

The US 14 Wetland Technical Report: Supplement

PREPARED FOR: Minnesota Department of Transportation

PREPARED BY: CH2M HILL (Jeff Olson - Plant Ecologist/ Botanist)

DATE: January 24, 2006

Introduction and Purpose

This Supplement summarizes additional wetland delineation work completed in August 2005 for the US 14 Draft Environmental Impact Statement (DEIS) from New Ulm to North Mankato. Additional wetland delineations were performed adjacent to the US 14 approach to the Minnesota River bridge. Figure 1 (see page 2) shows the US 14 DEIS study area, including the alternative corridor locations that are being evaluated in detail. As shown on the top of Figure 1, this study uses two Study Sections, West and East, to describe and analyze the Alternatives.

Additional wetlands delineated in August 2005 are named Wetland "A", Wetland "B", and Wetland "C". Wetland "A" surrounds the US 14 road embankment on the east side of the Minnesota River. Wetland "B" surrounds the US 14 road embankment on the west side of the River (in New Ulm). Wetland "C" is an extension of wetland "W-NU-30-21-1" (Wetland #1) delineated and reported previously. Routine On-site Wetland Delineation Forms for Wetland "A" and Wetland "B" are attached to this Supplement. Delineation Forms for Wetland "C" are found in the original Wetland Technical Report, synonymous with Wetland "W-NU-30-21-1" (Wetland #1).

Wetland delineation work completed prior to August 2005 is presented in the Wetland Delineation Technical Report for the US 14 EIS Corridor (January 26, 2005). The Report does not cover wetlands near the US 14 Minnesota River bridge because the area was not included within the study limits when the delineations were initially completed. The US 14 EIS project team subsequently decided to include the US 14 Minnesota River bridge within the project limits. The consideration of a new bridge required completing additional wetland delineations. (See the US 14 Amended Scoping Decision Document for more information on this decision; this document is found at: <http://www.dot.state.mn.us/d7/projects/14newulmtonmankato/>).

This Supplement also corrects errors and clarifies information presented in the January 2005 Report. Wetland acreage within the US 14 Project Area Polygon (hereafter, the Project Area; see January 2005 Wetland Delineation Technical Report for a definition) as reported in this Supplement supersede acreage previously shown in the January 2005 Report. Likewise, wetland impact acreages reported in this Supplement supersede impacts shown in the previous Report. Any future changes to acreage of wetlands within the Project Area or changes in potential wetland impacts would be reported in a subsequent Supplement.

Updated Results

The January 2005 Report, (subsection "Routine On-Site Wetland Delineation," p. 21) reads "The Routine On-Site Wetland Delineation effort identified 22 non-agricultural wetlands that lie wholly or partly in the US 14 Project Area Polygon, with a total area of 143.5 acres." The revised total acreage, including the original effort and the August 2005 wetland delineations) is 196.9 acres. Thus, an additional 53.4 acres of wetland were delineated in August 2005 within the US 14 Project Area (9.2 acres are on the New Ulm side of the River and 44.2 acres are on the east

side of the River). A portion of this acreage would be impacted by proposed DEIS Build Alternatives (see New Wetland Impact Results below for more information).

Figure 2 (see page 3) shows the terminus of the wetland delineation boundary as it was presented in the January 2005 Wetland Report. These boundaries were also shown to members of the Technical Evaluation Panel (TEP) on March 2, 2005, and to the Army Corps of Engineers on May 2, 2005. Figure 3 shows the extension of the wetland delineation boundary in the vicinity of the US 14 Bridge and approach on both sides of the Minnesota River. This extended boundary contains the additional 53.4 acres of wetlands delineated in August 2005.

