4312 Shady Oak Road

Minnetonka, Hennepin County, Minnesota

Wetland Delineation Report

Prepared for

City of Minnetonka

by

Kjolhaug Environmental Services Company, Inc.
(KES Project No. 2016-166)

October 7, 2016

4312 Shady Oak Road

Minnetonka, Hennepin County, Minnesota

Wetland Delineation Report

TABLE OF CONTENTS

FIGURES

APPENDICES

4312 Shady Oak Road

Minnetonka, Hennepin County, Minnesota

Wetland Delineation Report

1. WETLAND DELINEATION SUMMARY

- The 2.28-acre 4312 Shady Oak Road site was inspected on September 30, 2016 for the presence and extent of wetland.
- The National Wetlands Inventory (NWI) map showed one PEM1C/PFO1A wetland within the site boundary.
- The soil survey showed Muskego & Houghton as the hydric soil types within the site boundary.
- The DNR Public Waters showed no DNR Public Waters, Wetlands or Watercourses within the site boundary. DNR Public Water 27-777P (unnamed) was shown to be less than 1000 feet from site boundaries.
- The National Hydrography Dataset did not show any features present on the site.
- One Type 3 (PEM1C) shallow marsh wetland was identified and delineated within the site boundary.

2. OVERVIEW

The 2.28-acre 4312 Shady Oak Road site was inspected on September 30, 2016 for the presence and extent of wetland. The property was located in Section 23, Township 117 North, Range 22 West at 4312 Shady Oak Road and 4292 Oak Drive Lane in the City of Minnetonka, Hennepin County, Minnesota (**Figure 1**), and corresponding to Hennepin County PID's 2311722420057 and 2311722420036.

The review area consisted of a small retail area surrounded by paved parking lot in the east portion of the site, and a single-family home surrounded by mowed lawn in the west portion of the site. Wooded area in the very southwest corner of the site consisted of a canopy of cottonwood, green ash, American elm, mulberry, and boxelder trees and a shrub layer of common buckthorn with trace amounts of chokecherry and honeysuckle. One large red oak tree was also observed. Where herbaceous vegetation was present species included reed canary grass, smooth brome, white snakeroot, Virginia creeper, grape, annual ragweed, garlic mustard, fireweed, nightshade, Canada thistle, motherwort, and mare's tail.

The site was bordered by single-family homes to the north, west, and southwest and commercial property to the south. Topography sloped downhill from the northeast to the southwest.

One wetland was delineated on the site. The delineated wetland boundaries and existing conditions are shown on **Figure 2**.

Appendix A of this report includes a Joint Application Form for Activities Affecting Water Resources in Minnesota that requests: (1) a wetland boundary and type determination under the Minnesota Wetland Conservation Act (WCA), and (2) delineation concurrence and a Preliminary Jurisdictional Determination (PJD) under Section 404 of the Federal Clean Water Act.

3. METHODS

Wetlands were identified using the Routine Determination method described in the Corps of Engineers Wetlands Delineation Manual (Waterways Experiment Station, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0) as required under Section 404 of the Clean Water Act and the Minnesota Wetland Conservation Act.

Wetland boundaries were identified as the upper-most extent of wetland that met criteria for hydric soils, hydrophytic vegetation, and wetland hydrology. Wetland-upland boundaries were marked with pin flags.

Soils, vegetation, and hydrology were documented at a representative location along the wetland-upland boundary. Plant species dominance was estimated based on the percent aerial or basal coverage visually estimated within a 30-foot radius for trees and vines, a 15-foot radius for the shrub layer, and a 5-foot radius for the herbaceous layer within the community type sampled.

Soils were characterized to a minimum depth of 24 inches (unless otherwise noted) using a Munsell Soil Color Book and standard soil texturing methodology. Hydric soil indicators used are from Field Indicators of Hydric Soils in the United States (USDA Natural Resources Conservation Service (NRCS) in cooperation with the National Technical Committee for Hydric Soils, Version 7, 2010).

Plants were identified using standard regional plant keys. Taxonomy and indicator status of plant species was taken from the 2016 National Wetland Plant List (U.S. Army Corps of Engineers 2016. National Wetland Plant List, version 3.3, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH).

4. RESULTS

4.1 Review of NWI, Soils, Public Waters and NHD Information

The National Wetlands Inventory (NWI) (Minnesota Geospatial Commons 2009-2014 and U.S. Fish and Wildlife Service) showed one PEM1C/PFO1A wetland within the site (**Figure 3**).

