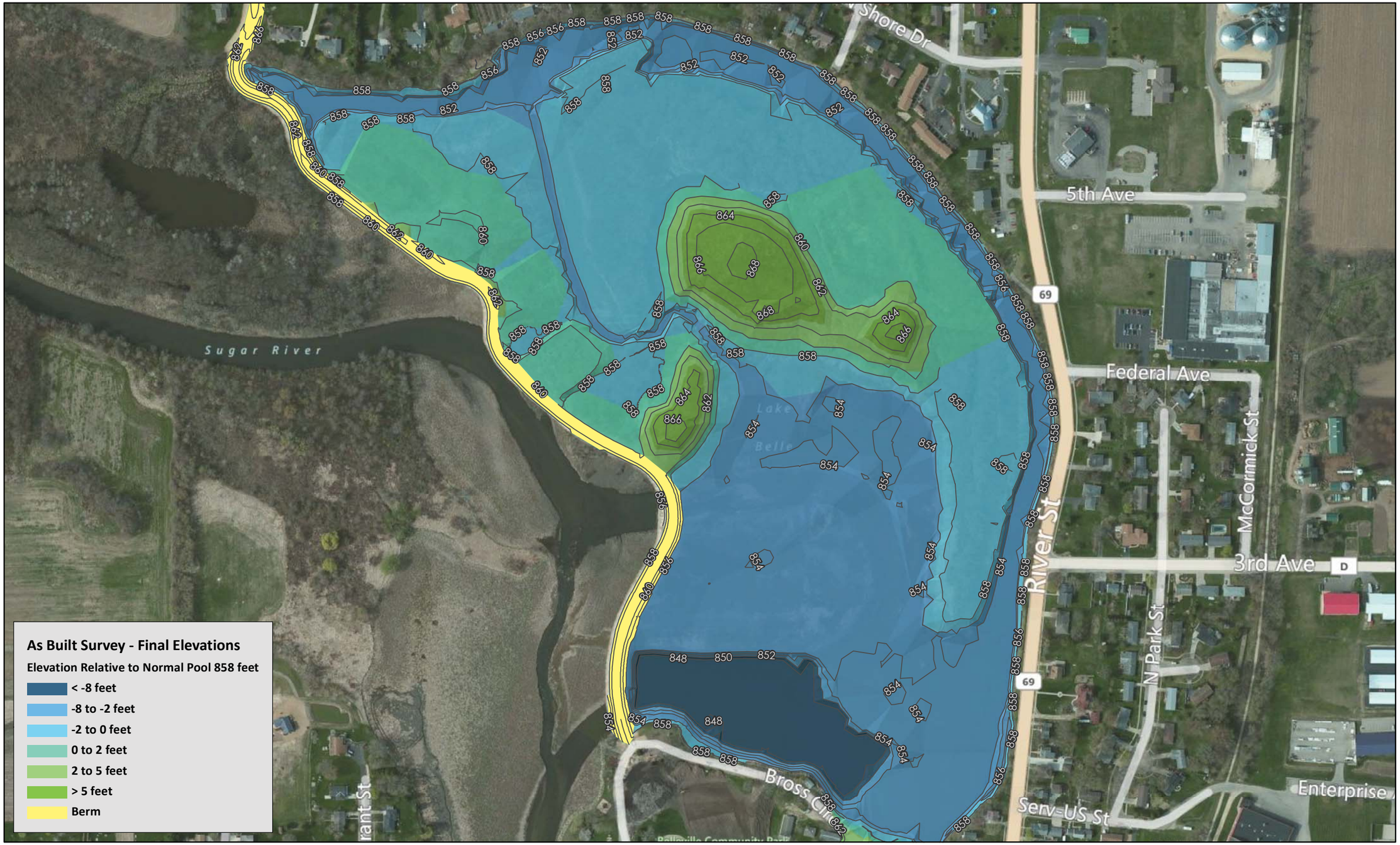
Phalaris arundinacea	Reed canary grass		2	1	1	2	2
Phleum pratense	timothy			1			
Plantago major	common plantain				1		
Poa palustris	marsh bluegrass		2	2	1		
Polygonum lapathifolia	dock-leaved smartweed	4	3				
Polygonum pensylvanicum	Pennsylvania smartweed		2		1		
Potamogeton natans	floatingleaf pondweed	1					
Rudbeckia hirta	black-eyed susan		1	1	1	1	
Rumex crispus	curly dock		1		1		1
Salix nigra	willow		1			1	1
Schoenoplectus tabernaemontani	soft-stem bulrush	2					
Scirpus atrovirens	black bulrush	2	3				
Scirpus cyperinus	wool grass		1			1	2
Scirpus fluviatilis	river bulrush	1					
Silphium perfoliatum	cup-plant				1		
Solidago canadensis	common goldenrod		1	1			
Solidago gigantea	giant goldenrod			1	2		
Sonchus arvensis	sow-thistle			1			
Trifolium pratense	red clover				1		
Trifolium repens	white clover				1		
Typha angustifolia	narrow-leaved cattail	1					
Typha latifolia	broad-leaved cattail		2				
Urtica dioica	Stinging nettle		3		2		1
Verbascum thapsus	mullein			1	2		
Verbena hastata	blue vervain		5	5	5	3	3
	Total area						
Total species	53	9	33	20	31	13	12
Native species percent	70%	89%	85%	70%	68%	85%	75%

1. Naming follows Wetter et al. 2001
2. Species in bold are non-native

Table 2- Lake Belleview Comparison of Species Number and Percentage of Native Species between 2012, 2013, and 2014

Date	7/12		9/12		6/13		9/13		7/14	
	Species Number	Percent Native	Species Number	Percent Native	Species Number	Percent Native	Species Number	Percent Native	Species Number	Percent Native
Plant Community										
Emergent	14	86%	11	82%	12	92%	5	92%	9	89%
Wet Meadow	41	66%	40	75%	19	63%	20	70%	33	85%
Wet-Mesic Prairie	36	39%	40	43%	31	32%	20	55%	20	70%
Mesic Prairie	29	48%	30	57%	43	44%	29	72%	31	68%
Total Area	74	59%	125*	66%*	67	48%	75	60%	53	70%

* Total for 2012, not just '9/12 values



Main Map Projection: Dane County Coordinate System | Locator Map Not to Scale

DRAWN BY	CHECKED BY
DYL	SJH

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AS BUILT ELEVATIONS
HABITAT ZONES

Lake Belle View Lake Restoration
Village of Belleville
Dane County, WI

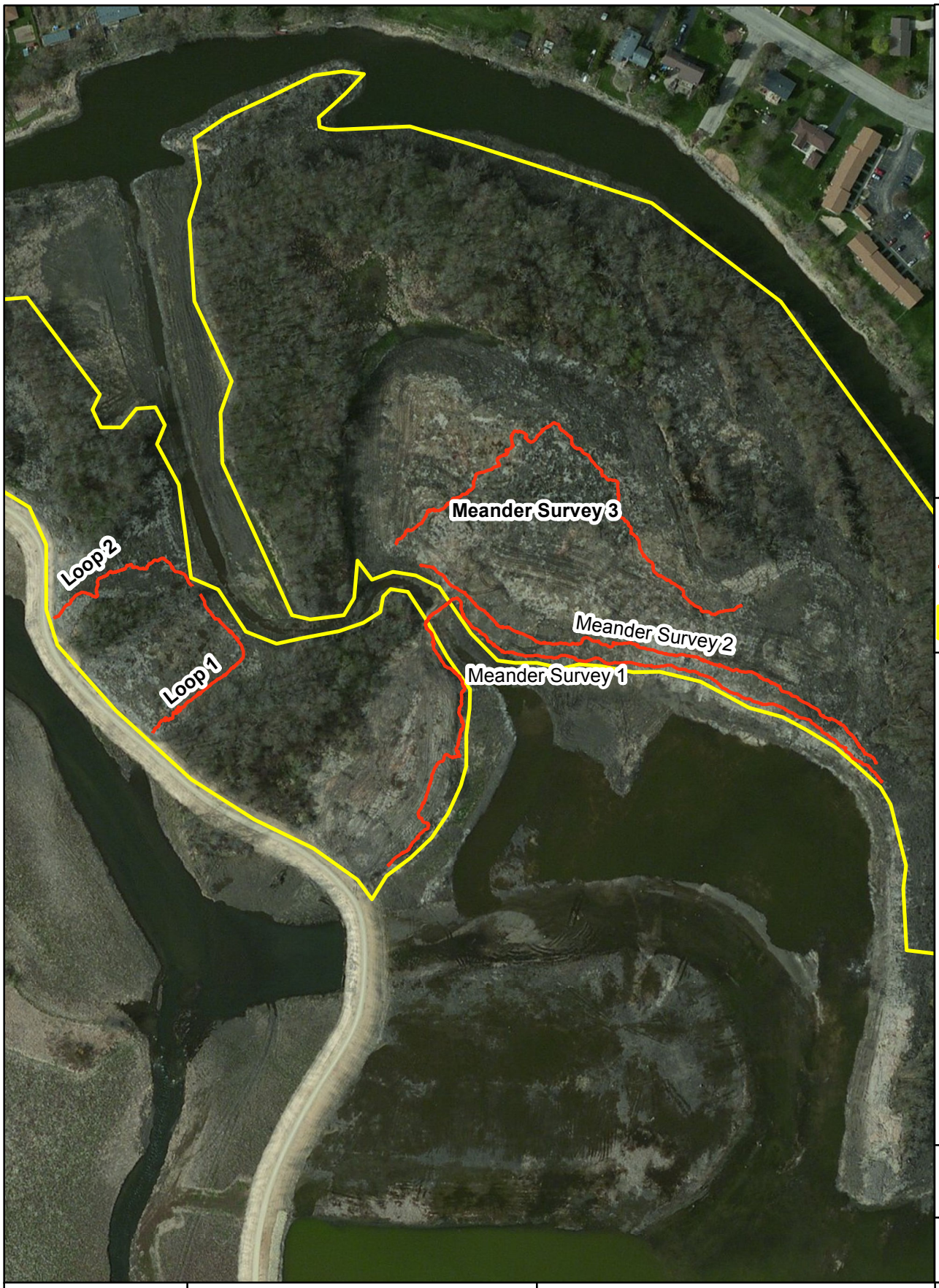
N
W E
S

0 150 300 Feet

SCALE
1 inch = 300 feet

PROJECT NO.	DATE
1428-011	Sept 4, 2012

SHEET NO.
Figure 1

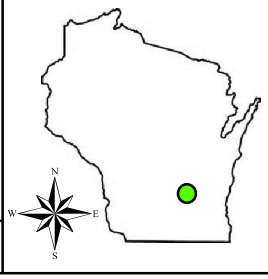


Legend

- Meander Survey
- Restoration Area

0 105 210 Feet

1 inch = 233 feet

Drawn By: Daniel Fuhs	ERC ECO-RESOURCE CONSULTING, LLC 409 Concord Drive Oregon, WI 53575 www.eco-resource.net	11006 Figure 2 Meander Survey Lake Belle View Lake Restoration Village of Belleville Dane County, WI	
Date: 7/21/2014			
Project Number: 11006			
Figure 2		Source : Esri US - Milwaukee 04/29/2011	

January, 2001

_____

File or Docket Number

Wisconsin Department of Natural Resources

RAPID ASSESSMENT METHODOLOGY FOR EVALUATING WETLAND FUNCTIONAL VALUES

GENERAL INFORMATION

Name of Wetland/Owner:
Location: County _____; ¼, ¼, Section , Township , Range
Project Name:
Evaluator(s):
Date(s) of Site Visit(s):

Description of seasonality limitations of this inspection due to time of year of the evaluation and/or current hydrologic and climatologic conditions (e.g. after heavy rains, snow or ice cover, during drought year, during spring flood, during bird migration):

WETLAND DESCRIPTION

Wisconsin Wetlands Inventory classification:
Wetland Type: shallow open water deep marsh shallow marsh seasonally flooded basin bog floodplain forest alder thicket sedge meadow coniferous swamp fen wet meadow shrub-carr low prairie hardwood swamp
Estimated size of wetland in acres:

SUMMARY OF FUNCTIONAL VALUES

Based on the results of the attached functional assessment, rate the significance of each of the functional values for the subject wetland and check the appropriate box. Complete the table as a summary.

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	N/A
Floral Diversity					
Wildlife Habitat					
Fishery Habitat					
Flood/Stormwater Attenuation					
Water Quality Protection					
Shoreline Protection					
Groundwater					
Aesthetics/Recreation/Education					

List any Special Features/"Red Flags":

SITE DESCRIPTION

I. HYDROLOGIC SETTING

A. Describe the geomorphology of the wetland:

- ❑ Depressional (includes slopes, potholes, small lakes, kettles, etc.)
- ❑ Riverine
- ❑ Lake Fringe
- ❑ Extensive Peatland

B. **Y N** Has the wetland hydrology been altered by ditching, tiles, dams, culverts, well pumping, diversion of surface flow, or changes to runoff within the watershed (circle those that apply)?

C. **Y N** Does the wetland have an inlet, outlet, or both (circle those that apply)?

D. **Y N** Is there any field evidence of wetland hydrology such as buttressed tree trunks, adventitious roots, drift lines, water marks, water stained leaves, soil mottling/gleying, organic soils layer, or oxidized rhizospheres (circle those that apply)?

E. **Y N** Does the wetland have standing water, and if so what is the average depth in inches? _____"
Approximately how much of the wetland is inundated? _____%

F. How is the hydroperiod (seasonal water level pattern) of the wetland classified?

- ❑ Permanently Flooded
- ❑ Seasonally Flooded (water absent at end of growing season)
- ❑ Saturated (surface water seldom present)
- ❑ Artificially Flooded
- ❑ Artificially Drained

G. **Y N** Is the wetland a navigable body of water or is a portion of the wetland below the ordinary high-water mark of a navigable water body? List any surface waters associated with the wetland or in proximity to the wetland (note approximate distance from the wetland and navigability determination). Note if there is a surface water connection to other wetlands.

II. VEGETATION

A. Identify the vegetation communities present and the dominant species.

	floating leaved community dominated by:
	submerged aquatic community dominated by:
	emergent community dominated by:
	shrub community dominated by:
	deciduous broad-leaved tree community dominated by:
	coniferous tree community dominated by:
	open sphagnum mat or bog
	sedge meadow/wet prairie community dominated by:
	other (explain)

B. Other plant species identified during site visit:

III. SOILS

A. NRCS Soil Map Classification: _____

B. Field description:

❑ Organic (histosol)? If so, is it a muck or a peat?

❑ Mineral soil?

- Mottling, gleying, sulfidic materials, iron or manganese concretions, organic streaking (circle those that apply)
- Soil Description: _____
- Depth of mottling/gleying: _____
- Depth of A Horizon: _____
- Munsell Color of matrix and mottles
  - -Matrix below the A horizon (10"depth): _____
  - -Mottles: _____

V. SURROUNDING LAND USES

A. What is the estimated area of the wetland watershed in acres? _____

B. What are the surrounding land uses?

LAND-USE	ESTIMATED % OF WETLAND WATERSHED
Developed (Industrial/Commercial/Residential)	
Agricultural/cropland	
Agricultural/grazing	
Forested	
Grassed recreation areas/parks	
Old field	
Highways or roads	
Other (specify)	

VI. SITE SKETCH

FUNCTIONAL ASSESSMENT

The following assessment requires the evaluator to examine site conditions that provide evidence that a given functional value is present and to assess the significance of the wetland to perform those functions. Positive answers to questions indicate the presence of factors important for the function. The questions are not definitive and are only provided to guide the evaluation. After completing each section, the evaluator should consider the factors observed and use best professional judgement to rate the significance. The ratings should be recorded on page 1 of the assessment.

