



# **WETLAND DELINEATION REPORT**

## **FOR:**

**Normandale Boulevard  
Nine Mile Creek to  
Poplar Bridge Road  
Bloomington, Minnesota**

## **PREPARED FOR:**

**Sunde Land Surveying  
9001 East Bloomington Freeway,  
Suite 118  
Bloomington, MN 55420**

## **SUBMITTED TO:**

**City of Bloomington  
1800 West Old Shakopee Road  
Bloomington, MN 55431-3027**

## **PREPARED BY:**

**Pinnacle Engineering, Inc.  
11541 95<sup>th</sup> Avenue North  
Maple Grove, MN 55369**

**October 15, 2013**

# WETLAND DETERMINATION AND DELINEATION

## FOR:

NORMANDALE BOULEVARD: NINE MILE CREEK TO POPLAR BRIDGE ROAD  
BLOOMINGTON, MINNESOTA

## PREPARED FOR:

SUNDE LAND SURVEYING  
9001 EAST BLOOMINGTON FREEWAY, SUITE 118  
BLOOMINGTON, MN 55420

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PINNACLE PROJECT NUMBER: R013372.000

October 15, 2013

Prepared By:



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## 1.0 INTRODUCTION

### 1.1 Introduction

Sunde Land Surveying, Inc. (Sunde) retained Pinnacle Engineering, Inc. (Pinnacle) to conduct a wetland determination and delineation of Normandale Boulevard from Nine Mile Creek to Poplar Bridge Road in Bloomington, Minnesota.

### 1.2 Scope

Pinnacle conducted the on-site Level 2 Wetland Determination and Delineation in accordance with the criteria established in the 1987 U. S. Army Corps of Engineers Wetland Delineation Manual, updated in 1997, utilizing the Midwest Region Supplement. The work included the following items:

- Review of maps depicting the Site utilizing County Soil Surveys, USGS topographic maps, National Wetland Inventory (NWI) Maps, Public Water Inventory (PWI) maps, and aerial photographs.
- A site reconnaissance to determine if and where jurisdictional wetlands existed.
- Delineation of the identified wetlands within the property.
- Preparation and submittal of this report summarizing the findings of our work.

## 2.0 BACKGROUND INFORMATION

### 2.1 Site Location and Use

The Site is located along Normandale Boulevard starting at Nine Mile Creek south to the intersection of Normandale Boulevard and Poplar Bridge Road in Bloomington, Hennepin County, Minnesota. The wetlands are located on both the east and west of the Normandale Boulevard. The Site is located along the eastern edge of Section 21 Township 27 North, and Range 25 West and the western edge of Section 7 Township 27 North, and Range 24 West, (Lat: 44.835704, Long: -93.350289) (Figure 1).

### 2.2 Surveys and Maps

Pinnacle conducted a review of soil survey, topographic, and National Wetland Inventory (NWI) maps for the vicinity of the Site. The following sections summarize the information available at the time of this review.

### **2.2.1 USGS Topographic Maps**

The topographic map indicated that Normandale Boulevard from Nine Mile Creek to Poplar Bridge Road area is developed and rises in the middle of the project area, sloping from the center to the southeast to the northeast. Some of the slopes are steep. Normandale Boulevard is present throughout the Site. Nine Mile Creek, Nord Myr Park and excavated ponds are located adjacent to or on the Site. The Site elevation ranges from approximately 900 feet above mean sea level (msl) to 800 feet msl in as reviewed on the Minnesota Department of Natural Resources, DNR Data Deli web site (Figure 1).

### **2.2.2 Soil Survey**

The Natural Resources Conservation Service (NRCS) Web Soil Survey map, which is included as Figure 3, was reviewed for information pertaining to the Site soils. The Soil Survey indicated the Site soil units include: Urban Land Udorthents (map unit ID U6B), Lester loam (map unit ID L22C2, L22E), Angus loam (map unit ID L37B), Kingsley-Gotham complex (map unit ID L42B, L42D, L42E), Nessel loam (map unit ID L44A), Muskego-Klossner complex (map unit ID L56A), Koronis-Kingsley-Malardi complex (Map Unit ID L62C2, L62D2), Hamel-Glencoe depressional complex (map unit ID L132A), and Water, miscellaneous (M-W). Of these soils, Angus loam, Lester loam, and Hamel-Glencoe depressional complex are identified as hydric in the national and/or state hydric soil lists. Soil samples collected during the wetland delineation were characterized and recorded on the Wetland Determination Data Form – Midwest Region Supplement Data Form, which are included as Appendix A.

### **2.2.3 National Wetland Inventory Maps**

The United States Fish and Wildlife Service National Wetland Inventory (NWI) map depicts four wetlands within or adjacent the Site boundaries. A Palustrine unconsolidated bottom/emergent semi-permanently flooded (PUB/EMF) basin in the southwestern portion of the Site; a Palustrine emergent/scrub shrub broadleaved deciduous seasonally flooded partially drained/ditched complex (PEM/SS1Cd) in the northeastern portion of the Site; a Palustrine emergent seasonally flooded partially drained/ditched complex (PEMCd) in the northeastern portion of the Site; a Palustrine forested broadleaved deciduous seasonally flooded (PFO1C) basin in the east central portion of the Site, and a Palustrine unconsolidated bottom intermittently exposed (PUBG) basin in the southeastern portion of the Site, see Figure 4. NWI maps generally show the approximate location of wetlands as of the time of publication. The NWI maps, reviewed by Pinnacle, were compiled based on aerial map interpretation and field surveys. Development has occurred in the area of the emergent/scrub shrub basin in the northeast portion of the Site.

### **2.2.4 Public Waters Inventory**

The Minnesota Department of Natural Resources Public Waters Inventory (PWI) produces a map of the protected wetlands and waters of the State. A map of the Site is included as Figure 5. The map indicates a wetland located in the north east portion of the Site is a part of a protected water.

The protected water is identified by the DNR as 1045P Normandale Lake. Wetland 2 and 3 are part of the lake wetland complex.

### 3.0 WETLAND DETERMINATION

#### 3.1 Methodology

The wetland determination was made utilizing the techniques of the Routine Onsite Method, as described in the 1987 U. S. Army Corps of Engineers Wetland Delineation Manual, updated February 25, 1997 and utilizing the Midwest Region Supplement. Determination of hydric soils, site hydrology, and hydrophytic vegetation were made according to the procedures and guidelines described in the manual. Sampling locations were selected to be representative of wetland/upland transition areas.

Scott Thelen of Pinnacle conducted an assessment of the wetlands at the Site on September 27, 2013. The assessment included probing the soils to observe the color and moisture, as well as other available indicators of hydric soil conditions, such as mottling, gleying, and oxidized root channels. The characteristics noted for each sampling location are documented in the data form, which is included in Appendix A. Survey markers were placed along the delineated edge of the wetlands. A sketch of the wetland areas is included as Figure 2. Surveying of the delineation markers was completed by Sunde Land Surveying in July 2013. No rainfall events had occurred during the week prior to the evaluation.

Pinnacle delineated eight wetlands within the Site boundary. The delineated wetlands appear to include local stormwater drainage system that transports water into the regional stormwater system, a protected wetland adjacent Nine Mile Creek, and isolated wetlands.

#### 3.2 Wetland Descriptions

##### Wetland 1

Wetland 1 most closely resembles a Fish and Wildlife Service (FWS) Circular 39 Type 3/4 shallow/deep marsh wetland; corresponding to a Cowardin classification of a palustrine, unconsolidated bottom/emergent semi-permanently flooded (PUB/EMF) wetland area. The wetland is located within a depressional area with steep slopes on the east side of the wetland. The wetland/upland transition zone corresponded to a distinct topographical and vegetative change.

Vegetation in the wetland portion of the hillside area was dominated by reed canary grass (*Phalaris arundinacea*, FACW), stinging nettle (*Urtica dioica*, FACW), and crack willow (*Salix fragilis*, FAC) in the lower portion of the wetland and cottonwood (*Populus deltoides*, FAC), common buckthorn (*Rhamnus cathartica*, FAC), and boxelder (*Acer negundo*, FACW), and green ash (*Fraxinus pennsylvanica*, FACW) on the hill sides where drainages were located.

The soils were sampled at the wetland/upland transition zone. The soils along the sloping portion of the wetland were mixed, typical for Hamel/Glencoe soils. Surface soils within the wetland area were loam, with colors of 10YR 3/1 or darker from the surface to 10 inches or less and were underlain by clayey loam of 5YR 5/2, with redox features of 10YR 4/6 in. Redox features were noted within the upper 12 inches and increased with depth. Soils were inundated or saturated within the wetland area; standing water was present in the center of the wetland area.

In the transect area of the wetland, the upland areas adjacent to the wetland consisted of steep slopes that were generally vegetated by staghorn sumac (*Rhus Typhina*, UPL), reed canary grass (*Phalaris arundinacea*, FACW), and stinging nettle (*Urtica dioica*, FACW).

Soils within the upland areas generally consisted of a clayey loam upper soil layer with a 10YR 3/2 color from the surface to a depth of 8 inches or less. The upper soil layer was underlain by a clay layer with a color of 10YR 4/3 to a depth of 20 inches. Soils were mixed with a 2.5YR 5/4 clay.

## **Wetland 2**

Wetland 2 most closely resembles a FWS Circular 39 Type 2/6 shallow marsh/scrub shrub wetland; corresponding to a Cowardin classification of a palustrine, emergent/scrub shrub deciduous, seasonally flooded, partially drained (PEM/SS1Cd) wetland area. The wetland is located within a depressional area adjacent to Nine Mile Creek. The wetland/upland transition zone corresponded to a distinct topographical and vegetative change.

Vegetation along the edges of the shallow marsh area was dominated by narrow leaved cattails (*Typha angustifolia*, OBL), reed canary grass (*Phalaris arundinacea*, FACW), crack willow (*Salix Salix fragilis*, FAC), and cottonwood (*Populus deltoides*, FAC), common buckthorn (*Rhamnus cathartica*, FAC), and boxelder (*Acer negundo*, FACW), willows (*Salix spp.*), and green ash (*Fraxinus pennsylvanica*, FACW) in the shrub portion.

The soils were sampled at the wetland/upland transition zone. The soils along the sloping portion of the wetland were mixed, typical for Muskego/Klossner. Surface soils within the wetland area were loam, with colors of 10YR 2/1 or darker from the surface to 6 inches or less and were underlain by loam, 10YR 5/4 in color below the upper soil layer. Redox features of a 10YR 4/6 were noted within the upper 6 inches and increased with depth. Soils were inundated or saturated within the wetland area; standing water was present in the wetland area.

The upland areas adjacent to the wetland consisted of maintained trails and boulevards that were generally vegetated by reed canary grass (*Phalaris arundinacea*, FACW), goldenrod (*Solidago canadensis*, FACU), common milkweed (*Asclepias syriaca*, FACU), woodbine (*Parthenocissus quinquefolia*, FACU) and Kentucky Blue grass (*Poa Pratensis*, FAC).

Soils within the upland areas generally consisted of a loam upper soil layer with a 10YR 3/1 color from the surface to a depth of 6 inches or less. The upper soil layer was underlain by a sandy loam layer with a color of 10YR5/5 to a depth of 18 inches. Soils were mixed with a 10YR 3/1 loam.

### **Wetland 3**

Wetland 3 most closely resembles a FWS Circular 39 Type 3 shallow marsh wetland; corresponding to a Cowardin classification of a palustrine, emergent, seasonally flooded, partially drained (PEMCD) wetland area. The wetland is located within a depressional area adjacent to Nine Mile Creek. The wetland/upland transition zone corresponded to a distinct topographical and vegetative change.

Vegetation along the edges of the shallow marsh area was dominated by narrow leaved cattails (*Typha angustifolia*, OBL), reed canary grass (*Phalaris arundinacea*, FACW), crack willow (*Salix fragilis*, FAC), and cottonwood (*Populus deltoides*, FAC), common buckthorn (*Rhamnus cathartica*, FAC), and boxelder (*Acer negundo*, FACW), willows (*Salix spp.*), and green ash (*Fraxinus pennsylvanica*, FACW) along the edge of the shallow marsh.

The soils were sampled at the wetland/upland transition zone. The soils along the sloping portion of the wetland were mixed, typical for Muskego/Klossner soils. Surface soils within the wetland area were loam, with colors of 10YR 3/1 or darker from the surface to 10 inches or less and were underlain by loam, 10YR 4/1 in color below the upper soil layer. Redox features of a 10YR 4/6 were noted within the upper 12 inches and increased with depth. Soils were inundated or saturated within the wetland area; standing water was present in the wetland area.

The upland areas adjacent to the wetland consisted of maintained boulevards that were generally vegetated by Smooth Brome (*Bromus inermis*, UPL), goldenrod (*Solidago canadensis*, FACU), and common milkweed (*Asclepias syriaca*, FACU).

