APPENDIX D

Part 9 of 22

Wetland Delineation Data Sheets and Site Photographs

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/21/2018
Applicant/Owner: Enbridge State: WI Sampling Point WASV019f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None
Slope (%): 1-2% Lat.: 46.3599377 Long.: -90.69556658 Datum: WGS 1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in ground water-driven coniferous swamp surrounded by emergent wetland. Although cows have access to forested area of wetland complex, little to no disturbance was observed.

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV019f_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Thuja occidentalis*	63	Y	FACW
2	*Betula alleghaniensis*	20	Y	FAC
3	*Abies balsamea*	10	N	FAC
4	*Acer saccharum*	3	N	FACU
5				
6				
7				
8				
9				
10				
		96	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Thuja occidentalis*	10	Y	FACW
2	*Tilia americana*	1	N	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		11	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex bromoides*	38	Y	FACW
2	*Onoclea sensibilis*	10	N	FACW
3	*Impatiens capensis*	10	N	FACW
4	*Pyrola elliptica*	3	N	FACU
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		61	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	19	48
Sapling/Shrub Stratum	2	6
Herb Stratum	12	31
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	131	x 2 =	262	
FAC species	30	x 3 =	90	
FACU species	7	x 4 =	28	
UPL species	0	x 5 =	0	
Column totals	168	(A)	380	(B)

Prevalence Index = B/A = 2.26

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV019f_W

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-6	10YR 2/2	100					Silt loam	
6-13	10YR 2/2	80	10YR 4/2	15	C	M		
			10YR 4/6	5	C	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:

Indicator Redox Dark Surface (F6) is present; parameter is met.

Photograph 1: WASV019f_W, South

Photograph 2: WASV019f_W, West

Photograph 3: WASV019f_W, North

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/21/2018
Applicant/Owner: Enbridge State: WI Sampling Point WASV019s_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 1-2% Lat.: 46.35991361 Long.: -90.69627652 Datum: WGS 1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in groundwater-driven shrub-scrub wetland. Scrub-shrub wetland is part of a larger complex. Although cows have access to area, little disturbance was observed.

HYDROLOGY

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	X	No	____	Depth (inches): 1
Water table present?	Yes	X	No	____	Depth (inches): 0
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): 0

Indicators of wetland hydrology present? Y

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

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV019s_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Picea glauca*	3	Y	FACU
2	*Thuja occidentalis*	3	Y	FACW
3	*Betula alleghaniensis*	3	Y	FAC
4				
5				
6				
7				
8				
9				
10				
		9	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Salix bebbiana*	38	Y	FACW
2	*Salix discolor*	38	Y	FACW
3	*Thuja occidentalis*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
		79	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Juncus effusus*	63	Y	OBL
2	*Glyceria striata*	10	N	OBL
3	*Carex crinita*	10	N	OBL
4	*Onoclea sensibilis*	10	N	FACW
5	*Lycopus americanus*	10	N	OBL
6	*Symphyotrichum puniceum*	3	N	OBL
7	*Asclepias incarnata*	3	N	OBL
8				
9				
10				
11				
12				
13				
14				
15				
		109	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	2	5
Sapling/Shrub Stratum	16	40
Herb Stratum	22	55
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 83.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	99	x 1 =	99	
FACW species	92	x 2 =	184	
FAC species	3	x 3 =	9	
FACU species	3	x 4 =	12	
UPL species	0	x 5 =	0	
Column totals	197	(A)	304	(B)

Prevalence Index = B/A = 1.54

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV019s_W

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-20	10YR 2/1	100					Muck	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
_X_ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:

Indicator Histic Epipedon (A2) present; parameter is met.

Photograph 1: WASV019s_W, South

Photograph 2: WASV019s_W, West

Photograph 3: WASV019s_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/21/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV019e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 1% Lat.: 46.36031055 Long.: -90.69664083 Datum: WGS 1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? No
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in cow pasture. Soil compaction from cow access was observed. Part of a larger wetland complex containing both PFO and PSS components.

HYDROLOGY

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)
- X 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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes ____	No X	Depth (inches): ____	**Indicators of wetland hydrology present?** Y
Water table present?	Yes ____	No X	Depth (inches): ____	
Saturation present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____	

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

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV019e_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Juncus effusus*	63	Y	OBL
2	*Glyceria canadensis*	38	Y	OBL
3	*Carex stipata*	10	N	OBL
4	*Symphyotrichum puniceum*	10	N	OBL
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		121	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	24	61
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	121	x 1 =	121	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	121	(A)	121	(B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
X Dominance test is >50%
X Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV019e_W

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-4	10YR 4/1	100					Silt loam	
4-14+	10YR 6/1	100					Very fine sandy loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
_X_ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:

Indicator Depleted Matrix (F3) is present; parameter is met.

Photograph 1: WASV019e_W, South

Photograph 2: WASV019e_W, West

Photograph 3: WASV019e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/21/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV019/20_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Flat
Slope (%): 5-8% Lat.: 46.36059156 Long.: -90.69756995 Datum: WGS 1984
Soil Map Unit Name NWI Classification:
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? No
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in cow pasture. Soil compaction present from land use.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes ____	No X	Depth (inches): ____	**Indicators of wetland hydrology present?** N
Water table present?	Yes ____	No X	Depth (inches): ____	
Saturation present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____	

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

Remarks:
No hydrology indicators observed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV019/20_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Tsuga canadensis*	3	Y	FACU
2	*Picea glauca*	3	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		6	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Picea glauca*	1		FACU
2	*Abies balsamea*	1		FAC
3				
4				
5				
6				
7				
8				
9				
10				
		2	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Ranunculus acris*	85	Y	FAC
2	*Plantago major*	20	N	FACU
3	*Symphyotrichum lateriflorum*	10	N	FAC
4	*Achillea millefolium*	3	N	FACU
5	*Trifolium repens*	3	N	FACU
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		121	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	1	3
Sapling/Shrub Stratum	0	1
Herb Stratum	24	61
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	96	x 3 =	288	
FACU species	33	x 4 =	132	
UPL species	0	x 5 =	0	
Column totals	129	(A)	420	(B)

Prevalence Index = B/A = 3.26

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Trifolium campestre was observed at 3%.

SOIL **Sampling Point:** WASV019/20_U

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-3	10YR 3/3	98	10YR 4/6	2	C	M	Silt loam	
3-13	10YR 4/6	95	10YR 3/3	5	D	M	Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___N___

Remarks:
No indicators of hydric soil observed.