The Soil Survey (USDA NRCS 2015) showed Muskego & Houghton as the hydric soil types within the review area. Soil types mapped on the property are listed in the table below and a map showing soil types is included in **Figure 4**.

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
L42B	Kingsley-Gotham complex, 2 to 6 percent slopes	0	1.4	57.10%
L50A	Muskego and Houghton soils, 0 to 1 percent slopes	100	0	1.20%
U4A	Urban land-Udipsamments (cut and fill land) complex, 0 to 2 percent slopes	0	0.2	10.10%
U6B	Urban land-Udorthents (cut and fill land) complex, 0 to 6 percent slopes	0	0.8	31.70%

The Minnesota DNR Public Waters Inventory (Minnesota Department of Natural Resources 2015) showed no DNR Public Waters, Wetlands or Watercourses within the site boundary. DNR Public Water 27-777P (unnamed) was shown to be less than 1000 feet from site boundaries (**Figure 5**).

The National Hydrography Dataset (U.S. Geological Survey 2015) did not show any features present on the site (**Figure 6**).

4.2 Wetland Determinations and Delineations

Potential wetlands were evaluated during field observations on September 30, 2016. One wetland was identified and delineated on the property (**Figure 2**). Corresponding data forms are included in **Appendix B**. The following description of the wetland and adjacent upland reflect conditions observed at the time of the field visit. Some tree canopy and herbaceous vegetation was beginning to senesce at the time of the wetland delineation. Climatic conditions were considered atypical (wet) based on available three-month antecedent precipitation data (**Appendix C**).

Wetland 1 was a Type 3 (PEM1C) shallow marsh wetland. Although some reed canary grass was observed along the east perimeter, it appeared to be within a sediment plume area and was not considered wet meadow. The wetland was inundated with approximately 1 inch of standing water at the boundary to 24 inches of standing water in the center. Wetland 1 covered 0.06 acres within the property boundary.

Adjacent upland at the sample location consisted of a wooded canopy as described in the introduction. Little to no understory vegetation was present. No primary hydrology indicators were not observed outside the wetland. Only one secondary indicator (FAC-Neutral Test) was observed.

The wetland boundary corresponded to the edge of inundation, a topographic rise, and a transition to sloping woodland. The wetland was shown as a PEM1C/PFO1A on the NWI map and was located in an area mapped hydric soil (Muskego & Houghton) on the soil survey. An apparently new culvert was located along the east wetland edge, offsite to the south.

No other areas with hydrophytic vegetation or wetland hydrology were observed on the site, and no other areas were shown as hydric soil on the soil survey or as wetland on the NWI map.

4.3 MnRAM Analysis

A MnRAM 3.4 analysis was completed for the delineated wetland, and output data in included in **Appendix D**. Wetland 1 was rated as a **Manage 2 wetland** based on the highest rated function of Low for Amphibian Habitat.

4.4 Request for Wetland Boundary and Jurisdictional Determination

Appendix A of this report includes a Joint Application Form for Activities Affecting Water Resources in Minnesota, which is submitted in request for: (1) a wetland boundary and type determination under the Minnesota Wetland Conservation Act (WCA), and (2) delineation concurrence and a Preliminary Jurisdictional Determination (PJD) under Section 404 of the Federal Clean Water Act.

5. CERTIFICATION OF DELINEATION

The procedures utilized in the described delineation are based on the U.S. Army Corps of Engineers 1987 Wetlands Delineation Manual as required under Section 404 of the Clean Water Act and the Minnesota Wetland Conservation Act. This wetland delineation and report were prepared in compliance with the regulatory standards in place at the time the work was performed.

Site boundaries indicated on figures within this report are approximate and do not constitute an official survey product.

Delineation completed by: Melissa Lauterbach-Barrett, Soil Scientist
Minnesota Certified Wetland Delineator No. 1085
Professional Soil Scientist No. 45067

Report prepared by: Melissa Lauterbach-Barrett

Report reviewed by: _____ Date: October 4, 2016
Mark Kjolhaug, Professional Wetland Scientist No. 000845

4312 Shady Oak Road

Wetland Delineation Report

FIGURES

1. Site Location
2. Existing Conditions
3. National Wetlands Inventory
4. Soil Survey
5. DNR Protected Waters Inventory
6. National Hydrography Dataset

Figure 1 - Site Location

N

0 250 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: ESRI Streets Basemap