SPECIAL FEATURES/"RED FLAGS"

1. **Y N** Is the wetland in or adjacent to an area of special natural resource interest (NR 103.04, Wis. Adm. Code)? If so, check those that apply:

- ❑ Cold water community as defined in s. NR 102.04(3)(b), Wis. Adm. Code, including trout streams, their tributaries, and trout lakes
- ❑ Lakes Michigan and Superior and the Mississippi River
- ❑ State or federal designated wild and scenic river
- ❑ Designated state riverway
- ❑ Designated state scenic urban waterway
- ❑ Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advanced delineation and identification study
- ❑ Calcareous fen
- ❑ State park, forest, trail or recreation area
- ❑ State and federal fish and wildlife refuges and fish and wildlife management areas
- ❑ State or federal designated wilderness area
- ❑ Designated or dedicated state natural area
- ❑ Wild rice water listed in ch. NR 19.09, Wis. Adm. Code
- ❑ Surface water identified as an outstanding or exceptional resource water in ch. NR 102, Wis. Adm. Code

2. **Y N** According to the Natural Heritage Inventory (Bureau of Endangered Resources) or direct observations, are there any rare, endangered, or threatened plant or animal species in, near, or using the wetland or adjacent lands? If so, list the species of concern:

3. **Y N** Is the project located in an area that requires a State Coastal Zone Management Plan consistency determination?

Floral Diversity

1. **Y N** Does the wetland support a variety of native plant species (i.e. not a monotypic stand of cattail or giant reed grass and/or not dominated by exotic species such as reed canary grass, brome grass, buckthorn, purple loosestrife, etc.)?

2. **Y N** Is the wetland plant community regionally scarce or rare?

Wildlife and Fishery Habitat

1. List any species observed, evidenced (e.g. tracks, scat, nest/burrow, calls), or expected to utilize the wetland:

2. **Y N** Does the wetland contain a number of diverse vegetative cover types and a high degree of interspersion of those vegetation types?

3. **Y N** Is the estimated ratio of open water to cover between 30 and 70 percent? What is the estimated ratio? _____%

4. **Y N** Does the surrounding upland habitat likely support a variety of animal species?

5. **Y N** Is the wetland part of or associated with a wildlife corridor or designated environmental corridor?

6. **Y N** Is the surrounding habitat and/or the wetland itself a large tract of undeveloped land important for wildlife that requires large home ranges (e.g. bear, woodland passerines)?

7. **Y N** Is the surrounding habitat and/or the wetland itself a relatively large tract of undeveloped land within an urbanized environment that is important for wildlife?

8. **Y N** Are there other wetland areas near the subject wetland that may be important to wildlife?

9. **Y N** Is the wetland contiguous with a permanent waterbody or periodically inundated for sufficient periods of time to provide spawning/nursery habitat for fish?

10. **Y N** Can the wetland provide significant food base for fish and wildlife (e.g. insects, crustaceans, voles, forage fish, amphibians, reptiles, shrews, wild rice, wild celery, duckweed, pondweeds, watermeal, bulrushes, bur reeds, arrowhead, smartweeds, millets...)?

11. **Y N** Is the wetland located in a priority watershed/township as identified in the Upper Mississippi and Great Lakes Joint Venture of the North American Waterfowl Management Plan?

12. **Y N** Is the wetland providing habitat that is scarce to the region?

Flood and Stormwater Storage/Attenuation

1. **Y N** Are there steep slopes, large impervious areas, moderate slopes with row cropping, or areas with severe overgrazing within the watershed (circle those that apply)?

2. **Y N** Does the wetland significantly reduce run-off velocity due to its size, configuration, braided flow patterns, or vegetation type and density?

3. **Y N** Does the wetland show evidence of flashy water level responses to storm events (debris marks, erosion lines, stormwater inputs, channelized inflow)?

4. **Y N** Is there a natural feature or human-made structure impeding drainage from the wetland that causes backwater conditions?

5. **Y N** Considering the size of the wetland area in relation to the size of its watershed, at any time during the year is water likely to reach the wetland's storage capacity (i.e. the level of easily observable wetland vegetation)? [For some cases where greater documentation is required, one should determine if the wetland has capacity to hold 25% of the run-off from a 2 year-24 hour storm event.]

6. **Y N** Considering the location of the wetland in relation to the associated surface water watershed, is the wetland important for attenuating or storing flood or stormwater peaks (i.e. is the wetland located in the mid or lower reaches of the watershed)?

Water Quality Protection

1. **Y N** Does the wetland receive overland flow or direct discharge of stormwater as a primary source of water (circle that which applies)?

2. **Y N** Do the surrounding land uses have the potential to deliver significant nutrient and/or sediment loads to the wetland?

3. **Y N** Based on your answers to the flood/stormwater section above, does the wetland perform significant flood/stormwater attenuation (residence time to allow settling)?

4. **Y N** Does the wetland have significant vegetative density to decrease water energy and allow settling of suspended materials?

5. **Y N** Is the position of the wetland in the landscape such that run-off is held or filtered before entering a surface water?

6. **Y N** Are algal blooms, heavy macrophyte growth, or other signs of excess nutrient loading to the wetland apparent (or historically reported)?

Shoreline Protection

1. **Y N** Is the wetland in a lake fringe or riverine setting? If NO, STOP and enter "not applicable" for this function. If YES, then answer the applicable questions.

2. **Y N** Is the shoreline exposed to constant wave action caused by long wind fetch or boat traffic?

3. **Y N** Is the shoreline and shallow littoral zone vegetated with submerged or emergent vegetation in the swash zone that decrease wave energy or perennial wetland species that form dense root mats and/or species that have strong stems that are resistant to erosive forces?

4. **Y N** Is the stream bank prone to erosion due to unstable soils, land uses, or ice floes?

5. **Y N** Is the stream bank vegetated with densely rooted shrubs that provide upper bank stability?

Groundwater Recharge and Discharge

1. **Y N** Related to discharge, are there observable (or reported) springs located in the wetland, physical indicators of springs such as marl soil, or vegetation indicators such as watercress or marsh marigold present that tend to indicate the presence of groundwater springs?

2. **Y N** Related to discharge, may the wetland contribute to the maintenance of base flow in a stream?

3. **Y N** Related to recharge, is the wetland located on or near a groundwater divide (e.g. a topographic high)?

Aesthetics/Recreation/Education and Science

1. **Y N** Is the wetland visible from any of the following kinds of vantage points: roads, public lands, houses, and/or businesses? (Circle all that apply.)

2. **Y N** Is the wetland in or near any population centers?

3. **Y N** Is any part of the wetland is in public or conservation ownership?

4. **Y N** Does the public have direct access to the wetland from public roads or waterways? (Circle those that apply.)

5. Is the wetland itself relatively free of obvious human influences, such as:

   a. **Y N** Buildings?
   b. **Y N** Roads?
   c. **Y N** Other structures?
   d. **Y N** Trash?
   e. **Y N** Pollution?
   f. **Y N** Filling?
   g. **Y N** Dredging/draining?
   h. **Y N** Domination by non-native vegetation?

6. Is the surrounding viewshed relatively free of obvious human influences, such as:
   a. **Y N** Buildings?
   b. **Y N** Roads?
   c. **Y N** Other structures?

7. **Y N** Is the wetland organized into a variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water)?

8. **Y N** Does the wetland add to the variety of visibly separate areas of similar vegetation, color, and/or texture (including areas of open water) within the landscape as a whole?

9. Does the wetland encourage exploration because any of the following factors are present:
   a. **Y N** Long views within the wetland?
   b. **Y N** Long views in the viewshed adjacent to the wetland?
   c. **Y N** Convoluted edges within and/or around the wetland border?
   d. **Y N** The wetland provides a different (and perhaps more natural/complex) kind of environment from the surrounding land covers?

10. **Y N** Is the wetland currently being used for (or does it have the potential to be used for) the following recreational activities? (Check all that apply.)

ACTIVITY	CURRENT USE	POTENTIAL USE
Nature study/photography		
Hiking/biking/skiing		
Hunting/fishing/trapping		
Boating/canoeing		
Food harvesting		
Others (list)		

11. **Y N** Is the wetland currently being used, and/or does it have the potential for use for educational or scientific study purposes (circle that which applies)?

APPENDIX B

ERC WETLAND DELINEATION - 2014

ECO-RESOURCE CONSULTING, LLC

WETLAND DELINEATION REPORT

Prepared for:
The Village of Belleville
24 W. Main Street
Belleville, WI 53508

Prepared by:
Eco-Resource Consulting, LLC
409 Concord Drive
Oregon, WI 53575

INTRODUCTION

Eco-Resource Consulting, LLC (ERC) conducted the wetland determination/delineation of the +/- 22-acre wetland mitigation project associated with the separation of a large portion of the former millpond (Lake Belle View) and the Sugar River in Belleville, Dane County, Wisconsin. The sole purpose of this project was to restore the aquatic ecosystems of Lake Belle View and the Upper Sugar River. In order to implement this restoration, some impacts to existing wetlands and placement of fill on the lakebed were unavoidable. The mitigation area for this project is considered to be the 22-acre fill section of the current Lake Belle View.

The restoration area is composed of dredge spoils from the construction of Lake Belle View. The area was dredged during September 2010 and March 2011. Grading activities were completed in November 2011. The emergent area was seeded in June 2011 and a dormant seeding using native plant seed appropriate to the community type was conducted in December 2011. Eco-Resource Consulting was assigned the task of conducting a wetland determination/delineation of the restoration during the 2014 growing season pursuant to State and Federal permit conditions.

The antecedent precipitation for the Middleton area for the period of July 12 through July 22, 2014 was reported as 0.39 inches by the Weather Underground (http://www.wunderground.com/). The average precipitation for the month of July is 0.04 inches indicating that the antecedent precipitation was above normal for this location.

The primary objective of the wetland determination/delineation was to provide the location and spatial boundary of jurisdictional wetlands on the mitigation area. The mitigation area contains two areas of restoration that extend eastward from the Sugar River separation berm. The westernmost mitigation area is the smaller of the areas, and is separated from the larger easternmost mitigation area by an approximate 30 feet wide canoe channel.

The mitigation area contains a wetland complex which contains; shallow marsh wetlands along the shores of Lake Belle View, a wet/sedge meadow zone that is immediately upslope from the lake shore, and a non-wetland mesic prairie zone upslope of the wet meadow. The forested/floodplain forest wetlands that were present before, and currently exist outside of the mitigation area, are not part of this wetland delineation investigation.

Based on the post-construction as-built survey, a total of 11.6 acres of wetland were created based on elevation.

Stephen Hjort of ERC was the lead investigator and conducted the wetland determination/delineation on July 22, 2014 under fair weather conditions.

METHODOLOGY

The process of wetland determination and delineation included a review of the following resources:

1. Natural Resources Conservation Service (NRCS) document titled, Soil Survey of Dane County, Wisconsin
2. Hydric Soils List of Wisconsin
3. Wisconsin Wetland Inventory mapping using the Internet-based Surface Water Data Viewer
4. 2000 - 2010 aerial photography

These documents provided information on soils, land use, and locations in which previous wetlands or hydric soils conditions have been identified. Using these resources, ERC staff then visited the site to conduct wetland determination and delineation investigational field data collection for the purposes of assessing the jurisdictional wetlands contained within the wetland mitigation boundaries.

Wetland determination was made using the following methods and publications:

1. 1987 Corps of Engineers Wetlands Delineation Manual (Y-87-1)
2. Subsequent USACE Guidance documents, (USACE 1991, 1992)
3. Guidelines for Submitting Wetland Delineations in Wisconsin to the St. Paul District Corps of Engineers (USACE, 1996)
4. Basic Guide to Wisconsin's Wetland and their Boundaries (Wisconsin Department of Administration, Coastal management Program, 1995)
5. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0, January, 2012

Most wetlands in the United States are considered "waters of the U.S.", and are subject to regulation under the Clean Water Act (CWA). Non-isolated wetlands are regulated under Section 404 of the CWA and jurisdictional regulatory authority lie with the U.S. Army Corps of Engineers (USACE). In addition, the Wisconsin Department of Natural Resources (WDNR) has regulatory authority over wetlands, navigable waters, and lands adjacent under Chapter 30 of Wisconsin State Statutes, Act 6, and NR 103, Wisconsin Administrative Code.

The U.S. Army Corps of Engineers and U.S. Environmental Protection Agency wetland definition is as follows; “Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated conditions.”

The State of Wisconsin wetland definition differs somewhat, however, the Wisconsin Administrative Code cites the usage of the 1987 USACE Manual. Under the assumption of normal conditions, the three wetland criteria; predominance of hydrophytic vegetation, hydric soils, and wetland hydrology were used to determine wetland conditions.

Wetland determinations on the property were made based on the three wetland criteria defined in the 1987 USACE Manual, and the USACE Regional Supplement. The initial inspection of the site revealed that the site contained a water body and associated wetlands. Specific topographic features provided locations for representative transects of the wetland boundary.

At each sampling point:

1. The presence or absence of normal conditions was assessed.
2. The plant community was characterized by identifying dominant plant species using the “50/20” rule. In each vegetative stratum in the plant community, dominant species are ranked in order of abundance and cumulatively totaled until 50% or more of the dominant species is reached in each stratum, plus any additional species comprising 20% or more of the total dominance metric for each stratum.
3. Soil test pits were dug to a depth of at least 18 inches, or until obvious hydric soil conditions were observed.
4. Hydrology was assessed by collected data on either primary or secondary indicators of wetland hydrology. Primary indicators (i.e., inundation, saturation within the root zone, water marks, etc.) or secondary indicators (i.e., surface soil cracks, drainage patterns, geomorphic position, etc.) were used to make hydrology determinations.

Six (6) transects that were representative of the upland/wetland interface, and numerous single test pits were investigated for wetland determination and delineation purposes. The test pit locations and wetland delineation flags are included on Figure 4. A hand auger was used to refine wetland delineation flags after test pits were advanced to define the soil profile. Subject to disturbance or other variables, wetland flags will remain in the field for use by agency staff or during construction.

WETLAND DETERMINATION AND DELINEATION FINDINGS

The wetland complex associated with the wetland mitigation was mapped as open water on the WDNR Surface Water Viewer (Figure 2). A total of 22 acres of the former millpond lake bed were filled as part of the lake restoration and wetland mitigation process. All of these former lake bed sediments were hydric based on their location prior to excavation and replacement. This condition is considered to be problematic as no non-wetland soils were placed in areas that are now in a non-wetland position. The sediments have had three years to "dry out" but still retain hydric soil characteristics.

Field inspection revealed that wetland conditions were present on the days of inspection that included dominance of hydrophytic vegetation, hydric soils, and wetland hydrology. Field forms are included in the Field Forms section near the end of this report. The hydric soils criterion was followed during field data collection but was considered to be unreliable due to the origin of these former submersed sediments in the former millpond.

The NRCS Soil Survey, WDNR Surface Water Data Viewer, and topography mapping polygons have been overlaid onto more recent aerial imagery (2011) that depicts the current physical landform conditions.

NRCS Soil Survey information indicates that Alluvial Land, wet (Af) soils or sediments (Figure 1) were present in the areas of forested wetland that were, and are currently present in the mitigation area. The remaining areas within the mitigation area were mapped as "Water", but now contain both wetland and non-wetland soil conditions. Soil test pits were advanced at various locations around the perimeter of the wetland/non-wetland interface. Photographs of test pit soil profiles are included in the Photographs section.

WDNR Surface Water Data Viewer mapping data (Figure 2) also indicates that the area of wetland mitigation is listed as "Water", given its former millpond open water condition. The forested wetland areas have not changed in size or location from previously mapped locations.

The topographic layer (Figure 3) is also overlaid upon a more recent aerial image and reflects post-construction survey data.

Wetlands

The former and existing forested wetlands in the Lake Belle View restoration are characterized as; T3K, forested broad-leaved deciduous with a wet soil, palustrine modifier. The "new" delineated wetlands are characterized as E2/E3K, emergent/wet meadow, persistent, narrow-leaved and broad-leaved, with wet soil, palustrine modifier. These newly created +/- wetlands are located within +/- 24 inches of the normal water level of the lake. It should be noted that the lake levels were drawn down in early 2014 for the purposes of carp control but were re-filled to normal water levels in advance of the field data collection.

Soils in the wetland area were found to be problematic and unreliable due to the origin of these excavated sediments. Typically, sediments dredged from a lacustrine or riverine environment will undergo oxidation as the soils are de-watered in a non-wetland position. These changes typically occur over time and local hydrology will affect the depth and extent of oxidation as the sediments dewater. The soil test pits included a mixture of loamy sand, a mixture of silt loam and sand/gravel, and some layers of clay/marl material.