Photograph 1: WASV019/020_U, South

Photograph 2: WASV019/020_U, North

Photograph 3: WASV019/020_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV019**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/21/19
Location: PLSS: 45N03W Lat: 46.359874 Long: -90.696224 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s):Gogebic fine sandy loam, 1-6% slopes very stony, rocky. Field Verified: Yes - very stony, rocky.	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow	
	Wetland Size: 7.334 acres	Wetland Area Impacted: 7.334 acres
Hydrology: Oxidized rhizospheres in some areas of wetland; saturation present throughout. The wettest areas have standing water and *Sphagnum*. Groundwater-driven hydrology. Wetland is on a divide at top of landscape, half of wetland drains northeast to SASV004p, and half drains to southwest to offsite surface water feature. Algal mats present.	Vegetation: Plant Community Description(s): Rush-dominated cow pasture (PEM); *Juncus effusus, Trifolium pretense, Symphyotrichum lateriflorum*. Coniferous Forest (PFO); *Thuja occidentalis, Tsuga canadensis, Picea glauca*. Alder Thicket (PSS): *Alnus incana*	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	Y	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	N	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	Y	Y	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	Y	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	Y	Y	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	Y	Y	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
ST3 & WQ7 – Runoff from cow pasture
GW1 & GW3 – Parts of wetland saturated at surface, some areas with standing water and *Sphagnum*, and other parts with oxidized rhizospheres
GW2 – Wetland is, in part, a headwater wetland. Portion of wetland drains to northeast to SASV004p, other portion drains to the southwest
towards offsite open water feature.
ST2, WQ3 – Stream crosses through wetland; however, majority condition is that the wetland is not channelized.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Bluebird
X	X	Other Songbirds (many)
X		Phoebes
X		Northern flicker
X		Nuthatch
X		Chickadee
X		Blue jay
	X	Deer wintering area

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; wetland is consistently saturated, but does not appear to hold standing water.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Juncus effusus*	common rush	4	PEM	
Ranunculoides acris	common buttercup	0	PEM	
Symphyotrichum puniceum	purplestem aster	5	PEM	
Abies balsamea	balsam fir	5	PEM	
Plantago major	common plantain	0	PEM	
Prunella vulgaris	common selfheal	1	PEM	
Scirpus cyperinus	woolgrass	4	PEM	
Geum canadense	white avens	2	PEM	
Fragaria virginiana	Virginia strawberry	1	PEM	
Agrostis perennans	upland bentgrass	4	PEM	
Carex scoparia	broom sedge, lance-fruited oval sedge	7	PEM	
**Salix discolor*	pussy willow	2	PEM	
Scirpus hattorianus	early dark-green bulrush	3	PEM	
Polygonum sagittatum	arrowleaf tearthumb	6	PEM	
Glyceria maximum	fowl manna grass	4	PEM	
**Glyceria canadensis*	rattlesnake grass	7	PEM	
Populus tremuloides	quaking aspen	2	PEM	
Alnus incana	wild hazel alder	4	PEM	
**Thuja occidentalis*	eastern arborvitae	9	PEM	
Lycopus americana	American water horehound	4	PEM	
Carex crinita	fringed sedge	6	PEM	
Leersia oryzoides	rice cutgrass	3	PEM	
Chelone glabra	white turtlehead	7	PEM	
Viola sororia	door-yard violet, common blue violet	3	PEM	
**Carex bromoides*	brome-like sedge	8	PFO	
Pilea fontana	bog clearweed	7	PFO	
Onoclea sensibilis	sensitive fern	5	PFO	
Glyceria striata	fowl manna grass	4	PFO	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Good diversity of common native species in wetland; PEM portion is missing tree strata due to high volume use from cows.
PFO FQI=23.8, Mean C of C= 5.8
PEM FQI = 17.6, Mean C of C = 3.6
PSS FQI = 10.3, Mean C of C=4.6

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		M	UC	Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
X	X		M	UC	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
X	X		H	C	Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	X	M	C	Removal of tree or shrub strata – logging, unprescribed fire
X	X		L	UC	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		M	C	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Compaction from cows altering hydrology by creating soil compaction and increasing runoff. Also altering vegetation structure (missing tree and sapling/shrub strata in PEM).

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity			X		
Human Use Values	X				
Wildlife Habitat			X		
Fish and Aquatic Life Habitat	X				
Shoreline Protection		X			
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes		X			

FUNCTION	RATIONALE
Floristic Integrity	Tree and shrub strata removed in the emergent portion of the wetland, likely for cattle pasture or other agricultural activity, and area is regularly grazed by cattle. Several non-native species interspersed within vegetation community. The wetland complex has a high diversity of species. The coniferous swamp (PFO) portion of the wetland is mature and relatively undisturbed.
Human Use Values	Although a large wetland, wetland is located on private property and cattle activity has precluded most possibilities of human recreation.
Wildlife Habitat	Large wetland size with several habitat types interspersed throughout increases value as wildlife habitat. The coniferous swamp portion of the complex is potentially a deer wintering area.
Fish and Aquatic Life Habitat	No fish or aquatic life observed during the time of the survey. Wetland is constantly saturated, but does not appear to hold standing water.
Shoreline Protection	Forested portion of the wetland provides protection to a seepy, braided stream system.
Flood and Stormwater Storage	Hydrology of wetland is primarily groundwater driven, and it is located at the top of the landscape. Wetland is not receiving significant surface water inputs. Surface water that does enter the wetland will be slowed and captured by dense vegetation.
Water Quality Protection	Wetland captures and filters pollutants from cow pasture.
Groundwater Processes	Evidence of groundwater-driven hydrology present throughout the wetland.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

Section 4: Project Impact Assessment

Additional Plant Species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Tilia americana	American basswood		PFO	
**Picea glauca*	white spruce	7	PFO	
Tsuga canadensis	eastern hemlock, hemlock, northern hemlock	8	PFO	
Matteuccia struthiopteris	American ostrich fern, ostrich fern	5	PFO	
Impatiens capensis	orange jewelweed, orange touch-me-not	2	PFO	
Dryopteris intermedia	fancy wood fern, glandular wood fern	7	PFO	
Betula papyrifera	canoe birch, paper birch, white birch	3	PFO	
Carex scabrata	eastern rough sedge	8	PFO	
Carex intumescens	greater bladder sedge, shining bur sedge	5	PFO	
Gymnocarpium dryopteris	common oak fern, western oak fern	7	PFO	
Bidens frondosa	common beggar-ticks, devil's beggar-ticks	1	PFO	
Epilobium ciliatum	American willow-herb, hairy willow-herb	9	PFO	
Equisetum pratense	meadow horsetail	8	PFO	
Typha latifolia	broad-leaved cat-tail, common cat-tail	1	PSS	
**Salix bebbiana*	beaked willow, Bebb's willow	7	PSS	
Acer saccharum	hard maple, sugar maple	5	PSS	
**Betula alleghaniensis*	yellow birch	7	PSS	
Leersia oryzoides	rice cut grass	3	PSS	
Asclepias incarnata	swamp milkweed		PSS	
Carex stipata	awlfruit sedge, prickly sedge		PEM	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV005e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.35976 Long.: -90.7047 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 10-35% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in PEM within roadside drainage swale. Wetland drains down slope to unnamed stream.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Surface wetland hydrology indicators are present. Subsurface hydrologic conditions not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV005e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Scirpus atrovirens*	85	Y	OBL
2	*Calamagrostis canadensis*	10	N	OBL
3	*Onoclea sensibilis*	10	N	FACW
4	*Juncus effusus*	3	N	OBL
5	*Symphyotrichum lateriflorum*	3	N	FAC
6	*Dryopteris cristata*	1	N	OBL
7				
8				
9				
10				
11				
12				
13				
14				
15				
		112	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	22	56
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	99	x 1 =	99
FACW species	10	x 2 =	20
FAC species	3	x 3 =	9
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	112 (A)		128 (B)

Prevalence Index = B/A = 1.14

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Dominance Test and Prevalence index calculated for reference purposes only.