4312 Shady Oak Road (KES 2016-166)
Minnetonka, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

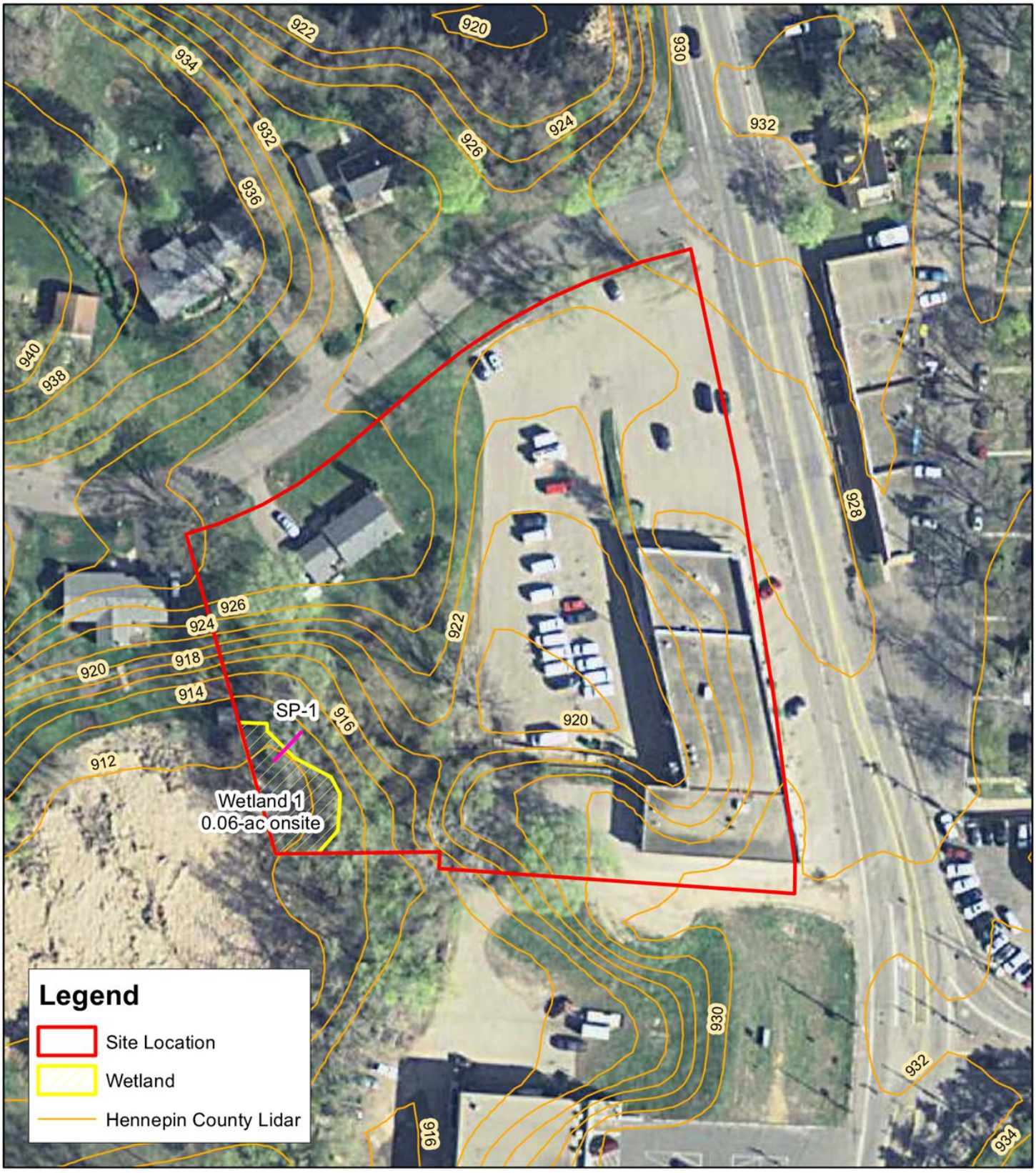

Figure 2 - Existing Conditions (2012 Metro Photo)

N

0 100 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MnGeo, ESRI Imagery Basemap

4312 Shady Oak Road (KES 2016-166)
Minnetonka, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

Figure 3 - National Wetlands Inventory (2015 FSA Photo)

N

0 150 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: Minnesota DNR (2013), USFWS

