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ITEM 2

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

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November 12, 2020

Mr. Adam Trzebiatowski
Planning Manager
City of Muskego
P.O. Box 749
Muskego, WI 53150-0749

Re: SEWRPC No. CA-722-246

Dear Mr. Trzebiatowski:

This will respond to your letter of April 5, 2019, requesting that the Commission staff conduct a field inspection of four adjacent properties owned by Lynn Kurer and Wayne Bushberger (Tax Key Numbers 2210.998, 2213.995.001, 2213.995.002, and 2213.999). The project area is located northeast of Big Muskego Lake, on both sides of Durham Drive, in the Northwest and Northeast one-quarters of U.S. Public Land Survey Sections 13 and 14, respectively, Township 5 North, Range 20 East, City of Muskego, Waukesha County, Wisconsin. The purpose of the field inspection was to identify and stake the boundaries of any wetlands contained within the project area.

Pursuant to your request, Commission staff identified and staked the wetland boundaries contained within the project area on August 28 and September 4 and 5, 2019. A copy of the wetland delineation report is attached for your reference. Should you have any questions regarding this information, please do not hesitate to contact Mr. Christopher J. Jors, Principal Specialist-Biologist (cjors@sewrpc.org or 262-953-3246).

Sincerely,

Kevin J. Muhs, PE, AICP
Executive Director

KJM/TMS/CJJ/md
#255173 – CA722-246 Kurer & Bushberger Properties Letter

Enclosure (#255640)

cc: Ms. Lynn Kurer (w/enclosure)
Mr. Marty Dillenburg, Wisconsin Department of Natural Resources (w/enclosure by email)
Ms. Kara Brooks, Wisconsin Department of Natural Resources (w/enclosure by email)
Ms. Marie Kopka, U.S. Army Corps of Engineers (w/enclosure)

Ms. Lynn Kurer
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Mr. Marty Dillenburg
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Ms. Kara Brooks
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Lead Project Manager
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WETLAND DELINEATION REPORT

LYNN KURER AND WAYNE BUSHBERGER PROPERTIES

**NW Quarter, Section 13,
NE Quarter, Section 14, T5N, R20E
CITY OF MUSKEGO
WAUKESHA COUNTY,
WISCONSIN**

**Lead Investigator:
Christopher J. Jors
Principal Specialist-Biologist
Southeastern Wisconsin Regional Planning Commission
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Report Completion: November 4, 2020

WETLAND DELINEATION REPORT OVERVIEW

(Based upon WDNR WETLAND Delineation Confirmation Request Check List)

INTRODUCTION

- Who requested the delineation – **Adam Trzebiatowski, AICP, Planning Manager, City of Muskego**
- Why the delineation was undertaken – **Future development potential**
- Date the field work was completed – **August 28 and September 4 and 5, 2019**
- Who conducted field work – **Christopher Jors, Jennifer Dietl, Daniel Carter, and Shane Heyel**
- Statement of Qualifications
- GIS Support – **Bradley Subotnik**

METHODS

- Description of Methods
- Sources Reviewed
 - Waukesha County Topographic Mapping – **Exhibit 1**
 - Wisconsin Department of Natural Resources (WDNR) Surface Water Data Viewer – Wisconsin Wetland Inventory (WWI) Mapping – **Exhibit 2**
 - Natural Resources Conservation Service (NRCS) Soil Survey and Federal Emergency Management Agency (FEMA) Floodplain Mapping – **Exhibit 3**
 - SEWRPC Historical Aerial Photographs – **Exhibits 4A to 4L** (2015, 2010, 2007, 2005, 2000, 1995, 1990, 1980, 1970, 1963, 1950, and 1941)
 - SEWRPC Sanitary Sewer Service Area Mapping – **Exhibit 5**
 - Advance Identification (ADID) Wetland Mapping – **Exhibit 6**
 - National Agriculture Imagery Program (NAIP) & Farm Service Agency (FSA) Images – **See below**
- Description of any site specific agency guidance (site meetings, etc.) – **None**

RESULTS AND DISCUSSION

- Antecedent hydrologic condition analysis – **Normal**
- Previous wetland delineation mapping – **July 1, 2014**
- Existing environmental mapping (WWI mapping, Soil survey, etc.)
- Amount and types of wetland in the project area
- Wetland/upland boundary explanation
- Disturbed and problematic areas encountered
- Other Considerations

LITERATURE CITED

Wetland Delineation Map – **Exhibit 7**

Vegetation Survey, Wetland Delineation Data Forms, and Site Photos

- Preliminary Vegetation Survey – **Exhibit 8**
- Wetland Determination Data Forms – Midwest Region – **Exhibit 9**
- Site Photos – **Exhibit 10**

NAIP/FSA/SEWRPC Image Review

- Image Review Map – **Exhibit 11**
- Wetland Hydrology from Aerial Imagery recording form – **Exhibit 12**
- Images with Normal Antecedent Precipitation – **Exhibit 13**
- Copy of NRCS Draft Wetland Inventory Map – **Exhibit 14**

INTRODUCTION

This wetland delineation report responds to an April 5, 2019, request letter from Adam Trzebiatowski, AICP, Planning Manager, City of Muskego, to identify the boundaries of any wetlands on the Lynn Kurer and Wayne Bushberger properties (Tax Parcel Numbers 2210.998, 2213.995.001, 2213.995.002, and 2213.999). The subject properties are located on either side of Durham Drive in the Northwest and Northeast one-quarters of U.S. Public Land Survey Sections 13 and 14, respectively, in Township 5 North, Range 20 East, City of Muskego, Waukesha County, Wisconsin.