SOIL **Sampling Point:** WASV005e_W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? Y

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV005e_W, South

Photograph 2: WASV005e_W, North

Photograph 3: WASV005e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV005_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.35965 Long.: -90.70473 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 10-35% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point taken in forest adjacent to wetland WASV005e.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes ____	No X	Depth (inches): ____	**Indicators of wetland hydrology present?** N
Water table present?	Yes ____	No ____	Depth (inches): ____	
Saturation present? (includes capillary fringe)	Yes ____	No ____	Depth (inches): ____	

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

N/A

Remarks:
Subsurface hydrologic conditions not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV005_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	20	Y	FACU
2	*Fraxinus nigra*	3	N	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		23	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Corylus americana*	38	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		38	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	62	Y	FACU
2	*Matteuccia struthiopteris*	10	N	FAC
3	*Fraxinus nigra*	3	N	FACW
4	*Rubus pubescens*	3	N	FACW
5	*Symphyotrichum lateriflorum*	3	N	FAC
6	*Tilia americana*	3	N	FACU
7				
8				
9				
10				
11				
12				
13				
14				
15				
		84	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	5	12
Sapling/Shrub Stratum	8	19
Herb Stratum	17	42
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	9	x 2 =	18	
FAC species	13	x 3 =	39	
FACU species	123	x 4 =	492	
UPL species	0	x 5 =	0	
Column totals	145	(A)	549	(B)

Prevalence Index = B/A = 3.79

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV005_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? N

Remarks:
No ground disturbance due to the potential for underground utilities; assume soils to be non-hydric due to the absence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV005_U, South

Photograph 2: WASV005_U, North

Photograph 3: WASV005_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV005**
Project name: Line 5	Evaluator(s): Caitlin Cyrus; Chris Sheldon
File #: N/A	Date of visit(s): 09/19/2019
Location: PLSS: 45N03W Lat: 46.35868341 Long: -90.70293801 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: Marengo River, LS12
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-metonga-Rock outcrop complex, 10-30 percent slopes, very stony. Field Verified: No ground disturbance due to the potential for underground utilities	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.007 acres / Wetland Area Impacted 0.007 acres Vegetation: Plant Community Description(s): PEM: *Scirpus cyperinus*, *Carex crinita*
Hydrology: Surface water-driven wetland. No subsurface indicators of wetland hydrology were investigated due to the potential for underground utilities. Slope 15-20%. Feature sloping north towards unnamed tributary.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU1: Hunting blinds and stands observed on the property, but outside of the wetland buffer.
WH10, FA2, FA4: No standing water at time of survey and wetland does not appear to hold water for long periods of time.
GW: Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Spring peeper (*Pseudacris crucifer*)
	X	Songbirds
	X	Area Sensitive Species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Osmunda claytoniana	interrupted fern	6	PEM	3
Symphyotrichum puniceum	purplestem aster	5	PEM	1
Scirpus atrovirens	green bulrush	3	PEM	63
Solidago gigantea	giant goldenrod	3	PEM	3
Calamagrostis canadensis	blue-joint grass	5	PEM	3
Osmunda cinnamomea	cinnamon fern	7	PEM	5
Polygonum sagittatum	arrowleaf tearthumb	6	PEM	1
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	3
Epilobium ciliatum	fringed willowherb	3	PEM	0.5
Potentilla canadensis	dwarf cinquefoil	0	PEM	1
Phleum pratense	timothy	0	PEM	0.5
Onoclea sensibilis	sensitive fern	5	PEM	3

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Area exhibits a healthy diversity of common native vegetation. Tree and shrub stratum removed by human disturbance (access road).

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		M	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		L	UC	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		H	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		H	C	Removal of tree or shrub strata – logging, unprescribed fire
X	X		L	UC	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Wetland partially formed by creation of access road; water drains downslope quickly due to compaction of soil.
Wetland fed by stormwater discharge and is a surface water-driven system.
Tree strata removed due to human disturbance (access road).

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage	X				
Water Quality Protection	X				
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Tree and shrub/sapling strata are missing; good diversity of native flora throughout.
Human Use Values	Wetland is on private property and is affected by the presence of the access road; it is relatively small and unlikely to be used for human recreation, despite signs of hunting observed on-site.
Wildlife Habitat	Access road crosses small wetland; adjacent wetland buffer provides some habitat for wildlife.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey and wetland does not appear to hold standing water for long periods of time.
Shoreline Protection	NA
Flood and Stormwater Storage	Wetland is capturing surface water run-off from the surrounding landscape and the adjacent access road. Wetland is surface water-driven; however, water appears to pass quickly through wetland.
Water Quality Protection	Possible pollutants could be entering wetland from the adjacent access road, and minimal pollutants received from surrounding landscape. Wetland does not have the opportunity to capture significant amounts of pollutants.
Groundwater Processes	No sign of groundwater observed in wetland hydrology. Subsurface indicators of wetland hydrology were not observed due to the potential for underground utilities.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV003f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 0-2% Lat.: 46.3597 Long.: -90.70448 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 10-35% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in PFO portion of WASV003. PFO in depressional area adjacent to access road including roadside drainage swale. Hydrology is primarily surface water driven with wetland receiving water from access road drainage system.

HYDROLOGY

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)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Wetland surface hydrology indicators present. Subsurface hydrologic conditions not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV003f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	20	Y	FACW
2	*Acer saccharum*	3	N	FACU
3	*Betula alleghaniensis*	1	N	FAC
4				
5				
6				
7				
8				
9				
10				
		24	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Osmunda cinnamomea*	38	Y	FACW
2	*Osmunda claytoniana*	20	Y	FAC
3	*Onoclea sensibilis*	10	N	FACW
4	*Mitchella repens*	3	N	FACU
5	*Corylus americana*	3	N	FACU
6	*Pyrola elliptica*	1	N	FACU
7				
8				
9				
10				
11				
12				
13				
14				
15				
		75	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	5	12
Sapling/Shrub Stratum	0	0
Herb Stratum	15	38
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	68	x 2 =	136	
FAC species	21	x 3 =	63	
FACU species	10	x 4 =	40	
UPL species	0	x 5 =	0	
Column totals	99	(A)	239	(B)

Prevalence Index = B/A = 2.41

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV003f_W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? Y

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV003f_W, South

Photograph 2: WASV003f_W, North

Photograph 3: WASV003f_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV003e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.35946 Long.: -90.70427 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 10-35% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in depressional PEM adjacent to dirt access road. Wetland formed in stormwater drainage system (roadside swale) for access road. Hydrology is primarily surface water driven, and the wetland drains downslope towards an unnamed stream.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Subsurface hydrologic conditions not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV003e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	38	Y	OBL
2	*Impatiens capensis*	20	Y	FACW
3	*Equisetum sylvaticum*	20	Y	FACW
4	*Onoclea sensibilis*	10	N	FACW
5	*Rubus pubescens*	3	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		91	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	18	46
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	38	x 1 =	38
FACW species	53	x 2 =	106
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	91 (A)		144 (B)

Prevalence Index = B/A = 1.58

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Dominance Test and Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV003e_W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? Y

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV003e_W, South

Photograph 2: WASV003e_W, North

Photograph 3: WASV003e_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV003/004_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Flat
Slope (%): 8-12% Lat.: 46.35933 Long.: -90.70433 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 10-35% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in mesic hardwoods on hillslope near WASV003 and WASV004. Data is representative of upland habitats adjacent to both WASV003 and WASV004.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:

No surface hydrology indicators present. Subsurface hydrologic conditions not observed due to potential for underground utilities

VEGETATION - Use scientific names of plants

Sampling Point: WASV003/004_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	62	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		62	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	38	Y	FACU
2	*Maianthemum canadense*	3	N	FACU
3	*Corylus americana*	3	N	FACU
4	*Acer saccharum*	1	N	FACU
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		45	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	12	31
Sapling/Shrub Stratum	0	0
Herb Stratum	9	23
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	107	x 4 =	428	
UPL species	0	x 5 =	0	
Column totals	107	(A)	428	(B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV003/004_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? N

Remarks:
No ground disturbance allowed due to potential for underground utilities; assume soil is non-hydric based on lack of hydrophytic vegetation and wetland hydrology indicators.