4312 Shady Oak Road (KES 2016-166)
Minnetonka, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

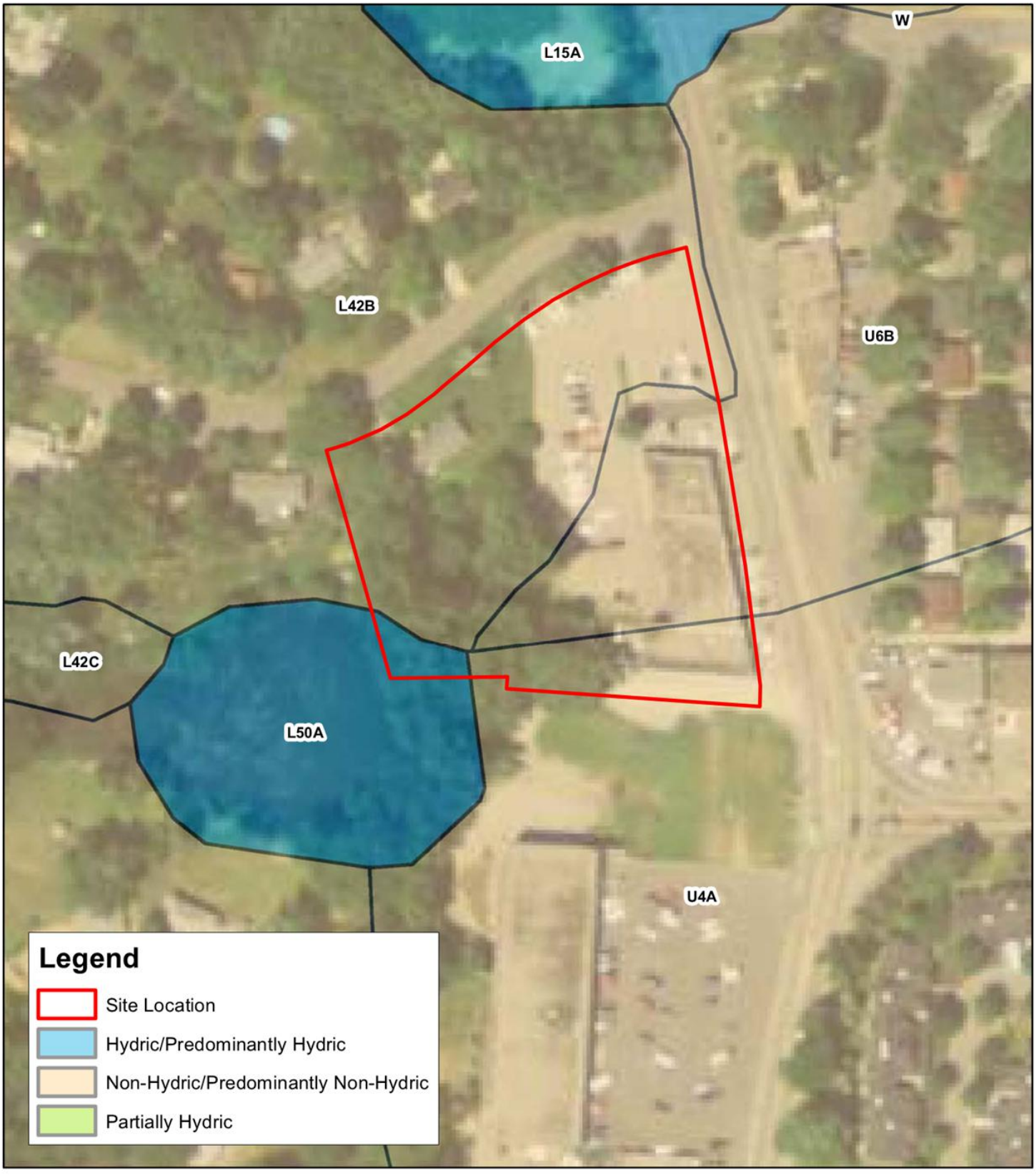

Figure 4 - Soil Survey

N

0 150 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: USDA, NRCS

4312 Shady Oak Road (KES 2016-166)
Minnetonka, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

Figure 5 - DNR Public Waters Inventory

N

0 500 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: Minnesota DNR

4312 Shady Oak Road (KES 2016-166)
Minnetonka, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

Figure 6 - National Hydrography Dataset

N

0 500 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: USGS

4312 Shady Oak Road (KES 2016-166)
Minnetonka, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

4312 Shady Oak Road

Wetland Delineation Report

APPENDIX A

Joint Application Form for Activities Affecting Water Resources in Minnesota

PART ONE: Applicant Information

If applicant is an entity (company, government entity, partnership, etc.), an authorized contact person must be identified. If the applicant is using an agent (consultant, lawyer, or other third party) and has authorized them to act on their behalf, the agent's contact information must also be provided.