Statement of Qualifications

Lead Investigator: Christopher Jors, Principal Specialist-Biologist, has worked at SEWRPC since 1993, and has been part of the wetland delineation team since 1994. He received a Bachelor's degree in Biological Aspects of Conservation from the University of Wisconsin – Milwaukee in 1992. Prior to working at SEWRPC, Chris worked at the UWM Field Station at the Cedarburg Bog in Saukville, WI, where he learned methods of sampling wetland plant communities within the Bog. Chris has attended various wetland training workshops including the UW-La Crosse Critical Methods Workshop on February 19, 2019; the UW-La Crosse Basic and Advanced Wetland Delineation Workshops on August 10-15, 2015; a Wisconsin Department of Natural Resources Wetland Delineation & Wetland Rapid Assessment Methodology Workshop on April 23, 2014; and a U.S. Army Corps of Engineers Workshop on the Midwest Supplement to the 1987 Wetland Delineation Manual on February 3, 2009.

Jennifer Dietl, Senior Specialist-Biologist, earned Bachelor's degrees in Biology and Environmental Science from Carroll University in 1992. Jennifer has worked at SEWRPC from 1992 to 1997 and from 2006 to the present conducting wetland delineations, primary environmental corridor delineations, and vegetation surveys. In between years of service at SEWRPC, she worked for the Wisconsin Department of Transportation – Green Bay as an LTE Environmental Analysis and Review Specialist – and the Wisconsin Department of Natural Resources – Green Bay as an LTE Hydrologist. Jennifer attended the UW-La Crosse Critical Methods Workshop on February 19, 2019; the UW-La Crosse Hydric Soils Workshop on July 19-21, 2017; the UW-La Crosse Basic and Advanced Wetland Delineation Workshops on August 10-15, 2015; and a Wisconsin Department of Natural Resources Wetland Delineation & Wetland Rapid Assessment Methodology Workshop on April 23, 2014.

Daniel Carter, Ph.D., former Principal Specialist-Biologist, worked at SEWRPC from 2013 until early 2020. He graduated with honors from Grinnell College with a Bachelor's degree in Biology. He later received a PhD in Biology from Kansas State University. Daniel has published several plant ecology articles in peer-reviewed journals, served on the botany team for the Wisconsin Wildlife Action Plan, and co-teaches the UW-La Crosse Basic Wetland Plant Identification course. He has completed both basic and advanced wetland delineation training, Wisconsin Natural Heritage Inventory training, and a Critical Methods Workshop. Prior to working for the Commission, Daniel served as project coordinator for a grassland restoration project overseen jointly by the United States Department of Agriculture and The Nature Conservancy and taught high school Biology.

Shane Heyel, Specialist-Biologist, joined the wetland delineation team at SEWRPC in June 2016. He holds a Bachelor's degree in Land Use Planning from the University of Wisconsin-Stevens Point and a Master's degree in Hydrology & Water Quality from Lancaster University (United Kingdom). Shane worked for the Wisconsin Department of Natural Resources for seven years, including four years regulating waterways and wetlands. With Atkins Limited, U.K. from 2005-2009, he delivered pollution and flood risk assessments to the English Highways Agency and modeled sewer networks to report flood alleviation options for major British water companies. As an independent consultant in Wisconsin, Shane helped develop a site restoration plan for a proposed wetland mitigation bank. His recent wetland training includes UW-La Crosse

Workshops in Basic Wetland Delineation (August 2015), Advanced Wetland Delineation (August (2016), Basic Plant ID (July 2017), Hydric Soils (July 2018), and Critical Methods (February 2019).

METHODS

Description of Methods

The wetland boundary determinations were based upon the criteria and methodologies set forth in the 1987 *Corps of Engineers Wetlands Delineation Manual*; the August, 2010, *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Version 2.0); the March 4, 2015, *Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and the Wisconsin Department of Natural Resources*; and the State of Wisconsin 2016 Wetland Plant List.