The vegetation in the mitigation area was also problematic as the entire restoration area was seeded with a wet meadow mix that included many FACW species. The seed bank that expressed itself the first two years of growth included both FACW and OBL species. The soils (sediment) that filled the former lake bed were a combination of alluvial sediments that varied in grain size and were homogenized into a "fill material" type matrix, favoring wetland species.

Primary indicators of wetland hydrology included: saturation, with secondary indicators of geomorphic position and a positive FAC-neutral test. Dominant plant species in the wetland included; sneezeweed (*Helenium autumnale*), rice-cut grass (*Leersia oryzoides*), blue vervain (*Verbena hastata*), and boneset (*Eupatorium perfoliatum*). The rice-cut grass was established from the dredge spoils seed bank, and the remaining species were seeded in the restoration area. The upland species that were seeded in the restoration were rarely found in a wetland position.

Uplands

The uplands are located in the central portion the restoration. This upland area is approximately 2-6 feet upslope in elevation from the wetland boundary. Soils in the wetland area were found to be problematic and unreliable due to the origin of these excavated sediments (see above). The vegetation in the mitigation area was also problematic as the entire restoration area was seeded with a wet meadow mix that included many FACW species. Dominant plant species in the western upland area included; Canada goldenrod (*Solidago*

canadensis), giant goldenrod (*Solidago gigantea*), black-eyed Susan (*Rudbeckia hirta*), bergamot (*Monarda fistulosa*), and Virginia wildrye (*Elymus virginicus*). Dominant plant species in the larger eastern portion of the restoration included sneezeweed (*Helenium autumnale*), rice-cut grass (*Leersia oryzoides*), blue vervain (*Verbena hastata*), and fowl bluegrass (*Poa palustris*)

CONCLUSION

This wetland determination/delineation report provides information collected by Stephen Hjort, a wetland professional with over 20 years of wetland delineation experience. The delineated wetland boundary is an estimate of the wetland boundary on the day of inspection. The final decision and disposition of wetland boundaries lies with the jurisdictional agencies including USACE and WDNR. As such, there may be adjustments to the wetland delineation line by a regulatory agency.

Respectfully submitted,

ECO-RESOURCE CONSULTING, LLC

Stephen J. Hjort
Principal/Senior Biologist

PHOTOGRAPHS

Test Pit UP-1 7-22-2014

Photograph of Test Pit UP-1 soil profile. Very dark brown and dark yellowish brown (10YR 2/2 & 4/4) silt/sandy loam from 0-21 inches. No redox concentrations were observed.

Test Pit WET-1 7-22-2014

Photograph of Test Pit WET-1 soil profile. Very dark brown (10YR 2/2) silt loam from 0-12 inches, black (10YR 2/1) mucky loam from 12-24 inches. No redox concentrations were observed. Water table at 16 inches and saturated soils at 12 inches.

Test Pit UP-2 7-22-2014

Photograph of Test Pit UP-2 soil profile. Very dark brown and dark yellowish brown (10YR 2/2 & 4/4) silt/sandy loam from 0-18 inches, black (10YR 2/1) silt loam from 18-20 inches. Yellowish brown (10YR 5/8) redox concentrations were observed from 18-20 inches.

Test Pit WET-2 7-22-2014

Photograph of Test Pit WET-2 soil profile. Very dark brown and dark yellowish brown (10YR 2/2 & 4/4) silt/sandy loam from 0-17 inches, black (10YR 2/1) silt loam from 17-20 inches. No redox features were observed. Saturated soil conditions were observed at 11 inches.

Test Pit UP-3 7-22-2014

Photograph of Test Pit UP-3 soil profile. Very dark brown and dark grayish brown (10YR 2/2 & 4/2) silt loam from 0-18 inches, mixed fill material. No redox concentrations were observed.

Test Pit WET-3 7-22-2014

Photograph of Test Pit WET-3 soil profile. Black (10YR 2/1) silt loam from 0-24 inches, with 5% prominent and distinct redox features (10YR 5/8) from 8-24 inches.

Test Pit UP-4 7-22-2014

Photograph of Test Pit UP-4 soil profile. Very dark brown (10YR 2/2) silt loam with gravel from 0-13 inches, black (10YR 2/1) silt loam with gravel from 13-20 inches. No redox concentrations were observed.

Test Pit WET-4 7-22-2014

Photograph of Test Pit WET-4 soil profile. Very dark brown (10YR 2/2) silt loam with gravel from 0-17 inches, with 5% prominent and distinct redox features (10YR 5/8 & 5/1) from 8-17 inches. Black (10YR 2/1) loamy sand with 10% prominent and distinct redox features (10YR 5/1).

Test Pit UP-5 7-22-2014

Photograph of Test Pit UP-5 soil profile. Very dark brown and dark yellowish brown (10YR 2/2 & 4/4) silt/sandy loam from 0-7 inches, very dark brown (10YR 2/2) silt loam from 7-11 inches. Brown (10YR 5/3) sand with no redox concentrations observed.

Test Pit WET-5 7-22-2014

Photograph of Test Pit WET-5 soil profile. Very dark brown and dark yellowish brown (10YR 2/2 & 4/4) sandy loam from 0-9 inches, black (10YR 2/1) loamy sand with 5% prominent and distinct redox features (10YR 5/2) from 9-20 inches. Black (2.5/N Gley 1) mucky loam from 20-23 inches.

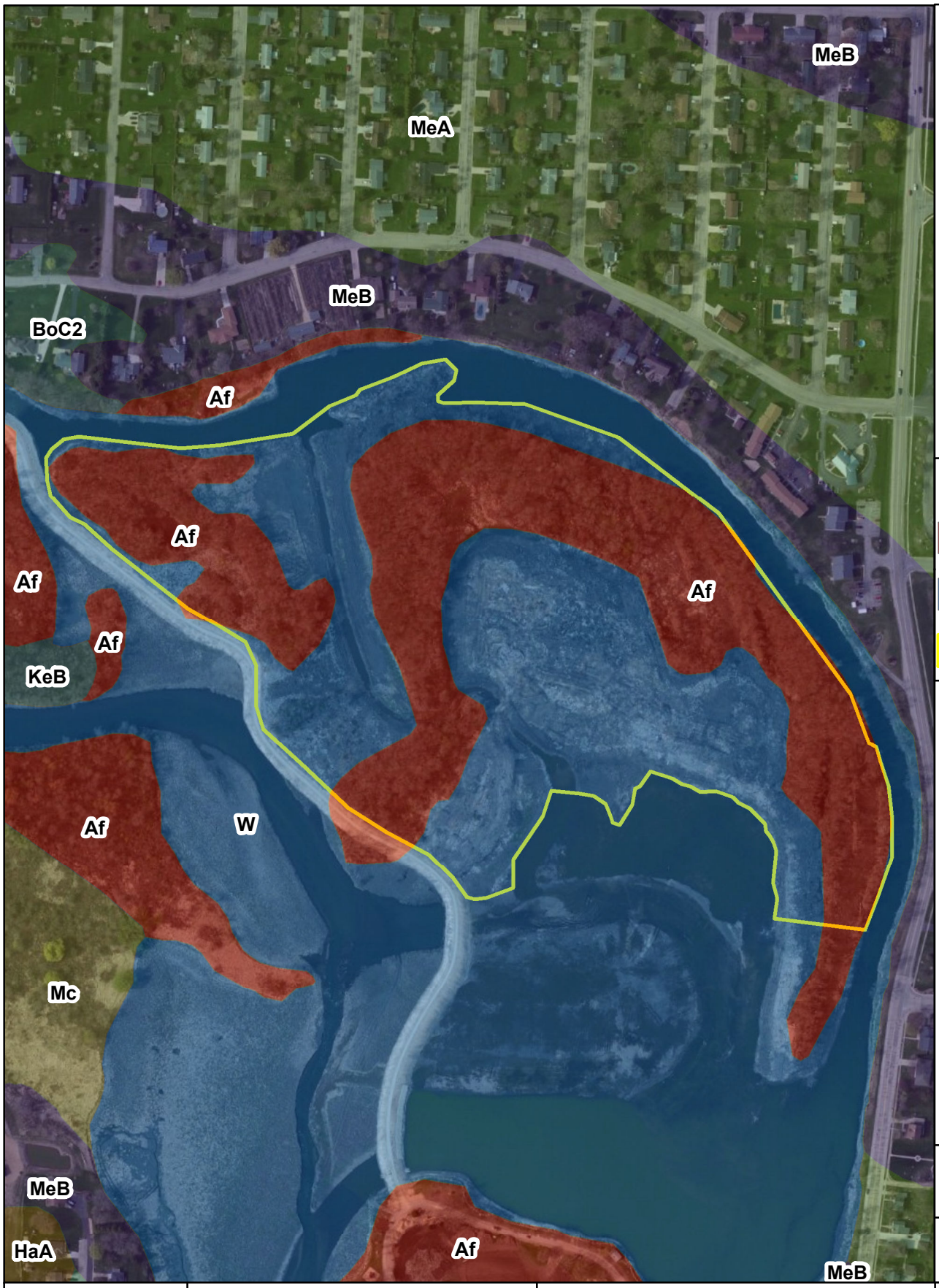
Test Pit UP-6 7-22-2014

Photograph of Test Pit UP-6 soil profile. Very dark gray (7.5YR 3/1) loamy clay from 0-3 inches, brown (10YR 4/3) sandy loam with gravel from 3-12 inches. Brown (10YR 5/3) clay/marl from 12-17 inches, and a mixed layer (10YR 2/2 & 4/4) of sandy loam from 17-22 inches. No prominent and distinct redox concentrations were observed.

Test Pit WET-6 7-22-2014

Photograph of Test Pit WET-6 soil profile. Very dark brown (10YR 2/2) sandy loam from 0-15 inches, with 10% prominent and distinct redox features (10YR 3/6) from 4-15 inches. From 15-21 inches, black (10YR 2/1) sandy loam with 10% prominent (10YR 5/2) redox features.

FIGURES



Legend

- Af - Alluvial Land, Wet
- W - Water
- Restoration Area

0 170 340 Feet

1 inch = 370 feet

Drawn By: Daniel Fuhs

Date: 7/22/2014

Project Number: 11006

Figure 1 of 4

ERC
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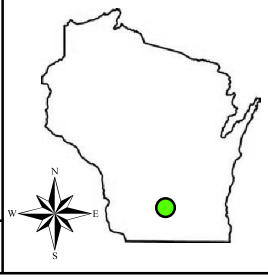
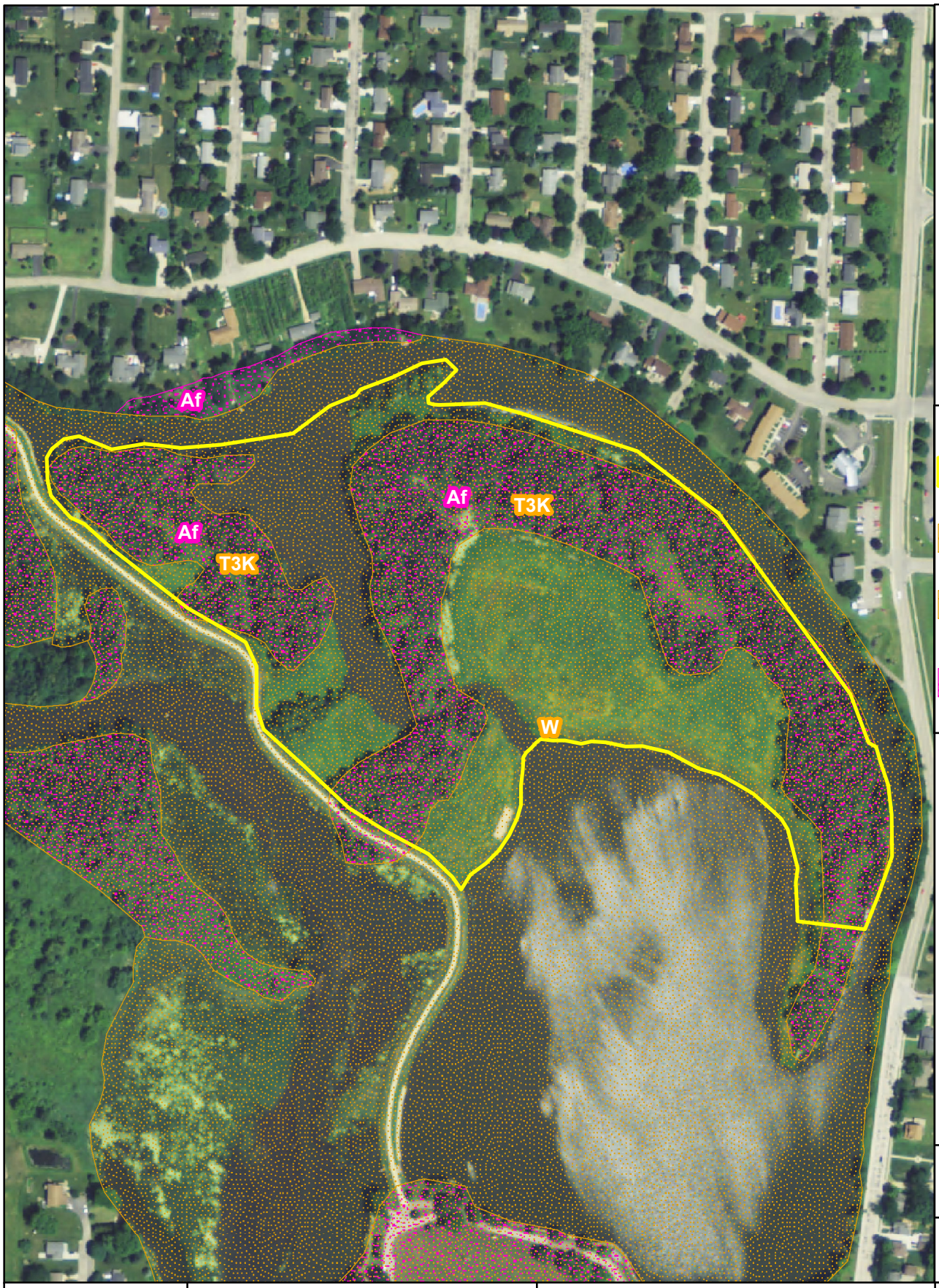
11006 Figure 1
NRCS Web Soil Survey
Lake Belle View Lake Restoration
Village of Belleville
Dane County, WI

Source : Esri US - Milwaukee 04/29/2011





Legend

- Restoration Area
- WWI - T3K - Forested Wetland
- WWI - W - Open Water
- Wetland Indicators - Af - Alluvial land, Wet

0 165 330 Feet

1 inch = 370 feet

Drawn By: Daniel Fuhs

Date: 10/20/2014

Project Number: 11006

Figure 2 of 4

ERC
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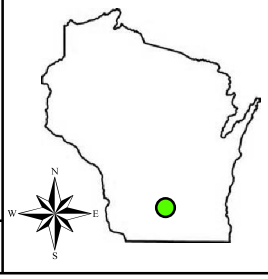
11006 Figure 2
WDNR Surface Water Data Viewer
Lake Belle View Lake Restoration
Village of Belleville
Dane County, WI

Source : USDA 2013



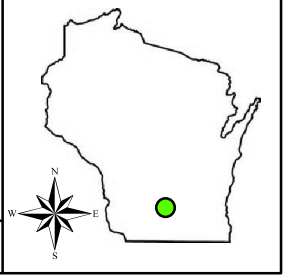
Legend

- 2ft Contours
- Restoration Area

0 165 330 Feet

1 inch = 370 feet

Drawn By: Daniel Fuhs	ERC ECO-RESOURCE CONSULTING, LLC 409 Concord Drive Oregon, WI 53575 www.eco-resource.net	11006 Figure 3 Topography Lake Belle View Lake Restoration Village of Belleville Dane County, WI
Date: 7/22/2014		
Project Number: 11006		Source : Esri US - Milwaukee 04/29/2011
Figure 3 of 4		

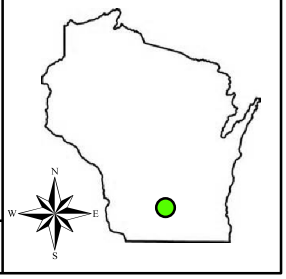


Legend

- Wetland Delineation Points
- Wetland Test Pits
- Wetland Delineation
- Restoration Area
- Wetland
- Upland