Applicant/Landowner Name: Alisha gray, City of Minnetonka
Mailing Address: 14600 Minnetonka Blvd, Minnetonka, MN 55345
Phone: 952.939.8285
E-mail Address: Alisha Gray <agray@eminnetonka.com>

Authorized Contact (do not complete if same as above):
Mailing Address:
Phone:
E-mail Address:

Agent Name: Melissa Barrett, Kjolhaug Environmental
Mailing Address: 26105 Wild Rose Lane, Shorewood, MN 55331
Phone: 952-401-8757
E-mail Address: melissa@kjolhaugenv.com

PART TWO: Site Location Information

County: Hennepin **City/Township: Minnetonka**
Parcel ID and/or Address: 2311722420057 and 2311722420036
Legal Description (Section, Township, Range): Sec 23, T117, R22
Lat/Long (decimal degrees):
Attach a map showing the location of the site in relation to local streets, roads, highways.
Approximate size of site (acres) or if a linear project, length (feet): 2.28-acres

If you know that your proposal will require an individual Permit from the U.S. Army Corps of Engineers, you must provide the names and addresses of all property owners adjacent to the project site. This information may be provided by attaching a list to your application or by using block 25 of the Application for Department of the Army permit which can be obtained at:

http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/RegulatoryDocs/engform_4345_2012oct.pdf

PART THREE: General Project/Site Information

If this application is related to a delineation approval, exemption determination, jurisdictional determination, or other correspondence submitted ***prior to*** this application then describe that here and provide the Corps of Engineers project number.

Describe the project that is being proposed, the project purpose and need, and schedule for implementation and completion. The project description must fully describe the nature and scope of the proposed activity including a description of all project elements that effect aquatic resources (wetland, lake, tributary, etc.) and must also include plans and cross section or profile drawings showing the location, character, and dimensions of all proposed activities and aquatic resource impacts.

Application is for delineation approval/concurrence.

PART FOUR: Aquatic Resource Impact[1] Summary

If your proposed project involves a direct or indirect impact to an aquatic resource (wetland, lake, tributary, etc.) identify each impact in the table below. Include all anticipated impacts, including those expected to be temporary. Attach an overhead view map, aerial photo, and/or drawing showing all of the aquatic resources in the project area and the location(s) of the proposed impacts. Label each aquatic resource on the map with a reference number or letter and identify the impacts in the following table.

Aquatic Resource ID (as noted on overhead view)	**Aquatic Resource Type** (wetland, lake, tributary etc.)	**Type of Impact** (fill, excavate, drain, or remove vegetation)	**Duration of Impact** Permanent (P) or Temporary (T)[1]	**Size of Impact**[2]	**Overall Size of Aquatic Resource** [3]	**Existing Plant Community Type(s)** in Impact Area[4]	**County, Major Watershed #, and Bank Service Area #** of Impact Area[5]

[1]If impacts are temporary; enter the duration of the impacts in days next to the "T". For example, a project with a temporary access fill that would be removed after 220 days would be entered "T (220)".
[2]Impacts less than 0.01 acre should be reported in square feet. Impacts 0.01 acre or greater should be reported as acres and rounded to the nearest 0.01 acre. Tributary impacts must be reported in linear feet of impact and an area of impact by indicating first the linear feet of impact along the flowline of the stream followed by the area impact in parentheses). For example, a project that impacts 50 feet of a stream that is 6 feet wide would be reported as 50 ft (300 square feet).
[3]This is generally only applicable if you are applying for a de minimis exemption under MN Rules 8420.0420 Subp. 8, otherwise enter "N/A".
[4]Use *Wetland Plants and Plant Community Types of Minnesota and Wisconsin* 3rd Ed. as modified in MN Rules 8420.0405 Subp. 2.
[5]Refer to Major Watershed and Bank Service Area maps in MN Rules 8420.0522 Subp. 7.

If any of the above identified impacts have already occurred, identify which impacts they are and the circumstances associated with each:

PART FIVE: Applicant Signature

☐ Check here if you are requesting a pre-application consultation with the Corps and LGU based on the information you have provided. Regulatory entities will not initiate a formal application review if this box is checked.

By signature below, I attest that the information in this application is complete and accurate. I further attest that I possess the authority to undertake the work described herein.

Signature: _____ Date: 10/6/2016

I hereby authorize _____ to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this application.

