Northern Lights Surveying & Mapping, Inc.

September 29, 2005

Wetland Delineation Report Applicant: Terry Fogerty For: Proposed Plat

The Field Observations on this property were conducted on September 22nd and September 23rd, 2005. Conditions on site were good. The narratives for each area, along with the accompanying data sheets and map describe the nature of the three criteria, which define a jurisdictional wetland according to the 1991 Wetlands Conservation Act. Two data sheets, stating the differences in the criteria at the point of delineation represent each area shown on the map.

Area 1: Type 3 Inland Shallow Fresh Marsh

This area wetland is the largest of all three wetlands on this property. It runs along the entire length of the southern portion of the NW ¼ of NE ¼ of Section 34, and then wraps around the eastern portion of that "40". This same wetland then runs north of this "40" and eventually drains into Lake Vermilion by means of a small creek. There are small portions of this wetland that are both type 6 and type 7 wetlands, but the vast majority of this wetland is a type 3. Before the beaver activity in the area, it is obvious by the presence of dead standing timber, that this was all a type 7 wetland.

Area 2: Type 7 Forested Swamp

This wetland area is just a small pothole that is located in a depression at the top of a large gravel knob. Area 2 wetland is located near the west property line of the NW ¼ of the NE ¼ of Section 34.

Area 3: Type 7 Forested Swamp

This area wetland is very similar to the Area 2 wetland in that it is also just a small pothole at the top of the hill. The major difference between Area 2 and Area 3 wetlands was the vegetation. Area 2 was mainly Maple saplings, and Area 3 was mainly Black Ash trees and saplings. Soil probes were very difficult to acquire in both Area 2 and Area 3 wetlands because of the number of boulders located in and around the wetland.

Delineators Note:

The small drainage that is located in the center of proposed Lots 6 and 7, and then drains to the Area 1 wetland, was extremely difficult to determine the actual drainage boundary. The following three factors made it difficult:

- 1. Lack of recent precipitation.
- 2. The very high abundance of boulders
- 3. The drainage is located on a fairly steep slope.

An average width was taken when working on this drainage, because there were some small upland pockets located in the drainage and the drainage actually runs deep under the boulders in a number of spots.

Subp. 54a. Wetland type. "Wetland type" means a wetland type classified according to Wetlands of the United States, United States Fish and Wildlife Service Circular 39 (1956 and 1971 editions), as summarized in this subpart. "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et al., 1979 edition) is a separate, parallel wetland typing system that may be used to characterize components of a wetland.

- A. "Type 1 wetlands" are seasonally flooded basins or flats in which soil is covered with water or is waterlogged during variable seasonal periods but usually is well-drained during much of the growing season. Type 1 wetlands are located in depressions and in overflow bottomlands along watercourses, and in which vegetation varies greatly according to season and duration of flooding and includes bottomland hardwoods as well as herbaceous growths.
- B. "Type 2 wetlands" are inland fresh meadows in which soil is usually without standing water during most of the growing season but is waterlogged within at least a few inches of the surface. Vegetation includes grasses, sedges, rushes, and various broad-leafed plants. Meadows may fill shallow basins, sloughs, or farmland sags, or may border shallow marshes on the landward side.
- C. "Type 3 wetlands" are inland shallow fresh marshes in which soil is usually waterlogged early during a growing season and often covered with as much as six inches or more of water. Vegetation includes grasses, bulrushes, spikerushes, and various other marsh plants such as cattails, arrowheads, pickerelweed, and smartweeds. These marshes may nearly fill shallow lake basins or sloughs, or may border deep marshes on the landward side and are also common as seep areas on irrigated lands.
- D. "Type 4 wetlands" are inland deep fresh marshes in which soil is usually covered with six inches to three feet or more of water during the growing season. Vegetation includes cattails, reeds, bulrushes, spikerushes, and wild rice. In open areas, pondweeds, naiads, coontail, water milfoils, waterweeds, duckweeds, water lilies, or spatterdocks may occur. These deep marshes may completely fill shallow lake basins, potholes, limestone sinks, and sloughs, or may border open water in such depressions.
- E. "Type 5 wetlands" are inland open fresh water, shallow ponds, and reservoirs in which water is usually less than ten feet deep and is fringed by a border of emergent vegetation similar to open areas of type 4 wetland.
- F. "Type 6 wetlands" are shrub swamps in which soil is usually waterlogged during growing season and is often covered with as much as six inches of water. Vegetation includes alders, willows, buttonbush, dogwoods, and swamp privet. This type occurs mostly along sluggish streams and occasionally on floodplains.