0 105 210 Feet

1 inch = 233 feet

Drawn By: Daniel Fuhs	ERC ECO-RESOURCE CONSULTING, LLC 409 Concord Drive Oregon, WI 53575 www.eco-resource.net	11006 Figure 4 Wetland Delineation Lake Belle View Lake Restoration Village of Belleville Dane County, WI	
Date: 10/20/2014			
Project Number: 11006			
Figure 4 of 4		Source : USDA 2013	

FIELD FORMS

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Lake Belle View Restoration	City/County:	Belleville, Dane	Sampling Date:	7-22-2014
Applicant/Owner:	Village of Belleville	State:	WI	Sampling Point:	UP-1
Investigator(s):	Stephen Hjort, Daniel Fuhs	Section, Township, Range:	Sec. 34, T5N, R8E		
Landform (hillslope, terrace, etc.):	hillslope	Local relief (concave, convex, none):	convex		

Slope (%): 0-2% Lat.: Long.: Datum:

Soil Map Unit Name N/A (former lake bed) NWI Classification:

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation X, soil X, or hydrology significantly disturbed? Are "normal circumstances" present? No

Are vegetation X, soil X, or hydrology naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

The Lake Belle View Restoration Project included dredging and subsequent filling of the former millpond to create approximately 23 acres of wetland and upland habitat within the separated Sugar River and newly create Lake Belle View. FACW dominated seed mix was planted in the restoration and FACW-OBL seed bank present.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)
	Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
	High Water Table (A2)	Aquatic Fauna (B13)	Drainage Patterns (B10)
	Saturation (A3)	Marl Deposits (B15)	Moss Trim Lines (B16)
	Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
	Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Crayfish Burrows (C8)
	Drift Deposits (B3)	Presence of Reduced Iron (C4)	Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Stunted or Stressed Plants (D1)
	Iron Deposits (B5)	Thin Muck Surface (C7)	Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)		FAC-Neutral Test (D5)
			Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	>21

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP-1

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Melilotus officinalis*	25	Y	FACU
2	*Solidago altissima*	15	Y	FACU
3	*Phalaris arundinacea*	10	Y	FACW
4	*Monarda fistulosa*	10	Y	FACU
5	*Rudbeckia hirta*	10	Y	FACU
6	*Elymus virginicus*	8	N	FACW
7	*Erigeron strigosus*	5	N	FACU
8				
9				
10				
11				
12				
13				
14				
15				
		83	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	17	42
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across all Strata:	5	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	20.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	0	x 1 =	0	
FACW species	18	x 2 =	36	
FAC species	0	x 3 =	0	
FACU species	65	x 4 =	260	
UPL species	0	x 5 =	0	
Column totals	83	(A)	296	(B)
Prevalence Index = B/A =			3.57	

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** UP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-21	10YR 2/2 & 4/4	100					silt loam	* mixed fill material

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
Soils are from former wetland or lake bed sediment position that have "dried out" since 2012.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Lake Belle View Restoration	City/County:	Belleville, Dane	Sampling Date:	7-22-2014
Applicant/Owner:	Village of Belleville	State:	WI	Sampling Point:	WET-1
Investigator(s):	Stephen Hjort, Daniel Fuhs	Section, Township, Range:	Sec. 34, T5N, R8E		
Landform (hillslope, terrace, etc.):	Terrace	Local relief (concave, convex, none):	None		
Slope (%): 0-2%	Lat.:	Long.:	Datum:		
Soil Map Unit Name N/A (former lake bed)			NWI Classification:		

Are climatic/hydrologic conditions of the site typical for this time of the year? ____ (If no, explain in remarks)

Are vegetation X, soil X, or hydrology ____ significantly disturbed? Are "normal circumstances" present? No

Are vegetation X, soil X, or hydrology ____ naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

The Lake Belle View Restoration Project included dredging and subsequent filling of the former millpond to create approximately 23 acres of wetland and upland habitat within the separated Sugar River and newly create Lake Belle View.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)
___ Surface Water (A1)	___ Water-Stained Leaves (B9)		___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)		___ Drainage Patterns (B10)
X Saturation (A3)	___ Marl Deposits (B15)		___ Moss Trim Lines (B16)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)		___ Dry-Season Water Table (C2)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)		___ Crayfish Burrows (C8)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)		___ Saturation Visible on Aerial Imagery (C9)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)		___ Stunted or Stressed Plants (D1)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)		X Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)		___ Shallow Aquitard (D3)
___ Sparsely Vegetated Concave Surface (B8)			X FAC-Neutral Test (D5)
			___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	13
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	11

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: WET-1

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Leersia oryzoides*	50	Y	OBL
2	*Solidago gigantea*	40	Y	FACW
3	*Verbena hastata*	5	N	FACW
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		95	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	19	48
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across all Strata:	2	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	50	x 1 =	50	
FACW species	45	x 2 =	90	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	95	(A)	140	(B)
Prevalence Index = B/A =			1.47	

Hydrophytic Vegetation Indicators:

	Rapid test for hydrophytic vegetation
X	Dominance test is >50%
X	Prevalence index is ≤3.0*
	Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
	Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: WET-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 2/2	100					Silt loam	
12-24	10YR 2/1	100					Mucky loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- X Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:

Soils are from former wetland or lake bed sediment position that have "dried out" since 2012.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Lake Belle View Restoration	City/County:	Belleville, Dane	Sampling Date:	7-22-2014
Applicant/Owner:	Village of Belleville	State:	WI	Sampling Point:	UP-2
Investigator(s):	Stephen Hjort, Daniel Fuhs	Section, Township, Range:	Sec. 34, T5N, R8E		
Landform (hillslope, terrace, etc.):	hillslope	Local relief (concave, convex, none):	convex		

Slope (%): 0-2% Lat.: Long.: Datum:

Soil Map Unit Name N/A (former lake bed) NWI Classification:

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation X, soil X, or hydrology significantly disturbed? Are "normal circumstances" present? No

Are vegetation X, soil X, or hydrology naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

The Lake Belle View Restoration Project included dredging and subsequent filling of the former millpond to create approximately 23 acres of wetland and upland habitat within the separated Sugar River and newly create Lake Belle View. FACW dominated seed mix was planted in the restoration and FACW-OBL seed bank present.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)
	Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
	High Water Table (A2)	Aquatic Fauna (B13)	Drainage Patterns (B10)
	Saturation (A3)	Marl Deposits (B15)	Moss Trim Lines (B16)
	Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
	Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Crayfish Burrows (C8)
	Drift Deposits (B3)	Presence of Reduced Iron (C4)	Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Stunted or Stressed Plants (D1)
	Iron Deposits (B5)	Thin Muck Surface (C7)	Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)		FAC-Neutral Test (D5)
			Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	>20

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP-2

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Solidago gigantea*	25	Y	FACW
2	*Rudbeckia hirta*	15	Y	FACU
3	*Monarda fistulosa*	10	N	FACU
4	*Cirsium arvense*	5	N	FACU
5	*Conyza canadensis*	5	N	FACU
6	*Persicaria pensylvanica*	2	N	FACW
7	*Verbena hastata*	2	N	FACW
8				
9				
10				
11				
12				
13				
14				
15				
		64	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	13	32
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across all Strata:	2	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	50.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	0	x 1 =	0	
FACW species	29	x 2 =	58	
FAC species	0	x 3 =	0	
FACU species	35	x 4 =	140	
UPL species	0	x 5 =	0	
Column totals	64	(A)	198	(B)
Prevalence Index = B/A =			3.09	

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: UP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18	10YR 2/2 & 4/4	100					Silt loam w / sand & g	10YR 4/4 is sandy fill materia
18-20	10YR 2/1	95	10YR 5/8	5	C	M	Slit loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

Soils are from former wetland or lake bed sediment position that have "dried out" since 2012.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Lake Belle View Restoration	City/County:	Belleville, Dane	Sampling Date:	7-22-2014
Applicant/Owner:	Village of Belleville	State:	WI	Sampling Point:	WET-2
Investigator(s):	Stephen Hjort, Daniel Fuhs	Section, Township, Range:	Sec. 34, T5N, R8E		
Landform (hillslope, terrace, etc.):	Terrace	Local relief (concave, convex, none):	none		
Slope (%): 0-2%	Lat.:	Long.:	Datum:		
Soil Map Unit Name N/A (former lake bed)			NWI Classification:		

Are climatic/hydrologic conditions of the site typical for this time of the year? ____ (If no, explain in remarks)

Are vegetation X, soil X, or hydrology ____ significantly disturbed? Are "normal circumstances" present? No

Are vegetation X, soil X, or hydrology ____ naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

The Lake Belle View Restoration Project included dredging and subsequent filling of the former millpond to create approximately 23 acres of wetland and upland habitat within the separated Sugar River and newly create Lake Belle View.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)
	Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
	High Water Table (A2)	Aquatic Fauna (B13)	Drainage Patterns (B10)
X	Saturation (A3)	Marl Deposits (B15)	Moss Trim Lines (B16)
	Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
	Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Crayfish Burrows (C8)
	Drift Deposits (B3)	Presence of Reduced Iron (C4)	Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Stunted or Stressed Plants (D1)
	Iron Deposits (B5)	Thin Muck Surface (C7)	X Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)		X FAC-Neutral Test (D5)
			Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	13
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	11

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: WET-2

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Symphyotrichum novae-angliae*	40	Y	FACW
2	*Leersia oryzoides*	30	Y	OBL
3	*Poa palustris*	15	N	FACW
4	*Verbena hastata*	10	N	FACW
5	*Solidago gigantea*	10	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		105	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	21	53
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across all Strata:	2	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	30	x 1 =	30	
FACW species	75	x 2 =	150	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	105	(A)	180	(B)
Prevalence Index = B/A =			1.71	

Hydrophytic Vegetation Indicators:

	Rapid test for hydrophytic vegetation
X	Dominance test is >50%
X	Prevalence index is ≤3.0*
	Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
	Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: WET-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-17	10YR 2/2 & 4/4	100					Silt loam	10YR 4/4 sand
17-20	10YR 2/1	100					Mucky loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- X Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:

Soils are from former wetland or lake bed sediment position that have "dried out" since 2012.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Lake Belle View Restoration	City/County:	Belleville, Dane	Sampling Date:	7-22-2014
Applicant/Owner:	Village of Belleville	State:	WI	Sampling Point:	UP-3
Investigator(s):	Stephen Hjort, Daniel Fuhs	Section, Township, Range:	Sec. 34, T5N, R8E		
Landform (hillslope, terrace, etc.):	hillslope	Local relief (concave, convex, none):	convex		

Slope (%): 0-2% Lat.: Long.: Datum:

Soil Map Unit Name N/A (former lake bed) NWI Classification:

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation X, soil X, or hydrology significantly disturbed? Are "normal circumstances" present? No

Are vegetation X, soil X, or hydrology naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

The Lake Belle View Restoration Project included dredging and subsequent filling of the former millpond to create approximately 23 acres of wetland and upland habitat within the separated Sugar River and newly create Lake Belle View. FACW dominated seed mix was planted in the restoration and FACW-OBL seed bank present.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)
	Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
	High Water Table (A2)	Aquatic Fauna (B13)	Drainage Patterns (B10)
	Saturation (A3)	Marl Deposits (B15)	Moss Trim Lines (B16)
	Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
	Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Crayfish Burrows (C8)
	Drift Deposits (B3)	Presence of Reduced Iron (C4)	Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Stunted or Stressed Plants (D1)
	Iron Deposits (B5)	Thin Muck Surface (C7)	Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)		FAC-Neutral Test (D5)
			Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	>20

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP-3

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Helenium autumnale*	30	Y	FACW
2	*Elymus virginicus*	15	Y	FACW
3	*Leersia oryzoides*	10	N	OBL
4	*Verbena hastata*	10	N	FACW
5	*Poa palustris*	5	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		70	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	14	35
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across all Strata:	2	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	10	x 1 =	10	
FACW species	60	x 2 =	120	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	70	(A)	130	(B)
Prevalence Index = B/A =			1.86	

Hydrophytic Vegetation Indicators:

	Rapid test for hydrophytic vegetation
X	Dominance test is >50%
X	Prevalence index is ≤3.0*
	Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
	Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: UP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-20	10YR 2/2	100					Silt loam w / gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

Soils are from former wetland or lake bed sediment position that have "dried out" since 2012.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Lake Belle View Restoration	City/County:	Belleville, Dane	Sampling Date:	7-22-2014
Applicant/Owner:	Village of Belleville	State:	WI	Sampling Point:	WET-3A
Investigator(s):	Stephen Hjort, Daniel Fuhs	Section, Township, Range:	Sec. 34, T5N, R8E		
Landform (hillslope, terrace, etc.):	Terrace	Local relief (concave, convex, none):	none		
Slope (%): 0-2%	Lat.:	Long.:	Datum:		
Soil Map Unit Name	N/A (former lake bed)	NWI Classification:			

Are climatic/hydrologic conditions of the site typical for this time of the year? ____ (If no, explain in remarks)

Are vegetation X, soil X, or hydrology ____ significantly disturbed? Are "normal circumstances" present? No

Are vegetation X, soil X, or hydrology ____ naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

The Lake Belle View Restoration Project included dredging and subsequent filling of the former millpond to create approximately 23 acres of wetland and upland habitat within the separated Sugar River and newly create Lake Belle View.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)		
	Surface Water (A1)		Water-Stained Leaves (B9)		Surface Soil Cracks (B6)
	High Water Table (A2)		Aquatic Fauna (B13)		Drainage Patterns (B10)
	Saturation (A3)		Marl Deposits (B15)		Moss Trim Lines (B16)
	Water Marks (B1)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)		Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
	Iron Deposits (B5)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)			X	FAC-Neutral Test (D5)
					Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	15

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: WET-3A

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Helenium autumnale*	40	Y	FACW
2	*Leersia oryzoides*	25	Y	OBL
3	*Poa palustris*	10	N	FACW
4	*Verbena hastata*	10	N	FACW
5	*Symphyotrichum novae-angliae*	10	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		95	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	19	48
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across all Strata:	2	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	25	x 1 =	25	
FACW species	70	x 2 =	140	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	95	(A)	165	(B)
Prevalence Index = B/A =			1.74	

Hydrophytic Vegetation Indicators:

	Rapid test for hydrophytic vegetation
X	Dominance test is >50%
X	Prevalence index is ≤3.0*
	Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
	Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** WET-3A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-24	10YR 2/2	95	10YR 5/8	5	C	M	Silt loam w / gravel	Redox begins at 8"

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Soils are from former wetland or lake bed sediment position that have "dried out" since 2012.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Lake Belle View Restoration	City/County:	Belleville, Dane	Sampling Date:	7-22-2014
Applicant/Owner:	Village of Belleville	State:	WI	Sampling Point:	WET-3B
Investigator(s):	Stephen Hjort, Daniel Fuhs	Section, Township, Range:	Sec. 34, T5N, R8E		
Landform (hillslope, terrace, etc.):	Terrace	Local relief (concave, convex, none):	none		
Slope (%): 0-2%	Lat.:	Long.:	Datum:		
Soil Map Unit Name N/A (former lake bed)			NWI Classification:		

Are climatic/hydrologic conditions of the site typical for this time of the year? ____ (If no, explain in remarks)

Are vegetation X, soil X, or hydrology ____ significantly disturbed? Are "normal circumstances" present? No

Are vegetation X, soil X, or hydrology ____ naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

The Lake Belle View Restoration Project included dredging and subsequent filling of the former millpond to create approximately 23 acres of wetland and upland habitat within the separated Sugar River and newly create Lake Belle View.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)
___ Surface Water (A1)	___ Water-Stained Leaves (B9)		___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)		___ Drainage Patterns (B10)
X Saturation (A3)	___ Marl Deposits (B15)		___ Moss Trim Lines (B16)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)		___ Dry-Season Water Table (C2)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)		___ Crayfish Burrows (C8)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)		___ Saturation Visible on Aerial Imagery (C9)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)		___ Stunted or Stressed Plants (D1)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)		X Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)		___ Shallow Aquitard (D3)
___ Sparsely Vegetated Concave Surface (B8)			X FAC-Neutral Test (D5)
			___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	13
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	4

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: WET-3B

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Leersia oryzoides*	40	Y	OBL
2	*Helenium autumnale*	30	Y	FACW
3	*Poa palustris*	10	N	FACW
4	*Verbena hastata*	10	N	FACW
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		90	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	18	45
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across all Strata:	2	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	40	x 1 =	40	
FACW species	50	x 2 =	100	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	90	(A)	140	(B)
Prevalence Index = B/A =			1.56	