Photograph 1: WASV003/004_U, South

Photograph 2: WASV003/004_U, North

Photograph 3: WASV003/004_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV003**
Project name: Line 5	Evaluator(s): Caitlin Cyrus; Chris Sheldon
File #: N/A	Date of visit(s): 09/19/2019
Location: PLSS: 45N03W Lat: 46.35868341 Long: -90.70293801 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: Marengo River, LS12
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-metonga-Rock outcrop complex, 10-30 percent slopes, very stony. Field Verified: No ground disturbance due to the potential for underground utilities	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow & Hardwood Swamp Wetland Size: 0.058 acres / Wetland Area Impacted 0.058 acres Vegetation: Plant Community Description(s): PEM: *Scirpus cyperinus*, *Carex crinita* PFO: *Liriodendron tulipifera*, *Fraxinus nigra*, *Acer saccharum*, *Osmunda claytoniana*, *Osmunda cinnamomea*
Hydrology: Surface water-driven wetland. Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities. Slope 15-20%.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU1: Hunting blinds and stands observed on the property, but outside of the wetland buffer.
WH10, FA2, FA4: No standing water at time of survey and wetland does not appear to hold water for long periods of time.
GW: Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Spring peeper (*Pseudacris crucifer*)
	X	Songbirds
	X	Area Sensitive Species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2 PEM	4.3-4.7	>4.7 PFO

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Carex crinita	fringed sedge	6	PEM	15
Impatiens capensis	jewelweed	6	PEM	15
Equisetum pratense	meadow horsetail	9	PEM	15
Solidago gigantea	giant goldenrod	3	PEM	3
Onoclea sensibilis	sensitive fern	5	PEM	5
Symphyotrichum lateriflorum	calico aster	3	PEM	5
Osmunda cinnamomea	cinnamon fern	7	PEM	3
Osmunda claytoniana	interrupted fern	0	PEM	5
Juncus effusus	common rush	2	PEM	1
Leersia oryzoides	rice cutgrass	1	PEM	38
Glyceria striata	fowl manna grass	2	PEM	15
Potentilla canadensis	dwarf cinquefoil	4	PEM	0.5
Fragaria virginiana	Virginia strawberry	1	PEM	0.5
Geum canadense	white avens	2	PEM	0.5
Betula alleghaniensis	yellow birch	7	PFO	15
Acer saccharum	sugar maple	2	PFO	15
Fraxinus nigra	black ash	8	PFO	38
Osmunda claytoniana	interrupted fern	6	PFO	63
Osmunda cinnamomea	cinnamon fern	7	PFO	15
Mitchella repens	partridgeberry	6	PFO	5
Pyrola americana	American wintergreen	8	PFO	3
Onoclea sensibilis	sensitive fern	5	PFO	0.5
Carex intumescens	great bladder sedge	5	PFO	3
Scirpus cyperinus	woolgrass	3	PFO	3

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Area exhibits a good diversity of common native species. Tree and shrub stratum removed by human disturbance (access road).

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		M	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		L	UC	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		M	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	X	M	C	Removal of tree or shrub strata – logging, unprescribed fire
X	X		L	UC	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Wetland partially formed by creation of access road that bisects WASV003 and 004. Water drains downslope quickly due to compaction of soil.
Wetland fed by stormwater discharge and is a surface water-driven system.
Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities.
Tree strata missing due to human disturbance (access road).

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection	X				
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Tree and shrub/sapling strata are missing in parts of wetland; good diversity of native flora throughout.
Human Use Values	Wetland is on private property and is affected by the presence of the access road; it is relatively small and unlikely to be used for human recreation, despite signs of hunting observed on-site.
Wildlife Habitat	Large contiguous acreage of forest supports habitat for wildlife; however, wetland is located along transitional edge of forest and in and of itself does not provide high quality habitat.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey and wetland does not appear to hold standing water for long periods of time.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland is capturing surface water run-off from the surrounding landscape and the adjacent access road. Wetland is surface water-driven.
Water Quality Protection	Possible pollutants could be entering wetland from the adjacent access road, and minimal pollutants received from surrounding landscape. Wetland does not have the opportunity to capture significant amounts of pollutants.
Groundwater Processes	No sign of groundwater observed in wetland hydrology. Subsurface indicators of wetland hydrology were not observed due to the potential for underground utilities.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV004e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 5-8% Lat.: 46.35942 Long.: -90.70441 Datum: WGS 1984
Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 10-35% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in PEM within roadside drainage swale. PEM wetland separated from WASV004 by gravel access road. Surface water-driven and draining downslope towards unnamed stream.

HYDROLOGY

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)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes _____	No X	Depth (inches): _____	**Indicators of wetland hydrology present?** Y
Water table present?	Yes _____	No _____	Depth (inches): _____	
Saturation present? (includes capillary fringe)	Yes _____	No _____	Depth (inches): _____	

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

N/A

Remarks:

Subsurface hydrologic conditions not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV004e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	38	Y	OBL
2	*Impatiens capensis*	20	Y	FACW
3	*Equisetum pratense*	20	Y	FACW
4	*Symphyotrichum lateriflorum*	10	N	FAC
5	*Fraxinus nigra*	3	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		91	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	18	46
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	38	x 1 =	38
FACW species	43	x 2 =	86
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	91 (A)		154 (B)

Prevalence Index = B/A = 1.69

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV004e_W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? Y

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV004e_W, South

Photograph 2: WASV004e_W, North

Photograph 3: WASV004e_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV003/004_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Flat
Slope (%): 8-12% Lat.: 46.35933 Long.: -90.70433 Datum: WGS 1984
Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 10-35% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in mesic hardwoods on hillslope near WASV003 and WASV004. Data is representative of upland habitats adjacent to both WASV003 and WASV004.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:

No surface hydrology indicators present. Subsurface hydrologic conditions not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV003/004_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	62	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		62	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	38	Y	FACU
2	*Maianthemum canadense*	3	N	FACU
3	*Corylus americana*	3	N	FACU
4	*Acer saccharum*	1	N	FACU
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		45	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	12	31
Sapling/Shrub Stratum	0	0
Herb Stratum	9	23
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	107	x 4 =	428	
UPL species	0	x 5 =	0	
Column totals	107	(A)	428	(B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV003/004_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? N

Remarks:
No ground disturbance allowed due to potential for underground utilities: assume soil is non-hydric based on lack of hydrophytic vegetation and wetland hydrology indicators.

Photograph 1: WASV003/004_U, South

Photograph 2: WASV003/004_U, North

Photograph 3: WASV003/004_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV004**
Project name: Line 5	Evaluator(s): Caitlin Cyrus; Chris Sheldon
File #: N/A	Date of visit(s): 09/19/2019
Location: PLSS: 45N03W Lat: 46.35868341 Long: -90.70293801 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: Marengo River, LS12
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-metonga-Rock outcrop complex, 10-30 percent slopes, very stony. Field Verified: No ground disturbance due to the potential for underground utilities	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.025 acres / Wetland Area Impacted 0.025 acres Vegetation: Plant Community Description(s): PEM: *Scirpus cyperinus*, *Carex crinita*
Hydrology: Surface water-driven wetland. Water-stained leaves present. No subsurface indicators of wetland hydrology were observed due to the potential for underground utilities. Slope 15-20%. Feature sloping north towards unnamed tributary.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU1: Hunting blinds and stands observed on the property, but outside of the wetland buffer.
WH10, FA2, FA4: No standing water at time of survey and wetland does not appear to hold water for long periods of time.
GW: Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Spring peeper (*Pseudacris crucifer*)
	X	Songbirds
	X	Area Sensitive Species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Symphyotrichum lateriflorum	calico aster	3	PEM	3
Impatiens capensis	jewelweed	2	PEM	15
Carex crinita	fringed sedge	6	PEM	15
Juncus tenuis	lesser poverty rush	1	PEM	0.5
Equisetum pratense	meadow horsetail	9	PEM	5
Juncus effusus	common rush	4	PEM	5
Leersia oryzoides	rice cutgrass	3	PEM	38
Onoclea sensibilis	sensitive fern	5	PEM	5
Osmunda cinnamomea	cinnamon fern	7	PEM	3
Osmunda claytoniana	interrupted fern	6	PEM	3
Athyrium filix-femina	common lady fern, lady fern	5	PEM	0.5
Agrostis perennans	Upland Bent	4	PEM	1
Glyceria striata	fowl manna grass	4	PEM	15
Solidago gigantea	giant goldenrod	3	PEM	0.5
Epilobium coloratum	purple-leaf willowherb	3	PEM	1