West Study Section

East Study Section

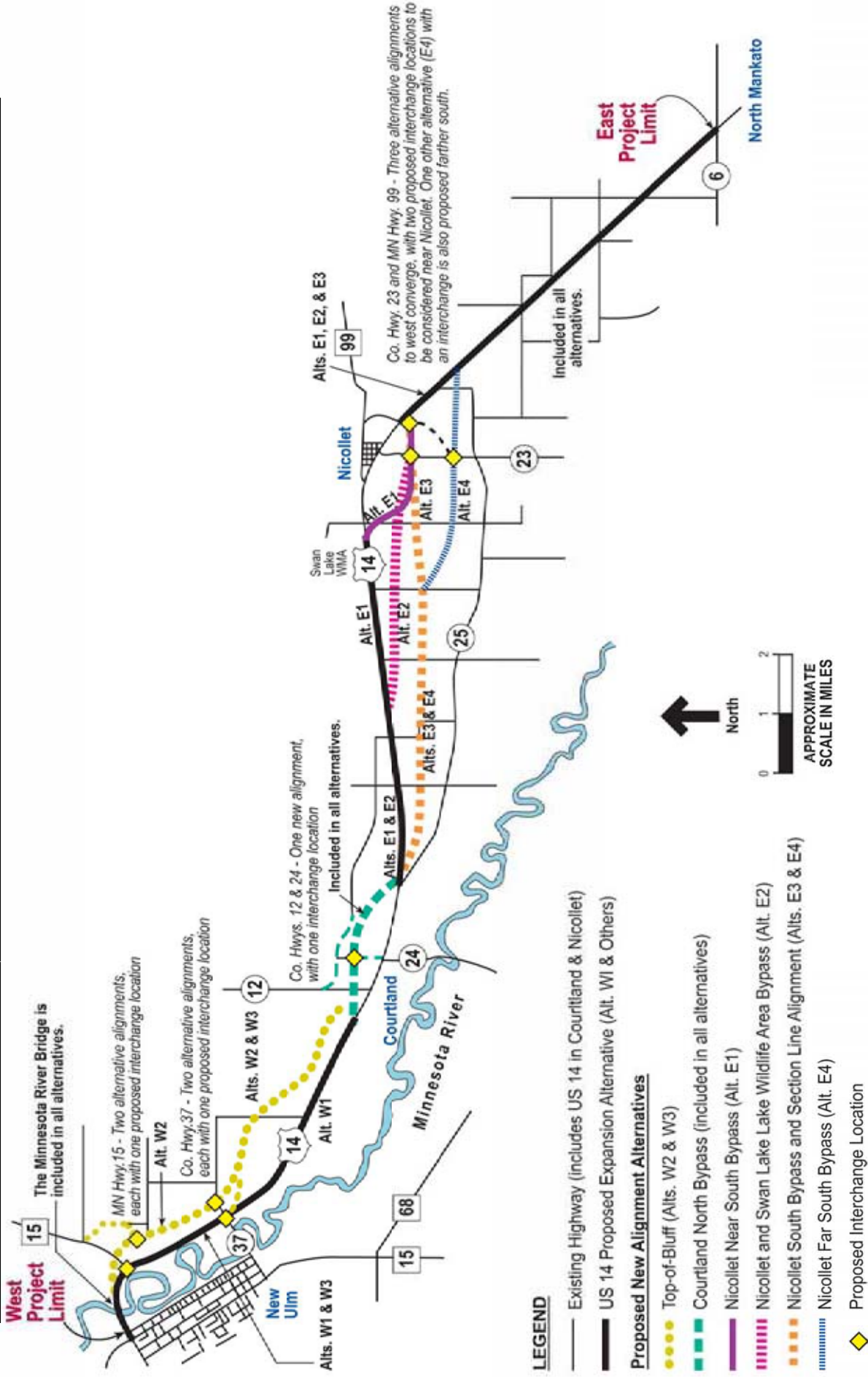


Figure 1
Project Area and Alternatives





FIGURE 2

Extent of Wetland Boundaries in the Vicinity of the US 14 Bridge as Shown in the May 2, 2005 Report

**FIGURE 3**

Extent of Wetland Boundaries in the Vicinity of the US 14 Bridge after the August 2005 Wetland Delineations



Legend:		US 14 Project Area Polygon Boundary
		Proposed Build Alternatives
		Delineated wetland boundary as depicted in the May 2, 2005 Wetland Delineation Report
		Delineated wetland boundary with additional work completed in August 2005.

New Wetland Impact Results

Table 1 provides a comparison of the wetland impacts for the DEIS Build Alternatives. These impacts include the additional wetland acreage delineated in August 2005. Table 1 updates Table 10 in the January 2005 Report. The results presented below more accurately reflect overall wetland impacts by separating the impacts of the two interchange options under consideration for Alternatives E1, E2, and E3. The interchange options are located near Nicollet at County Road 23 and MN 99 (see Figure 1). Ultimately, only one of these options would be selected if Alternatives E1, E2, or E3 were selected as part of the DEIS Preferred Alternative. Table 10 in the previous Report over reported the wetland impacts for Alternatives E1, E2, and E3 by including impacts from both interchange options.