Hydrophytic Vegetation Indicators:

	Rapid test for hydrophytic vegetation
X	Dominance test is >50%
X	Prevalence index is ≤3.0*
	Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
	Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** WET-3B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-20	10YR 2/2	100					Silt loam w / gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Soils are from former wetland or lake bed sediment position that have "dried out" since 2012.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Lake Belle View Restoration	City/County:	Belleville, Dane	Sampling Date:	7-22-2014
Applicant/Owner:	Village of Belleville	State:	WI	Sampling Point:	UP-4
Investigator(s):	Stephen Hjort, Daniel Fuhs	Section, Township, Range:	Sec. 34, T5N, R8E		
Landform (hillslope, terrace, etc.):	hillslope	Local relief (concave, convex, none):	convex		

Slope (%): 0-2% Lat.: Long.: Datum:

Soil Map Unit Name N/A (former lake bed) NWI Classification:

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation X, soil X, or hydrology significantly disturbed? Are "normal circumstances" present? No

Are vegetation X, soil X, or hydrology naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

The Lake Belle View Restoration Project included dredging and subsequent filling of the former millpond to create approximately 23 acres of wetland and upland habitat within the separated Sugar River and newly create Lake Belle View. FACW dominated seed mix was planted in the restoration and FACW-OBL seed bank present.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)
Surface Water (A1)	Water-Stained Leaves (B9)		Surface Soil Cracks (B6)
High Water Table (A2)	Aquatic Fauna (B13)		Drainage Patterns (B10)
Saturation (A3)	Marl Deposits (B15)		Moss Trim Lines (B16)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
Drift Deposits (B3)	Presence of Reduced Iron (C4)		Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Thin Muck Surface (C7)		Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8)			FAC-Neutral Test (D5)
			Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	>21

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP-4

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Helenium autumnale*	40	Y	FACW
2	*Verbena hastata*	30	Y	FACW
3	*Poa palustris*	20	Y	FACW
4	*Cirsium arvense*	10	N	FACU
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		100	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	20	50
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across all Strata:	3	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	0	x 1 =	0	
FACW species	90	x 2 =	180	
FAC species	0	x 3 =	0	
FACU species	10	x 4 =	40	
UPL species	0	x 5 =	0	
Column totals	100	(A)	220	(B)
Prevalence Index = B/A =			2.20	

Hydrophytic Vegetation Indicators:

	Rapid test for hydrophytic vegetation
X	Dominance test is >50%
X	Prevalence index is ≤3.0*
	Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
	Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: UP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-13	10YR 2/2	100					Silt loam w / gravel	
13-20	10YR 2/1	100					Silt loam w / gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

Soils are from former wetland or lake bed sediment position that have "dried out" since 2012.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Lake Belle View Restoration	City/County:	Belleville, Dane	Sampling Date:	7-22-2014
Applicant/Owner:	Village of Belleville	State:	WI	Sampling Point:	WET-4
Investigator(s):	Stephen Hjort, Daniel Fuhs	Section, Township, Range:	Sec. 34, T5N, R8E		
Landform (hillslope, terrace, etc.):	Terrace	Local relief (concave, convex, none):	convex		
Slope (%): 0-2%	Lat.:	Long.:	Datum:		
Soil Map Unit Name N/A (former lake bed)		NWI Classification:			

Are climatic/hydrologic conditions of the site typical for this time of the year? ____ (If no, explain in remarks)

Are vegetation X, soil X, or hydrology ____ significantly disturbed? Are "normal circumstances" present? No

Are vegetation X, soil X, or hydrology ____ naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

The Lake Belle View Restoration Project included dredging and subsequent filling of the former millpond to create approximately 23 acres of wetland and upland habitat within the separated Sugar River and newly create Lake Belle View.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)
	Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
	High Water Table (A2)	Aquatic Fauna (B13)	Drainage Patterns (B10)
X	Saturation (A3)	Marl Deposits (B15)	Moss Trim Lines (B16)
	Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
	Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Crayfish Burrows (C8)
	Drift Deposits (B3)	Presence of Reduced Iron (C4)	Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Stunted or Stressed Plants (D1)
	Iron Deposits (B5)	Thin Muck Surface (C7)	X Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)		X FAC-Neutral Test (D5)
			Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	18
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	12

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: WET-4

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Leersia oryzoides*	60	Y	OBL
2	*Eupatorium perfoliatum*	10	N	FACW
3	*Poa palustris*	10	N	FACW
4	*Verbena hastata*	10	N	FACW
5	*Urtica dioica*	5	N	FAC
6	*Lycopus americanus*	2	N	OBL
7				
8				
9				
10				
11				
12				
13				
14				
15				
		97	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	19	49
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across all Strata:	1	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	62	x 1 =	62	
FACW species	30	x 2 =	60	
FAC species	5	x 3 =	15	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	97	(A)	137	(B)
Prevalence Index = B/A =			1.41	

Hydrophytic Vegetation Indicators:

	Rapid test for hydrophytic vegetation
X	Dominance test is >50%
X	Prevalence index is ≤3.0*
	Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
	Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: WET-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-17	10YR 2/2	95	10YR 5/1 & 5/8	5	C	M	Silt loam w / gravel	
17-20	10YR 2/1	95	10YR 5/1 & 5/8	5	D	M	Loamy sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:

Soils are from former wetland or lake bed sediment position that have "dried out" since 2012.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Lake Belle View Restoration	City/County:	Belleville, Dane	Sampling Date:	7-22-2014
Applicant/Owner:	Village of Belleville	State:	WI	Sampling Point:	UP-5
Investigator(s):	Stephen Hjort, Daniel Fuhs	Section, Township, Range:	Sec. 34, T5N, R8E		
Landform (hillslope, terrace, etc.):	hillslope	Local relief (concave, convex, none):	convex		

Slope (%): 0-2% Lat.: Long.: Datum:

Soil Map Unit Name N/A (former lake bed) NWI Classification:

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation X, soil X, or hydrology significantly disturbed? Are "normal circumstances" present? No

Are vegetation X, soil X, or hydrology naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

The Lake Belle View Restoration Project included dredging and subsequent filling of the former millpond to create approximately 23 acres of wetland and upland habitat within the separated Sugar River and newly create Lake Belle View. FACW dominated seed mix was planted in the restoration and FACW-OBL seed bank present.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)
	Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
	High Water Table (A2)	Aquatic Fauna (B13)	Drainage Patterns (B10)
	Saturation (A3)	Marl Deposits (B15)	Moss Trim Lines (B16)
	Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
	Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Crayfish Burrows (C8)
	Drift Deposits (B3)	Presence of Reduced Iron (C4)	Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Stunted or Stressed Plants (D1)
	Iron Deposits (B5)	Thin Muck Surface (C7)	Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)		FAC-Neutral Test (D5)
			Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	>20

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP-5

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Helenium autumnale*	60	Y	FACW
2	*Verbena hastata*	10	N	FACW
3	*Poa palustris*	10	N	FACW
4	*Rudbeckia hirta*	2	N	FACU
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		82	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	16	41
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across all Strata:	1	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	0	x 1 =	0	
FACW species	80	x 2 =	160	
FAC species	0	x 3 =	0	
FACU species	2	x 4 =	8	
UPL species	0	x 5 =	0	
Column totals	82	(A)	168	(B)
Prevalence Index = B/A =			2.05	

Hydrophytic Vegetation Indicators:

	Rapid test for hydrophytic vegetation
X	Dominance test is >50%
X	Prevalence index is ≤3.0*
	Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
	Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: UP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-7	10YR 2/2 & 4/4	100					Silt loam & sandy loa	Mixed fill material
7-11	10YR 2/2	100					Silt loam	
11-20	10YR 5/3	100					Sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

Soils are from former wetland or lake bed sediment position that have "dried out" since 2012.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Lake Belle View Restoration	City/County:	Belleville, Dane	Sampling Date:	7-22-2014
Applicant/Owner:	Village of Belleville	State:	WI	Sampling Point:	WET-5
Investigator(s):	Stephen Hjort, Daniel Fuhs	Section, Township, Range:	Sec. 34, T5N, R8E		
Landform (hillslope, terrace, etc.):	Terrace	Local relief (concave, convex, none):	convex		
Slope (%): 0-2%	Lat.:	Long.:	Datum:		
Soil Map Unit Name N/A (former lake bed)			NWI Classification:		

Are climatic/hydrologic conditions of the site typical for this time of the year? ____ (If no, explain in remarks)

Are vegetation X, soil X, or hydrology ____ significantly disturbed? Are "normal circumstances" present? No

Are vegetation X, soil X, or hydrology ____ naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

The Lake Belle View Restoration Project included dredging and subsequent filling of the former millpond to create approximately 23 acres of wetland and upland habitat within the separated Sugar River and newly create Lake Belle View.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)		
	Surface Water (A1)		Water-Stained Leaves (B9)		Surface Soil Cracks (B6)
	High Water Table (A2)		Aquatic Fauna (B13)		Drainage Patterns (B10)
	Saturation (A3)		Marl Deposits (B15)		Moss Trim Lines (B16)
	Water Marks (B1)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)		Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
	Iron Deposits (B5)		Thin Muck Surface (C7)	X	Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)			X	FAC-Neutral Test (D5)
					Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	20
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	13

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: WET-5

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Helenium autumnale*	65	Y	FACW
2	*Poa palustris*	20	Y	FACW
3	*Eupatorium perfoliatum*	5	N	FACW
4	*Verbena hastata*	5	N	FACW
5	*Ulmus americana*	1	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		96	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	19	48
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across all Strata:	2	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	0	x 1 =	0	
FACW species	96	x 2 =	192	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	96	(A)	192	(B)
Prevalence Index = B/A =			2.00	

Hydrophytic Vegetation Indicators:

	Rapid test for hydrophytic vegetation
X	Dominance test is >50%
X	Prevalence index is ≤3.0*
	Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
	Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: WET-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-9	10YR 2/2 & 4/4	100					Laom & Sandy loam	Mixed fill material
9-20	10YR 2/1	95	10YR 5/2	5	D	M	Sandy loam	
20-23	2.5/N	100					Mucky loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:

Soils are from former wetland or lake bed sediment position that have "dried out" since 2012.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Lake Belle View Restoration	City/County:	Belleville, Dane	Sampling Date:	7-22-2014
Applicant/Owner:	Village of Belleville	State:	WI	Sampling Point:	UP-6
Investigator(s):	Stephen Hjort, Daniel Fuhs	Section, Township, Range:	Sec. 34, T5N, R8E		
Landform (hillslope, terrace, etc.):	hillslope	Local relief (concave, convex, none):	convex		

Slope (%): 0-2% Lat.: Long.: Datum:

Soil Map Unit Name N/A (former lake bed) NWI Classification:

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation X, soil X, or hydrology significantly disturbed? Are "normal circumstances" present? No

Are vegetation X, soil X, or hydrology naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

The Lake Belle View Restoration Project included dredging and subsequent filling of the former millpond to create approximately 23 acres of wetland and upland habitat within the separated Sugar River and newly create Lake Belle View. FACW dominated seed mix was planted in the restoration and FACW-OBL seed bank present.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)
	Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
	High Water Table (A2)	Aquatic Fauna (B13)	Drainage Patterns (B10)
	Saturation (A3)	Marl Deposits (B15)	Moss Trim Lines (B16)
	Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
	Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Crayfish Burrows (C8)
	Drift Deposits (B3)	Presence of Reduced Iron (C4)	Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Stunted or Stressed Plants (D1)
	Iron Deposits (B5)	Thin Muck Surface (C7)	Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)		FAC-Neutral Test (D5)
			Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	>22

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP-6

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Helenium autumnale*	50	Y	FACW
2	*Rudbeckia hirta*	20	Y	FACU
3	*Leersia oryzoides*	15	N	OBL
4	*Eupatorium perfoliatum*	10	N	FACW
5	*Poa palustris*	5	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		100	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	20	50
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across all Strata:	2	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	50.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	15	x 1 =	15	
FACW species	65	x 2 =	130	
FAC species	0	x 3 =	0	
FACU species	20	x 4 =	80	
UPL species	0	x 5 =	0	
Column totals	100	(A)	225	(B)
Prevalence Index = B/A =			2.25	

Hydrophytic Vegetation Indicators:

- [ ] Rapid test for hydrophytic vegetation
- [ ] Dominance test is >50%
- [X] Prevalence index is ≤3.0*
- [ ] Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: UP-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-3	7.5YR 3/1	100					Loamy clay/marl	
3-12	10YR 4/3	100					Sandy loam w / grave	
12-17	10YR 5/3	100					Clay/marl	
17-22	10YR 2/1 & 4/4	100					Sandy loam w / grave	Mixed fill material - no redox

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

Soils are from former wetland or lake bed sediment position that have "dried out" since 2012.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Lake Belle View Restoration	City/County:	Belleville, Dane	Sampling Date:	7-22-2014
Applicant/Owner:	Village of Belleville	State:	WI	Sampling Point:	WET-6
Investigator(s):	Stephen Hjort, Daniel Fuhs	Section, Township, Range:	Sec. 34, T5N, R8E		
Landform (hillslope, terrace, etc.):	Terrace	Local relief (concave, convex, none):	convex		
Slope (%): 0-2%	Lat.:	Long.:	Datum:		
Soil Map Unit Name N/A (former lake bed)			NWI Classification:		

Are climatic/hydrologic conditions of the site typical for this time of the year? ____ (If no, explain in remarks)

Are vegetation X, soil X, or hydrology ____ significantly disturbed? Are "normal circumstances" present? No

Are vegetation X, soil X, or hydrology ____ naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

The Lake Belle View Restoration Project included dredging and subsequent filling of the former millpond to create approximately 23 acres of wetland and upland habitat within the separated Sugar River and newly create Lake Belle View.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)
___ Surface Water (A1)	___ Water-Stained Leaves (B9)		___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)		___ Drainage Patterns (B10)
X Saturation (A3)	___ Marl Deposits (B15)		___ Moss Trim Lines (B16)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)		___ Dry-Season Water Table (C2)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)		___ Crayfish Burrows (C8)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)		___ Saturation Visible on Aerial Imagery (C9)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)		___ Stunted or Stressed Plants (D1)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)		X Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)		___ Shallow Aquitard (D3)
___ Sparsely Vegetated Concave Surface (B8)			X FAC-Neutral Test (D5)
			___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	15
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	10

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: WET-6

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Leersia oryzoides*	70	Y	OBL
2	*Helenium autumnale*	20	Y	FACW
3	*Verbena hastata*	10	N	FACW
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		100	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	20	50
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across all Strata:	2	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	70	x 1 =	70	
FACW species	30	x 2 =	60	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	100	(A)	130	(B)
Prevalence Index = B/A =			1.30	

Hydrophytic Vegetation Indicators:

	Rapid test for hydrophytic vegetation
X	Dominance test is >50%
X	Prevalence index is ≤3.0*
	Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
	Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** WET-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-15	10YR 2/2	90	10YR 3/6	10	C	M	Sandy loam	
15-21	10YR 2/1	90	10YR 5/2	10	D	M	Sandy loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Soils are from former wetland or lake bed sediment position that have "dried out" since 2012.