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Area exhibits a healthy diversity of common native vegetation. Tree and shrub stratum removed by human disturbance (access road).

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		M	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		L	UC	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		H	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		H	C	Removal of tree or shrub strata – logging, unprescribed fire
X	X		L	UC	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Wetland partially formed by creation of access road; water drains downslope quickly due to compaction of soil.
Wetland fed by stormwater discharge and is a surface water-driven system.
Tree stratum removed due to human disturbance (access road).

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage	X				
Water Quality Protection	X				
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Tree and shrub/sapling strata are missing; good diversity of native flora throughout.
Human Use Values	Wetland is on private property and is affected by the presence of the access road; it is relatively small and unlikely to be used for human recreation, despite signs of hunting observed on-site.
Wildlife Habitat	Large contiguous acreage of forest supports habitat for wildlife; however, wetland is located along transitional edge of forest and in and of itself does not provide high quality habitat.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey and little evidence that the wetland can hold standing water.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland is capturing surface water run-off from the surrounding landscape and the adjacent access road. Wetland is surface water-driven; however, water appears to pass quickly through wetland.
Water Quality Protection	Possible pollutants could be entering wetland from the adjacent access road, and minimal pollutants received from surrounding landscape. Wetland does not have the opportunity to capture significant amounts of pollutants.
Groundwater Processes	No sign of groundwater observed in wetland hydrology. Subsurface indicators of wetland hydrology were not observed due to the potential for underground utilities.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV001f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.35867 Long.: -90.7029 Datum: WGS 1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in PFO component of WASV001. Wetland connected to WASV002 via a perched culvert underneath the access road that shows signs of flow. Wetland is in an old road bed and is very weakly channelized. Wetland primarily receives surface water inputs from surrounding landscape.

HYDROLOGY

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)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Subsurface hydrologic conditions not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV001f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Acer saccharum*	10	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		48	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	10	Y	FACW
2	*Tilia americana*	3	Y	FACU
3	*Abies balsamea*	1	N	FAC
4				
5				
6				
7				
8				
9				
10				
		14	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	38	Y	OBL
2	*Equisetum sylvaticum*	20	Y	FACW
3	*Rubus pubescens*	20	Y	FACW
4	*Dryopteris cristata*	3	N	OBL
5	*Equisetum pratense*	3	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		84	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	10	24
Sapling/Shrub Stratum	3	7
Herb Stratum	17	42
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 71.43% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	41	x 1 =	41
FACW species	91	x 2 =	182
FAC species	1	x 3 =	3
FACU species	13	x 4 =	52
UPL species	0	x 5 =	0
Column totals	146 (A)		278 (B)

Prevalence Index = B/A = 1.90

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV001f_W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? Y

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV001f_W, South

Photograph 2: WASV001f_W, East

Photograph 3: WASV001f_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV001e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.35868 Long.: -90.70294 Datum: WGS 1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in PEM adjacent to dirt access road. Wetland connected to WASV002 via a perched culvert that exhibits signs of flow. Wetland is possibly in an old road bed and is very weakly channeled. It appears to receive surface water inputs from surrounding landscape.

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	____	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Surface wetland hydrology indicators are present. Subsurface hydrology indicators were not identified due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV001e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	1		FACW
2				
3				
4				
5				
6				
7				
8				
9				
10				
		1	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Scirpus cyperinus*	38	Y	OBL
2	*Impatiens capensis*	20	Y	FACW
3	*Equisetum sylvaticum*	20	Y	FACW
4	*Equisetum pratense*	20	Y	FACW
5	*Carex crinita*	20	Y	OBL
6	*Onoclea sensibilis*	3	N	FACW
7	*Persicaria sagittata*	3	N	OBL
8				
9				
10				
11				
12				
13				
14				
15				
		124	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	1
Herb Stratum	25	62
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	61	x 1 =	61
FACW species	64	x 2 =	128
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	125 (A)		189 (B)

Prevalence Index = B/A = 1.51

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Dominance Test and Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV001e_W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? Y

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be hydric due to presences of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV001e_W, South

Photograph 2: WASV001e_W, East

Photograph 3: WASV001e_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV001/002_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Bench Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.35862 Long.: -90.70305 Datum: WGS 1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located on bank of dirt access road between two wetland areas. Data is representative of uplands adjacent to WASV001 and WASV002.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:

No surface hydrology indicators present. Subsurface hydrology indicators were not identified due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV001/002_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	1		FAC
2				
3				
4				
5				
6				
7				
8				
9				
10				
		1	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Lotus corniculatus*	85	Y	FACU
2	*Trifolium repens*	20	N	FACU
3	*Euthamia graminifolia*	10	N	FAC
4	*Ambrosia artemisiifolia*	3	N	FACU
5	*Symphyotrichum lateriflorum*	3	N	FAC
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		121	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	1
Herb Stratum	24	61
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	14	x 3 =	42	
FACU species	108	x 4 =	432	
UPL species	0	x 5 =	0	
Column totals	122	(A)	474	(B)

Prevalence Index = B/A = 3.89

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV001/002_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? N

Remarks:
No ground disturbance allowed due to potential for underground utilities; assume soil is non-hydric based on absence of wetland hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV001/002_U, South