TABLE 1 (NEW TABLE)

Updated Wetland Impacts by Alternative

	No-Build Alt.	Build Alts.- West (New Ulm)			Build Alts.- East (Courtland-Nicollet)				Build - Total Range	
		Alt. W1	Alt. W2	Alt. W3	Alt. E1	Alt. E2	Alt. E3	Alt. E4	Minimum	Maximum
Total Wetlands (ac)	0	18.1	5.0	20.2	12.0	13.8	17.9	4.8	9.8	38.1
					[11.5]	[13.6]	[14.0]		[16.5]	[34.2]

NOTE: The numbers not in brackets under Alts. E1, E2, and E3 are the impacts for the interchange option at CR 23. The bracketed numbers under are the impacts for the interchange option at MN 99.

Correction to Range of Wetland Impacts Reported in January 2005 Wetland Technical Report

The wetland impacts reported in Table 1 above include a correction to an error in the January 2005 Wetland Technical Report. Table 10 in the January 2005 Report incorrectly showed the range of wetland acreage impacts for the Western Segment, Eastern Segment, and Combined segments. Table 2 shows the incorrect values, as well as the current, correct values.

TABLE 2 (DOCUMENTS AND CORRECTS ERROR IN TABLE 10 OF JANUARY 2005 REPORT)

Correction to Range or Wetland Impacts Reported in January 2005 Report & Current Range of Wetland Impacts

	Incorrect Range of Wetland Impacts (acres)	Correct Range of Wetland Impacts (Acres)
Western Segment	1.8 – 10.2	5.0 – 20.2
Eastern Segment	6.0 – 19.2	4.8 – 17.9
Combined Segments (Western + Eastern)	7.8 – 29.4	9.8 – 38.1

Detailed Wetland Delineation Information for Western End of Study Area in Vicinity of US 14 Bridge

Table 3 of this Supplement updates Table 7 in the January 2005 Report. The table below shows the total wetland acreage by wetland type in the Project Area as reported to members of the TEP on March 2, 2005, and to the Army Corps on May 2, 2005. This table includes minor corrections to the data presented to the TEP.

TABLE 3 (UPDATES TABLE 7 IN THE JANUARY 2005 REPORT)

Areal Extent of Wetland Types in the US 14 Project Area Polygon

Circular 39 (Cowardin Code)¹	Delineation Methodology		Total Area (acres)	% Project Area²
	Routine On-Site (acres)	Aerial Slide Review (acres)		
Type 1 (PEMA)	0.0	145.4 142.3 ³	145.4 142.3 ³	2.0%
Type 2 (PEMB)	14.9	0.0	14.9	0.2%
Type 3 (PEMC)	52.7	0.0	52.7	0.8%
Type 4 (PEMC, PEMF)	0.0	0.0	0.0	0.0%
Type 5 (PEMF, POWF)	2.9	0.0	2.9	0.04%
Type 6 (PSS1A, PSS1C)	1.8	0.0	1.8	0.03%
Type 7 (PFO1A, PFO1C)	71.2	0.0	71.2	1.0%
Type 8 (PFO –various)	0.0	0.0	0.0	0.0%
Total	143.5	142.3	285.8	4.1%
“Field Verification” Needed	0.0	24.9	24.9	0.4%
Grand Total	143.5	167.2	310.7	4.5%

¹ Translations of Cowardin Codes and Circular 39 Codes are per the Minnesota Wetland Conservation Act.

² Assumes US 14 Project Area Polygon is 6,902 acres.

³ The number of Type 1 (PEMA) wetlands in the Project Area was incorrectly reported in the January 2005 Report. The percentage area of the Project Area, as well as the Total and Grand Total Rows reflect the change.

NOTE: Acreages in this table represent the total extent of wetlands in the Project Area; not wetland impacts.

Table 4 of this Supplement summarizes the total wetland acreage in the Project Area, including additional wetlands delineated in August 2005.