- G. "Type 7 wetlands" are wooded swamps in which soil is waterlogged at least to within a few inches of the surface during growing season and is often covered with as much as one foot of water. This type occurs mostly along sluggish streams, on floodplains, on flat uplands, and in shallow basins. Trees include tamarack, arborvitae, black spruce, balsam, red maple, and black ash. Northern evergreen swamps usually have a thick ground cover of mosses. Deciduous swamps frequently support beds of duckweeds and smartweeds.
- H. "Type 8 wetlands" are bogs in which soil is usually waterlogged and supports a spongy covering of mosses. This type occurs mostly in shallow basins, on flat uplands, and along sluggish streams. Vegetation is woody or herbaceous or both. Typical plants are heath shrubs, sphagnum moss, and sedges. In the north, leatherleaf, Labrador-tea, cranberries, carex, and cottongrass are often present. Scattered, often stunted, black spruce and tamarack may occur.

Area 1 Wetland

Project/Site: See Cover She Applicant/Owner: Terry Fogart Investigator: MAT Brunner		- 1	Date: 9-22-05 County: 5+16005 State: MN
Do Normal Circumstances exist on the site site significantly disturbed (Atypin Is the area a potential Problem Area? (If needed, explain on reverse.)		on)? Yes No Yes No	Community ID: Transect ID: Plot ID:
Dominant Plant Species 1 Catta, 15 2 Sedge Herb 2 Sedge Herb 3. Duckweed 4. Alder @ edges 5. Shining Flat Sedge 6. 7. 8. Percent of Dominant Species that are OBL FACK (excluding FAC). Remarks: Greater than 60% (Classel" FAC" or wetter	OBL OBL OBL ORL Facult	Dominant Plant Species 9	
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No Recorded Date Available Told Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil:	Chi	Secondary Indicators Oxidized R	Seposits strems in Wetlends ¿2 or more required); cot Channels in Upper 12 Inches ned Leaves Survey Date
Remarks:			

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2-18"	<u>B</u>	10485/1			Sandy Clay.	
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Remerks:						

Hydrophytic Vegetation Present? Wettend Hydrology Present? Hydric Soils Present?



No (Circle)

Is this Sampling Point Within a Wetland? Yes No

(Circle)

Remarks:

. Meets All 3 Griteria to be classed a Type 3 - Inland shallow Fresh Marsh.

Area 1 UPland

Project/Site: See cover Sheet Applicant/Owner: Terry Fogarty Investigator: Matt Brunner	Date: 9-22-05					
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.) Community ID: Transect ID: Plot ID:						
VEGETATION						
Dominant Plant Species 1. L. L. Aster Herb Facu 2. Balsam Fir T/S Facu 3. As pen T/S Facu 4. Paper B, reh T/S fucut 5. Brachen Fern Herb Facu 6. White Cedar Tree Facu 7. 8. Parcent of Dominant Species that are OBL FACW or FAC (excluding FAC).	Dominant Plant Species Stratum Indicator 9.					
Recorded Data (Describe in Remarks); Stream, Lake, or Tide GaugeAerial PhotographsOtherNo Recorded Data Available Field Observations: Depth of Surface Water: (in.) Depth to Free Water in Pit: (in.) Remarks:	Wetland Hydrology Indicators: - Primary Indicators: - Inundated - Seturated in Upper 12 Inches - Water Marks - Drift Lines - Sediment Deposits - Drainage Patterns in Wetlands Secondary Indicators (2 or more required): - Undized Root Channels in Upper 12 Inches - Weter-Steined Leaves - Local Soil Survey Date - FAC-Neutral Test - Other (Exploin in Remarks)					

(Series and Phese): Textsoromy (Subgroup):					Field Observations Gonfirm Mapped Type? Yes No			Yes No
Profile Description: Depth [inches] Horizon O-1" A		Metrix Color (Munsell Moist) 5 y (23/2 10 y (6/3)	Morrie Color (Morriell Moi	-	Morde Abundance/C	ontrast	Structure, Come Structure, etc. 5,14 5916-	
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Area 2 weTland