Soils within the upland areas generally consisted of a loam upper soil layer with a 10YR 3/1 color from the surface to a depth of 12 inches or less. The upper soil layer was underlain by a sandy loam layer with a color of 10YR 4/1 to a depth of 18 inches. Soils were mixed with a 10YR 3/1 loam.

### **Wetland 4**

Wetland 4 is located in the east central portion of the Site and most closely resembles a FWS Circular 39 Type 7 forested wetland. The wetland corresponds to a Cowardin classification of a palustrine, forested, deciduous leaved, seasonally flooded (PFO1C) wetland within a depressional area. Wetland 4 is part of a larger wetland area that included drainages into the larger wetland. Wetland 4/5/6 are all part of the larger wetland located off-site. The transect sampling was conducted in the forest fringe of Wetland 4/5/6 complex. Culverts and drainages are located in the western portion of the wetland area under Normandale Boulevard. The wetland/upland transition zone corresponded to a distinct topographical and vegetative change.

Vegetation in the forested area was dominated by boxelder (*Acer negundo*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), cottonwood (*Populus deltoides*, FAC), common buckthorn (*Rhamnus cathartica*, FAC), and red elm (*Ulmus rubra*, FACW).

The soils were sampled at several locations along the wetland/upland transition zone. The soils along the sloping portion of the wetland were mixed, resembling the soils of a Koronis/Kingsley/Malardi complex. Surface soils within the wetland area were sandy loam, with colors of 10YR 2/1 or darker from the surface to 20 inches.

The upland areas adjacent to the forested area of the wetland were generally vegetated by common buckthorn (*Rhamnus cathartica*, FAC), green ash (*Fraxinus pennsylvanica*, FACW), and tartarian honeysuckle (*Lonicera tatarica*, FACU).

Soils within the upland areas generally consisted of a sandy loam upper soil layer with a 10YR 2/1 color from the surface to a depth of 20 inches.

### **Wetland 5**

Wetland 5 is located in the east central portion of the Site and most closely resembles a FWS Circular 39 Type 7 forested wetland. The wetland corresponds to a Cowardin classification of a palustrine, forested, deciduous leaved, seasonally flooded (PFO1C) wetland within a depressional area. The transect sampling was conducted in the forest fringe of the Wetland 4/5/6 complex. Culverts and drainages are located in the western portion of the wetland area under Normandale Boulevard. The wetland/upland transition zone corresponded to a distinct topographical and vegetative change.

Vegetation in the forested area was dominated by boxelder (*Acer negundo*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), cottonwood (*Populus deltoides*, FAC), common buckthorn (*Rhamnus cathartica*, FAC), and red elm (*Ulmus rubra*, FACW).

The soils were sampled at several locations along the wetland/upland transition zone. The soils along the sloping portion of the wetland were mixed, resembling the soils of a Koronis/Kingsley/Malardi complex. Surface soils within the wetland area were loam, with colors of 10YR 2/1 or darker from the surface to 24 inches.

The upland areas adjacent to the forested area of the wetland were generally vegetated by common buckthorn (*Rhamnus cathartica*, FAC), boxelder (*Acer negundo*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), and tartarian honeysuckle (*Lonicera tatarica*, FACU).

Soils within the upland areas generally consisted of a sandy loam upper soil layer with a 10YR 2/1 color from the surface to a depth of 18 inches.

### **Wetland 6**

Wetland 6 is located in the east central portion of the Site and most closely resembles a FWS Circular 39 Type 7 forested wetland. The wetland corresponds to a Cowardin classification of a palustrine, forested, deciduous leaved, seasonally flooded (PFO1C) wetland within a depressional area. The transect sampling was conducted in the forest fringe of the Wetland 4/5/6 complex. Culverts and drainages are located in the western portion of the wetland area under Normandale Boulevard. The wetland/upland transition zone corresponded to a distinct topographical and vegetative change.

Vegetation in the forested area was dominated by reed canary grass (*Phalaris arundinacea*, FACW), boxelder (*Acer negundo*, FACW), cottonwood (*Populus deltoides*, FAC), common buckthorn (*Rhamnus cathartica*, FAC), and red elm (*Ulmus rubra*, FACW).

The soils were sampled at the wetland/upland transition zone. The soils along the sloping portion of the wetland were mixed, typical for Koronis/Kingsley/Malardi complex. Surface soils within the wetland area were loam, with colors of 10YR 2/1 from the surface to 9 inches or less and were underlain by loam, 10YR 4/1 in color below the upper soil layer. Redox features of a 2.5YR 4/6 were noted within the upper 12 inches and increased with depth.

The upland areas adjacent to the forested area of the wetland were generally vegetated by common buckthorn (*Rhamnus cathartica*, FAC), boxelder (*Acer negundo*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), Kentucky Blue grass (*Poa Pratensis*, FAC), and tartarian honeysuckle (*Lonicera tatarica*, FACU).

Soils within the upland areas generally consisted of a sandy loam upper soil layer with a 10YR 2/1 color from the surface to a depth of 20 inches.

#### **Wetland 7**

Wetland 7 most closely resembles a FWS Circular 39 Type 3 shallow marsh wetland; corresponding to a Cowardin classification of a palustrine, emergent, seasonally flooded, partially drained (PEMCd) wetland area. The wetland is located within a depression area that appears to be an excavated stormwater detention pond. The wetland/upland transition zone corresponded to a distinct topographical and vegetative change.

Vegetation along the edges of the shallow marsh area was dominated by narrow leaved cattails (*Typha angustifolia*, OBL), reed canary grass (*Phalaris arundinacea*, FACW), crack willow (*Salix fragilis*, FAC), and cottonwood (*Populus deltoides*, FAC).

The soils were sampled at the wetland/upland transition zone. The soils along the sloping portion of the wetland were mixed, typical for Hamel/Glencoe soils. Surface soils within the wetland area were loam, with colors of 10YR 2/1 or darker from the surface to 20 inches. Soils were inundated or saturated within the wetland area; standing water was present in the wetland area.

The upland areas adjacent to the wetland consisted of wooded slopes leading to maintained boulevards to the boulevard that were generally vegetated by crack willow (*Salix fragilis*, FAC), bull thistle (*Cirsium vulgare*, FACU), goldenrod (*Solidago canadensis*, FACU), vetch (*Astragalus Canadensis*, FAC) and northern bedstraw (*Galium boreale*, FAC).

Soils within the upland areas generally consisted of a loam upper soil layer with a 10YR 2/1 color from the surface to a depth of 20 inches or less.

## Wetland 8

Wetland 8 most most closely resembles a Fish and Wildlife Service (FWS) Circular 39 Type 3/4 shallow/deep marsh wetland; corresponding to a Cowardin classification of a palustrine, unconsolidated bottom intermittently exposed (PUBG) wetland area. The wetland is located within a depression area with steep slopes on the east side of the wetland. The wetland/upland transition zone corresponded to a distinct topographical and vegetative change.

Vegetation along the edges of the shallow marsh area was dominated by narrow leaved cattails (*Typha angustifolia*, OBL), reed canary grass (*Phalaris arundinacea*, FACW), cottonwood (*Populus deltoides*, FAC), crack willow (*Salix fragilis*, FAC), and cottonwood (*Populus deltoides*, FAC).

The soils were sampled at the wetland/upland transition zone. The soils along the sloping portion of the wetland were mixed, typical for Hamel/Glencoe soils. Surface soils within the wetland area were loam, with colors of 10YR 2/2 or darker from the surface to 6 inches and were underlain by loam, 10YR 4/2 in color below the upper soil layer to a depth of 20 inches. Redox features of a 10YR 4/6 were noted within the upper 8 inches and increased with depth. Soils were inundated or saturated within the wetland area; standing water was present in the wetland area.

The upland areas adjacent to the wetland consisted of wooded slopes leading to maintained boulevards to the boulevard that were generally vegetated by crack willow (*Salix fragilis*, FAC), silver maple (*Acer saccharinum*, FACW), goldenrod (*Solidago canadensis*, FACU), common buckthorn (*Rhamnus cathartica*, FAC), boxelder (*Acer negundo*, FACW), and northern bedstraw (*Galium boreale*, FAC).

Soils within the upland areas generally consisted of a loam upper soil layer with a 10YR 2/2 color from the surface to a depth of 6 inches or less and were underlain by loam, 10YR 3/2 in color below the upper soil layer to a depth of 20 inches.

## 4.0 CONCLUSION

Pinnacle performed a Wetland Determination and Delineation of the area Normandale Boulevard from Nine Mile Creek to Poplar Bridge Road in Bloomington, Minnesota. in Bloomington, Hennepin County, Minnesota. The delineation was conducted in substantial conformance with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual, updated February 25, 1997 and utilizes Midwest Region Supplement. The following report documents the methods and findings of the delineation.

During the field assessment, it was determined that eight separate areas at the Site met all three of the criteria of a wetland, and the boundaries were flagged for survey by others. The delineation will be reviewed by a representative of the City of Bloomington who serves as the local governmental unit administering Minnesota's Wetland Conservation Act and the Army Corps of Engineers.

## 5.0 STANDARD OF CARE

Environmental services performed by Pinnacle for the project have been conducted in a manner consistent with the degree of care and technical skill appropriately exercised by environmental professionals currently practicing in this area under similar budget and time constraints. Recommendations or opinions contained in this report represent our professional judgment and are generally based upon available information and currently accepted practices for environmental professionals. Other than this, no other warranty is implied nor is it expressed.

## 6.0 REFERENCES

Eggers, Steve D. and Reed, Donald M., Wetland Plants and Plant Communities of Minnesota and Wisconsin, 1997, U. S. Army Corps of Engineers, St. Paul District.

Lyon, John Grimson, Practical Handbook for Wetland Identification and Delineation, 1993, Lewis Publishers, Boca Raton, Florida

Minnesota Dept. of Natural Resources, DNR Data Deli, various maps, generated by Scott Thelen using <[http://deli.dnr.state.mn.us/cgi-bin/wms?map=DELI\\_WMS\\_MAPFILE&](http://deli.dnr.state.mn.us/cgi-bin/wms?map=DELI_WMS_MAPFILE&)>, October 10, 2013).

United States Department of Agricultural, Natural Resources Conservation Service, Data Gateway <<http://datagateway.nrcs.usda.gov/>> (October 10, 2013).

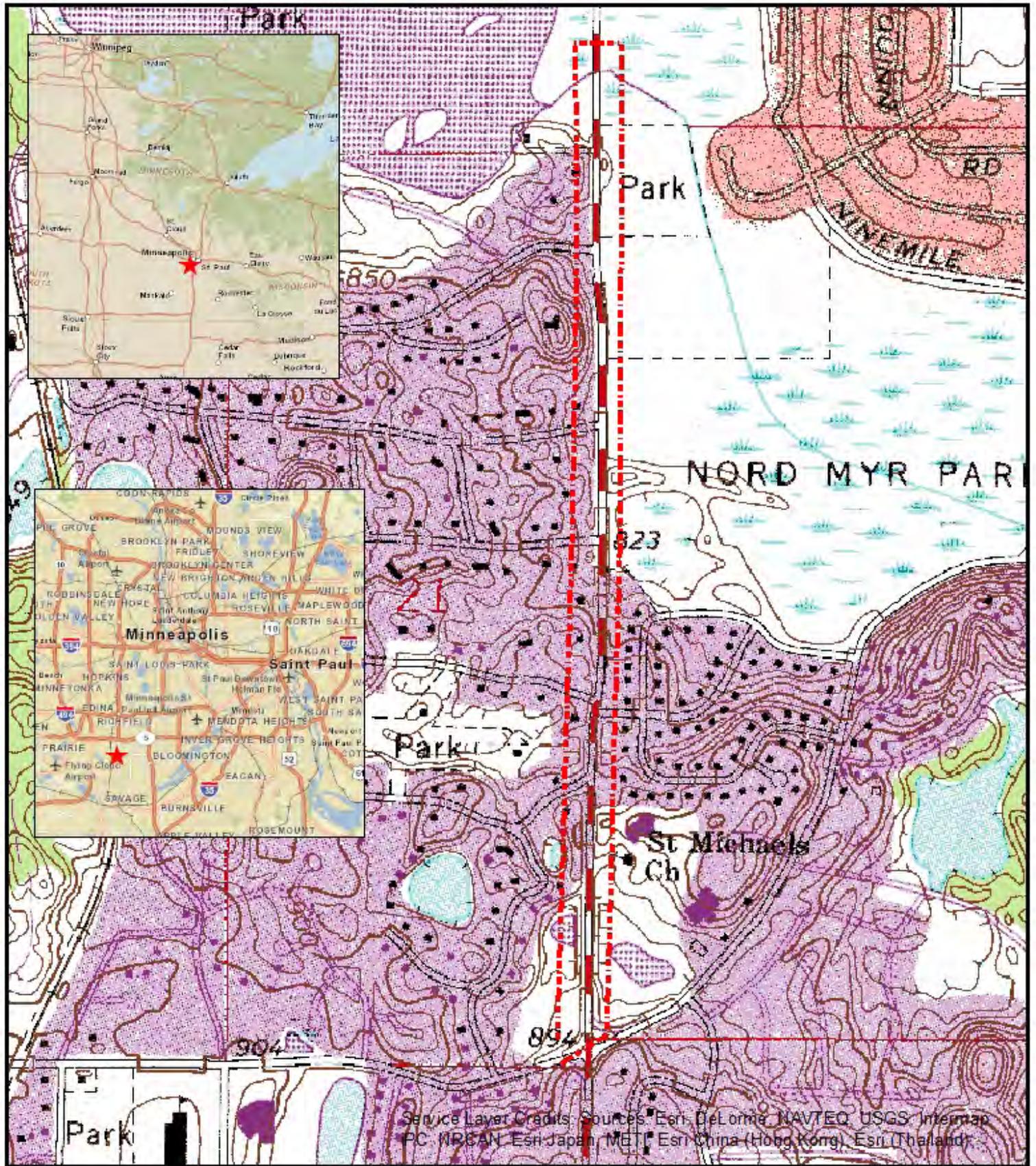
U.S Fish and Wildlife Service National Wetlands Inventory <http://www.fws.gov/wetlands/data/WebMapServices.html> > (October 10, 2013).