TABLE 4 (NEW TABLE)

Areal Extent of Wetland Types in the US 14 Project Area (including additional wetlands delineated in August 2005)

Circular 39 (Cowardin Code) ¹	Delineation Methodology				Total Area (acres)	% of Project Area ²
	Routine On-Site (Acres)			Aerial Slide Review		
	Original Effort	August 2005 Effort	Total On-Site			
Type 1 (PEMA)	0.0	0.0	0.0	145.4 142.3 ³	145.4 142.3 ³	2.0%
Type 2 (PEMB)	14.9	0.0	14.9	0.0	14.9	0.2%
Type 3 (PEMC)	52.7	15.9	68.6	0.0	68.6	1.0%
Type 4 (PEMC, PEMF)	0.0	0.0	0.0	0.0	0.0	0.0%
Type 5 (PEMF, POWF)	2.9	0.0	2.9	0.0	2.9	0.04%
Type 6 (PSS1A, PSS1C)	1.8	0.0	1.8	0.0	1.8	0.03%
Type 7 (PFO1A, PFO1C)	71.2	37.5	108.7	0.0	108.7	1.6%
Type 8 (PFO –various)	0.0	0.0	0.0	0.0	0.0	0.0%
Total	143.5	53.4	196.9	142.3	339.2	4.9%
“Field Verification” Needed	0.0	0.0	0.0	24.9	24.9	0.4%
Grand Total	143.5	53.4	196.9	167.2	364.1	5.3%

¹ Translations of Cowardin Codes and Circular 39 Codes are per the Minnesota Wetland Conservation Act.

² Assumes US 14 Project Area Polygon is 6,902 acres.

³ The number of Type 1 (PEMA) wetlands in the Project Area was incorrectly reported in the January 2005 Report. The percentage area of the Project Area, as well as the Total and Grand Total Rows reflect the change.

NOTE: Acreages in this table represent the total extent of wetlands in the Project Area; not wetland impacts.

Table 5 summarizes potential wetland impacts for proposed Build Alternatives in the West Study Section of the Project Area including the Original Effort and the August 2005 Effort.

TABLE 5 (UPDATES TABLE 8 IN JANUARY 2005 REPORT)

Summary of Wetland Impacts by Wetland Type in Western Section of the US 14 Project Area

Circular 39 (Cowardin Code)	Alt W1			Alt W2			Alt W3		
	Known	Require Field Verify	Total	Known	Require Field Verify	Total	Known	Require Field Verify	Total
Type 1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Type 2	1.2	0.0	1.2	1.3	0.0	1.3	1.3	0.0	1.3
Type 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Type 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Type 5	0.0	0.0	0.0	0.5	0.0	0.5	0.5	0.0	0.5
Type 6	1.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	1.0
Type 7	15.8	0.0	15.8	3.2	0.0	3.2	17.4	0.0	17.4
Type 8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	18.0	0.1	18.1	5.0	0.0	5.0	20.2	0.0	20.2

Impacts associated with all interchanges in the Western Segment are included in the acreages above.

Table 6 provides the current wetland impacts in the East Study Section. The table below replaces Table 9 in the January 2005 Report. Table 6 of this Supplement specifies wetland impacts for Alternatives E1, E2, and E3 by interchange options at either County Highway 23 or MN 99, while Table 9 combined wetland impacts for the two interchange options. See the New Wetland Impact Results discussion above for more complete details.

TABLE 6 (UPDATES AND CLARIFIES TABLE 9 IN JANUARY 2005 REPORT)
 Summary of Wetland Impacts by Wetland Type in Eastern Section of Project Area

Circular 39 Type	Impacts per Proposed Alternative – acres			
	Alt E1	Alt E2	Alt E3	Alt E4
1 (seasonal basin)	6.0 [5.5]	6.6 [6.4]	17.8 [13.9]	4.7
2 (wet meadow)	3.6 [3.6]	2.1 [2.1]	0.0 [0.0]	0.0
3 (shallow marsh)	2.3 [2.3]	5.0 [5.0]	0.1 [0.1]	0.1
4 (deep marsh)	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]	0.0
5 (open water)	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]	0.0
6 (shrub swamp)	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]	0.0
7 (wooded swamp)	0.1 [0.1]	0.1 [0.1]	0.0 [0.0]	0.0
8 (bog)	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]	0.0
Total	12.0 [11.5]	13.8 [13.6]	17.9 [14.0]	4.8