Sources Reviewed

Prior to conducting the field inspection, Commission staff reviewed the following data sources that were available and applicable to the subject property:

- Waukesha County's topographic mapping (Exhibit 1)
- WDNR Surface Water Data Viewer - WWI mapping (Exhibit 2)
- NRCS soil survey and FEMA floodplain mapping (Exhibit 3)
- SEWRPC Historical Aerial Photography (Exhibit 4A-4L)
- SEWRPC Sanitary Sewer Service Area mapping (Exhibit 5)
- ADID wetland mapping (Exhibit 6)
- NAIP/FSA Images (Exhibit 13)
- NRCS draft wetland inventory map (Exhibit 14)
- Precipitation data from the NRCS "WETS" table

RESULTS AND DISCUSSION

Christopher Jors, as lead field investigator and report author, supervised and approved all aspects of the wetland delineation in the field, data compilation and analysis, and preparation of this report. The wetland boundaries within the project area were marked with orange wire flags and ribbon on August 28 and September 4 and 5, 2019. The City indicated that Metropolitan Survey Service would complete a survey of the wetland boundary markers. However, SEWRPC had not received a corresponding wetland survey data file at the time this report was completed. Commission staff utilized a sub-meter-accuracy Global Positioning System (GPS) device to record the sample site and probe locations.

The results of the wetland delineation field inspection for the project area are shown on Exhibit 7, which includes the approximate field-staked wetland boundaries, the GPS-located sample and probe sites, and the numbered plant community areas.

Antecedent Hydrologic Conditions

Climatological data presented in the following table are taken from the nearest WETS station(s) with relevant data for the 1981-2010 climate period and the monthly precipitation summaries for the antecedent 90-day period. In this case the historical data were taken from the Waukesha Station, while the 90-day antecedent data were available from the closer Muskego 1.0 W Station. Further, the same data are applicable to the August 28 and the June 4 and 5 site investigation dates under the standard precipitation analysis methodology.

Aug. 28 and Sept. 4 and 5, 2019	Month	3 years in 10 Less Than	Normal	3 years in 10 More Than	Observed Precip.	Condition (dry, wet, normal)	Condition Value	Month Weight Value	Product of Previous Two Columns
1st prior month	August	2.69	4.58	5.50	5.38	Normal	2	3	6
2nd prior month	July	2.57	3.85	4.59	2.31	Dry	1	2	2
3rd prior month	June	3.02	4.36	5.70	4.65	Normal	2	1	2
									Sum = 10

If Sum is	
6 - 9	drier than normal
10 - 14	normal
15 - 18	wetter than normal

Conclusion: Normal

Previous Wetland Delineation Mapping

The property owner provided a copy of part of a map showing wetland boundaries and a potential residential lot layout overlaid onto an aerial photo base. The wetlands on the map are labeled "WETLANDS FLAGS FIELD LOCATED ON 7-1-2014". However, the property owner was not aware of who delineated the wetland boundaries in 2014 given that an interested developer coordinated the wetland delineation at that time. Commission staff reached out to several local private consultants who perform wetland delineations but none of these delineators were involved with this property. In addition, a review of WDNR Surface Water Data Viewer website indicated that a WDNR concurrence had not been issued for a wetland delineation on the subject property. Further, the Waukesha County interactive mapping website did not indicate that a wetland delineation for the subject property had been submitted to the County. Accordingly, it was determined that a full wetland delineation by Commission staff was necessary on the subject property.

Existing Environmental Mapping

The Waukesha County topographic mapping (Exhibit 1) depicts a large project area with agricultural land on the north side of Durham Drive and mostly lacustrine wetland near Big Muskego Lake on the south side of Durham Drive. The agricultural fields north of the road consist of rolling topography with large and small depressions. Several of the depressions include idle land and clear signatures of inundated and saturated soils. In addition to the large area of idle floodplain-wetland south of Durham Drive, the southern part of the project area includes farm buildings and adjacent open land along Durham Road. An excavated pond with an outlet channel is present near the road in the southeast end of the project area. Elevations range from a high of 802 feet above the North American Vertical Datum of 1988 (NAVD 88) near a home at the northwest end of the project area to a low of 772 at the southern end, near Big Muskego Lake. A substantial part of the large depression in the southeastern end of the agricultural land dips to 772 feet, matching a fair portion of the floodplain land to the south.

The WDNR Surface Water Data Viewer (WWI) Mapping (Exhibit 2) indicates significant wetland across much of the project area.

Mapped wetlands shown in the agricultural area north of Durham Drive consist of:

- A small depression identified as a "wetland too small to delineate" in the northwestern portion
- An NRCS "wetspot" shown north of the above depression
- A farmed wetland (F0Kf) adjoining a broad-leaved deciduous lowland forest/emergent-wet meadow (T3/E2K) complex in the northeastern portion

- A wetland consisting of formerly farmed emergent-wet meadow (E2Ka) and F0Kf in the central portion, with part of a smaller E2K area just to the west and
- A large, mostly F0Kf wetland with T3/E2K in its center and scrub-shrub/emergent-wet meadow (S3/E2K) in its eastern portion in the southeastern part of the agricultural area.