APPENDIX C

NES 2015 DETAILED IMPLEMENTATION PLAN FOR SEEDING/PLANTING

PROPOSED SPECIES LISTS FOR LAKE BELLE VIEW IN THE VILLAGE OF BELLEVILLE

WETLAND MEADOW SEED MIX		oz. proposed Per acre
Common Water Plantain	*Alisma subcordatum*	3.0
Canada Anemone	*Anemone canadensis*	1.5
Marsh Milkweed	*Asclepias incarnata*	4.0
New England Aster	*Aster novae-angliae*	2.2
Marsh Aster	*Aster simplex*	
Common Beggars Tick	*Bidens frondosa*	3.6
Joe Pye Weed	*Eupatorium maculatum*	1.5
Golden Alexander	*Zizia aurea*	6.0
Northern Blue Flag	*Iris versicolor*	4.5
Great Blue Lobelia	*Lobelia siphilitica*	0.7
Water Horehound	*Lycopus americanus*	2.2
Monkey Flower	*Mimulus ringens*	3.0
Marsh Blazingstar	*Liatris spicata*	5.0
Culver's Root	*Veronicastrum virginicum*	0.5
Ditch Stonecrop	*Penthorum sedoides*	0.3
Pinkweed	*Polygonum pensylvanicum*	1.7
Common Arrowhead	*Sagittaria latifolia*	3.0
Bebb's Sedge	*Carex bebbii*	5.5
Bristly Sedge	*Carex comosa*	5.5
Lance-fruited Oval Sedge	*Carex scoparia*	4.2
Awl-fruited Sedge	*Carex stipata*	5.0
Tussock Sedge	*Carex Stricta*	4.0
Brown Fox Sedge	*Carex vulpinoidea*	5.0
Great Spike Rush	*Elocharis palustris*	3.0
Fowl Manna Grass	*Glyceria striata*	5.0
Switch Grass	*Panicum virgatum*	10.0
Cord Grass	*Spartina pectinata*	3.5
Green Bulrush	*Scirpus atrovirens*	4.0
Wool Grass	*Scirpus cyperinus*	0.5

UPLAND MEADOW SEED MIX		oz. proposed Per acre
Nodding Pink Onion	*Allium cernuum*	5.9
Butterfly Weed (clay)	*Asclepias tuberosa*	1.0
Heath Aster	*Aster ericoides*	0.3
Smooth Blue Aster	*Aster laevis*	2.0
Purple Prairie Clover	*Dalea purpurea*	4.5
Showy Tick Trefoil	*Desmodium canadense*	4.0
Pale Purple Coneflower	*Echinacea pallida*	6.0
Purple Coneflower*	*Echinacea purpurea*	6.7
Rattle Snake Master	*Eryngium yuccifolium*	6.0
Saw-toothed sunflower	*Helianthus gross.*	3.0
Ox-eye	*Heliopsis helianthoides*	7.1
Round-headed Bushclover	*Lespedeza capitata*	5.6
Prairie Blazing Star	*Liatris pycnostachya*	4.0
Wild Quinine	*Parthenium integrifolium*	3.8
Smooth Penstemon*	*Penstemon digitalis*	0.9
Yellow coneflower	*Ratibida pinnata*	5.2
Brown-eyed Susan	*Rudbeckia triloba*	4.6
Rosinweed	*Silphium integrifolium*	3.7
Compass Plant	*Silphium laciniatum*	1.7
Cupplant	*Siphium perfoliatum*	0.2
Prairie Dock	*Silphium terebinthinaceum*	2.2
Stiff Goldenrod	*Solidago rigida*	4.3
Common Spiderwort	*Tradescantia ohiensis*	5.6
Big Bluestem	*Andropogon gerardii*	45.5
Side Oats Grama	*Bouteloua curtipendula*	45.5
Prairie Sedge	*Carex bicknellii*	16.1
Switch Grass	*Panicum virgatum*	19.5
Little Bluestem	*Schizachyrium scoparium*	18.2
Indian grass	*Sorghastrum nutans*	30.3

ECOLOGICAL SERVICES
A Division of Robert E. Lee & Associates, Inc.

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June 2, 2015

Sigurdur Sigmarsson, P.E.
MONTGOMERY ASSOCIATES
119 South Main Street
Cottage Grove, WI 53527

RE: Lake Belle View – Long Term Restoration Project

Dear Siggi:

NES Ecological Services (NES) – A Division of Robert E. Lee & Associates, Inc. is providing the below information to outline our 2015 Work Plan at Lake Belle View. The plan includes completing the remaining items under the original restoration contract and beginning maintenance activities under a new contract. Also included are alternative options to the direct tree seeding item, most of which could not be done due to a lack of seed availability.

Proposed Work Plan per Project Line Item – January 2015

1. Existing Wooded Areas Vegetation Management

NES completed work under this task in 2014. Invasive species coverage including both woody and herbaceous species was reduced between 2012 & 2014. Although good control was achieved, species such as buckthorn and reed canary grass will likely continue emerging from the seedbank. Control of these species should be maintained within this community to ensure they do no increase over time and spread into the "New Habitat" communities. To achieve this goal in 2015, NES suggests shifting the budget from Item 4 "Prescribed Burn in Existing Wooded Areas" to this task. When a fall burn was being considered, the wooded community was evaluated to determine if fuel within the woodlot would carry a fire. Based on our review, the community not only lacks adequate fuel, but the site conditions were too wet to carry a fire. If the site was too wet in the fall, it likely will not be drier in the Spring of 2015. Therefore, we suggest conducting traditional maintenance activities such as herbicide applications and spot mowing within the existing woodlot throughout the 2015 growing season to further suppress and control invasive species present within the community.

Anticipated Schedule

- Herbicide Applications and Mowing activities to be conducted in May, July & September. Additional work to be completed, if necessary.

Item Budget

- **2015 - $7,356**

2. New Habitat Areas and Berm Vegetation Management

Work under the original contract was completed in 2014; however, the Village of Belleville signed a contract for an additional 2 years of maintenance. Vegetation management in these areas will continue through 2016 and consist of at least three site visits annually. A combination of management methods will be utilized. Upon planting and establishment of native tree species, vegetation management methods will account for their presence and protect them.

Management methods will involve mechanical mowing through the use of weed whips to control small, isolated populations of annual species. Hand pulling may be utilized in very small specialty cases only. Herbicides will be applied to invasive species as well. In general, control methods will be chosen based on the life cycle of the weed being targeted. Annual and biennial weeds will be controlled primarily through cutting to prevent flowering and seed set, and kill the live plant. Perennial weeds will be controlled primarily through the application of herbicides according to label requirements. Additives such as methylated seed oils and surfactants will be used when most beneficial for the target species. As an example, herbicides such as Stinger and Transline are highly effective on clovers and thistles. Herbicides such as Intensity are highly effective on grasses such as reed canary grass. The seasonality of control is important as well. Herbicides will be applied during portions of the growing season that the target species are actively growing and most susceptible.

Worker safety and protection/avoidance of desirable species will be of paramount importance throughout the vegetation management process.

Anticipated Schedule

- Herbicide Applications and Mowing activities to be conducted in May, July & September. Additional work to be completed, if necessary.

Item Budget

- **2015 - $10,800**
- **2016 - $6,800**

3. Emergent Species Zone Vegetation Management

NES completed work under this task in 2014. Invasive species coverage of herbaceous species, particularly cattail, was reduced between 2012 & 2014. Although good control was achieved, this species will likely continue emerging from the seedbank or from seed blown in from the adjacent cattail marsh located along the Sugar River. Control of this species should be maintained within this community to ensure adequate native vegetation establishment and to minimize the percent coverage of non-native or invasive species within the project area. NES can assess the community in 2015 and provide a cost estimate to complete control activities, if needed and desired.

4. Prescribed Burn in Existing Wooded Areas

See Item # 1 above.

5. Prescribed Burn in New Habitat Fill Areas and Berm

A prescribed burn in the New Habitat Fill Areas and sections of the Berm will take place in the spring of 2015. The burn will take place in order to promote the growth of existing desirable native vegetation and set back or kill invasive species.

The burn leader personnel will meet the requirements listed in the bid documents. A burn plan will be written and submitted to relevant agencies and the engineer prior to conducting the burn. All necessary local, state, and/or federal permits will be secured in advance as well.

In advance of the burn, NES personnel will have prepared and maintained adequate burn breaks around the new habitat fill units. NES will provide a crew of a minimum of 4 people during the burn. NES has an internal safety policy that relates to prescribed burning. All crew members will wear PPE for prescribed burning. Crews will be equipped with hand held radios for communication. NES will provide adequate hand tools and equipment for fire control. This includes, but is not limited to, drip torches, backpack water tanks, flappers, rakes, shovels, water tanks, atv's equipped with water, and pickup trucks. Burns will be conducted according to experienced protocols and literature written by the NWCG.

Anticipated Schedule

- Late March - April

Item Budget

- **2015 - $7,356**

6. Climax Seeding in New Habitat Fill Areas

The previously agreed upon climax seeding mix will be supplied and installed in two separate planting zones – mesic (7.1 acres) and wet meadow/floodplain forest (12.0 acres). The mix will be installed following the prescribed burn. In order to ensure good seed to soil contact, a broadcast seeder with cultipacker will be utilized for installation. Due to wet conditions, some areas may need to be hand seeded. Seed will be mixed with a carrier to ensure even distribution. The seed will be planted at no greater than a 1/4" depth. The installer will take every precaution to avoid any damage to the turf or work areas. In some cases, conditions will be too wet to allow proper seeding of the area with the chosen seed mix. NES ecologists will assess the site prior to sowing the seed and adjust rates and areas as deemed appropriate to ensure successful plant establishment.

Anticipated Schedule

- April – Early May

Item Budget

- **2015 - $6,572.50***

***Provided the $19,717.50 included in the December pay request is paid in full.

7. Tree Planting and Seeding in New Habitat Fill Areas

In the spring of 2015 after conducting the prescribed burn, the 3.9 acres of mesic community in the "New Habitat Fill Areas will be seeded with bur oak and black walnut supplied by NES. The seeding rates will be at 4 bushels per acre. Specialized tree seed planting equipment will be utilized. The remaining areas will not be seeded with tree species due to a lack of availability as conveyed through previous correspondence.

In addition to the above seeding, we recommend planting large potted and/or 1.5"-2" caliper bur and white oaks and hickory, if available, at a rate of one per acre in both the 3.9 acres of mesic and 3.2 acres of wet-mesic communities to mimic an oak savanna community. This would allow the prairie community to remain and still have a wooded component by installing several larger trees throughout the communities. We will also install clusters of potted shrubs typically found within this community type. Shrubs will be planted in clumps of 3-5 at a rate of 5 per acre. These trees and shrubs would have more developed bark that would allow them to more easily survive prescribed fires. Further protection could also be provided by quickly mowing around them prior to a burn due to the small quantity present. These larger trees and shrubs would be installed in lieu of the bare-root seedlings originally proposed for the area.

The remaining wet meadow/floodplain forest areas will be planted with bare root seedlings in the Spring of 2015. The species and planting rates in the bid documents will be followed as best as possible; however, we have a couple of species recommendations that will be added in a final planting plan. In some cases, conditions will be too wet to allow planting so the tree planting density will be greater than the specified 150 trees per acre. NES ecologists will assess the site prior to installing the trees and shrub and adjust rates and areas as deemed appropriate to ensure successful plant establishment.

The number of trees planted per acre will be further boosted since we propose shifting the tree seeding budget to the installation of additional bare-root trees due to the lack of tree seed. In addition to increasing the number of trees, NES is recommending the installation of tree protectors around each one to eliminate loss to meadow voles and rabbits. The 4' tall tube would also act as a mini-green house to enhance growth and its height will limit the amount of deer damage done through browsing. Although not originally proposed for this project, NES has learned the importance of good herbivore protection when conducting tree plantings, especially when deer numbers are high such as in this urban setting. This past year we began using Tubex brand tree shelters (www.tubexusa.com) and they have performed very well with many trees doubling their size in one growing season. Installation of shelters will also help identify tree locations so their survival and health can be more easily monitored. The Restoration Plan indicates there will be a 70% survival rate of the trees five years after the planting by conducting a stem count. The presence of tree shelters will more easily allow them to be checked and recorded as to whether or not the plant is dead or alive. NES has conducted other monitoring projects this way by using a GPS and recording the data. The number of additional trees to be planted will be discussed in a final planting plan to be completed in the next couple of weeks.

Live tree planting will occur through the drilling of holes and planting according to internal protocols and commonly accepted practices. This includes holes of adequate depth and width to allow the free spreading of the tree roots. Holes will be dug, trees installed at or slightly above the grade of the existing ground, holes backfilled to ensure that subsequent watering will not allow for undue settling in the holes, and that the trees will remain at grade. A rooting hormone will be utilized in the planting process to aid in the establishment of the trees. NES will also spray Escort,

a pre-emergent herbicide, around the immediate vicinity of the trees to reduce herbaceous plant competition.

Trees will be watered with sufficient frequency and volume to ensure the planting's success if rains are not adequate.

Anticipated Schedule

- April 15 – May 15

Item Budget

- **2015 - $45,126.90***

***Provided the $5,014.10 included in the December pay request is paid in full.

Please call me if you have any questions or need any further information.

Sincerely,

NES ECOLOGICAL SERVICES

James Havel
Division Manager
Senior Ecologist
jhavel@releeinc.com

JRH/jrh

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February 20, 2015

Sigurdur Sigmarsson, P.E.
MONTGOMERY ASSOCIATES
119 South Main Street
Cottage Grove, WI 53527

RE: Lake Belle View – Long Term Restoration Project
Tree Planting Plan

Dear Siggi:

NES Ecological Services (NES) – A Division of Robert E. Lee & Associates, Inc. is providing the below information to outline our proposed plan for the tree installation portion of this project.

Mesic/Wet Mesic Community

We are proposing to plant large potted and/or 1" caliper trees at a rate of one per acre to mimic an oak savanna community. This would allow the prairie community to remain and still have a wooded component by installing several larger trees throughout the communities. We will also install clusters of potted shrubs to be planted in clumps of 3-5 at a rate of 5 per acre. These trees and shrubs will have more developed bark that will allow them to more easily survive prescribed fires. Further protection could also be provided by quickly mowing around them prior to a burn due to the small quantity present. The species and quantities of trees and shrubs found in the below table will be installed in lieu of the bare-root seedlings originally proposed for the area.

Table 1. Tree and shrub species for mesic/wet mesic planting zone.

Species			
Common Name	**Scientific Name**	**Quantity**	**Size - Height**
Trees			
Burn Oak	*Quercus macrocarpa*	4	1"/5-6'
White Oak	*Quercus alba*	2	1"/5'
Shagbark Hickory	*Carya ovata*	1	~1"/24-40"
Shrubs			
Gray Dogwood	*Cornus racemosa*	15	5#/2-4'
American Hazelnut	*Corylus americana*	20	5#/2-4'
	TOTAL	**42**	

Wet Meadow/Floodplain Forest Community

Bare root seedlings and some potted material will be planted throughout this zone. Due to the lack of tree seed, woody species installed within this community will be at a rate of approximately 300 trees/shrubs per acre, up from the 150 originally specified. In some cases conditions will be too wet to allow planting, so the tree/shrub planting density will be further increased in suitable planting zones. NES ecologists will assess the site prior to installing the woody vegetation and adjust rates and areas as deemed appropriate to ensure successful plant establishment. Table 2 includes the species, quantities and approximate sizes of the bare root and potted material to be utilized. All species originally specified within the plan will be utilized in addition to a few others proposed by NES to increase diversity.

In addition to increasing the number of trees/shrubs, NES is proposing the installation of tree protectors around each one to eliminate loss to meadow voles and rabbits. The 4' tall tubes will also act as a mini-green house to enhance growth and its height will limit the amount of deer damage done through browsing. Although not originally proposed for this project, NES has learned the importance of good herbivore protection when conducting tree plantings, especially when deer numbers are high such as in this urban setting. This past year we began using Tubex brand tree shelters (www.tubexusa.com) and they have performed very well with many trees doubling their size in one growing season. Installation of shelters will also help identify tree locations so their survival and health can be more easily monitored.

Table 2. Tree and shrub species for wet meadow/floodplain forest planting zone.

	Species		
Common Name	**Scientific Name**	**Quantity**	**Size - Height**
Trees			
Red Maple*	*Acer rubrum*	100	6"-12"
Silver Maple	*Acer saccharinum*	300	18"
Blue Beech	*Carpinus caroliniana*	25	5 gallon
Hackberry	*Celtis occidentalis*	250	12"
Green Ash	*Fraxinus pennsylvanica*	150	24"-36"
Swamp White Oak	*Quercus bicolor*	300	8"-18"
Bur Oak	*Quercus macrocarpa*	300	18"
Black Willow*	*Salix nigra*	100	12"-18"
American Elm	*Ulmus americana*	150	12"-18"
Shrubs			
Buttonbush*	*Cephalanthus occidentalis*	100	12"-18"
Silky Dogwood	*Cornus amomum*	25	5 gallon
Eastern Wahoo	*Euonymus atropurpurea*	50	5 gallon
Winterberry (Male & Female)*	*Ilex verticillata*	150	6"-8"
Black Currant	*Ribes americanum*	100	18"
American Elder	*Sambucus canadensis*	150	18"
Meadowsweet*	*Spiraea alba*	50	12"-18"
Nannyberry	*Viburnum lentago*	150	12"
American Highbush Cranberry	*Viburnum opulus L. subsp. trilobum*	150	18"
	TOTAL	**2,600**	

*Species were not included in original list; therefore, the material is only one year old and smaller. However, protection with tree shelters will ensure survival.