U. S. Army Corps of Engineers, U. S. Army Corps of Engineers Wetland Delineation Manual, 1987, updated on February 25, 1997, Washington, D. C.

Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest, October 2010, Washington, D. C.

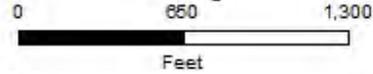
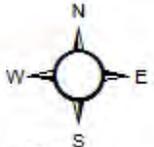
**FIGURE 1**  
**Site Location Map**

**WETLAND DETERMINATION AND DELINEATION**



Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, PC, MRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand)

Proj. No.: R013372.000  
 Date: October 7, 2013  
 GIS Analyst: ST  
 Reviewed By: MB



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Figure 1:  
 Site Location

Normandale Blvd  
 Bloomington, Minnesota

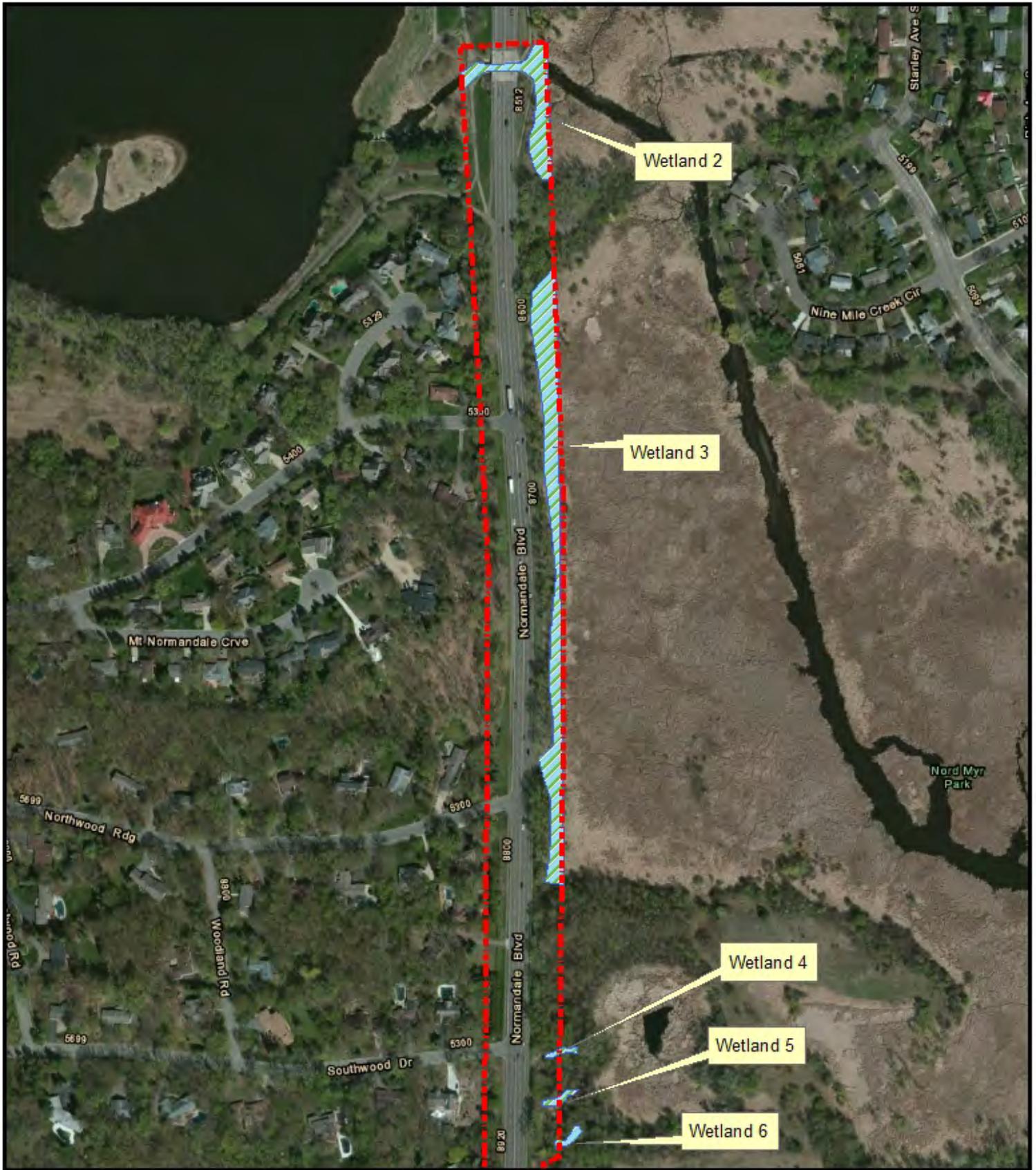
**Legend**

--- Site Boundary

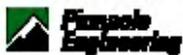
# **FIGURE 2**

## **Site Layout**

**WETLAND DETERMINATION AND DELINEATION**



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 Date: October 7, 2013  
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 Reviewed By: MB



11541 25th Avenue North  
 Minneapolis, Minnesota 55429  
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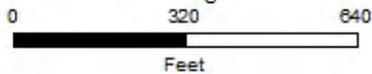
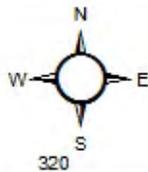
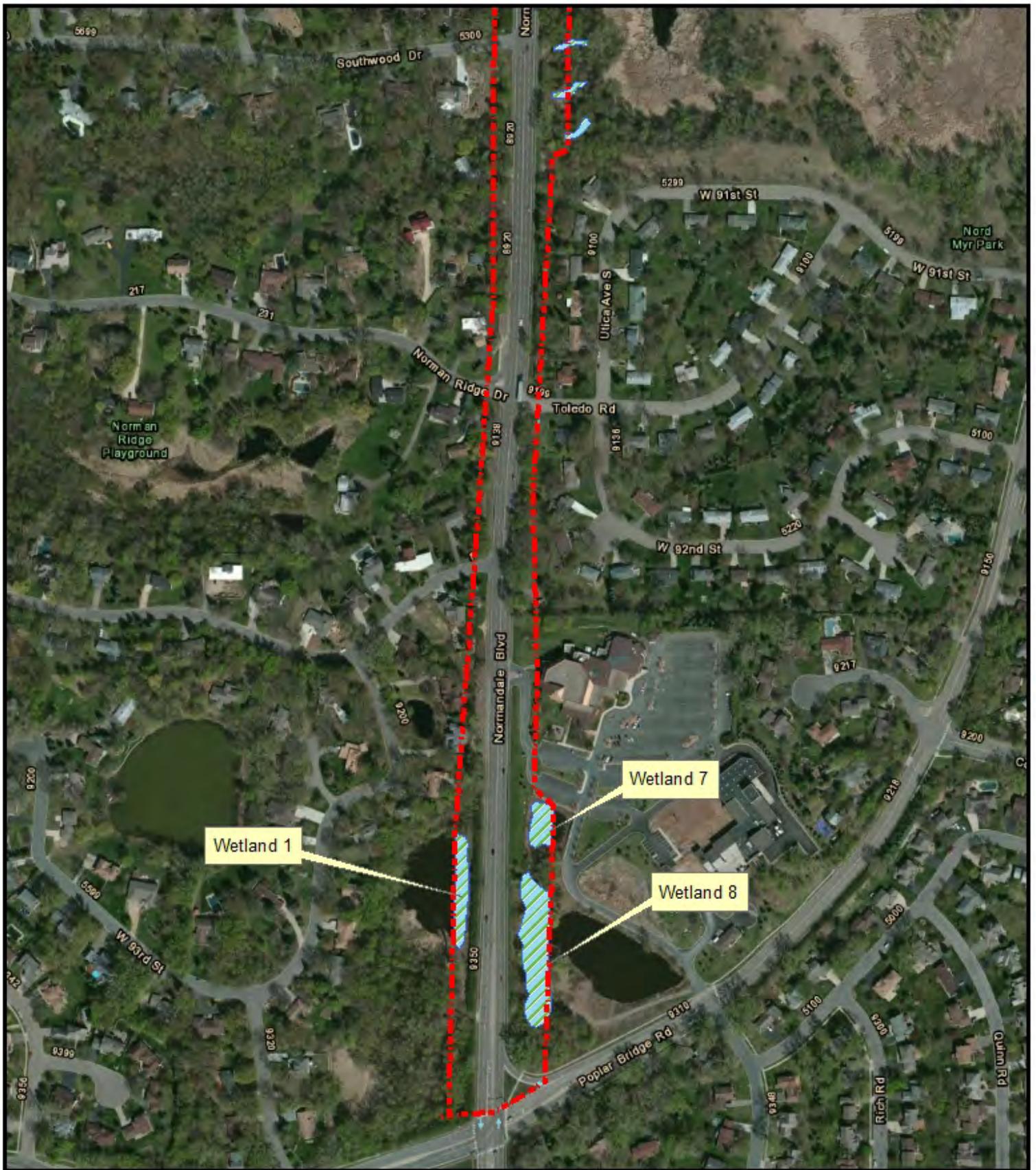


Figure 2a:  
 Site Layout

Normandale Blvd  
 Bloomington, Minnesota

**Legend**

- - - Site Boundary
- Wetlands



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Figure 2a:  
 Site Layout

Normandale Blvd  
 Bloomington, Minnesota

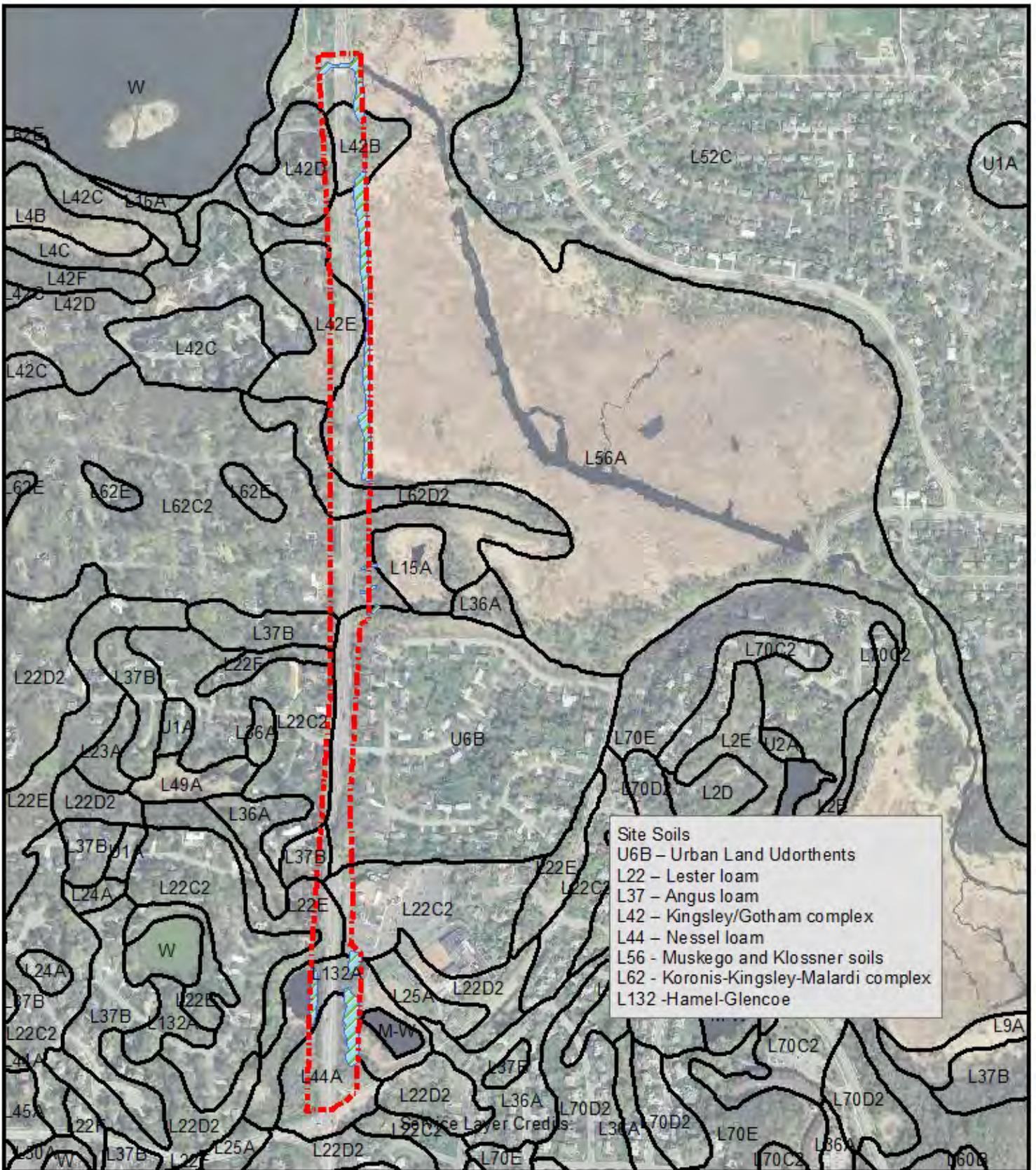
**Legend**

- - - Site Boundary
- Wetlands

# **FIGURE 3**

## **Soil Survey**

**WETLAND DETERMINATION AND DELINEATION**



Site Soils  
 U6B - Urban Land Udorthents  
 L22 - Lester loam  
 L37 - Angus loam  
 L42 - Kingsley/Gotham complex  
 L44 - Nessel loam  
 L56 - Muskego and Klossner soils  
 L62 - Koronis-Kingsley-Malardi complex  
 L132 - Hamel-Glencoe