Wetlands mapped in the project area south of Durham Drive are relatively large and include:

- Emergent-wet meadow with standing water (E2H) on either side of an excavated channel that is shown as an 'extension' of Big Muskego Lake in the southern portion. This channel, which continues northward nearly to Durham Drive, is not part of the project area.
- S3/E2K in the northwestern portion, west of the above referenced channel and
- T3K east of the aforementioned channel and along Durham Drive which contains an excavated pond (W0Hx).

Additional wetlands are shown immediately outside the project area including adjacent to the recreational trail along the northern project area boundary and the eastern boundary of the farmed area.

Wetland indicators, shown as NRCS-mapped Ashkum silty clay loam (AsA), Elliott silt loam (EsA), Houghton muck (HtA), Marsh (Mf), Martinton silt loam (MgA), Matherton silt loam (MmA), Mundelein silt loam (MzfA), Ogden muck (Oc), Ozaukee silt loam (OzaB), Pella silt loam (Ph), and Wet alluvial land (Ww) soils cover the vast majority of the project area. The largest area of exception is in the northwestern portion of the agricultural land. WDNR classifies Big Muskego Lake as a shallow lowland lake in good condition.

The NRCS Soil Survey map (Exhibit 3) shows the following soils in the project area:

Map Unit Name and Symbol	Slope (%)	Hydric Category	Hydric Percent of Map Unit	Hydric Minor Component, Percent, and Landform	Project Area (%)
Ashkum silty clay loam (AsA)	0-2	Predominantly Hydric	97	Not applicable (N/A)	10.1
Elliott silt loam (EsA)	1-3	Predominantly Non-hydric	10	Ashkum, 10%, depressions	0.8
Fox loam (FoB)	2-6	Non-hydric	0	N/A	2.9
Houghton muck (HtA)	0-2	Hydric	100	N/A	12.0
Marsh (Mf)	0-1	Hydric	100	N/A	10.4
Martinton silt loam (MgA)	1-3	Predominantly Non-hydric	7	Montgomery, 7%, depressions	2.4
Matherton silt loam (MmA)	1-3	Predominantly Non-hydric	7	Sebewa, 7%, depressions	4.9
Mundelein silt loam (MzfA)	0-3	Predominantly Non-hydric	15	Pella, 5-10%, lakebeds (relict); Poygan-drained, 5-10%, lakebeds (relict)	0.2
Ogden muck (Oc)	0-2	Hydric	100	N/A	15.8
Ozaukee silt loam (OzaB)	2-6	Predominantly Non-hydric	6	Ashkum-drained, 0-7%, ground and end moraines; Pewamo-drained, 0-7%, depressions and drainageways on ground moraines	17.7
Ozaukee silt loam (OzaB2)	2-6	Predominantly Non-hydric	6	Ashkum-drained, 0-7%, ground and end moraines; Pewamo-drained, 0-7%, depressions and drainageways on ground moraines	5.8
Pella silt loam (Ph)	0-2	Predominantly Hydric	87	N/A	2.3
Water (W)	--	Non-hydric	0	N/A	0.5
Wet alluvial land (Ww)	0-2	Hydric	100	N/A	14.2

Exhibit 3 also indicates that most of the project area south of Durham Drive is part of the FEMA-mapped one-percent-annual-probability floodplain of Big Muskego Lake.

Historical aerial photos were reviewed going back to 1941. Orthophotographs (2015, 2010, 2007, 2005, 2000, and 1995) and aerial photographs (1990, 1980, 1970, 1963, 1950, and 1941) were reviewed as summarized in the following table, and are attached (Exhibits 4A to 4L).

Year	Changes in Land Use Observed on Aerial Photography from 1941 to 2015
1941	The dominant land use north of Durham Drive is agriculture with extensive cropland and a farmstead to the west. Land to the northeast appears to be either pasture or idle at the time of this photo. Wetness signatures are present in the cropland and pasture/idle land on the east side of the project area. Residential lots have been split from the original farmstead property along Durham Drive. Barn buildings are present immediately south of the farmstead on the south side of Durham Drive. While pasture and cropland border the south side of Durham Drive, most of the land in this area is made up of open wetland. Two canals have been excavated in this open wetland, apparently providing access to Big Muskego Lake via driveways/boat launches from Durham Drive. Other minor ditching is apparent in the open wetland.
1950	A new barn building has been added on the farmstead on the north side of Durham Drive. Cropping patterns have changed somewhat, including a conversion to cropland of part of the pasture/idle land to the northeast noted on the 1941 image.
1963	Wetness signatures are apparent in bare soil areas north of Durham Drive. The southeast part of the agricultural lands appears to be vegetated, likely left idle due to wetness. The pasture/idle lands in the northeast corner of the project area are now entirely cropped. A new structure has been built along the south edge of the project area on the north side of Durham Drive. Cropland along the south edge of Durham Drive between the two canals is idle at the time of this photo.
1970	A new barn building has been added at the farmstead on the north side of Durham Drive. Land disturbance is apparent in the eastern portion of the agricultural lands where wetness signatures have been noted on earlier images. Portions of these lands are not cropped at this time. Linear features that parallel each other in the non-cropped areas may indicate the installation of drain tiles. A pond and canal have been excavated immediately south of Durham Drive. A gravel parking area has been added at the north end of the western canal. Portions of both canals have been clogged with vegetation.
1980	Significant agricultural lands north of Durham Drive are left idle at the time of this photo. Extensive fill material has been spread along the eastern canal at the southeast end of the project area. Water levels appear to be low in Big Muskego Lake when this photo was taken.
1990	A large area of inundation is present in the northeast part of the project area.
1995	No significant changes noted.
2000	Attempts at cropping wet soils are apparent in the eastern portion of the project area, north of Durham Drive. A parking lot has been built on the filled area adjacent to the eastern canal to serve a public boat launch. This canal has been dredged to the open water of Big Muskego Lake.
2005	Standing water is apparent in a small depression east of the farmstead buildings north of Durham Drive.
2007	No significant changes noted.
2010	No significant changes noted.
2015	Extensive areas of inundation are apparent on the north side of Durham Drive.