NOTE: The numbers not in brackets under Alts. E1, E2, and E3 are the impacts for the optional interchange at MN 99. The bracketed numbers under Alts. E1, E2, and E3 are the impacts for the optional interchange at MN 99 instead of at County Highway 23. These data are based on impact calculation on December 7, 2004 and August 24, 2005.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>US 14 (North Mankato to New Ulm, MN)</u>			Date: <u>8-17-2005</u>
Applicant/Owner: <u>MN DOT District 7</u>			County: <u>Nicollet</u>
Investigator: <u>Jeff Olson and Mary Gute (CH2M HILL)</u>			State: <u>Minnesota</u>
Do Normal Circumstances exist on the site?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Community ID: <u>Wetland "A"</u>
Is the site significantly disturbed (Atypical Situation)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Transect ID: <u>--</u>
Is the area a potential Problem Area? (If needed, explain on reverse)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Plot ID: <u>Upland Pit</u> (across Minnesota R. from New Ulm)

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u><i>Acer saccharinum</i></u>	<u>T</u>	<u>FACW</u>	9. _____	_____	_____
2. <u><i>Fraxinus pensylvanica</i></u>	<u>T</u>	<u>FACW</u>	10. _____	_____	_____
3. <u><i>Fraxinus pensylvanica</i></u>	<u>Sap</u>	<u>FACW</u>	11. _____	_____	_____
4. <u><i>Laportea canadensis</i></u>	<u>H</u>	<u>FACW</u>	12. _____	_____	_____
5. <u><i>Leersia virginica</i></u>	<u>H</u>	<u>FACW</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).			<u>100%</u>		
Remarks: Meets criterion of predominance of hydrophytic vegetation.					

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p style="padding-left: 20px;"><input type="checkbox"/> Stream, Lake or Tide Gauge</p> <p style="padding-left: 20px;"><input type="checkbox"/> Aerial Photographs</p> <p style="padding-left: 20px;"><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil _____ (in.)</p>	
<p>Remarks: Bare area devoid of vegetation (indicative of inundation during the growing season) were observed approximately 1-2 feet lower in elevation than this sampling pit. No such bare areas were observed at the location of the sampling pit.</p>	

SOILS

Map Unit Name (Series and Phase): <u>Nishna silty clay loam</u>		Drainage Class: <u>Poorly Drained</u>			
Taxonomy (Subgroup): <u>Cumulic Haplaquolls</u>		Field Observations Confirm Mapped Type? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
<u>Profile Description</u>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-3	A	10YR 2/1	None	None	Silt loam
3-13	B	10YR 3/2	10YR 4/4	Common/ small	Silty clay loam
Hydric Soil Indicators: Meets definition of hydric soil per <i>1987 Manual</i> and <i>Field Indicators of the United States</i> .					
<input type="checkbox"/>	Histosol	<input checked="" type="checkbox"/>	Concretions (Redox concentrations)		
<input type="checkbox"/>	Histic Epipedon	<input type="checkbox"/>	High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/>	Sulfidic Odor	<input type="checkbox"/>	Organic Streaking in Sandy Soils		
<input type="checkbox"/>	Aquic Moisture Regime	<input type="checkbox"/>	Listed on Local Hydric Soils List		
<input type="checkbox"/>	Reducing Conditions	<input type="checkbox"/>	Listed on National Hydric Soils List		
<input checked="" type="checkbox"/>	Gleyed or Low-Chroma Colors	<input type="checkbox"/>	Other (Explain in Remarks)		
Remarks: A low chroma matrix and redox concentrations in combination with a low-lying landscape position are evidence of hydric soils. Soils in this sampling pit meet hydric soil criteria. Hydric soil characteristics appear to be relict.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Wetland Hydrology Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: Only two of three mandatory criteria of wetlands are met at this sampling pit.				

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>US 14 (North Mankato to New Ulm, MN)</u>	Date: <u>8-17-2005</u>
Applicant/Owner: <u>MN DOT District 7</u>	County: <u>Nicollet</u>
Investigator: <u>Jeff Olson and Mary Gute (CH2M HILL)</u>	State: <u>Minnesota</u>
Do Normal Circumstances exist on the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Is the site significantly disturbed (Atypical Situation)?	Yes <input checked="" type="checkbox"/> No
Is the area a potential Problem Area? (If needed, explain on reverse)	Yes <input checked="" type="checkbox"/> No
Community ID: <u>Wetland "A"</u>	
Transect ID: <u>--</u>	
Plot ID: <u>Wetland Pit</u>	
(across Minnesota R. from New Ulm)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Carex normalis</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Bidens aristosa</u>	<u>H</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Lemna minor</u>	<u>H</u>	<u>OBL</u>	11. _____	_____	_____
4. <u>Polygonum amphibium</u>	<u>H</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Scirpus fluviatilis</u>	<u>H</u>	<u>OBL</u>	13. _____	_____	_____
6. <u>Acer saccharinum</u>	<u>Sap</u>	<u>FACW</u>	14. _____	_____	_____
7. <u>Salix exigua</u>	<u>Sap</u>	<u>OBL</u>	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).			<u>100%</u>		
Remarks: Meets criterion of predominance of hydrophytic vegetation.					