Proj. No.: R013372.000  
 Date: October 7, 2013  
 GIS Analyst: ST  
 Reviewed By: MB

0 600 1,200  
 Feet

1154 1/2th Avenue North  
 Minneapolis, Minnesota 55409  
 Tel: (763) 215-4501 Fax: (763) 215-4507

Figure 3:  
 NRCS Soil Survey Map

Normandale Blvd  
 Bloomington, Minnesota

**Legend**

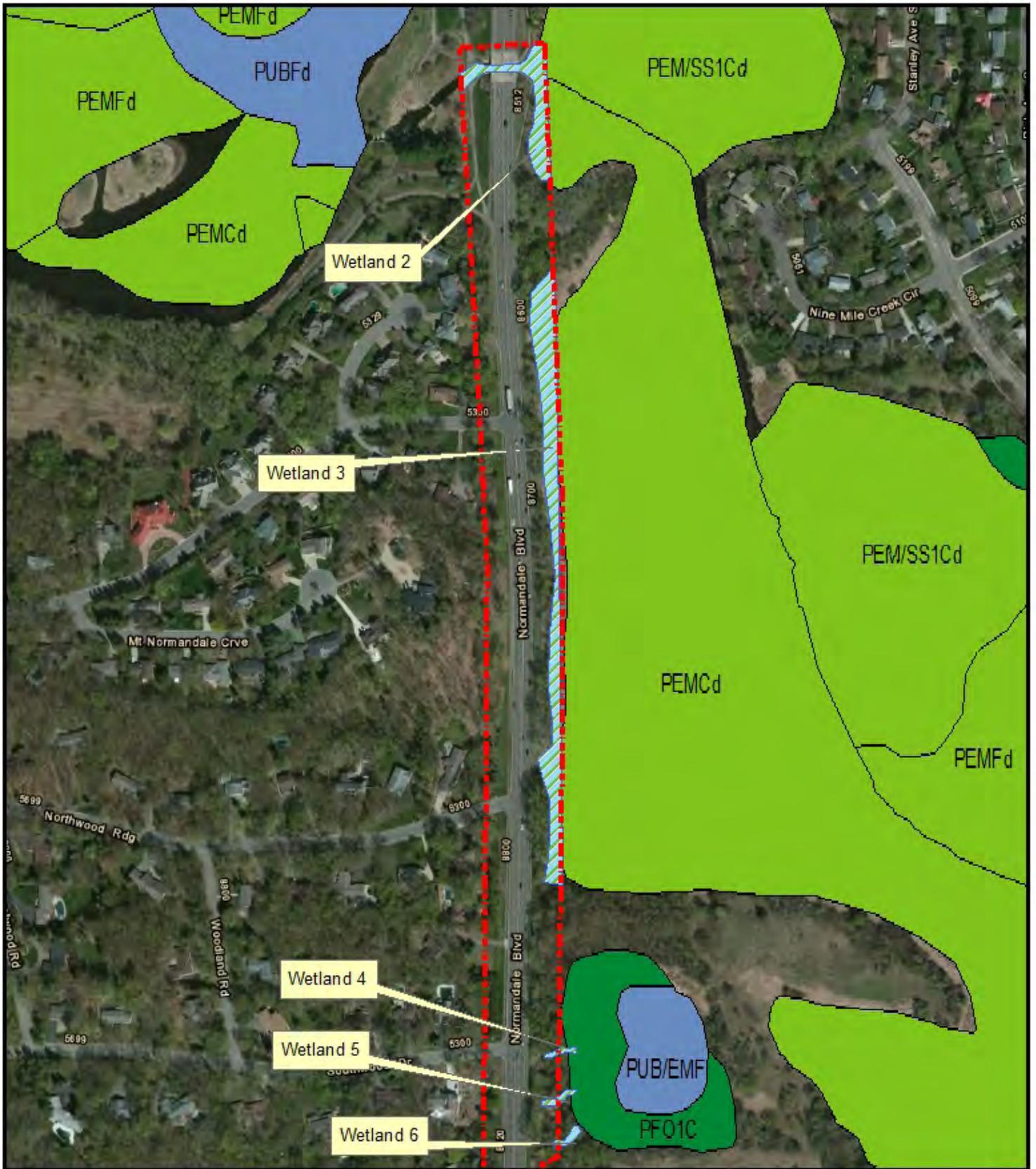
--- Site Boundary

Wetlands

# **FIGURE 4**

## **National Wetland Inventory**

**WETLAND DETERMINATION AND DELINEATION**



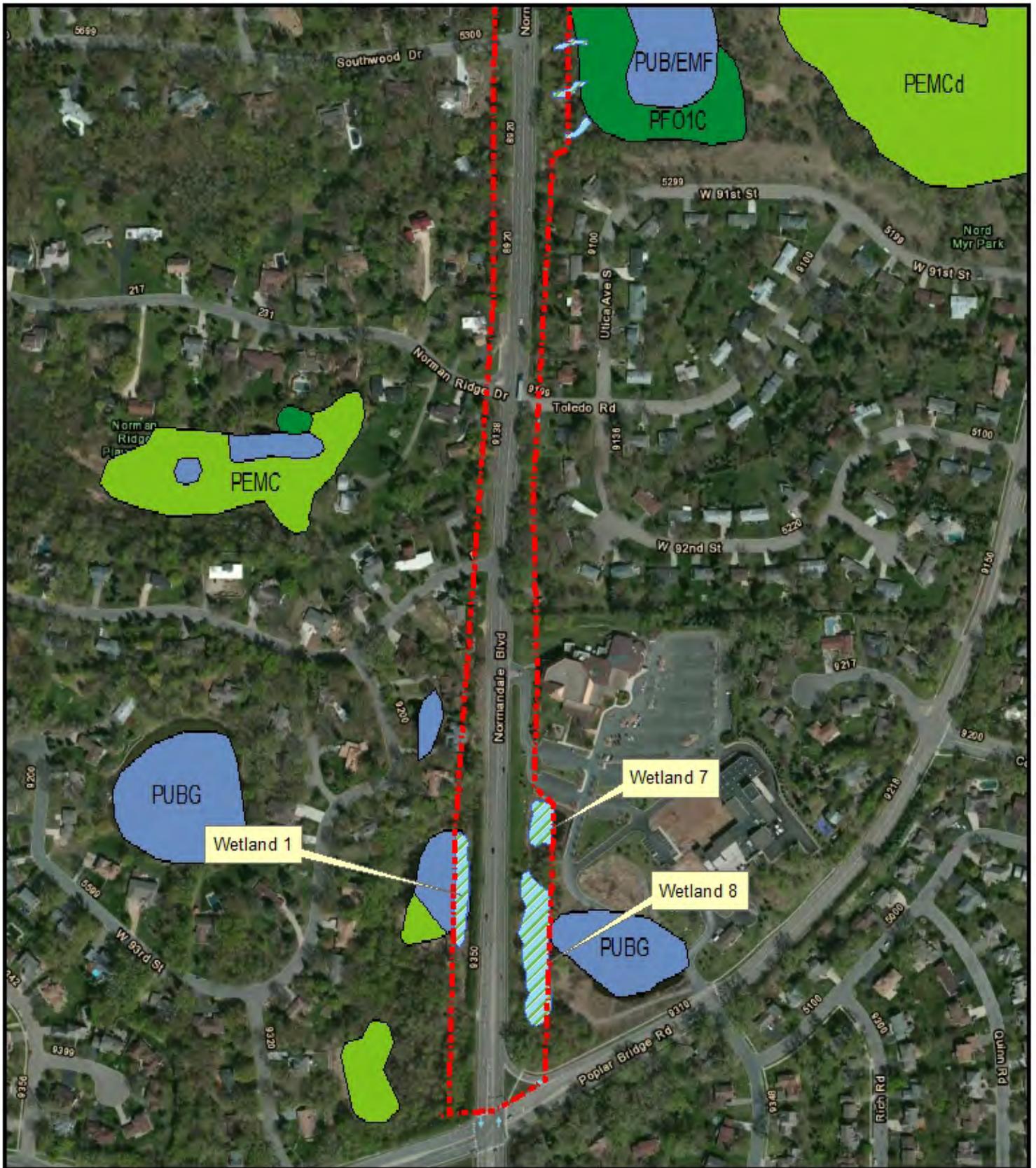
Proj. No.: R013372.000  
 Date: October 7, 2013  
 GIS Analyst: ST  
 Reviewed By: MB

**Finzpole Engineering**  
 11541 25th Avenue North  
 Minneapolis, Minnesota 55429  
 Tel: (763) 315-4501 Fax: (763) 315-4507

Figure 4a:  
 National Wetland Inventory Map  
  
 Normandale Blvd  
 Bloomington, Minnesota

**Legend**

- - - Site Boundary
- ▨ Wetlands



Proj. No.: R013372.000  
 Date: October 7, 2013  
 GIS Analyst: ST  
 Reviewed By: MB

11541 25th Avenue North  
 Minneapolis, Minnesota 55425  
 Tel: (762) 215-4501 Fax: (762) 215-4507