Photograph 2: WASV001/002_U, East

Photograph 3: WASV001/002_U, North

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV001**
Project name: Line 5	Evaluator(s): Caitlin Cyrus; Chris Sheldon
File #: N/A	Date of visit(s): 09/19/2019
Location: PLSS: 45N03W Lat: 46.35868341 Long: -90.702938016 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic fine sandy loam 1-6 percent slopes, very stony, rocky Field Verified: No ground disturbance due to the potential for underground utilities.	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow & Hardwood Swamp Wetland Size: 0.049 acres / Wetland Area Impacted 0.049 acres Vegetation: Plant Community Description(s): PEM: *Carex crinita - Equisetum sylvaticum - Leersia oryzoides* PFO: *Onoclea sensibilis - Fraxinus nigra - Ilex verticillata*
Hydrology: Stormwater runoff-fed wetland flowing from west to east (from WASV002 towards WASV001) through a 14” corrugated metal pipe. Some signs of channelization but very broad (20’ wide). Saturated at surface, wetland bisected by roadway and has 5-7 percent slopes.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: **hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
FA2 & WH10: No standing water at the time of survey. However, wetland could potentially hold water during wetter seasons. The culvert to WASV002 is perched, indicating that if water does move between the two wetlands, it's at high volumes.
ST1: Has through-flow; water entering wetland is constricted by culvert.
ST5: Run-off from the adjacent access road, water flow from WASV002 through culvert.
HU1: Hunting blinds and stands observed on the property, but outside of the wetland buffer.
GW: Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X	X	Songbird species (heard chattering)
	X	Area-Sensitive Species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	Frogs, salamanders; no standing water at time of survey, but potential to hold water during wetter seasons.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Carex crinita*	fringed sedge	6	PEM	86
Osmunda cinnamomea	cinnamon fern	7	PEM/PFO	15
**Equisetum sylvaticum*	woodland horsetail	7	PEM/PFO	38
**Rubus pubescens*	dwarf red raspberry	7	PFO	15
**Equisetum pratense*	meadow horsetail	9	PEM/PFO	15
**Scirpus cyperinus*	woolgrass	4	PEM	63
**Fraxinus nigra*	black ash	8	PFO	38
Onoclea sensibilis	sensitive fern	5	PFO	15
Ilex verticillata	common winterberry	7	PEM/PFO	3
Symphyotrichum puniceum	swamp aster	5	PEM/PFO	3
Symphyotrichum lateriflorum	calico aster	3	PEM/PFO	1
Centaurea stoebe	spotted knapweed	0	PEM/PFO	1
Solidago gigantea	giant goldenrod	3	PEM/PFO	1
Leersia oryzoides	rice cutgrass	3	PEM/PFO	1
Carex stipata	common fox sedge	2	PEM/PFO	0.5
Juncus effusus	common rush	4	PEM/PFO	1
**Acer saccharum*	sugar maple		PFO	
**Tilia americana*	basswood		PFO	
Abies balsamea	balsam fir		PFO	
Dryopteris cristata	crested woodfern		PFO	
Impatiens capensis	spotted touch-me-not		PEM	
Persicaria sagittata	arrow-leaved tearthumb		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

PEM portion of the wetland was created by human disturbance (clearing) and tree strata is absent.
Centaurea stoebe was in wetlands, but in very low abundance.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
X	X		M	UC	Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		M	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		H	UC	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		M	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	X	M	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		L	C	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
X	X		L	UC	Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Roadway bisects study area, altering the hydrology. Wetland is culverted under the roadway, with water flowing from WASV002f. Signs of erosion around the culvert are evident.
A paved County Road is just outside of the buffer area.
Area has been logged in the past, creating a uniform-age tree stand. PEM portion of wetland created due to compaction from old road bed.
Low levels of non-native and invasive species were found to be present on-site.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection	X				
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Canopy and sapling/shrub strata are absent in PEM portion; good diversity of native flora throughout.
Human Use Values	Wetland is on private property and is affected by the presence of the access road; it is relatively small and unlikely to be used for human recreation, despite signs of hunting observed on-site.
Wildlife Habitat	Large contiguous acreage of forest supports habitat for wildlife; however, wetland is located along transitional edge of forest and in and of itself does not provide high quality habitat.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey, but it is possible that the wetland could hold water for periods of time during wetter seasons.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland is capturing surface water run-off from the surrounding landscape and the adjacent access road. Wetland is surface water-driven.
Water Quality Protection	Possible pollutants could be entering wetland from the adjacent access road, and minimal pollutants received from surrounding landscape. Wetland does not have the opportunity to capture significant amounts of pollutants.
Groundwater Processes	No sign of groundwater observed in wetland hydrology. Subsurface indicators of wetland hydrology were not observed due to the potential for underground utilities.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV002f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.35852 Long.: -90.70325 Datum: WGS 1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in PFO component of WASV002. Receiving runoff from County Road C and adjacent access road. Water flows through perched culvert under access road to WASV001; the two wetlands were likely connected historically.

HYDROLOGY

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)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Subsurface hydrologic conditions not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV002f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	85	Y	FACW
2	*Acer saccharum*	3	N	FACU
3	*Populus tremuloides*	3	N	FAC
4	*Ulmus americana*	1	N	FACW
5				
6				
7				
8				
9				
10				
		92	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	10	Y	FACW
2	*Acer saccharum*	1	N	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		11	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	85	Y	OBL
2	*Equisetum sylvaticum*	20	N	FACW
3	*Rubus pubescens*	20	N	FACW
4	*Symphyotrichum lateriflorum*	3	N	FAC
5	*Equisetum pratense*	3	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		131	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	18	46
Sapling/Shrub Stratum	2	6
Herb Stratum	26	66
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	85	x 1 =	85	
FACW species	139	x 2 =	278	
FAC species	6	x 3 =	18	
FACU species	4	x 4 =	16	
UPL species	0	x 5 =	0	
Column totals	234	(A)	397	(B)

Prevalence Index = B/A = 1.70

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV002f_W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? Y

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV002f_W, South

Photograph 2: WASV002f_W, North

Photograph 3: WASV002f_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV002e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.35862 Long.: -90.70314 Datum: WGS 1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in PEM adjacent to dirt access road. Receiving runoff from County Road C and adjacent access road. Water flows through a perched culvert under access road to WASV001; the two wetland were likely connected historically.

HYDROLOGY

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)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Subsurface hydrologic conditions not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV002e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	3		FAC
2				
3				
4				
5				
6				
7				
8				
9				
10				
		3	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Juncus effusus*	20	Y	OBL
2	*Onoclea sensibilis*	20	Y	FACW
3	*Equisetum sylvaticum*	20	Y	FACW
4	*Rubus pubescens*	10	N	FACW
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		70	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	1	2
Herb Stratum	14	35
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	20	x 1 =	20	
FACW species	50	x 2 =	100	
FAC species	3	x 3 =	9	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	73	(A)	129	(B)

Prevalence Index = B/A = 1.77

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Dominance Test and Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV002e_W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? Y

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be hydric due to the presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV002e_W, South

Photograph 2: WASV002e_W, North

Photograph 3: WASV002e_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV001/002_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Bench Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.35862 Long.: -90.70305 Datum: WGS 1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located on bank of dirt access road between two wetland areas. Data is representative of uplands adjacent to WASV001 and WASV002.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:

No surface hydrology indicators present. Subsurface hydrology indicators were not identified due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV001/002_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	1		FAC
2				
3				
4				
5				
6				
7				
8				
9				
10				
		1	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Lotus corniculatus*	85	Y	FACU
2	*Trifolium repens*	20	N	FACU
3	*Euthamia graminifolia*	10	N	FAC
4	*Ambrosia artemisiifolia*	3	N	FACU
5	*Symphyotrichum lateriflorum*	3	N	FAC
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		121	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	1
Herb Stratum	24	61
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	14	x 3 =	42	
FACU species	108	x 4 =	432	
UPL species	0	x 5 =	0	
Column totals	122	(A)	474	(B)

Prevalence Index = B/A = 3.89

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV001/002_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? N

Remarks:
No ground disturbance allowed due to potential for underground utilities; assume soil is non-hydric based on absence of wetland hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV001/002_U, South