[1] **The term "impact" as used in this joint application form is a generic term used for disclosure purposes to identify activities that may require approval from one or more regulatory agencies. For purposes of this form it is not meant to indicate whether or not those activities may require mitigation/replacement.**

Attachment A
Request for Delineation Review, Wetland Type Determination, or Jurisdictional Determination

By submission of the enclosed wetland delineation report, I am requesting that the U.S. Army Corps of Engineers, St. Paul District (Corps) and/or the Wetland Conservation Act Local Government Unit (LGU) provide me with the following (check all that apply):

☒ **Wetland Type Confirmation**

☒ **Delineation Concurrence**. Concurrence with a delineation is a written notification from the Corps and a decision from the LGU concurring, not concurring, or commenting on the boundaries of the aquatic resources delineated on the property. Delineation concurrences are generally valid for five years unless site conditions change. Under this request alone, the Corps will not address the jurisdictional status of the aquatic resources on the property, only the boundaries of the resources within the review area (including wetlands, tributaries, lakes, etc.).

☒ **Preliminary Jurisdictional Determination**. A preliminary jurisdictional determination (PJD) is a non-binding written indication from the Corps that waters, including wetlands, identified on a parcel may be waters of the United States. For purposes of computation of impacts and compensatory mitigation requirements, a permit decision made on the basis of a PJD will treat all waters and wetlands in the review area as if they are jurisdictional waters of the U.S. PJDs are advisory in nature and may not be appealed.

☐ **Approved Jurisdictional Determination**. An approved jurisdictional determination (AJD) is an official Corps determination that jurisdictional waters of the United States are either present or absent on the property. AJDs can generally be relied upon by the affected party for five years. An AJD may be appealed through the Corps administrative appeal process.

In order for the Corps and LGU to process your request, the wetland delineation must be prepared in accordance with the 1987 Corps of Engineers Wetland Delineation Manual, any approved Regional Supplements to the 1987 Manual, and the *Guidelines for Submitting Wetland Delineations in Minnesota* (2013).
http://www.mvp.usace.army.mil/Missions/Regulatory/DelineationJDGuidance.aspx

4312 Shady Oak Road

Wetland Delineation Report

APPENDIX B

Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: 4312 Shady Oak Road | City/County: MTKA/Henn | Sampling Date: 9-30-2016

Applicant/Owner: City of Minnetonka | State: MN | Sampling Point: SP-1upl

Investigator(s): M. Barrett | Section, Township, Range: Sec 23, T117, R22

Landform (hillslope, terrace, etc.): upper toeslope | Local relief (concave, convex, none): linear to flat

Slope (%): 0-1 | Lat: | Long: | Datum:

Soil Map Unit Name: Kingsley-Gotham | NWI Classification: PFO1A

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

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances"

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

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

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

Climatic conditions atypical (wet).

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species	Indicator Status
1 *Ulmus americana*	20	Y	FACW
2 *Fraxinus pennsylvanica*	20	Y	FACW
3			
4			
5			
	40	= Total Cover	

Sapling/Shrub stratur (Plot size: 15)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: 5)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	

Woody vine stratum (Plot size: 30)			
1			
2			
	0	= Total Cover	

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	40	x 2 =	80	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	40	(A)	80	(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*
- ___ Morphological 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

Hydrophytic vegetation present? Y

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

No understory vegetation present.

SOIL

Sampling Point: SP-1upl

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-16	10YR 2/2	100					Sandy Loam	
16-40	10YR 2/2	100					Loamy Sand	
40-46	10YR 5/1	95	10YR 4/4	5	C	M	Sand	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Very Shallow Dark Surface (TF12)
___ Other (explain in remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
X FAC-Neutral Test (D5)

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): ___

Indicators of wetland hydrology present? N

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

Remarks:

No water or saturation to 46 inches.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: 4312 Shady Oak Road | City/County: MTKA/Henn | Sampling Date: 9-30-2016

Applicant/Owner: City of Minnetonka | State: MN | Sampling Point: SP-1wet

Investigator(s): M. Barrett | Section, Township, Range: Sec 23, T117, R22

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave to flat

Slope (%): 0-1 | Lat: | Long: | Datum:

Soil Map Unit Name: Kingsley-Gotham/Houghton Muskego transition | NWI Classification: PEM1C/PFO1A

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

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, 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	f yes, optional wetland site ID: Wetland 1
Indicators of wetland hydrology present? Y	

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

Climatic conditions atypical (wet).