Figure 4a:  
 National Wetland Inventory Map  
  
 Normandale Blvd  
 Bloomington, Minnesota

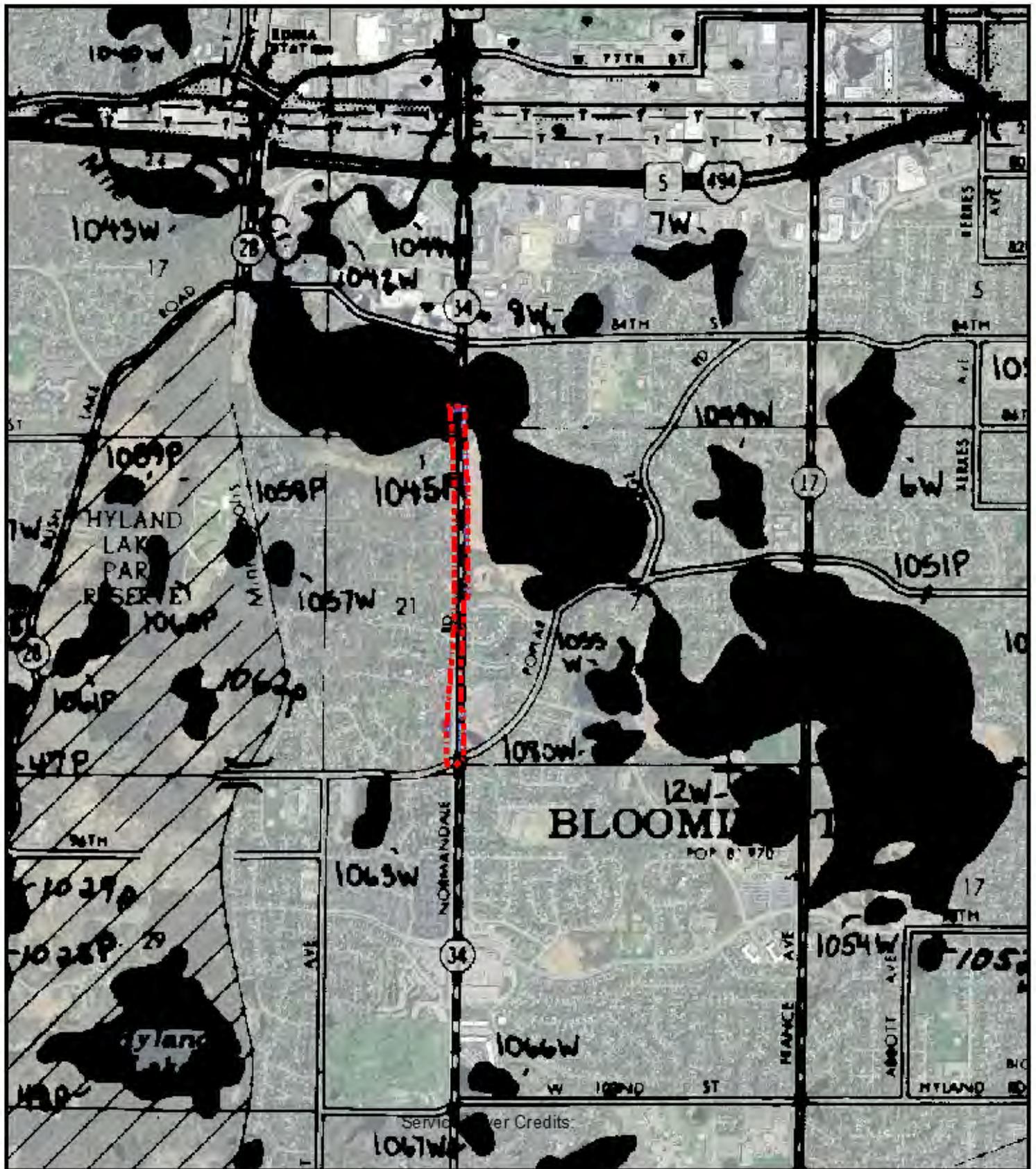
**Legend**

- - - Site Boundary
- Wetlands

# **FIGURE 5**

## **Public Waters Inventory**

**WETLAND DETERMINATION AND DELINEATION**



Proj. No.: R013372.000  
 Date: October 7, 2013  
 GIS Analyst: ST  
 Reviewed By: MB

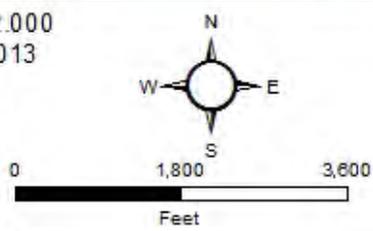
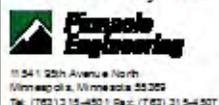


Figure 5:  
 Protected Waters Inventory Map

Normandale Blvd  
 Bloomington, Minnesota

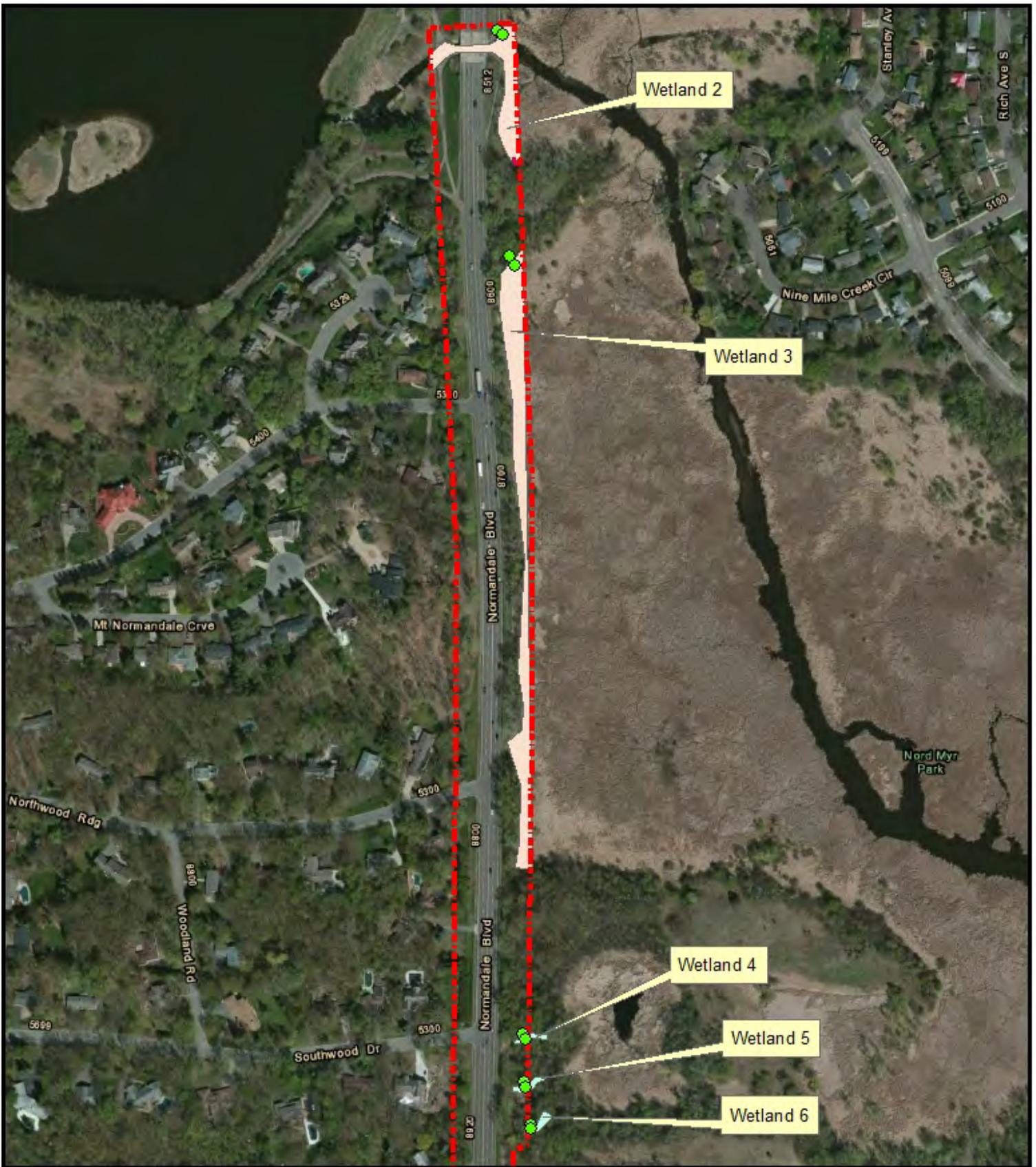
**Legend**

- - - - Site Boundary
- Wetlands

# **FIGURE 6**

## **Wetland Communities Sketch Map**

**WETLAND DETERMINATION AND DELINEATION**



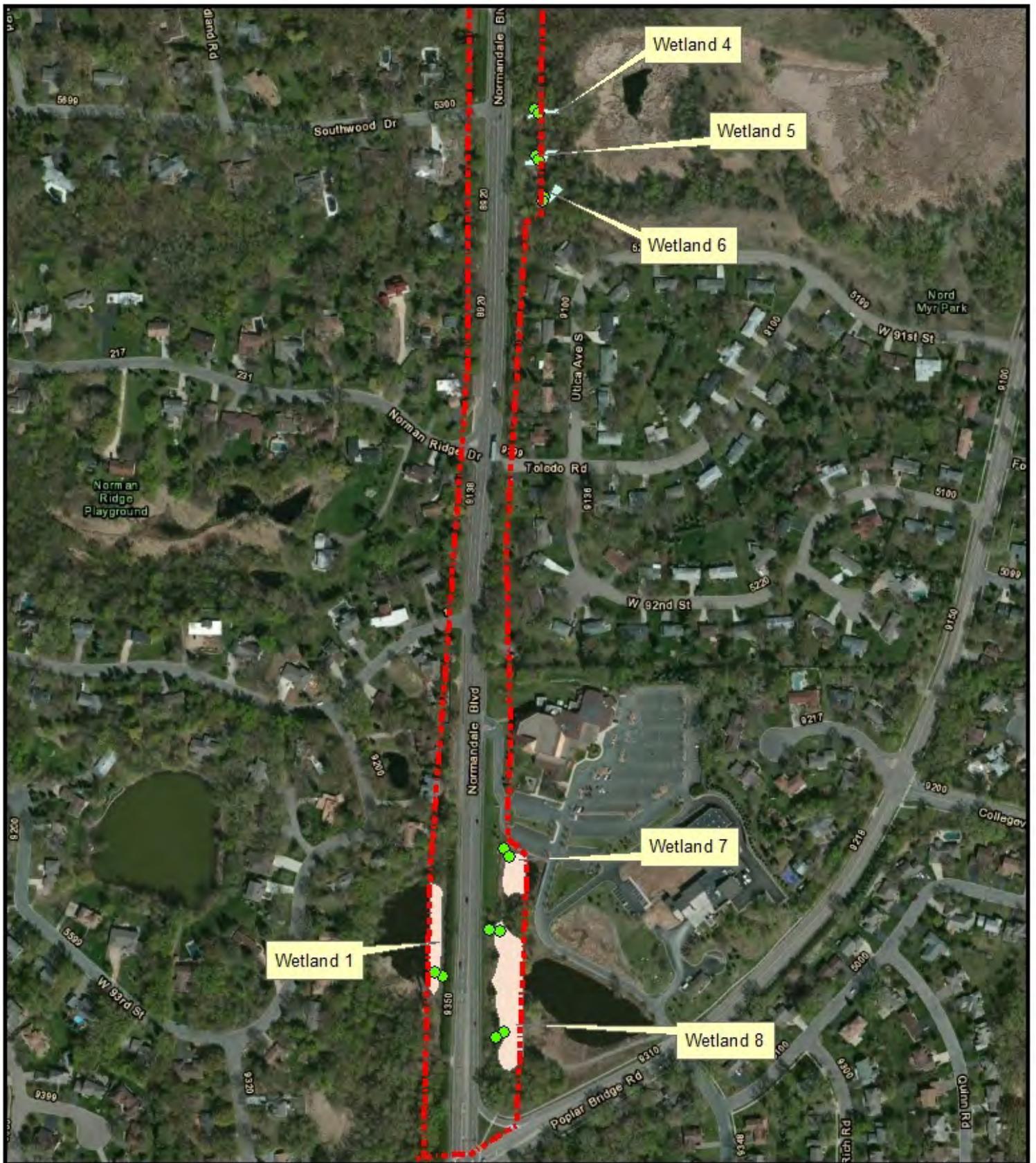
Proj. No.: R013372.000  
 Date: October 7, 2013  
 GIS Analyst: ST  
 Reviewed By: MB

**Finco**  
**Engineering**  
 11541 25th Avenue North  
 Minneapolis, Minnesota 55329  
 Tel: (763) 215-4801 Fax: (763) 215-4507

Figure 6a:  
 Wetland Community Map  
  
 Normandale Blvd  
 Bloomington, Minnesota

**Legend**

- Sampling Points
- Site Boundary
- Transect
- Forested
- Emergent



Proj. No.: R013372.000  
 Date: October 7, 2013  
 GIS Analyst: ST  
 Reviewed By: MB

**Finpole Engineering**  
11541 25th Avenue North  
 Minnetonka, MN 55345  
 Tel: (763) 215-4501 Fax: (763) 215-4507

Figure 6b:  
 Wetland Community Map  
  
 Normandale Blvd  
 Bloomington, Minnesota

**Legend**

- - - Site Boundary
- Sampling Points
- Forested
- Emergent

# **APPENDIX A**

## **WETLAND DETERMINATION DATA FORMS Midwest Region**

**WETLAND DETERMINATION AND DELINEATION**

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W1-W  
 Investigator(s): ST Section, Township, Range: Sec 21, T27N, R25W  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave  
 Slope (%): 12 Lat: 44.835218 Long: -93.350616 Datum: WGS 1984  
 Soil Map Unit Name Hamel/Glencoe VWI Classification: PUB/EMF

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? Yes

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the southwestern portion of the Site. Shallow marsh wetland with standing water in middle. Culverts on three sides of wetland. Distinct vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>1</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
0 = Total Cover					
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>	
1 _____	_____	_____	_____	Total % Cover of:	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
3 _____	_____	_____	_____	FACW species <u>90</u> x 2 = <u>180</u>	
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
	_____	_____	_____	Column totals <u>90</u> (A) <u>180</u> (B)	
	_____	_____	_____	Prevalence Index = B/A = <u>2.00</u>	
0 = Total Cover					
Herb stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>	
1 <u>Phalaris arundinacea</u>	<u>90</u>	<u>Y</u>	<u>FACW</u>	____ Rapid test for hydrophytic vegetation	
2 _____	_____	_____	_____	<input checked="" type="checkbox"/> Dominance test is >50%	
3 _____	_____	_____	_____	<input checked="" type="checkbox"/> Prevalence index is ≤3.0*	
4 _____	_____	_____	_____	____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	____ Problematic hydrophytic vegetation* (explain)	
6 _____	_____	_____	_____	____	
7 _____	_____	_____	_____	____	
8 _____	_____	_____	_____	____	
9 _____	_____	_____	_____	____	
10 _____	_____	_____	_____	____	
	_____	_____	_____	____	
	_____	_____	_____	____	
90 = Total Cover					
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>Y</u>	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	_____	_____	_____		
0 = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet)  
 Trees (willows, boxelder, elms) on hillsides. Cattails in center of wetland area.