Tree & Shrub Installation Procedure

A. Preparation:

1. Trees and shrubs will be randomly planted throughout the floodplain. Shrubs shall be placed in "clumps" of 3 to 5 individuals on approximate three-foot centers. All species within a given "clump" shall be the same and the minimum distance between "clumps" shall be ten feet. Trees shall be planted no closer than ten feet apart or from a clump of shrubs throughout the restoration area.
2. Tables 1&2 above indicate the native species and quantities to be planted.
3. Bare root trees and shrubs shall be dormant planted from the time soil becomes workable to May 15th. Container grown material shall be installed during the same timeframe, but may be planted up to June 15th.
4. Planting materials outside the above dates shall be considered unseasonable.
5. If special conditions exist which warrant installation outside normal planting seasons, CONTRACTOR shall submit a written request to the OWNER and ENGINEER describing conditions and stating proposed variance.

B. Excavation for Planting:

1. Plant Pits:

   a. Planting pits shall be prepared through the following sequence:
      1) Pits will be excavated to a minimum diameter of 24"-30", where feasible, and sufficiently deep to allow the root collar to be at the original grade after the bare-root or potted material is positioned in the hole. Pits shall be saucer-shaped with no vertical sides.
      2) Pits for B&B material shall be 2 to 3 times the width of the root ball and deep enough to allow the top of the root ball to be at the original grade after the tree is positioned in the hole. Pits shall be saucer-shaped with no vertical sides.
      3) Pit sides shall be roughened to allow future root penetration.
      4) Plantings will not be installed where depth of soil over underground construction, obstructions or rock is insufficient to accommodate roots or where pockets in rock or impervious soil require drainage.
      5) If drainage problems are encountered that may be detrimental to growth and survival of the plant material, the planting location shall be moved.
      6) Container grown and B&B plants shall be placed on undisturbed soil.
      7) Bare-root plants shall be set on a mound of backfill material.
      8) If holes are excavated on a slope, proper depth shall be obtained by adding or removing soil on uphill or downhill side such that root collar ends up slightly above grade 1" – 2".
      9) Subsoil materials shall be kept separate from the above topsoil layer.

C. Installation Procedures:

1. Container-Grown and B&B Plants:
   a. Potted plants shall be carefully opened and removed from containers. Wire baskets, burlap, twine and other materials shall be carefully removed from around the root ball.

b. Encircling roots shall be unwound and/or cut with a sharp tool and the sides of the root ball scored in several locations around the perimeter. Exceptionally long roots shall be shortened and all roots shall be guided gently downward and outward to prevent root girdling.

c. Plant shall be placed in the center of the pit making sure the root collar is flush with the existing soil surface prior to backfilling with native soil. While backfill approximately 3/4 of the hole, large rocks and debris shall be removed. Large clumps of ground and sod shall be broken apart while filling the pit; and if used, shall not interfere with root growth. Ground placed in the hole shall not be compacted; rather, water shall be poured over the soil to promote natural settling around the root ball. Once settled, the remaining hole shall be filled making sure to use salvaged topsoil to bring up to grade. The additional backfill will be watered to promote final settling. Soil shall be lightly tamped and additional topsoil placed, if necessary. No soil shall be placed over the root collar. Approximately 5 gallons of water shall be used to settle the soil and irrigate the root ball and surrounding soil during installation. A rooting hormone will be mixed with the water to aid in establishment of the trees and shrubs.

2. Bare Root Plants:

a. Prior to installing the trees and shrubs their roots shall be soaked in water for several minutes, but no longer than 3 hours. Care will be taken to keep the roots from drying out during the planting process.

b. Plants will be placed firmly on the mound of backfill material in the center of pit and the roots spread in a natural position while keeping the root collar flush with the existing soil surface.

c. Broken or frayed roots shall be removed. Roots too long for the planting hole shall be trimmed to prevent root girdling.

d. Root collar shall be flush with the existing soil surface prior to backfilling with native soil. While backfill approximately 3/4 of the hole, large rocks and debris shall be removed. Large clumps of ground and sod shall be broken apart while filling the pit; and if used, shall not interfere with root growth. Ground placed in the hole shall not be compacted; rather, water shall be poured over the soil to promote natural settling around the root ball. Once settled, the remaining hole shall be filled making sure to use salvaged topsoil to bring up to grade. Additional backfill shall be watered to promote final settling. Soil shall be lightly tamped and additional topsoil placed, if necessary. No soil shall be placed over the root collar. Approximately 5 gallons of water shall be used to settle the soil and irrigate the roots and surrounding soil during installation. A rooting hormone will be mixed with the water to aid in establishment of the trees and shrubs.

e. Trees and shrubs shall be inspected after installation is completed. Required adjustments will be made, if necessary.

D. Tree Protectors & Stakes:

1. Bare-root & Container Grown Plants.

a. Tubex shelters shall be placed around each tree or shrub.

b. Tube shall be placed flush or below the soil surface to prevent rodent access.

c. Protector shall be securely fastened in place with one wooden stake.

d. Stakes shall be installed 6-12” into the ground to ensure stability.

e. Shelters shall be attached to each stake with cable ties at two points.

E. Planting shall not be conducted during the following conditions unless otherwise approved:

1. Saturated soil conditions.
2. Frozen soil conditions.
3. Temperatures less than 32 degrees Fahrenheit.
4. Temperatures greater than 90 degrees Fahrenheit.

NES will also spray Escort, a pre-emergent herbicide, around the immediate vicinity of the trees and shrubs to reduce herbaceous plant competition.

Trees and shrubs will be watered with sufficient frequency and volume to ensure the planting's success if rains are not adequate.

Please call me if you have any questions or need any further information.

Sincerely,

NES ECOLOGICAL SERVICES

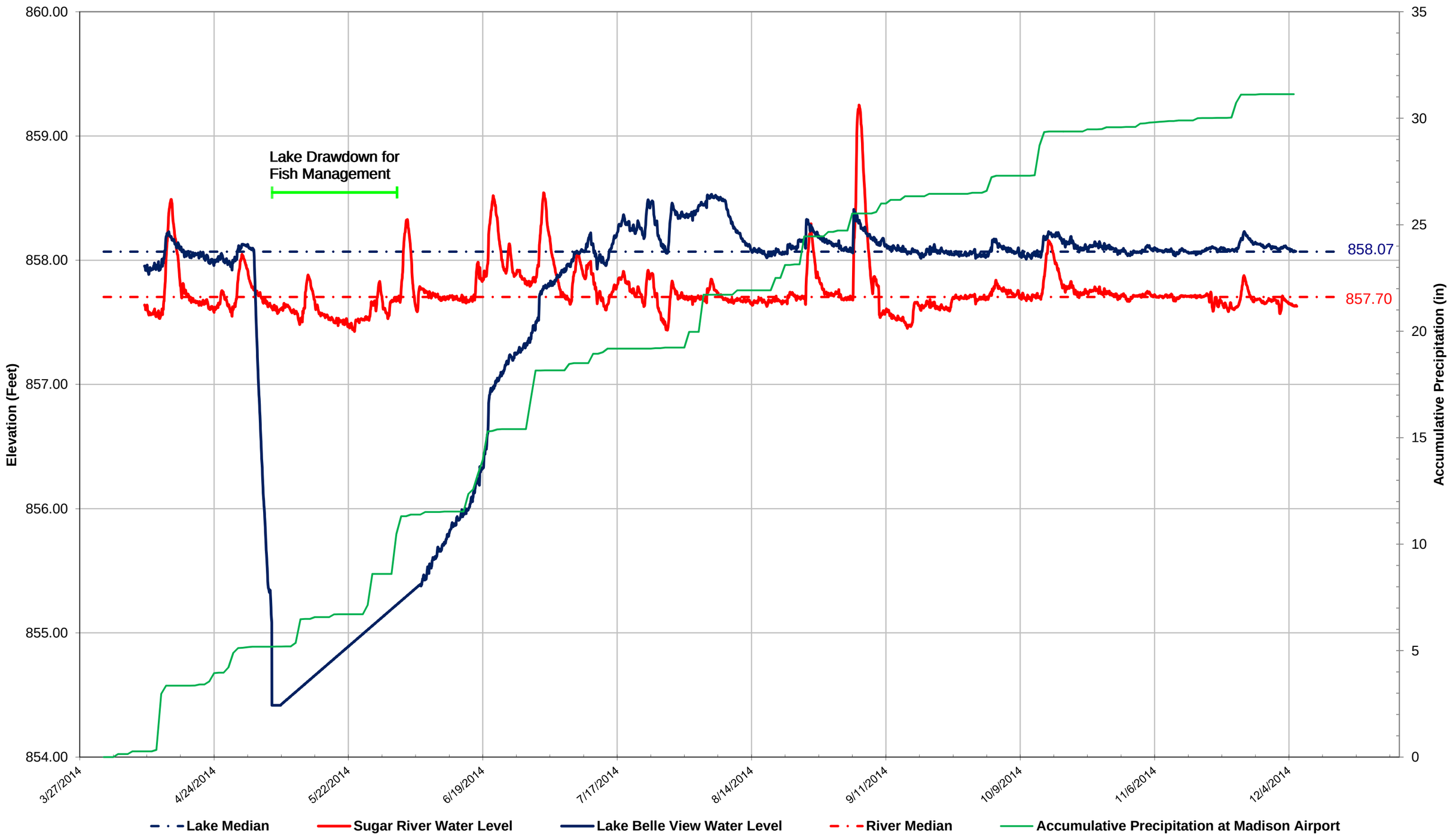
James Havel
Division Manager
Senior Ecologist
jhavel@releeinc.com

JRH/jrh

APPENDIX D

2014 LAKE WATER LEVELS – CONTINUOUS MONITORING – MARS

Lake Belle View Restoration Project
2014 Lake Water Levels - Continuous Monitoring



APPENDIX E

LAKE BELLE VIEW AIS CARP REMOVAL PROGRESS REPORT

SEPTEMBER 2014

Lake Belle View AIS Carp Removal Progress Report

2014 Lake Drawdown and Commercial Seining Operation

Prepared by Dave Marshall and Richard Wedepohl

For

Village of Belle View

September 2014

Summary

As part of a Wisconsin Department of Natural Resources (WDNR) Aquatic Invasive Early Detection and Response grant, the Village of Belle View, through a cooperative agreement with WDNR, hired a commercial fisherman to remove nuisance common carp in Lake Belle View. The carp removal effort was established for eradication and disposal and not for commercial sale. To improve seining catch rates, the lake was drawn down in the spring. Over a three day harvest/channel herding effort, 2,200 lbs of carp were removed from the lake. Consultants Richard Wedepohl and Dave Marshall participated in the commercial harvest and conducted water quality/fish shocking as monitoring efforts to assess the effectiveness of the eradication.

Water quality data collected after the lake was refilled demonstrated continued turbid conditions in the lake. Trophic State Index values in Figure 1 demonstrate that a significant water quality change did not occur after the carp removal. Borderline hypereutrophic conditions persisted in the lake in 2014. However, lake users reported improved water quality and this appeared to reflect a decline in nuisance Cyanobacteria blooms. In Figure 2, high turbidity measurements continued in 2014.

Figure 1: Lake Belle View Trophic State Index 2011 – 2014

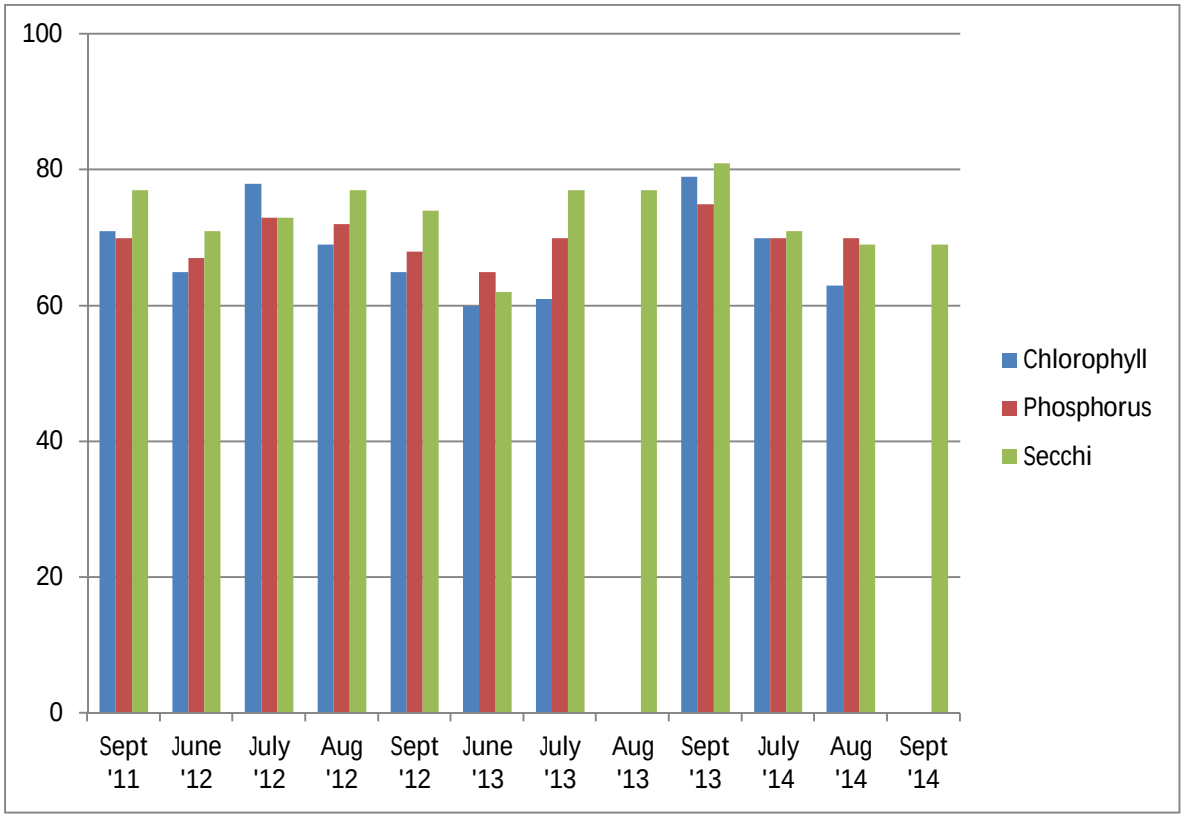
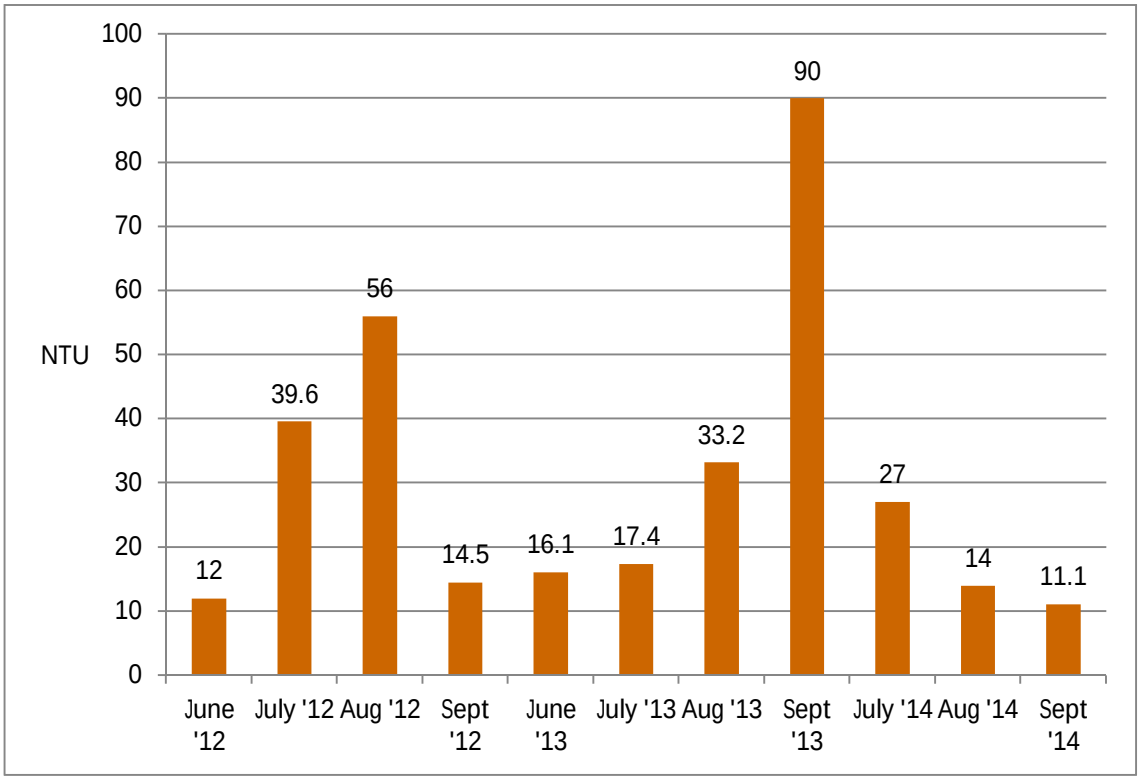


Figure 2: Lake Belle View Turbidity Levels 2011 – 14



Of concern is the abundance of approximately three year old carp in a lake that experienced a partial winterkill in early 2014. Dissolved oxygen profiles in Figure 3 demonstrated very low levels February of this year. However, the loss of walleyes and some other large gamefish did not affect high numbers of panfish and some large predators collected and released during the carp removal effort. Figures 4 displays nearshore fish shocking surveys conducted in May and September 2014. In September, two young of year (YOY) common carp were collected and demonstrated recent recruitment for the first time in the lake. As part of citizen outreach and encouragement to harvest carp in the lake, a carp fishing contest was organized as part of the annual Lakefest event. Results demonstrated that common carp are still abundant in the lake and that commercial harvest efforts should continue. Figure 5 displays the length frequency distribution from the carp fish contest, suggesting that most of the carp in the lake are around three years old and approximately same age as the restored off-channel lake. Twenty-four kids and adults participated in the event and average catch rate (CPUE) was about one carp per hour. Other water quality sampling profiles appear in Figures 6 and 7.