SEWRPC sanitary sewer service area mapping (Exhibit 5) indicates the project area is in the planned sewer service area for the City of Muskego. The map shows approximately half of the project area as part of the Big Muskego Lake primary environmental corridor (PEC), with a majority of the PEC on the south side of Durham Drive.

The ADID wetland mapping (Exhibit 6) indicates extensive PEC south of Durham Drive and the southern portion of mapped wetlands north of Durham Drive also designated as PEC. Changes to wetland boundaries in the project area necessitated adjustments to the PEC boundaries. If the ADID wetland mapping is updated in the future, the changes shown in Exhibit 7 will be reflected. The U.S. Environmental Protection Agency deems ADID wetlands unsuitable for the discharge of dredged or fill material under Section 404 of the Clean Water Act.

Amount and Types of Wetlands in the Project Area

Four wetland plant community areas (PCAs) were identified and inventoried within the project area (Exhibit 7). A list of vascular plant species observed during the field inspection was prepared for each PCA as well as plant community type(s), dominant plant species, disturbances, and any critical plant and animal species (Exhibit 8). The following table summarizes characteristics of each PCA:

PCA Number	Acreage	PCA Type(s)	Dominant Species	Critical Species
1	16.8	Atypical (farmed) wetland with smaller areas of fresh (wet) meadow	<i>Cyperus esculentus</i> --Chufa <i>Elocharis obtusa</i> --Spike rush <i>Phragmites australis</i> subsp. <i>australis</i> --Tall reed grass <i>Rorripa palustris</i> --Rough marsh cress <i>Veronica peregrina</i> --Purslane speedwell	*
2	7.0	Shrub-carr (willow thicket) and hardwood swamp	<i>Acer negundo</i> --Boxelder <i>Salix amygdaloides</i> --Peach-leaved willow <i>Salix interior</i> --Sandbar willow	*
3	0.1	Constructed roadside ditch segments with atypical mowed wetland	<i>Agrostis stolonifera</i> --Creeping bentgrass <i>Poa pratensis</i> --Kentucky bluegrass	None
4	28.9	Deep and shallow marsh, fresh (wet) meadow, shrub-carr (buckthorn thicket), hardwood swamp, and open water within the Big Muskego Lake floodplain-wetland complex. The southern portion of this PCA is identified as a Natural Area of countywide or regional significance (NA-2) known as Muskego Lake Marsh.	<i>Fraxinus pennsylvanica</i> --Green ash <i>Populus tremuloides</i> --Quaking aspen <i>Rhamnus cathartica</i> --Common buckthorn	*

*While no Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection, the WDNR Natural Heritage Inventory contains records of two State-designated Endangered and two Special Concern bird species in nearby Big Muskego Lake.

Wetland/Upland Boundary Explanation

Sixty-two representative sample sites and four probe sites were identified within the project area. Vegetation, soils, and hydrology were recorded at each sample site. Probe sites were chosen to help determine if wetland was present or to inform the wetland boundary in questionable areas where a pair of formal sample sites was deemed unnecessary. The Wetland Determination Data Forms, describing the findings at each sample site and probe site, are attached as Exhibit 9. The locations of the sample sites and probe sites are shown on Exhibit 7. The wetland boundary was determined using breaks in topography, changes in vegetation composition, visual identification of wetland hydrology, and presence of hydric soils.

Disturbed and Problematic Areas Encountered

No "significantly disturbed" or "naturally problematic" areas relative to wetland delineation parameters were encountered during the site investigations.