**SOIL**

Sampling Point: W1-W

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-10	10YR 3/1	90					loam	
10-18	5YR 5/2	70	10YR 4/6	30	C	M	clayey loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric soil present? Y

**Remarks:**

Soils appear mixed in the upper 24 inches. Redox features at 10 inches.

**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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present? Y

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

**Remarks:**

Standing water present in the center part of the wetland. Sampling location approximately 12 inches above standing water.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 7/16/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W1-U  
 Investigator(s): ST Section, Township, Range: Sec 3, T118N, R22W  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.835218 Long: -93.350616 Datum: WGS 1984  
 Soil Map Unit Name Glencoe Loam VWI Classification: PUB/EMF

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation       , soil       , or hydrology        significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation       , soil       , or hydrology        naturally problematic?       

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

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

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the south eastern portion of the Site. Shallow marsh wetland with standing water in middle. Culverts on three sides of wetland. Distinct topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>      </u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1					
2					Total Number of Dominant Species Across all Strata: <u>2</u> (B)
3					Percent of Dominant Species that are OBL, FACW, or FAC: <u>50.00%</u> (A/B)
4					
5					
		<u>0</u>	= Total Cover		
Sapling/Shrub stratum	(Plot size: <u>      </u> )				<b>Prevalence Index Worksheet</b>
1					
2					OBL species <u>0</u> x 1 = <u>0</u>
3					FACW species <u>40</u> x 2 = <u>80</u>
4					FAC species <u>0</u> x 3 = <u>0</u>
5					FACU species <u>0</u> x 4 = <u>0</u>
		<u>0</u>	= Total Cover		UPL species <u>40</u> x 5 = <u>200</u>
		<u>80</u>	= Total Cover		Column totals <u>80</u> (A) <u>280</u> (B)
		<u>80</u>	= Total Cover		Prevalence Index = B/A = <u>3.50</u>
Herb stratum	(Plot size: <u>5</u> )				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid test for hydrophytic vegetation <input type="checkbox"/> Dominance test is >50% <input type="checkbox"/> 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
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
		<u>80</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>      </u> )				
1					
2					
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)  
 Smooth Brome on upside of sampling point

**SOIL**

Sampling Point: W1-U

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-8	10YR 3/2	90					loam	
8-20	10YR 4/3	70					clayey loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present?   N  

**Remarks:**

Soils appear mixed in the upper 24 inches.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

30

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

Secondary Indicators (minimum of two required)

- 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)

- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present?   N  

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

**Remarks:**

Standing water present in the center part of the wetland. Sampling location approximately 30 inches above standing water.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W2-U  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.848199 Long: -93.349513 Datum: WGS 1984  
 Soil Map Unit Name Muskego - Klossner soils VWI Classification: PEM/SS1Cd

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? Yes

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the northeastern portion of the Site. Shallow marsh/scrub shrub wetland with Nine Mile Creek in middle. Distinct vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>2</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>50.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
0 = Total Cover				<b>Prevalence Index Worksheet</b>	
Sapling/Shrub stratum (Plot size: _____)				Total % Cover of:	
1 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
2 _____	_____	_____	_____	FACW species <u>30</u> x 2 = <u>60</u>	
3 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
4 _____	_____	_____	_____	FACU species <u>25</u> x 4 = <u>100</u>	
5 _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
0 = Total Cover				Column totals <u>55</u> (A) <u>160</u> (B)	
Herb stratum (Plot size: <u>5</u> )				Prevalence Index = B/A = <u>2.91</u>	
1 <u>Phalaris arundinacea</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u>Asclepias syriaca</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	____ Rapid test for hydrophytic vegetation	
3 <u>Parthenocissus quinquefolia</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	____ Dominance test is >50%	
4 _____	_____	_____	_____	<u>X</u> Prevalence index is ≤3.0*	
5 _____	_____	_____	_____	____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
6 _____	_____	_____	_____	____ Problematic hydrophytic vegetation* (explain)	
7 _____	_____	_____	_____	*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
8 _____	_____	_____	_____	<b>Hydrophytic vegetation present?</b> <u>Y</u>	
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
55 = Total Cover					
Woody vine stratum (Plot size: _____)					
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
0 = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet)  
 Trees (willows, boxelder, elms) on hillsides near path. Cattails in center of wetland area.

**SOIL**

Sampling Point: W2-U

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 3/1	90					loam	
6-18	10YR 5/5	70					loamy sand	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present?  N

**Remarks:**

Soils appear mixed in the upper 24 inches.

**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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present?  N

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

**Remarks:**

Sampling location approximately 20 inches above standing water.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W2-W  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.848199 Long: -93.349513 Datum: WGS 1984  
 Soil Map Unit Name Glencoe Loam VWI Classification: PEM/SS1Cd

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation       , soil       , or hydrology        significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation       , soil       , or hydrology        naturally problematic?       

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

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

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the northeastern portion of the Site. Shallow marsh wetland with Nine Mile Creek in middle. Distinct vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>	
1 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A)	
2 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	Total Number of Dominant Species Across all Strata: <u>2</u> (B)	
3 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)	
4 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>		
5 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>		
<u>0</u> = Total Cover				<b>Prevalence Index Worksheet</b>	
Sapling/Shrub stratum (Plot size: <u>      </u> )				Total % Cover of:	
1 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	OBL species <u>25</u> x 1 = <u>25</u>	
2 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	FACW species <u>50</u> x 2 = <u>100</u>	
3 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	FAC species <u>0</u> x 3 = <u>0</u>	
4 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	FACU species <u>0</u> x 4 = <u>0</u>	
5 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	UPL species <u>0</u> x 5 = <u>0</u>	
<u>0</u> = Total Cover				Column totals <u>75</u> (A) <u>125</u> (B)	
Herb stratum (Plot size: <u>5</u> )				Prevalence Index = B/A = <u>1.67</u>	
1 <u>Phalaris arundinacea</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u>Typha latifolia</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	<u>      </u> Rapid test for hydrophytic vegetation	
3 <u>Asclepias incarnata</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance test is >50%	
4 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<input checked="" type="checkbox"/> Prevalence index is ≤3.0*	
5 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
6 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	Problematic hydrophytic vegetation* (explain)	
7 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
8 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<b>Hydrophytic vegetation present?</b> <u>Y</u>	
9 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>		
10 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>		
<u>75</u> = Total Cover					
Woody vine stratum (Plot size: <u>      </u> )					
1 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>		
2 <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>		
<u>0</u> = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet)  
 Trees (willows, boxelder, elms) on hillsides near path Cattails in center of wetland area.

**SOIL**

Sampling Point: W2-W

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 2/1	90	10YR 4/6	15	C	M	loam	
6-18	10YR 5/4	70	10YR 4/6	30	C	M	loamy sand	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present? Y

**Remarks:**

Soils appear mixed in the upper 24 inches.

**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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present? Y

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

**Remarks:**

Standing water present in the center part of the wetland. Sampling location approximately 12 inches above standing water.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W3-U  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.848199 Long: -93.349513 Datum: WGS 1984  
 Soil Map Unit Name Muskego- Klossner VWI Classification: PEMcd

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? Yes

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>N</u>	<b>Is the sampled area within a wetland?</b> <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the northeastern portion of the Site. Shallow marsh wetland with Nine Mile Creek in middle. Distinct vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 <u>Populus deltoides</u>	30	Y	FAC	
2 _____				Total Number of Dominant Species Across all Strata: <u>3</u> (B)
3 _____				Percent of Dominant Species that are OBL, FACW, or FAC: <u>33.33%</u> (A/B)
4 _____				
5 _____				
30 = Total Cover				
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 _____				
2 _____				OBL species <u>0</u> x 1 = <u>0</u>
3 _____				FACW species <u>0</u> x 2 = <u>0</u>
4 _____				FAC species <u>30</u> x 3 = <u>90</u>
5 _____				FACU species <u>100</u> x 4 = <u>400</u>
				UPL species <u>0</u> x 5 = <u>0</u>
0 = Total Cover				Column totals <u>130</u> (A) <u>490</u> (B)
				Prevalence Index = B/A = <u>3.77</u>
Herb stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 <u>Bromus inermis</u>	60	Y	FACU	
2 <u>Solidago canadensis</u>	30	Y	FACU	____ Dominance test is >50%
3 <u>Asclepias syriaca</u>	10	N	FACU	____ Prevalence index is ≤3.0*
4 _____				____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5 _____				____ Problematic hydrophytic vegetation* (explain)
6 _____				
7 _____				
8 _____				
9 _____				
10 _____				
100 = Total Cover				* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>N</u>
1 _____				
2 _____				
0 = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)  
 Trees (boxelder, elms) on hillsides near wetland area and upland plants near Normandale Boulevard.

**SOIL**

Sampling Point: W3-U

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 3/1	90					loam	
12-24	10YR 4/1	70	10YR 4/6	10	C	M	loamy sand	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present?   N  

**Remarks:**

Soils appear mixed in the upper 24 inches. Redox features begin at 20 inches.

**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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present?   N  

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

**Remarks:**

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W3-W  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.848199 Long: -93.349513 Datum: WGS 1984  
 Soil Map Unit Name Muskego/Klossner VWI Classification: PEMcd

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation       , soil       , or hydrology        significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation       , soil       , or hydrology        naturally problematic?       

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

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

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the northeastern portion of the Site. Shallow marsh wetland with Nine Mile Creek in middle. Distinct vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>	
1 <u>Populus deltoides</u>	20	Y	FAC	Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A)	
2 <u>      </u>				Total Number of Dominant Species Across all Strata: <u>2</u> (B)	
3 <u>      </u>				Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)	
4 <u>      </u>					
5 <u>      </u>					
<u>20</u> = Total Cover				<b>Prevalence Index Worksheet</b>	
Sapling/Shrub stratum (Plot size: <u>15</u> )				Total % Cover of:	
1 <u>      </u>				OBL species <u>0</u> x 1 = <u>0</u>	
2 <u>      </u>				FACW species <u>60</u> x 2 = <u>120</u>	
3 <u>      </u>				FAC species <u>20</u> x 3 = <u>60</u>	
4 <u>      </u>				FACU species <u>10</u> x 4 = <u>40</u>	
5 <u>      </u>				UPL species <u>0</u> x 5 = <u>0</u>	
<u>0</u> = Total Cover				Column totals <u>90</u> (A) <u>220</u> (B)	
Herb stratum (Plot size: <u>5</u> )				Prevalence Index = B/A = <u>2.44</u>	
1 <u>Phalaris arundinacea</u>	60	Y	FACW	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid test for hydrophytic vegetation <input checked="" type="checkbox"/> Dominance test is >50% <input checked="" type="checkbox"/> 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	
2 <u>Asclepias syriaca</u>	10	N	FACU		
3 <u>      </u>					
4 <u>      </u>					
5 <u>      </u>					
6 <u>      </u>					
7 <u>      </u>					
8 <u>      </u>					
9 <u>      </u>					
10 <u>      </u>					
<u>70</u> = Total Cover					
Woody vine stratum (Plot size: <u>      </u> )				<b>Hydrophytic vegetation present?</b> <u>Y</u>	
1 <u>      </u>					
2 <u>      </u>					
<u>0</u> = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet)  
 Trees (willows, boxelder, elms) on hillsides near Normandale Boulevard. Cattails in center of wetland area.

**SOIL**

Sampling Point: W3-W

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-10	10YR 3/1	90					loam	
10-18	10YR 4/1	70	10YR 4/6	30	C	M	loamy sand	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric soil present? Y

**Remarks:**

Soils appear mixed in the upper 24 inches. Redox features in upper 12 inches.

**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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present? Y

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

**Remarks:**

Standing water present in the center part of the wetland. Sampling location approximately 12 inches above standing water. Redox features in upper 12 inches. Water marks on base of trees.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W4-U  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.841789 Long: -93.349548 Datum: WGS 1984  
 Soil Map Unit Name Koronis/Kingsley/Malardi complex VWI Classification: PFO1C

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? Yes

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the east central portion of the Site. Shallow marsh wetland with Nine Mile Creek in middle. Distinct vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>	
1 <u>Fraxinus pennsylvanica</u>	40	Y	FACW	Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u>	(A)
2 _____				Total Number of Dominant Species Across all Strata: <u>2</u>	(B)
3 _____				Percent of Dominant Species that are OBL, FACW, or FAC: <u>50.00%</u>	(A/B)
4 _____					
5 _____					
	40	= Total Cover			
Sapling/Shrub stratum (Plot size: <u>10</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>	
1 <u>Lonicera tatarica</u>	30	Y	FACU	Total % Cover of:	
2 _____				OBL species <u>0</u> x 1 = <u>0</u>	
3 _____				FACW species <u>40</u> x 2 = <u>80</u>	
4 _____				FAC species <u>0</u> x 3 = <u>0</u>	
5 _____				FACU species <u>30</u> x 4 = <u>120</u>	
	30	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>	
				Column totals <u>70</u> (A) <u>200</u> (B)	
				Prevalence Index = B/A = <u>2.86</u>	
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>	
1 _____				<input type="checkbox"/> Rapid test for hydrophytic vegetation	
2 _____				<input type="checkbox"/> Dominance test is >50%	
3 _____				<input checked="" type="checkbox"/> Prevalence index is ≤3.0*	
4 _____				Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5 _____				Problematic hydrophytic vegetation* (explain)	
6 _____					
7 _____					
8 _____					
9 _____					
10 _____					
	0	= Total Cover			
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>Y</u>	
1 _____					
2 _____					
	0	= Total Cover			

Remarks: (Include photo numbers here or on a separate sheet)  
 Trees (ashes, boxelder, elms) near wetland area and honey suckle present in upland areas.