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species	Indicator Status
1 *Ulmus americana*	20	Y	FACW
2 *Fraxinus pennsylvanica*	20	Y	FACW
3			
4			
5			
	40	= Total Cover	

Sapling/Shrub stratur (Plot size: 15)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: 5)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	

Woody vine stratum (Plot size: 30)			
1			
2			
	0	= Total Cover	

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	40	x 2 =	80
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	40 (A)		80 (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*
- ___ Morphological 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

Hydrophytic vegetation present? Y

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

Tree canopy hanging over wetland edge. Wetland edge not vegetated. Cattail further into wetland.

SOIL

Sampling Point: SP-1wet

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 4/1	95	10YR 4/6	5	C	M	Silt Loam	snail shells present

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

Wetland inundated; borehole collapse at 6 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes	X	No	___	Depth (inches):	2
Water table present?	Yes	X	No	___	Depth (inches):	2+
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	0

Indicators of wetland hydrology present? Y

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

Remarks:

4312 Shady Oak Road

Wetland Delineation Report

APPENDIX C

Precipitation Data

Minnesota Climatology Working Group

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:

county: **Hennepin** township number: **117N**
township name: **Minnetonka** range number: **22W**
nearest community: **Minnetonka Mills** section number: **23**

Aerial photograph or site visit date:
Friday, September 30, 2016

Score using 1981-2010 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **August 2016**	second prior month: **July 2016**	third prior month: **June 2016**
estimated precipitation total for this location:	**7.59R**	**5.45**	**3.28**
there is a 30% chance this location will have less than:	3.39	2.76	3.35
there is a 30% chance this location will have more than:	5.12	4.34	5.31
type of month: dry normal wet	**wet**	**wet**	**dry**
monthly score	**3 * 3 = 9**	**2 * 3 = 6**	**1 * 1 = 1**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**16 (Wet)**		

Other Resources:

- retrieve daily precipitation data
- view radar-based precipitation estimates
- view weekly precipitation maps
- *Evaluating Antecedent Precipitation Conditions* (BWSR)

4312 Shady Oak Road

Wetland Delineation Report

APPENDIX D

MnRAM Analysis Output Results

Management Classification Report for WL1 4312 Shady Oak

4312 Shady Oak

ID: 99

HENNEPIN County
Minnesota (Shakopee) Watershed, #33
Corps Bank Service Area 9

Based on the MnRAM data input from field and office review and using the classification settings as shown below, this wetland is classified as Manage 2

Functional rank of this wetland based on MnRAM data	Functional Category	Self-defined classification value settings for this management level
Low	Vegetative Diversity/Integrity	Moderate
Low	Habitat Structure (wildlife)	Moderate
Low	Amphibian Habitat	Low
Not Applicable	Fish Habitat	Moderate
Not Applicable	Shoreline Protection	Low
Low	Aesthetic/Cultural/Rec/Ed and Habitat	Moderate / Low
Moderate	Stormwater/Urban Sensitivity and Vegetative Diversity	- / -
Low	Wetland Water Quality and Vegetative Diversity	- / -
Low	Characteristic Hydrology and Vegetative Diversity	- / -
Moderate	Flood/Stormwater Attenuation*	-
Not Applicable	Commericial use*	-
Low	Downstream Water Quality*	-

The critical function that caused this wetland to rank as **Manage 2** was
Maintenance of Characteristic Amphibian Habitat

Details of the formula for this action are shown below:

Maintenance of Characteristic Amphibian Habitat (Q43) * [(Q44 + 2*Q23wildlife + Q14 +Q 41 + Q20 reversed)/6]

Question	*Value*	*Description*
14	0.1	Upland land use
20	0.5	Stormwater runoff
23	0.5	Buffer width
41	0.1	Wildlife barriers
43	1	Amphib breeding potential--fish presence
44	0.1	Amphib & reptile overwintering habitat

This report was printed on: Monday, October 03, 2016

* The classification value settings for these functions are not adjustable

Wetland Functional Assessment Summary

Wetland Name	Hydrogeomorphology	Maintenance of Hydrologic Regime	Flood/ Stormwater/ Attenuation	Downstream Water Quality	Maintenance of Wetland Water Quality	Shoreline Protection
WL1 4312 Shady Oak	Depressional/Isolated (no discernable inlets or outlets)	0.30	0.50	0.32	0.26	0.00
		Low	Moderate	Low	Low	Not Applicable