NAIP/FSA Image Review

A review of NAIP/FSA images was conducted for potential farmed wetland areas within the project area as displayed on Exhibit 11 as areas A, B, C, and D. The results of this review are provided in tabular form on Exhibit 12. Available images of the questionable areas dating from 1991 to 2018 were reviewed. A determination of whether the image review indicated the presence of wetland hydrology in the farmed areas was based upon images taken with normal antecedent precipitation. NAIP/FSA images taken with normal antecedent precipitation [2015, 2004, 2003, 2002, 2000, 1998, 1996, and 1993] are included in this report as Exhibit 13.

The image review indicated that Area A (63 percent wetness signatures), Area B (75 percent), Area C (63 percent), and Area D (75 percent) each exhibited sufficient signatures to indicate wetland hydrology is likely present. It should be noted that this image review only indicates whether it is likely or unlikely that wetland hydrology is present. Ultimately, the onsite field inspection determined that at least a portion of each review area met wetland hydrology criteria.

NRCS Draft Wetland Inventory

The NRCS draft wetland inventory mapping (Exhibit 14) indicates wetland (W) across the entire portion of the project area south of Durham Drive. Approximately half of the project area north of Durham Drive

appears as three separate upland areas. The remainder of the project area includes three much smaller wetland (W) areas, a small farmed wetland area (FW) near the road at the east end of the project area and a substantial area of prior converted (PC) cropland covering much of the northcentral and northeastern parts of the cropped area and extending southward to Durham Drive in the southcentral portion. PC land is defined as wetland converted to cropland prior to December 1985, could produce a crop and does not meet farmed wetland hydrology criteria.

Other Considerations

The nonagricultural performance standards set forth in Section NR 151.125 of the *Wisconsin Administrative Code* require establishment of a 75-foot impervious surface protective area to protect "highly susceptible" wetlands (fens, sedge meadows, ephemeral ponds, etc.). "Moderately susceptible" wetland types (USGS-mapped waterways and waterbodies, shrub-carr, floodplain forests, forested wetlands with early successional species, shallow marsh, and fresh (wet) meadow) should have a 50-foot impervious surface protective area. Degraded portions of wetlands with 90 percent or greater cover by non-native species (Reed canary grass, Narrow-leaved cattail, etc.) and farmed wetlands are considered "less susceptible," requiring establishment of a 10- to 30-foot setback depending on average width of the wetland. Stormwater management facilities which are designed, constructed, and maintained for conveyance or treatment purposes are not subject to protective area performance standards as indicated in the *WDNR Guidance for the Establishment of Protective Areas for Wetlands in Runoff Management Rules, Wisconsin Administrative Code NR 151*. PCA 3 consists of three small areas of atypical (mowed) wetland with a broad, constructed roadside ditch. Since the ditch was designed, and is maintained, for stormwater management purposes, this PCA is exempt from the above performance standards.

PCA numbers 2 and 4 consist of shallow marsh, fresh (wet) meadow, shrub-carr, hardwood swamp, and open water, which are considered moderately susceptible wetland types. As such, the 50-foot protective area setback should apply.

PCA 1 consists of less susceptible farmed wetland which typically receives a 10- to 30-foot protective area setback, dependent upon the width of the wetland.

The designated protective area boundary is measured horizontally from the delineated wetland boundary to the closest impervious surface. The protective area requirements should be taken into consideration for any planned improvements within the project area. It is suggested that the property owner or their representative contact WDNR regarding approaches to meet the requirements.

It is noted that the southern portion of the project area contains part of the Muskego Lake Marsh, a Natural Area of countywide or Regional significance (NA-2). Most of the wetlands delineated in the project area are hydrologically connected to Muskego Lake Marsh. These wetlands perform important functions including flood water storage. Therefore, efforts to minimize impacts to these wetlands are recommended.

Finally, it is noted that no Federal or State regulatory jurisdiction determinations relative to any wetland permits or certifications are made under this report.

LITERATURE CITED

Southeastern Wisconsin Regional Planning Commission website at maps.sewrpc.org/regionallandinfo/regionalmapping

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CJJ/JLD/STH/mid
CA722-246 Lynn Kurer and Wayne Bushberger Properties WD Report (00253853).DOCX
300-2000

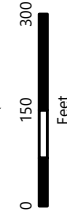
Exhibit 1. Topographic Map

Lynn Kurer and Wayne Bushberger Properties
NW Quarter, Section 13,
NE Quarter, Section 14, T5N-R20E
City of Muskego, Waukesha County