**SOIL**

Sampling Point: W4-U

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-20	10YR 2/1	90					loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present?  N

**Remarks:**

Soils appear mixed in the upper 20 inches. No Redox features apparent.

**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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present?  N

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

**Remarks:**

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W4-W  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.841789 Long: -93.349548 Datum: WGS 1984  
 Soil Map Unit Name Koronis/Kingsley/Malardi complex VWI Classification: PFO1C

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? Yes

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the northeastern portion of the Site. Shallow marsh wetland with Nine Mile Creek in middle. Distinct vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>	
1 <i>Fraxinus pennsylvanica</i>	40	Y	FACW	Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u>	(A)
2 <i>Acer negundo</i>	20	Y	FAC	Total Number of Dominant Species Across all Strata: <u>2</u>	(B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u>	(A/B)
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	<u>60</u>	= Total Cover			
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>	
1 _____	_____	_____	_____	Total % Cover of:	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
3 _____	_____	_____	_____	FACW species <u>40</u> x 2 = <u>80</u>	
4 _____	_____	_____	_____	FAC species <u>20</u> x 3 = <u>60</u>	
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>	
				Column totals <u>60</u> (A) <u>140</u> (B)	
				Prevalence Index = B/A = <u>2.33</u>	
Herb stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>	
1 _____	_____	_____	_____	_____ Rapid test for hydrophytic vegetation	
2 _____	_____	_____	_____	<input checked="" type="checkbox"/> Dominance test is >50%	
3 _____	_____	_____	_____	<input checked="" type="checkbox"/> Prevalence index is ≤3.0*	
4 _____	_____	_____	_____	Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	Problematic hydrophytic vegetation* (explain)	
6 _____	_____	_____	_____	*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>Y</u>	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			

Remarks: (Include photo numbers here or on a separate sheet)  
 Trees (ashes, boxelder, elms) in wetland area.

**SOIL**

Sampling Point: W4-W

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-20	10YR 2/1	90					loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present? Y

**Remarks:**

Soils appear mixed in the upper 20 inches.

**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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present? Y

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

**Remarks:**

Hydrology assumed due to the drift deposits and water marks on trees.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W5-W  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.84144 Long: -93.349459 Datum: WGS 1984  
 Soil Map Unit Name Koronis/Kingsley/Malardi complex VWI Classification: PFO1C

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? Yes  
**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the northeastern portion of the Site. Shallow marsh wetland with Nine Mile Creek in middle. Gradual vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>	
1 <u>Fraxinus pennsylvanica</u>	10	Y	FACW		Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>3</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>66.67%</u> (A/B)
2 <u>Acer negundo</u>	10	Y	FAC		
3 _____					
4 _____					
5 _____					
<u>20</u> = Total Cover				<b>Prevalence Index Worksheet</b>	
Sapling/Shrub stratum (Plot size: <u>10</u> )	Absolute % Cover	Dominant Species	Indicator Status		Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>40</u> x 4 = <u>160</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>60</u> (A) <u>210</u> (B) Prevalence Index = B/A = <u>3.50</u>
1 <u>Lonicera tatarica</u>	40	Y	FACU		
2 _____					
3 _____					
5 _____					
<u>40</u> = Total Cover				<b>Hydrophytic Vegetation Indicators:</b> _____ Rapid test for hydrophytic vegetation <input checked="" type="checkbox"/> Dominance test is >50% _____ 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	
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status		
1 _____					
2 _____					
3 _____					
4 _____					
5 _____					
6 _____					
7 _____					
8 _____					
10 _____					
<u>0</u> = Total Cover				<b>Hydrophytic vegetation present?</b> <u>Y</u>	
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status		
1 _____					
2 _____					
<u>0</u> = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet)  
 Trees (ashes, boxelder, elms) near wetland area.

**SOIL**

Sampling Point: W5-W

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18	10YR 2/1	80					loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present?   N  

**Remarks:**

No redox features apparent.

**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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present?   N  

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

**Remarks:**

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W5-W  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.84144 Long: -93.349459 Datum: WGS 1984  
 Soil Map Unit Name Koronis/Kingsley/Malardi complex VWI Classification: PFO1C

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? Yes

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the northeastern portion of the Site. Shallow marsh wetland with Nine Mile Creek in middle. Gradual vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>	
1 <u>Fraxinus pennsylvanica</u>	20	Y	FACW		Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
2 <u>Acer negundo</u>	20	Y	FAC		
3 _____	_____	_____	_____		
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
<u>40</u> = Total Cover				<b>Prevalence Index Worksheet</b>	
Sapling/Shrub stratum (Plot size: _____)					Total % Cover of:
1 _____	_____	_____	_____		OBL species <u>0</u> x 1 = <u>0</u>
2 _____	_____	_____	_____		FACW species <u>20</u> x 2 = <u>40</u>
3 _____	_____	_____	_____		FAC species <u>20</u> x 3 = <u>60</u>
4 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
5 _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
<u>0</u> = Total Cover				Column totals <u>40</u> (A) <u>100</u> (B)	
Herb stratum (Plot size: _____)				Prevalence Index = B/A = <u>2.50</u>	
1 _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b>	
2 _____	_____	_____	_____		____ Rapid test for hydrophytic vegetation
3 _____	_____	_____	_____		<input checked="" type="checkbox"/> Dominance test is >50%
4 _____	_____	_____	_____		<input checked="" type="checkbox"/> Prevalence index is ≤3.0*
5 _____	_____	_____	_____		Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
6 _____	_____	_____	_____		Problematic hydrophytic vegetation* (explain)
7 _____	_____	_____	_____		_____
8 _____	_____	_____	_____		_____
9 _____	_____	_____	_____		_____
10 _____	_____	_____	_____		_____
<u>0</u> = Total Cover				<b>Hydrophytic vegetation present?</b> <u>Y</u>	
Woody vine stratum (Plot size: _____)					
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
<u>0</u> = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet)  
 Trees (ashes, boxelder, elms) in wetland area.

**SOIL**

Sampling Point: W5-W

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-24	10YR 2/1	80					loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present? Y

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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present? Y

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

Remarks:

Hydrology assumed due to the drift deposits and water marks on trees.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W6-U  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.841104 Long: -93.349458 Datum: WGS 1984  
 Soil Map Unit Name Koronis/Kingsley/Malardi complex VWI Classification: PFO1C

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation       , soil       , or hydrology        significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation       , soil       , or hydrology        naturally problematic?         
**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

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

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the central eastern portion of the Site. Wetland appears to be a stormwater drainage. Gradual vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 <i>Acer negundo</i>	20	Y	FAC	
2 <i>Fraxinus pennsylvanica</i>	10	Y	FACW	Total Number of Dominant Species Across all Strata: <u>5</u> (B)
3				Percent of Dominant Species that are OBL, FACW, or FAC: <u>80.00%</u> (A/B)
4				
5				
	30	= Total Cover		
Sapling/Shrub stratum (Plot size: <u>10</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 <i>Rhamnus cathartica</i>	20	Y	FAC	
2 <i>Lonicera tatarica</i>	20	Y	FACU	OBL species <u>0</u> x 1 = <u>0</u>
3				FACW species <u>10</u> x 2 = <u>20</u>
4				FAC species <u>60</u> x 3 = <u>180</u>
5				FACU species <u>20</u> x 4 = <u>80</u>
	40	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>
				Column totals <u>90</u> (A) <u>280</u> (B)
				Prevalence Index = B/A = <u>3.11</u>
Herb stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 <i>Poa pratensis</i>	20	Y	FAC	
2				<input checked="" type="checkbox"/> Dominance test is >50%
3				<input type="checkbox"/> Prevalence index is ≤3.0*
4				Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5				Problematic hydrophytic vegetation* (explain)
6				
7				
8				
9				
10				
	20	= Total Cover		* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
Woody vine stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>      Y      </u>
1				
2				
	0	= Total Cover		

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

**SOIL**

Sampling Point: W6-U

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-20	10YR 2/1	80					loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland 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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present?   N  

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

Remarks:

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W6-W  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.841104 Long: -93.349458 Datum: WGS 1984  
 Soil Map Unit Name Koronis/Kingsley/Malardi complex VWI Classification: PFO1C

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? Yes  
**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the central eastern portion of the Site. Wetland appears to be a stormwater drainage. Gradual vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 <u>Acer negundo</u>	20	Y	FAC	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>3</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
20 = Total Cover				
Sapling/Shrub stratum (Plot size: <u>10</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 <u>Rhamnus cathartica</u>	40	Y	FAC	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species <u>20</u> x 2 = <u>40</u>
4 _____	_____	_____	_____	FAC species <u>60</u> x 3 = <u>180</u>
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>
6 _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>
7 _____	_____	_____	_____	Column totals <u>80</u> (A) <u>220</u> (B)
8 _____	_____	_____	_____	Prevalence Index = B/A = <u>2.75</u>
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
40 = Total Cover				
Herb stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 <u>Phalaris arundinacea</u>	20	Y	FACW	
2 _____	_____	_____	_____	<input checked="" type="checkbox"/> Dominance test is >50%
3 _____	_____	_____	_____	<input checked="" type="checkbox"/> Prevalence index is ≤3.0*
4 _____	_____	_____	_____	Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5 _____	_____	_____	_____	____ Problematic hydrophytic vegetation* (explain)
6 _____	_____	_____	_____	*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
20 = Total Cover				
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>Y</u>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
0 = Total Cover				

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

**SOIL**

Sampling Point: W6-W

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-9	10YR 2/1	80					loam	
9-18	10YR 4/1	80	2.5YR 4/6	10	C	M	loamy sand	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric soil present? Y

**Remarks:**

Redox features apparent at 10 inches

**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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present? Y

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

**Remarks:**

Hydrology assumed due to drainage patterns and vegetaion.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W7-U  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.835761 Long: -93.34997 Datum: WGS 1984  
 Soil Map Unit Name Hamel/Glencoe VWI Classification: \_\_\_\_\_

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? Yes

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	<b>Is the sampled area within a wetland?</b> <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the south eastern portion of the Site. Wetland appears to be a stormwater drainage pond. Distinct vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>2</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>50.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
0 = Total Cover					
Sapling/Shrub stratum (Plot size: <u>10</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>	
1 <u>Salix fragilis</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	Total % Cover of:	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
3 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
4 _____	_____	_____	_____	FAC species <u>40</u> x 3 = <u>120</u>	
5 _____	_____	_____	_____	FACU species <u>40</u> x 4 = <u>160</u>	
	<u>20</u>			UPL species <u>0</u> x 5 = <u>0</u>	
20 = Total Cover				Column totals <u>80</u> (A) <u>280</u> (B)	
				Prevalence Index = B/A = <u>3.50</u>	
Herb stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>	
1 <u>Solidago canadensis</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	_____ Rapid test for hydrophytic vegetation	
2 <u>Cirsium vulgare</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	_____ Dominance test is >50%	
3 <u>Astragalus canadensis</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	_____ Prevalence index is ≤3.0*	
4 <u>Galium boreale</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	_____ Problematic hydrophytic vegetation* (explain)	
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	<u>60</u>				
60 = Total Cover					
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status		
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u>				
0 = Total Cover					

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

**SOIL**

Sampling Point: W7-U

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-20	10YR 2/1	80					loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present?  N

Remarks:  
 Soils not saturated

**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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present?  N

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

Remarks:  
 Open water present in center of wetland area. Sampling location 24 inches above open water.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W7-W  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.835761 Long: -93.34997 Datum: WGS 1984  
 Soil Map Unit Name Hamel/Glencoe VWI Classification: \_\_\_\_\_

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? Yes

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the south eastern portion of the Site. Wetland appears to be a stormwater drainage pond. Distinct vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> )	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet
1 <u>Salix fragilis</u>	40	Y	FAC	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
40 = Total Cover				<b>Prevalence Index Worksheet</b> Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>60</u> x 3 = <u>180</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>90</u> (A) <u>240</u> (B) Prevalence Index = B/A = <u>2.67</u>
Sapling/Shrub stratum (Plot size: <u>10</u> )	Absolute % Cover	Dominant Species	Indicator Status	
1 <u>Salix fragilis</u>	20	Y	FAC	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
20 = Total Cover				
Herb stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species	Indicator Status	
1 <u>Phalaris arundinacea</u>	30	Y	FACW	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
30 = Total Cover				
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
0 = Total Cover				