						Additional Information			
Wetland Name	Maintenance of Characteristic Wildlife Habitat Structure	Maintenance of Characteristic Fish Habitat	Maintenance of Characteristic Amphibian Habitat	Aesthetics/ Recreation/ Education/ Cultural	Commercial Uses	Ground-Water Interaction	Wetland Restoration Potential	Wetland Sensitivity to Stormwater and Urban Development	Additional Stormwater Treatment Needs
WL1 4312 Shady Oak	0.32	0.00	0.17	0.15	0.00	Combination Discharge, Recharge	0.00	0.10	0.26
	Low	Not Applicable	Low	Low	Not Applicable		Not Applicable	Moderate	Low

Wetland Community Summary

		Vegetative Diversity/Integrity								
		Community								
Wetland Name	Location	Cowardin Classification	Circular 39	Plant Community	Wetland Proportion	Individual Community Rating	Highest Wetland Rating	Average Wetland Rating	Weighted Average Wetland Rating	
WL1 4312 Shady Oak	27-117-22-23-001	PEM1C	Type 3	Shallow Marsh	100	0.1	0.10	0.10	0.10	
							Low	Low	Low	
					100		0.10	0.10	0.10	☐

☑ *Denotes incomplete calculation data.*

MnRAM: Site Response Record

For Wetland: WL1 4312 Shady Oak

Location: 27-117-22-23-001

4312 Shady Oak

Plant Community: Shallow Marsh

Cowardin Classification: PEM1C

Circular 39: Type 3

4	Listed, rare, special species?	No
5	Rare community or habitat?	No
6	Pre-European-settlement condition?	No

Hydrogeomorphology / topography:

7		Depressional/Isolated
8-1	Maximum water depth	24 inche
8-2	% inundated	100%
9	Immediate drainage--local WS	5 acres
10	Esimated size/existing site:	(see #66)
11-Upland Soil		
11-Wetland Soil		

12	Outlet for flood control	B
13	Outlet for hydro regime	B
14	Dominant upland land use	C
15	Wetland soil condition	C
16	Vegetation (% cover)	90%
17	Emerg. veg flood resistance	NA
18	Sediment delivery	C
19	Upland soils (soil group)	B
20	Stormwater runoff	B
21	Subwatershed wetland density	B
22	Channels/sheet flow	A
23	Adjacent buffer width	15 feet

Adjacent area management

24-A	Full	50%
24-B	Manicured	50%
24-C	Bare	0%

Adjacent area diversity/structure

25-A	Native	0%
25-B	Mixed	100%
25-C	Sparse	0%

Adjacent area slope

26-A	Gentle	0%
26-B	Moderate	100%
26-C	Steep	0%

27	Downstream sens./WQ protect.	C
28	Nutrient loading	B
29	Shoreline wetland?	No

Shoreline Wetland

30	Rooted veg., % cover	0%
31	Wetland in-water width	0 feet
32	Emerg. veg. erosion resistance	
33	Erosion potential of site	
34	Upslope veg./bank protection	
35	Rare wildlife?	No
36	Scare/Rare/S1/S2 community	No
37	Vegetative cover	B
38	Veg. community interspersion	NA
39	Wetland detritus	C
40	Interspersion on landscape	B
41	Wildlife barriers	C

Amphibian-breeding potential

42	Hydroperiod adequacy	Adequate
43	Fish presence	A
44	Overwintering habitat	C
45	Wildlife species (list)	
46	Fish habitat quality	NA
47	Fish species (list)	
48	Unique/rare opportunity	No
49	Wetland visibility	C
50	Proximity to population	No
51	Public ownership	C
52	Public access	C
53	Human influence on wetland	C
54	Human influence on viewshed	C
55	Spatial buffer	B
56	Recreational activity potential	C
57	Commercial crop--hydro impact	NA

Groundwater-specific questions

58	Wetland soils	Discharge
59	Subwatershed land use	Recharge
60	Wetland size/soil group	Discharge
61	Wetland hydroperiod	Recharge
62	Inlet/Outlet configuration	Recharge
63	Upland topo relief	Discharge

Additional information

64	Restoration potential	No
65	LO affected by restoration	
66	Existing size	0.9
	Restorable size	0
	Potential new wetland	0
67	Average width of pot. buffer	0 feet
68	Ease of potential restoration	
69	Hydrologic alterations	0
70	Potential wetland type	0
71	Stormwater sensitivity	B
72	Additional treatment needs	A

Watershed Minnesota (Shakopee)

WS# 33 Service Area: 9

For functional ratings, please run the Summary tab report.

This report printed on: 10/3/2016