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p style="padding-left: 20px;"><input type="checkbox"/> Stream, Lake or Tide Gauge</p> <p style="padding-left: 20px;"><input type="checkbox"/> Aerial Photographs</p> <p style="padding-left: 20px;"><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>>18</u> (in.)</p> <p>Depth to Saturated Soil: <u>>18</u> (in.)</p>	
Remarks: Bare area devoid of vegetation (indicative of inundation during the growing season) were abundant near this sampling pit. Driftlines observed near this sampling pit are indicative of flowing water.	

SOILS

Map Unit Name (Series and Phase): <u>Nishna silty clay loam</u>		Drainage Class: <u>Poorly Drained</u>			
Taxonomy (Subgroup): <u>Cumulic Haplaquolls</u>		Field Observations Confirm Mapped Type? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-6	A	N/2.5	None	None	Silt loam
6-13	B	10YR 3/1	10YR 3/6	Common/ medium	Silty clay loam
Hydric Soil Indicators: Meets definition of hydric soil per <i>1987 Manual</i> and <i>Field Indicators of the United States</i> .					
<input type="checkbox"/>	Histosol	<input checked="" type="checkbox"/>	Concretions (Redox concentrations)		
<input type="checkbox"/>	Histic Epipedon	<input type="checkbox"/>	High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/>	Sulfidic Odor	<input type="checkbox"/>	Organic Streaking in Sandy Soils		
<input type="checkbox"/>	Aquic Moisture Regime	<input type="checkbox"/>	Listed on Local Hydric Soils List		
<input type="checkbox"/>	Reducing Conditions	<input type="checkbox"/>	Listed on National Hydric Soils List		
<input checked="" type="checkbox"/>	Gleyed or Low-Chroma Colors	<input type="checkbox"/>	Other (Explain in Remarks)		
Remarks: A low chroma matrix and redox concentrations in combination with a low-lying landscape position are evidence of hydric soils. Soils in this sampling pit meet hydric soil criteria.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: All three mandatory criteria of wetlands are met at this sampling pit.				

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>US 14 (North Mankato to New Ulm, MN)</u>	Date: <u>8-17-2005</u>
Applicant/Owner: <u>MN DOT District 7</u>	County: <u>Brown</u>
Investigator: <u>Jeff Olson and Mary Gute (CH2M HILL)</u>	State: <u>Minnesota</u>
Do Normal Circumstances exist on the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Is the site significantly disturbed (Atypical Situation)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is the area a potential Problem Area? (If needed, explain on reverse)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	Community ID: <u>Wetland "B"</u>
	Transect ID: <u>--</u>
	Plot ID: <u>Upland Pit</u> (in New Ulm)

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Bromus inermis</u>	<u>H</u>	<u>UPL</u>	9. _____	_____	_____
2. <u>Acer negundo</u>	<u>T</u>	<u>FACW-</u>	10. _____	_____	_____
3. _____	_____	_____	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).			<u>50%</u>		
Remarks: Does not meet criterion of predominance of hydrophytic vegetation.					

HYDROLOGY

Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>>18</u> (in.) Depth to Saturated Soil: <u>>18</u> (in.)	
Remarks: No indicators of wetland hydrology were observed at this sampling pit.	