Figure 3: 2014 Lake Belle View Dissolved Oxygen Profiles

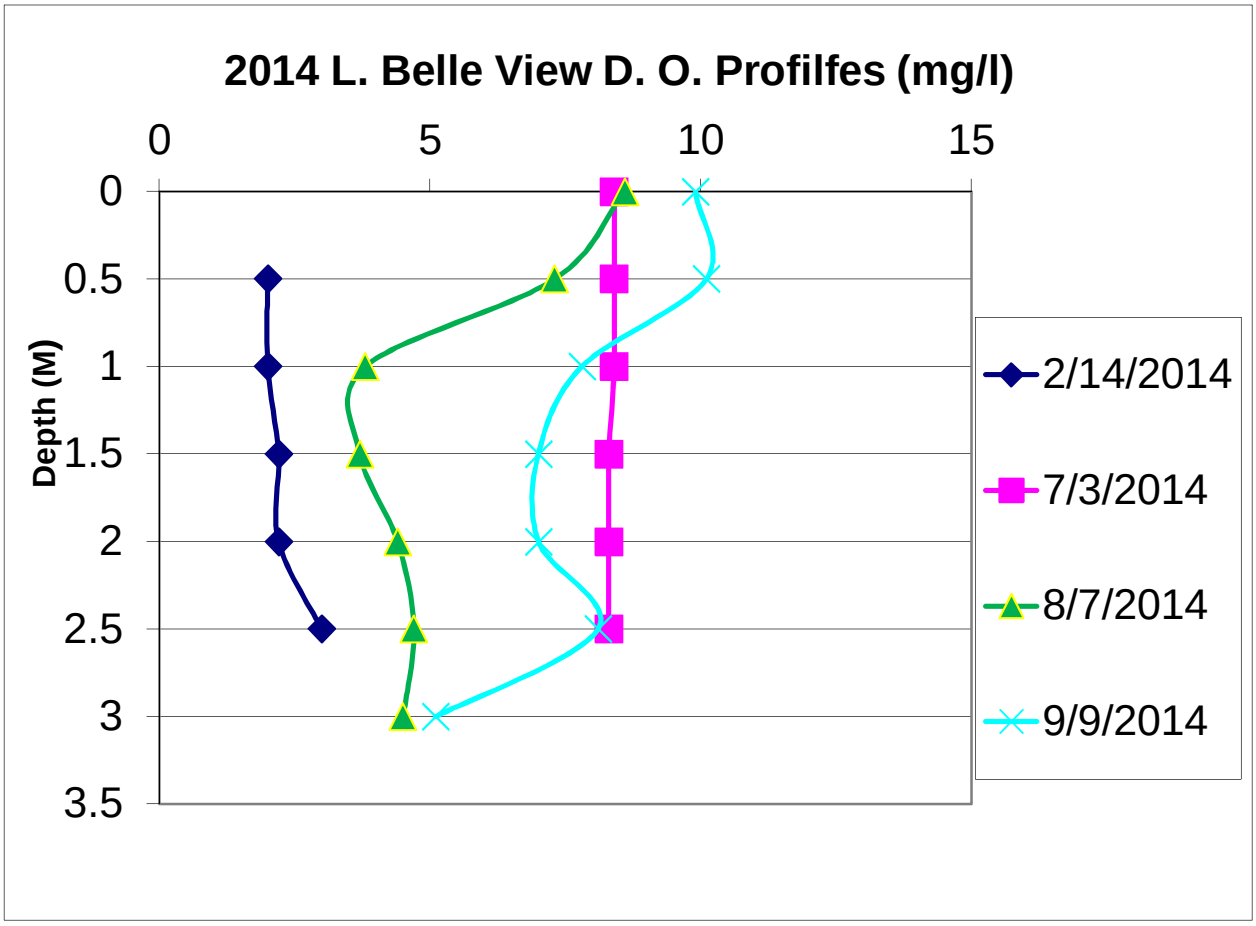


Figure 4: 2014 Nearshore Fish Shocking Survey Results

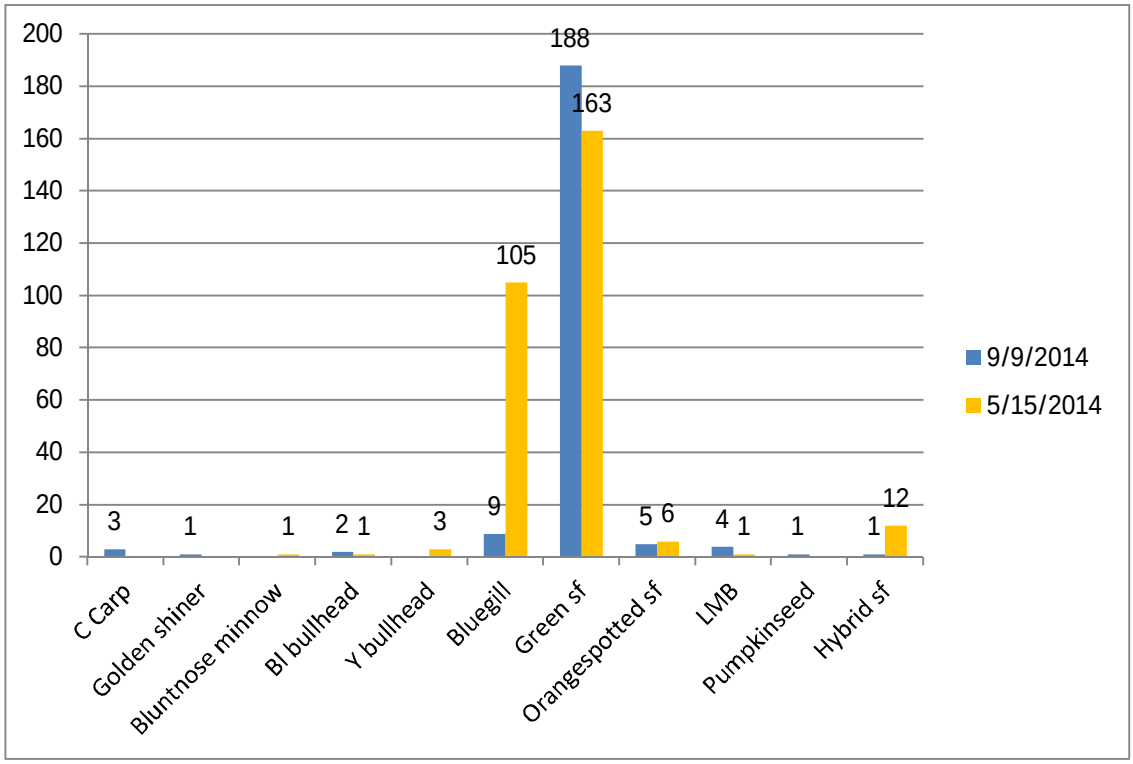
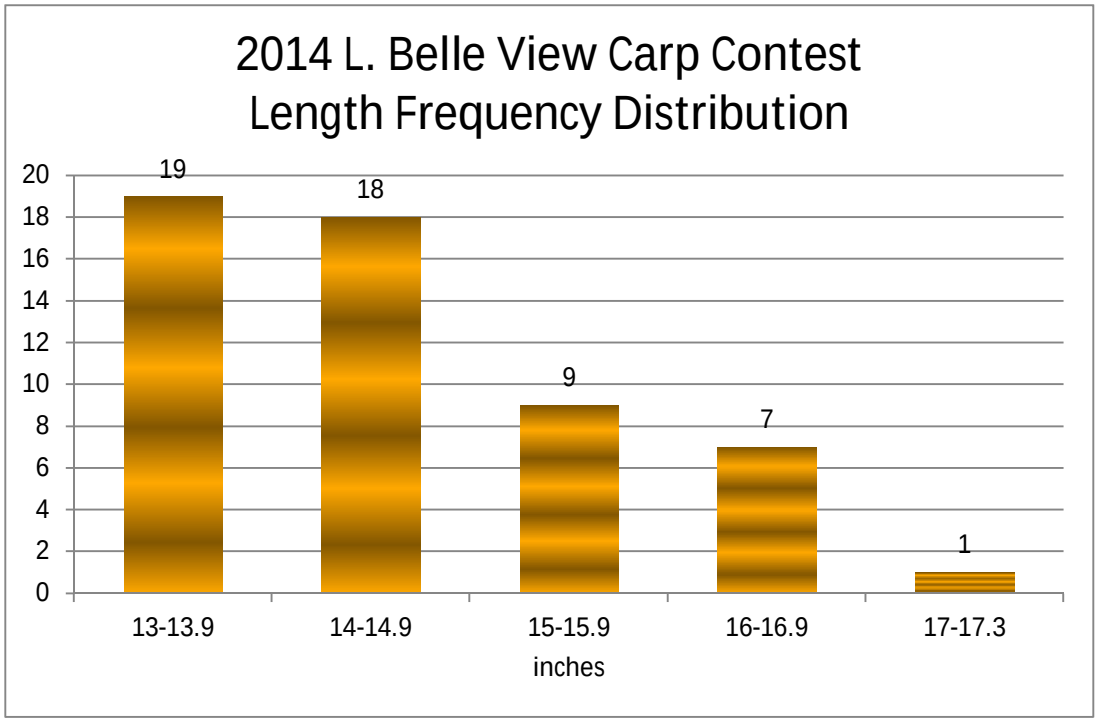


Figure 5: "Catch Me if You Can" Carp Contest Results



Catch Me if You Can Tournament Winners

Figure 6: 2014 Lake Belle View Temperature Profiles

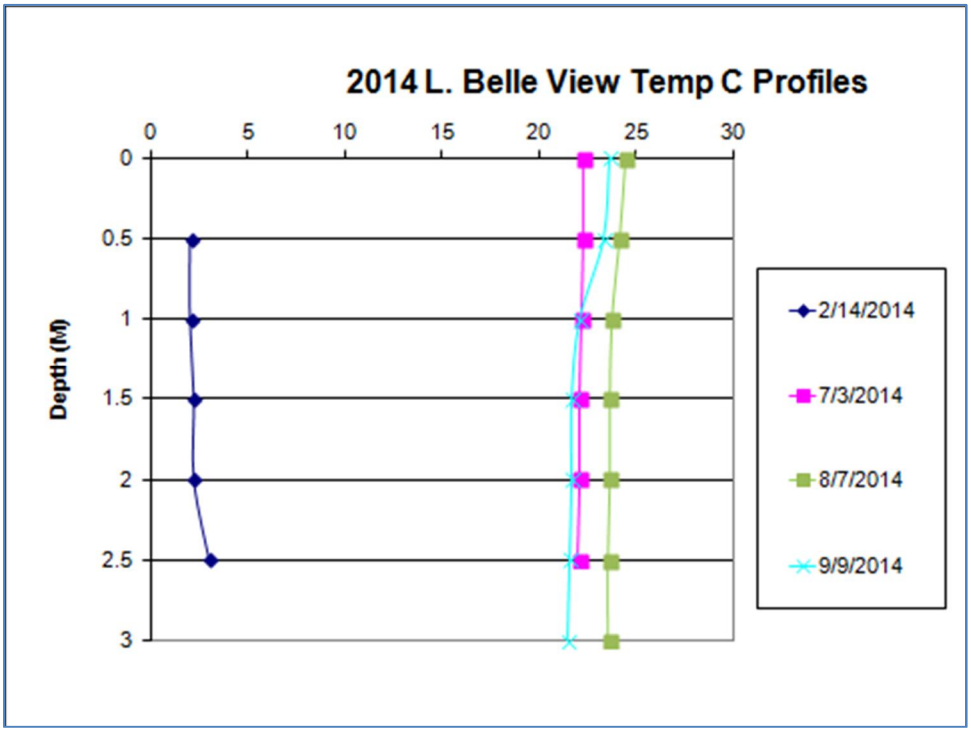
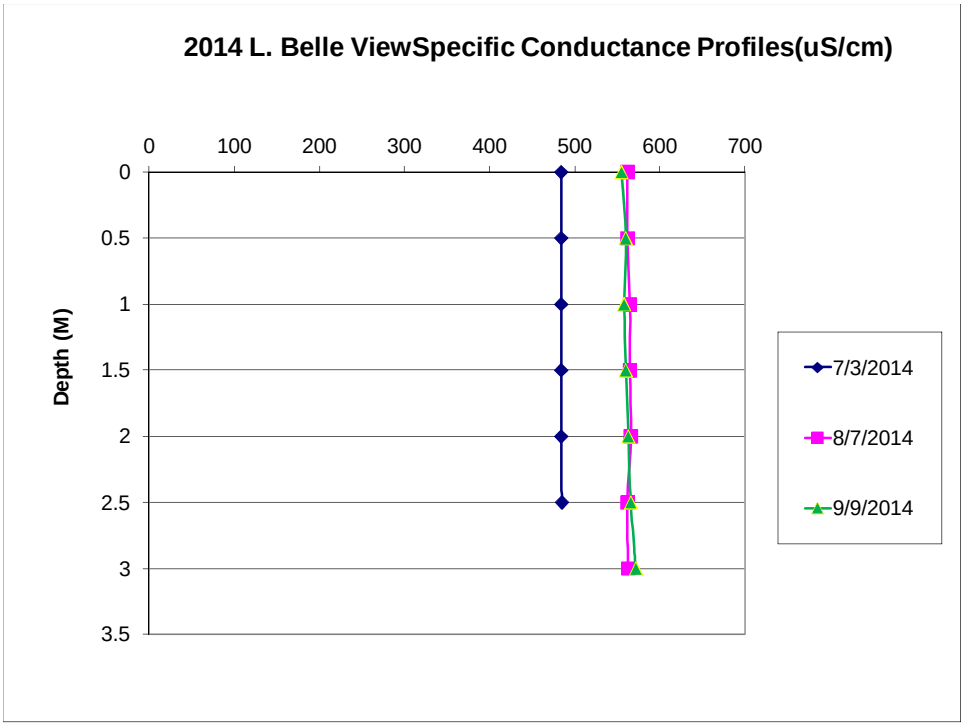



Figure 7: 2014 Lake Belle View Specific Conductance Levels