Legend

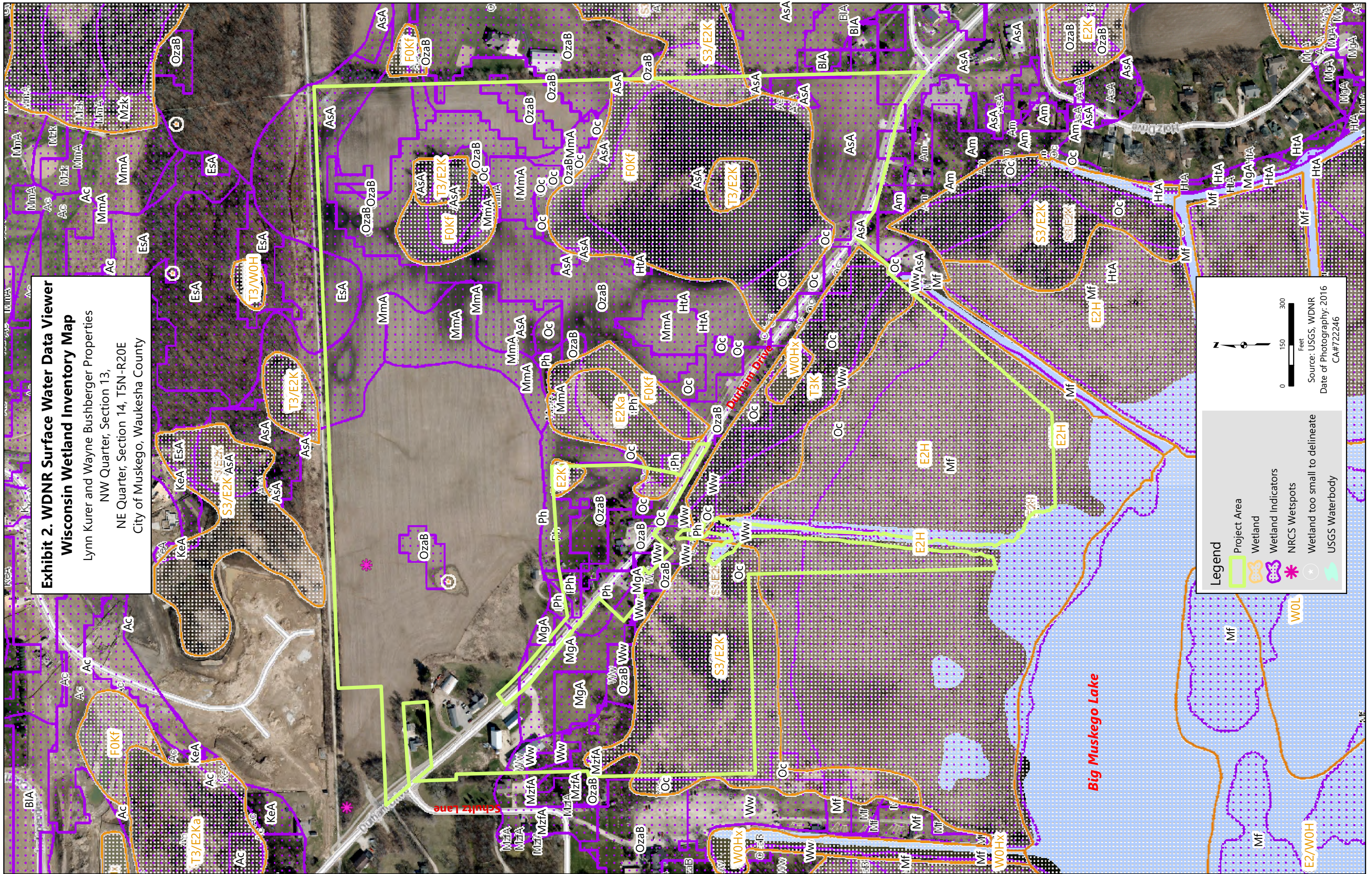
- Project Area
- Surface Water



Contour Interval: 1 foot
Date of Contour Lines: 2015
NAVD 88
Source: SEWRPC
Date of Photography: 2015
CA#722-246

**Exhibit 2. WDNR Surface Water Data Viewer
Wisconsin Wetland Inventory Map**

Lynn Kurer and Wayne Bushberger Properties
NW Quarter, Section 13,
NE Quarter, Section 14, T5N-R20E
City of Muskego, Waukesha County