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

**SOIL**

Sampling Point: W7-W

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-20	10YR 2/1	80					loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present? Y

**Remarks:**

Soil saturated at 4 inches

**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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

Surface water present? Yes X No \_\_\_\_\_ Depth (inches): 24  
 Water table present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
 Saturation present? Yes X No \_\_\_\_\_ Depth (inches): 4  
 (includes capillary fringe)

Indicators of wetland hydrology present? Y

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

**Remarks:**

Open water present in center of wetland area. Sampling location 12 inches above open water.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W8-1U  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.834864 Long: -93.349991 Datum: WGS 1984  
 Soil Map Unit Name Hamel /Glencoe soils VWI Classification: PUBG

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? Yes

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the southeastern portion of the Site. Wetland appears to be an pond. Distinct vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 <u>Acer saccharinum</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>2</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>20</u> = Total Cover				
Sapling/Shrub stratum (Plot size: <u>10</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 <u>Rhamnus cathartica</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species <u>20</u> x 2 = <u>40</u>
4 _____	_____	_____	_____	FAC species <u>20</u> x 3 = <u>60</u>
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>
6 _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>
7 _____	_____	_____	_____	Column totals <u>40</u> (A) <u>100</u> (B)
8 _____	_____	_____	_____	Prevalence Index = B/A = <u>2.50</u>
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	<input checked="" type="checkbox"/> Dominance test is >50%
3 _____	_____	_____	_____	<input checked="" type="checkbox"/> Prevalence index is ≤3.0*
4 _____	_____	_____	_____	Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5 _____	_____	_____	_____	Problematic hydrophytic vegetation* (explain)
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>0</u> = Total Cover				
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>Y</u>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				

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

**SOIL**

Sampling Point: W8-1U

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 2/2	80					loam	
6-18	10YR 3/2	70						

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present?   N  

**Remarks:**

Soils not saturated

**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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present?   N  

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

**Remarks:**

Open water present in center of wetland area. Sampling location 24 inches above open water.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W8-1W  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.834864 Long: -93.349991 Datum: WGS 1984  
 Soil Map Unit Name Hamel /Glencoe soils VWI Classification: \_\_\_\_\_

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? Yes

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the southeastern portion of the Site. Wetland appears to be an pond. Gradual vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>	
1 <u>Acer saccharinum</u>	30	Y	FACW	Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A)	Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
2 _____	_____	_____	_____	_____	
3 _____	_____	_____	_____	_____	
4 _____	_____	_____	_____	_____	
5 _____	_____	_____	_____	_____	
<u>30</u> = Total Cover				<b>Prevalence Index Worksheet</b>	
Sapling/Shrub stratum (Plot size: <u>10</u> )	Absolute % Cover	Dominant Species	Indicator Status	Total % Cover of:	
1 <u>Rhamnus cathartica</u>	20	Y	FAC	OBL species <u>0</u> x 1 = <u>0</u>	FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>50</u> (A) <u>120</u> (B) Prevalence Index = B/A = <u>2.40</u>
2 _____	_____	_____	_____	_____	
3 _____	_____	_____	_____	_____	
4 _____	_____	_____	_____	_____	
5 _____	_____	_____	_____	_____	
6 _____	_____	_____	_____	_____	
<u>20</u> = Total Cover					
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b> _____ Rapid test for hydrophytic vegetation <input checked="" type="checkbox"/> Dominance test is >50% <input checked="" type="checkbox"/> 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	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
3 _____	_____	_____	_____		
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
<u>0</u> = Total Cover					
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>Y</u>	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
<u>0</u> = Total Cover					

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

**SOIL**

Sampling Point: W8-1W

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 2/2	80					loam	
6-12	10YR 3/2	70	10YR 4/6	10	C	M	silty loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric soil present? Y

**Remarks:**

Soils moist throughout. Redox features at 8 inches.

**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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present? Y

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

**Remarks:**

Hydrology assumed due to redox features, vegetation change and evidence of ponding.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W8-2U  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.834864 Long: -93.349991 Datum: WGS 1984  
 Soil Map Unit Name Hamel /Glencoe soils VWI Classification: PUBG

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? Yes

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the southeastern portion of the Site. Wetland appears to be an pond. Distinct vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 <u>Populus deltoides</u>	30	Y	FAC	
2 _____				Total Number of Dominant Species Across all Strata: <u>2</u> (B)
3 _____				Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
4 _____				
5 _____				
	30 = Total Cover			
Sapling/Shrub stratum (Plot size: <u>10</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 <u>Rhamnus cathartica</u>	60	Y	FAC	
2 _____				OBL species <u>0</u> x 1 = <u>0</u>
3 _____				FACW species <u>0</u> x 2 = <u>0</u>
4 _____				FAC species <u>90</u> x 3 = <u>270</u>
5 _____				FACU species <u>0</u> x 4 = <u>0</u>
	60 = Total Cover			UPL species <u>0</u> x 5 = <u>0</u>
				Column totals <u>90</u> (A) <u>270</u> (B)
				Prevalence Index = B/A = <u>3.00</u>
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 _____				
2 _____				<input checked="" type="checkbox"/> Dominance test is >50%
3 _____				<input checked="" type="checkbox"/> Prevalence index is ≤3.0*
4 _____				Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5 _____				Problematic hydrophytic vegetation* (explain)
6 _____				
7 _____				
8 _____				
9 _____				
10 _____				
	0 = Total Cover			
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>Y</u>
1 _____				
2 _____				
	0 = Total Cover			

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

**SOIL**

Sampling Point: W8-2U

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 2/2	80					loam	
6-15	10YR 4/3	70					sandy loam	
15-20	10YR 2/1	70					loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present?   N  

Remarks:  
 Soils not saturated

**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)

Secondary Indicators (minimum of two required)

- 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)
- 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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present?   N  

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

Remarks:  
 Open water present in center of wetland area.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site Normandale Boulevard City/County: Bloomington/Hennepin Sampling Date: 9/27/13  
 Applicant/Owner: Sunde Land Surveying State: MN Sampling Point: W8-2W  
 Investigator(s): ST Section, Township, Range: Sec 7, T27N, R24W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave  
 Slope (%): 0-3 Lat: 44.834864 Long: -93.349991 Datum: WGS 1984  
 Soil Map Unit Name Hamel /Glencoe soils VWI Classification: PUBG

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)  
 Are vegetation       , soil       , or hydrology        significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation       , soil       , or hydrology        naturally problematic? present? Yes  
**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

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

Remarks: (Explain alternative procedures here or in a separate report.)  
 Wetland located in the southeastern portion of the Site. Wetland appears to be an pond. Gradual vegetation and topography change between wetland and upland.

**VEGETATION** -- Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 <u>Populus deltoides</u>	30	Y	FAC	
2				Total Number of Dominant Species Across all Strata: <u>3</u> (B)
3				Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
4				
5				
	30 = Total Cover			
Sapling/Shrub stratum (Plot size: <u>10</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 <u>Rhamnus cathartica</u>	20	Y	FAC	
2				OBL species <u>0</u> x 1 = <u>0</u>
3				FACW species <u>30</u> x 2 = <u>60</u>
4				FAC species <u>50</u> x 3 = <u>150</u>
5				FACU species <u>0</u> x 4 = <u>0</u>
	20 = Total Cover			UPL species <u>0</u> x 5 = <u>0</u>
				Column totals <u>80</u> (A) <u>210</u> (B)
				Prevalence Index = B/A = <u>2.63</u>
Herb stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 <u>Phalaris arundinacea</u>	30	Y	FACW	
2				<u>X</u> Dominance test is >50%
3				<u>X</u> Prevalence index is ≤3.0*
4				Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5				Problematic hydrophytic vegetation* (explain)
6				
7				
8				
9				
10				
	30 = Total Cover			
Woody vine stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>Y</u>
1				
2				
	0 = Total Cover			

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

**SOIL**

Sampling Point: W8-2W

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 2/2	80					loam	
6-18	10YR 4/2	70	10YR 4/6	10	C	M	silty loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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)
- 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 wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present? Y

**Remarks:**

Soils moist throughout. Redox features at 8 inches.

**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)
- FAC-Neutral Test (D5)

**Field Observations:**

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

Indicators of wetland hydrology present? Y

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

**Remarks:**

Hydrology assumed due to redox features, vegetation change and evidence of ponding.

# **APPENDIX B**

## **WETLAND BOUNDARY APPLICATIONS**

### **WETLAND DETERMINATION AND DELINEATION**

**Minnesota Wetland Conservation Act  
Application for Approval of Wetland Type and Boundary**

**1. Project/Site Information**

Project/Site Name: Normandale Boulevard, Bloomington, Local Government Unit: Nine Mile Creek WD

Location (address and/or T, R, Sec.): Section 7, Twp 27 N, and Range 24 W

**2. Applicant Information**

Applicant Name: Sunde Land Surveying  
Suite 118

Address: 9001 East Bloomington Freeway,

City, State, Zip: Bloomington, Minnesota 55420

E-mail: [Mark.Hanson@sunde.com](mailto:Mark.Hanson@sunde.com)

Phone: 952•886•3118

**3. Agent/Consultant Information**

Company Name (if applicable): Pinnacle Engineering, Inc.

Contact Person: Scott Thelen

Address: 11541 95<sup>th</sup> Ave N

City, State, Zip: Maple Grove, Minnesota 55369

E-mail: [sthelen@pineng.com](mailto:sthelen@pineng.com)

Phone: 763.277.8410

**4. Description of Request**

Check all that apply:  Wetland Boundary (must attach wetland delineation report)  
 Wetland Type (Eggers & Reed and/or Circular 39 type)

**5. Signature**

By signature below, the applicant requests a determination from the Local Government Unit under Minnesota Rules 8420.0225 on the submitted wetland boundary and type information in this application. The applicant also affirms that they are the owner of the subject property or have permission from the landowner to pursue this determination.



Applicant or Authorized Agent Signature

Date 10/11/13

**Important Notes:**

- The applicant may be required to submit multiple copies of the report/information to the LGU. The LGU may require the applicant to submit copies directly to Technical Evaluation Panel Members. **Check with your LGU regarding their submittal requirements.**
- The LGU decision must be made in compliance with Minnesota Statutes, section 15.99.

For LGU use only

**Date Received:**



US Army Corps  
of Engineers  
St. Paul District

### Request for Corps of Engineers Wetland Delineation Review

Please enter the following general information about the property under review:

<b>Name of property owner</b>		
City of Bloomington, Minnesota		
<b>Property Address (No. &amp; Street, City, State, Zip Code)</b>		
Normandale Boulevard from Nine Mile Creek to Poplar Bridge Road, Bloomington, MN 55435		
<b>Lat.</b> 44.8357 °N	<b>Long.</b> 93.3501 °W	<b>(decimal degrees)</b>
<b>County</b> Hennepin		
<b>Location: W</b>	<b>1/4 Section 7</b>	<b>Township 27N Range 24W</b>
<b>Size of review area</b> 25	<b>acre(s)</b>	

By submission of this wetland delineation report I am requesting that the U.S. Army Corps of Engineers, St. Paul District provide me with the following (check only one box):

**Wetland Delineation Concurrence.** Concurrence with a wetland delineation is a written notification from the Corps concurring, not concurring, or commenting on the wetland boundaries delineated on a property. Under this request, the Corps will not address the jurisdictional status of the wetlands on the property, only the boundaries of the resources within the review area.

**Preliminary Jurisdictional Determination.** Preliminary Jurisdictional Determination. A preliminary jurisdictional determination is a nonbinding written indication that there may be waters of the United States, including wetlands, on a parcel or indications of the approximate location(s) of waters of the United States or wetlands on a parcel. For purposes of computation of impacts and compensatory mitigation requirements a permit decision made on the basis of a preliminary jurisdictional determination will treat all waters and wetlands in the review area as if they are jurisdictional waters of the U.S. Preliminary jurisdictional determinations are advisory in nature and may not be appealed.

**Approved Jurisdictional Determination.** An approved jurisdictional determination is an official Corps determination that jurisdictional waters of the United States or navigable waters of the United States, or both, are either present or absent on the property. An approved jurisdictional determination precisely identifies the limits of those waters on the project site determined to be jurisdictional under the Clean Water Act or Rivers and Harbors Act. Approved jurisdictional determinations can be relied upon by the affected party for a period of five years. An approved jurisdictional determination may be appealed through the Corps' administrative appeal process.

In order for the Corps 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 and Wisconsin (<http://www.mvp.usace.army.mil/regulatory/>).

Requestor Scott Thelen Date October 11, 2013

Name (typed) Scott Thelen, Pinnacle Engineering, Inc.