Project/Site: See Cos Applicant/Owner: Terry Investigator:Matt B	Fogasty		Date: 9-23-05 County: 5t. Louis State: MY.
Do Normal Circumstances Is the site significantly dis Is the area a potential Pro (If needed, explain on r	turbed (Atypical Situa blem Area?	Yes No tion)? Yes No Yes No	Community ID: Transect ID: Plot ID:
VEGETATION			
Dominant Plant Species 1. R. Marlo 2. ASPEN 3. SPL. MOSS 4. B. ASh 5. 6. 7. 8. Percent of Dominant Species that (excluding FAC). Remarks: Greater than 'Fac' or wetter.		Dominant Plant Species 9- 10- 11- 12- 13- 14- 15- 16- 100% Nant Plant St	Stratum Indicator Pecies are Classed
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Remarks:			

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Remarks:	Gleyed o	g Conditions or Low-Chroma Colon		sted on National Hyd thar (Explain in Roma	

Approved by HQUSACE 2/92

Area 2 UPland

Project/Site: See Cover Sheet. Applicant/Owner: Terry Fogarty Investigator: Math Brunner	Date: 9-13-05 County: 5+.400:5 State: My
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situal Is the area a potential Problem Area? (If needed, explain on reverse.)	tion)? Yes No Yes No Plot ID:
VEGETATION	
Deminant Plant Species 1. L.L. Aster 2. Balsam F.T 3. Aster 3. Aster 4. Paper B.rch 5. 6. 7. 8. Percent of Dominant Species that are OBL. FACW or FAC (excluding FAC).	Dominant Plant Species Stratum Indicator 9.
Recorded Data (Describe in Remarks); Stream, Lake, or Tide Gauge Aerial Photographs Other No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Remarks:	Wetland Hydrology Indicators: - Primary Indicators: - Incodered - Setupated in Upper 12 Inches - Water Merice - Drift Lines - Sediment Deposits - Dreinage Patterns in Wetlands Socondary Indicators (2 or more required): - Unidized Root Channels in Upper 12 Inches - Weter-Stained Leaves - Local Soil Survey Data - FAC-Neutral Test - Other (Exploin in Remarks)

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Remedes:

Area 3 method

Project/Site: See Cover Sheer. Applicant/Owner: Terry Foggry Investigator: Matt Brunner	Date: 9-23-05 County: 51. Louis State: MN
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situal Is the area a potential Problem Area? (If needed, explain on reverse.)	tion)? Yes No Community ID: Transect ID: Plot ID:
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Dominant Plant Species 1. Black Ash T/S Facwt 2. Balsam F. T. Salling Facw 3. Spragnum Moss Herb OBL 4. 5. 6. 7. 8. Percent of Dominant Species that are OBL FACW or FAC (excluding FAC). Remarks: Greater Than 50% i Are Classed "FAC" of well	
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Remarks:	

SOILS

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WETLAND DETERMINATION

Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	Yes No (Circle) Yes No No	Is this Sampling Point Within a Watland? Yes No
Remarks: Needs All	3 requireme	nts to be Classeda. Xype
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Area 3 UPland

Project/Site: See Cover Shoet Applicant/Owner: Terry Fogarty Investigator: Matt Brunner Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Yes No (If needed, explain on reverse.) Date: 9-33-05 County: St.Lov: S State: My Community ID: Transect ID: Plot ID: Plot ID:						
Dominant Plant Species 1. L. L. Aster Herb Facu 2. Balsam Fir Sapling Facu 3. Aster T/S Fac 4. Paper Birch T/S Facut 5. 6. 7. 8. Percent of Dominant Species that are OBL FACW or FAC (excluding FAC).	Dominum Plant Species Stratum Indicator 9.					
PYDROLOGY Recorded Date (Describe in Remarks);Stream, Lake, or Tide GaugeAerial PhotographsOtherNo Recorded Date Available Field Observations: Depth of Surface Water: (in.) Depth to Free Water in Pit: (in.)	Wetland Hydrology Indicators: Primary Indicators: Inundated Saturated in Upper 12 Inches Weter Marks Drift Lines Sediment Deposits Desinege Patterns in Wetlands: Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 Inches Weter-Stained Leaves Local Soil Survey Date FAC-Neutral Test Other (Explain in Remarks)					

SOILS

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Remerks:						
Hydrophytic Wetland Hyd Hydric Soils I	Vegetation frology Pre	on Present? Yes	No (Circle)	Is this Sampling Point With	hin a Wotland?	(Circle) Yes No
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