SOILS

Map Unit Name (Series and Phase): <u>Orthents</u>		Drainage Class: <u>Unknown</u>			
Taxonomy (Subgroup): <u>(disturbed road embankment)</u>		Field Observations Confirm Mapped Type? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
<u>Profile Description</u>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-3	--	10YR 3/2	None	None	Silt loam
3-13	--	10YR 3/2	None	None	Silt loam
		10YR 3/3			
Hydric Soil Indicators: Does not meet definition of hydric soil per <i>1987 Manual</i> and <i>Field Indicators of the United States</i> .					
<input type="checkbox"/>	Histosol	<input type="checkbox"/>	Concretions (Redox concentrations)		
<input type="checkbox"/>	Histic Epipedon	<input type="checkbox"/>	High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/>	Sulfidic Odor	<input type="checkbox"/>	Organic Streaking in Sandy Soils		
<input type="checkbox"/>	Aquic Moisture Regime	<input type="checkbox"/>	Listed on Local Hydric Soils List		
<input type="checkbox"/>	Reducing Conditions	<input type="checkbox"/>	Listed on National Hydric Soils List		
<input checked="" type="checkbox"/>	Gleyed or Low-Chroma Colors	<input type="checkbox"/>	Other (Explain in Remarks)		
Remarks: Soils at this sampling pit are disturbed as a result of earthmoving activities. Soils with a matrix color of 10YR 3/2 or 10YR 3/3 with no redox concentrations or depletions in the upper profile do not meet the definition of hydric soils.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	<input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	Yes	<input checked="" type="checkbox"/> No	
Hydric Soils Present?	Yes	<input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No
Remarks: None of the three mandatory criteria of wetlands are met at this sampling pit.			

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>US 14 (North Mankato to New Ulm, MN)</u>	Date: <u>8-17-2005</u>
Applicant/Owner: <u>MN DOT District 7</u>	County: <u>Brown</u>
Investigator: <u>Jeff Olson and Mary Gute (CH2M HILL)</u>	State: <u>Minnesota</u>
Do Normal Circumstances exist on the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Is the site significantly disturbed (Atypical Situation)?	Yes <input checked="" type="checkbox"/> No
Is the area a potential Problem Area? (If needed, explain on reverse)	Yes <input checked="" type="checkbox"/> No
	Community ID: <u>Wetland "B"</u>
	Transect ID: <u>--</u>
	Plot ID: <u>Wetland Pit</u> (in New Ulm)

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Carex normalis</u>	<u>H</u>	<u>FACW</u>	9. _____	_____	_____
2. <u>Phalaris arundinacea</u>	<u>H</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Sagittaria latifolia</u>	<u>H</u>	<u>OBL</u>	11. _____	_____	_____
4. <u>Scirpus tabernaemontanus</u>	<u>H</u>	<u>OBL</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).			<u>100%</u>		
Remarks: Meets criterion of predominance of hydrophytic vegetation.					

HYDROLOGY

Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>>18</u> (in.) Depth to Saturated Soil <u>>18</u> (in.)	
Remarks: Bare area devoid of vegetation (indicative of inundation during the growing season) were abundant near this sampling pit. Cracked soils and deep ATV tire ruts observed at this sampling pit are indicative of previous surface inundation.	

SOILS

Map Unit Name (Series and Phase): <u>Nishna silty clay loam</u>		Drainage Class: <u>Poorly Drained</u>			
Taxonomy (Subgroup): <u>Cumulic Haplaquolls</u>		Field Observations Confirm Mapped Type? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Profile Description					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-5	A	N/2.5	None	None	Silt loam
5-18	B	10YR 3/1	10YR 4/4	Common/ medium	Silty clay loam
Hydric Soil Indicators: Meets definition of hydric soil per <i>1987 Manual</i> and <i>Field Indicators of the United States</i> .					
<input type="checkbox"/>	Histosol	<input checked="" type="checkbox"/>	Concretions (Redox concentrations)		
<input type="checkbox"/>	Histic Epipedon	<input type="checkbox"/>	High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/>	Sulfidic Odor	<input type="checkbox"/>	Organic Streaking in Sandy Soils		
<input type="checkbox"/>	Aquic Moisture Regime	<input type="checkbox"/>	Listed on Local Hydric Soils List		
<input type="checkbox"/>	Reducing Conditions	<input type="checkbox"/>	Listed on National Hydric Soils List		
<input checked="" type="checkbox"/>	Gleyed or Low-Chroma Colors	<input type="checkbox"/>	Other (Explain in Remarks)		
Remarks: Accumulation of organic matter at the soil surface, a low chroma matrix, and redox concentrations in the upper soil profile, in combination with a low-lying landscape position are evidence of hydric soils. Soils in this sampling pit meet hydric soil criteria.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: All three mandatory criteria of wetlands are met at this sampling pit.				