Legend

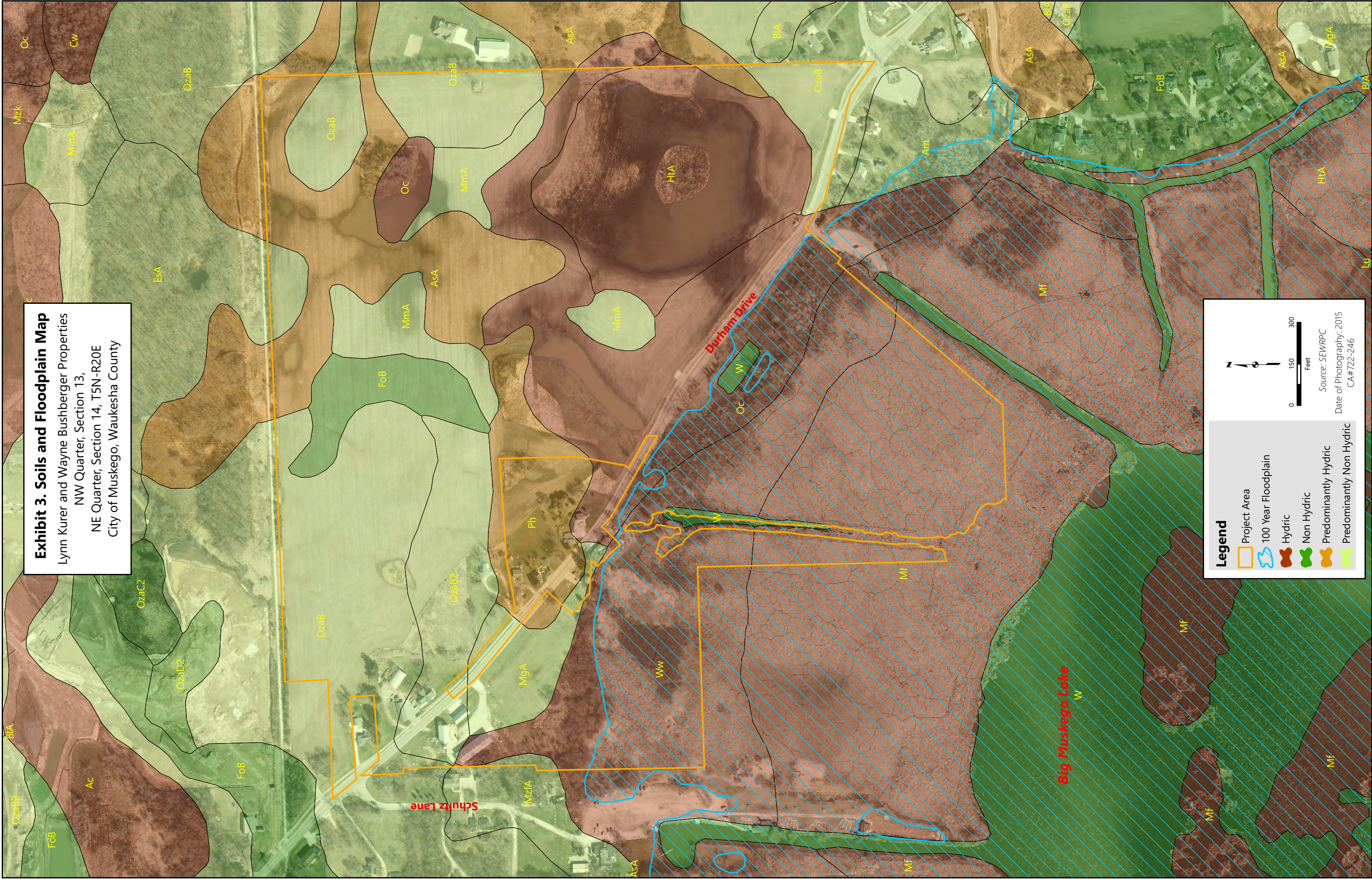
- Project Area (light green outline)
- Wetland (orange outline)
- Wetland Indicators (purple outline)
- NRCS Wetspots (blue dotted pattern)
- Wetland too small to delineate (pink asterisk)
- USGS Waterbody (light blue area)

0 150 300
Feet

Source: USGS, WDNR
Date of Photography: 2016
CA#722246

Exhibit 3. Soils and Floodplain Map

Lynn Kurer and Wayne Bushberger Properties
NW Quarter, Section 13,
NE Quarter, Section 14, T5N-R20E
City of Muskego, Waukesha County



Legend

- Project Area
- 100 Year Floodplain
- Hydric
- Non Hydric
- Predominantly Hydric
- Predominantly Non Hydric



Source: SEWRPC
Date of Photography: 2015
CA#722-246

Exhibit 4A. 2015 Orthophotography

Lynn Kurer and Wayne Bushberger Properties
NW Quarter, Section 13,
NE Quarter, Section 14, T5N-R20E
City of Muskego, Waukesha County



Legend

Project Area

N

0 150 300
Feet

Source: SEWRPC
CA#722-246

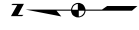
Exhibit 4B. 2010 Orthophotography

Lynn Kurer and Wayne Bushberger Properties
NW Quarter, Section 13,
NE Quarter, Section 14, T5N-R20E
City of Muskego, Waukesha County



Legend

Project Area



0 150 300
Feet

Source: SEWRPC
CA#722-246

Exhibit 4C. 2007 Orthophotography

Lynn Kurer and Wayne Bushberger Properties
NW Quarter, Section 13,
NE Quarter, Section 14, T5N-R20E
City of Muskego, Waukesha County



Legend

Project Area

N

0 150 300
Feet

Source: SEWRPC
CA#722-246

Exhibit 4D. 2005 Orthophotography

Lynn Kurer and Wayne Bushberger Properties
NW Quarter, Section 13,
NE Quarter, Section 14, T5N-R20E
City of Muskego, Waukesha County



Legend

Project Area



0 150 300
Feet

Source: SEWRPC
CA#722-246