Photograph 2: WASV001/002_U, East

Photograph 3: WASV001/002_U, North

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV002**
Project name: Line 5	Evaluator(s): Caitlin Cyrus; Chris Sheldon
File #: N/A	Date of visit(s): 09/19/2019
Location: PLSS: 45N03W Lat: 46.35861458 Long: -90.70314368 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic fine sandy loam 1-6 percent slopes, very stony, rocky Field Verified: No ground disturbance due to the potential for underground utilities	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow & Hardwood Swamp Wetland Size: 0.132 acres / Wetland Area Impacted 0.132 acres
Hydrology: Surface water-driven wetland. Wetland is capturing water from Access Road and County Road C. Water flowing out of WASV002 through culvert (14" CMP) under access road.	Vegetation: Plant Community Description(s): PEM: *Scirpus cyperinus*, *Carex crinita*, *Onoclea sensibilis* PFO: *Liriodendron tulipifera*, *Fraxinus nigra*, *Osmunda claytoniana*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
HU1: Hunting blinds and stands observed on the property, but outside of the wetland buffer.
WH10, FA2, FA4: No standing water at time of survey; wetland has potential to hold water during wetter time periods.
ST1: Has through-flow, water entering wetland is constricted by culvert.
ST5: Run-off received from adjacent access road.
ST4: Weak evidence of drainage patterns.
GW: Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	X	Songbirds
	X	Area Sensitive Species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	Frogs, salamanders; no standing water at time of survey, but potential to hold water during wetter seasons.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Doellingeria umbellata	parasol whitetop	6	PEM/PFO	3
Scirpus cyperinus	woolgrass	4	PEM/PFO	38
Carex crinita	fringed sedge	6	PEM/PFO	63
Juncus effusus	common rush	4	PEM/PFO	38
Onoclea sensibilis	sensitive fern	5	PEM/PFO	38
Fraxinus nigra	black ash	8	PEM/PFO	38
Symphyotrichum puniceum	purplestem aster	5	PEM/PFO	15
Equisetum sylvaticum	woodland horsetail	7	PEM/PFO	15
Salix discolor	pussy willow	2	PEM/PFO	0.5
Polygonum sagittatum	arrowleaf tearthumb	6	PEM/PFO	1
Matteuccia struthiopteris	ostrich fern	5	PEM/PFO	15
Betula alleghaniensis	yellow birch	7	PEM/PFO	0.5
Dryopteris intermedia	intermediate woodfern	7	PEM/PFO	3
Symphyotrichum lateriflorum	calico aster	3	PEM/PFO	3
Glyceria striata	fowl manna grass	4	PEM/PFO	63
Eutrochium maculatum	spotted joe pye weed	4	PEM/PFO	1
Epilobium coloratum	eastern cinnamon willow-herb	3	PEM/PFO	0.5
Osmunda claytoniana	interrupted fern	6	PEM/PFO	15
Osmunda cinnamomea	cinnamon fern	7	PEM/PFO	15
Rubus pubescens	dwarf red blackberry	7	PEM/PFO	1
Parthenocissus quinquefolia	Virginia creeper	5	PEM/PFO	1
Carex intumescens	great bladder sedge	5	PEM/PFO	3
Tilia americana	American basswood	5	PEM/PFO	1
Lonicera japonica	Japanese honeysuckle	0	PEM/PFO	0.5
Corylus cornuta	beaked hazelnut	5	PEM/PFO	1

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Area exhibits a healthy diversity of native vegetation, however tree stratum missing in PEM portion. Trees removed by human disturbance (access road).
Access road bisects wetland.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
X	X		M	UC	Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		M	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		L	UC	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		M	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	X	M	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		L	C	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
X	X		L	UC	Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Roadway bisects study area, altering the hydrology. Wetland is culverted under the roadway, with water flowing from WASV002f.
Signs of erosion are evident around the culvert, likely from heavy storm events. This wetland is runoff driven. A paved road is outside of the buffer area.
Area has been logged and therefore missing tree strata in areas.
Low levels of non-native and invasive species were found to be present onsite. Potential exists for hunting at this location.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection	X				
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Canopy and sapling strata is missing in PEM portion due to human disturbance; good diversity of native flora throughout.
Human Use Values	Wetland is on private property and is affected by the presence of the access road; it is relatively small and unlikely to be used for human recreation, despite signs of hunting observed on-site.
Wildlife Habitat	Large contiguous acreage of forest supports habitat for wildlife; however, wetland is located along transitional edge of forest and in and of itself does not provide high quality habitat.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey, but it is possible that the wetland could hold water for periods of time during wetter seasons.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland is capturing surface water run-off from the surrounding landscape and the adjacent access road. Wetland is surface water-driven.
Water Quality Protection	Possible pollutants could be entering wetland from the adjacent access road, and minimal pollutants received from surrounding landscape. Wetland does not have the opportunity to capture significant amounts of pollutants.
Groundwater Processes	No sign of groundwater observed in wetland hydrology. Subsurface indicators of wetland hydrology were not observed due to the potential for underground utilities.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/23/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV022e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 2-5% Lat.: 46.3589 Long.: -90.69136 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in representative middle of wet cow pasture (PEM). Lowest portion of the wetland dominated by *Carex crinita* and *Salix discolor*.

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	____	No	X	Depth (inches):	____
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV022e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Juncus effusus*	85	Y	OBL
2	*Ranunculus acris*	10	N	FAC
3	*Agrostis perennans*	10	N	FACU
4	*Symphyotrichum lateriflorum*	10	N	FAC
5	*Calamagrostis canadensis*	3	N	OBL
6	*Carex scoparia*	3	N	FACW
7	*Glyceria striata*	3	N	OBL
8	*Phleum pratense*	3	N	FACU
9	*Veronica officinalis*	1	N	FACU
10	*Plantago major*	1	N	FACU
11				
12				
13				
14				
15				
		129	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	26	65
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	91	x 1 =	91	
FACW species	3	x 2 =	6	
FAC species	20	x 3 =	60	
FACU species	15	x 4 =	60	
UPL species	0	x 5 =	0	
Column totals	129	(A)	217	(B)

Prevalence Index = B/A = 1.68

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV022e_W

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-8	7.5YR 4/2	80	7.5YR 5/8	20	C	M	Silt loam	
8-18	7.5YR 4/2	60	7.5YR 5/6	40	C	M	Fine sandy loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Indicator Depleted Matrix (F3) is present; parameter is met.

Photograph 1: WASV022e_W, West

Photograph 2: WASV022e_W, North

Photograph 3: WASV022e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/23/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV022_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 5-8% Lat.: 46.35934 Long.: -90.69119 Datum: WGS 1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation _____, soil _____, or hydrology _____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located on gently sloping hillside in cattle pasture.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:

No hydrology indicators observed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV022_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Ranunculus acris*	38	Y	FAC
2	*Phleum pratense*	38	Y	FACU
3	*Trifolium pratense*	20	N	FACU
4	*Plantago major*	10	N	FACU
5	*Prunella vulgaris*	10	N	FAC
6	*Symphyotrichum lateriflorum*	1	N	FAC
7				
8				
9				
10				
11				
12				
13				
14				
15				
		117	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	23	59
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	49	x 3 =	147	
FACU species	68	x 4 =	272	
UPL species	0	x 5 =	0	
Column totals	117	(A)	419	(B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV022_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-3	7.5YR 3/4	98	7.5YR 5/6	2	C	PL	Silt loam	
3-18	7.5YR 4/6	100					Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
No indicators of hydric soil observed.

Photograph 1: WASV022_U, West

Photograph 2: WASV022_U, North

Photograph 3: WASV022_U, East

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION **WASV022**	
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/23/19
Location: PLSS: 45N03W Lat: 46.35890 Long: -90.69136 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic fine sandy loam, 1-6% slopes, very stony, rocky Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 3.717 acres / Wetland Area Impacted: 3.717 acres
Hydrology: Groundwater driven hydrology, impacted by active cattle grazing (soil compaction); drains to east, 5-7% slopes; oxidized rhizospheres; depressional wetland that captures surface runoff from nearby upland areas (cattle pasture).	Vegetation: Plant Community Description(s): Cattle pasture *Juncus effusus, Ranunculus acris, Prunella vulgaris*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	N	Part of a large habitat block that supports area sensitive species
9	N	Y	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	Y	Y	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	Y	Y	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	Y	Y	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

WH10, FA2, FA4: No standing water at time of survey, but wetland has some potential to hold water during wetter time periods.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Field sparrow
	X	Songbirds

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey, but wetland does appear to hold water during wetter time periods.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Juncus effusus*	common rush, soft rush	4	PEM	63
Salix discolor	pussy willow	2	PEM	5
Glyceria maxima	reed manna grass	0	PEM	1
Ranunculus acris	common buttercup, blister plant, meadow buttercup	0	PEM	63
Prunella vulgaris	heal-all, lawn prunella, self-heal	1	PEM	15
Carex scabrata	eastern rough sedge	8	PEM	1
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	5
Phleum pratense	timothy	0	PEM	5
Scirpus cyperinus	wool-grass	4	PEM	1
Persicaria hydropiperoides	marsh-pepper smartweed, water-pepper	0	PEM	0.5
Carex scoparia	broom sedge, lance-fruited oval sedge	4	PEM	0.5
Calamagrostis canadensis	blue-joint grass	5	PEM	1
Bidens frondosa	common beggar-ticks, devil's beggar-ticks	1	PEM	1
Eleocharis obtuse	blunt spike-rush	3	PEM	1
Onoclea sensibilis	sensitive fern	5	PEM	3
Trifolium pratense	red clover	0	PEM	15
Taraxacum officinale	common dandelion	0	PEM	0.5
Plantago major	broad-leaved plantain, common plantain	0	PEM	1
Agrostis perennans	upland bentgrass		PEM	
Veronica officinalis	heath speedwell, common gypsyweed		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Wetland located in cattle pasture, dominated by a mix of non-native plant species. Tree and shrub strata missing, most likely due to clearing for pasture or other agricultural activity.
Active cattle grazing prevents trees and shrubs from recruiting into wetland.
FQI=9.4, Mean C of C =2.2

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
X	X		L	UC	Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		H	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
X	X		H	UC	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
X	X	X	H	C	Agriculture – pasture
	X		L	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		H	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		L	C	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Hydrologic modification due to soil compaction by cattle, polluted runoff from cattle pasture, and missing vegetation strata have degraded wetland functions and values.
Dirt access road on west end of wetland. Berm and drainage features on east end of wetland, at property boundary.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	X				
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes		X			

FUNCTION	RATIONALE
Floristic Integrity	Missing tree and sapling/shrub strata, and high cover of non-native species are present in the wetland.
Human Use Values	Use as active cattle pasture precludes human recreational use.
Wildlife Habitat	Active cattle grazing and clearing limit use of the wetland by other wildlife. The wetland does provide some habitat for songbird use.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey, but wetland has the potential to hold water during wetter periods/seasons.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland receives surface water runoff from nearby cattle pasture. The lowest area of the wetland forms a basin with some signs that standing water collecting during wetter seasons.
Water Quality Protection	Manure observed in wetland. Wetland captures runoff from cattle pasture.
Groundwater Processes	Saturated at surface and oxidized rhizospheres indicate presence of groundwater near or at the surface for at least part of the year.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/23/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV023e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 0-2% Lat.: 46.35877 Long.: -90.68737 Datum: WGS 1984
Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: R5UBH
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in PEM floodplain of stream SASV007i.

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	____	No	X	Depth (inches):	____
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV023e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Phalaris arundinacea*	98	Y	FACW
2	*Persicaria sagittata*	3	N	OBL
3	*Onoclea sensibilis*	1	N	FACW
4	*Cornus alba*	1	N	FACW
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		103	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	21	52
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	3	x 1 =	3	
FACW species	100	x 2 =	200	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	103	(A)	203	(B)

Prevalence Index = B/A = 1.97

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Dominance Test and Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV023e_W

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-5	7.5YR 3/4	100					Silt loam	
5-18	7.5YR 3/2	95	7.5YR 4/4	5	C	M	very fine sandy loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Indicator Redox Dark Surface (F6) is present; parameter is met.

Photograph 1: WASV023e_W, East

Photograph 2: WASV023e_W, North

Photograph 3: WASV023e_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/23/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV023_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 20-25% Lat.: 46.3587 Long.: -90.68763 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation _____, soil _____, or hydrology _____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located on hillside in fallow field adjacent to wetland WASV023e.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:

No hydrology indicators observed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV023_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Festuca rubra*	98	Y	FACU
2	*Trifolium pratense*	10	N	FACU
3	*Plantago major*	3	N	FACU
4	*Rudbeckia hirta*	1	N	FACU
5	*Lotus corniculatus*	1	N	FACU
6	*Symphyotrichum lateriflorum*	1	N	FAC
7	*Erigeron strigosus*	1	N	FACU
8				
9				
10				
11				
12				
13				
14				
15				
		115	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	23	58
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	1	x 3 =	3	
FACU species	114	x 4 =	456	
UPL species	0	x 5 =	0	
Column totals	115	(A)	459	(B)

Prevalence Index = B/A = 3.99

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV023_U

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-8	7.5YR 3/4	100					Silt loam	
8-18	7.5YR 4/6	80	7.5YR 3/4	20	C	M	Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
No indicators of hydric soil observed.

Photograph 1: WASV023_U, West

Photograph 2: WASV023_U, North

Photograph 3: WASV023_U, South

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION **WASV023**	
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/23/19
Location: PLSS: 45N03W Lat: 46.35878 Long: -90.68733 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.569 acres / Wetland Area Impacted: 0.569 acres
Hydrology: Floodplain to stream SASV007p. Iron deposits, oxidized rhizospheres; drains westward towards stream on 8-15% slope.	Vegetation: Plant Community Description(s): Linear strip of stream floodplain *Phalaris arundinacea, Onoclea sensibilis, Carex crinita*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	N	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	Y	Y	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	Y	Y	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	Y	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	Y	Y	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
HU1 – Deer hunting occurs on property but is not specific to the wetland.
ST & WQ – Signs of past excessive erosion within wetland.
WH10, FA2, FA4: No standing water at time of survey and wetland does not appear to hold water for long periods of time.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Green frog
	X	Songbirds
X		Deer trail

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	Frogs present; no standing water at time of survey, but potential to hold water during wetter seasons.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Glyceria maxima	reed manna grass	0	PEM	
Lonicera morrowii	Asian fly honeysuckle, Morrow's honeysuckle	0	PEM	
**Phalaris arundinacea*	reed canary grass	0	PEM	
Impatiens capensis	orange jewelweed, orange touch-me-not	2	PEM	
Tilia americana	American linden, basswood	5	PEM	
Onoclea sensibilis	sensitive fern	5	PEM	
Matteuccia struthiopteris	American ostrich fern, ostrich fern	5	PEM	
Rumex crispus	curly dock, sour dock	0	PEM	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	
Clematis virginiana	devil's-darning-needle, virgin's-bower	4	PEM	
Carex crinita	fringed sedge	6	PEM	
Acer saccharum	hard maple, sugar maple	5	PEM	
Cirsium arvense	Canada thistle, creeping thistle, field thistle	0	PEM	
Rubus idaeus	wild red raspberry	3	PEM	
Ranunculus acris	common buttercup, blister plant, meadow buttercup	0	PEM	
Persicaria sagittata	arrow-leaved tearthumb		PEM	
Cornus alba	tatarian dogwood		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Wetland is dominated by invasive plant species. Missing tree stratum in some areas.
FQI=10.1, Mean C of C=2.6

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		H	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
	X		M	C	Agriculture – row crops
	X		M	C	Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		M	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		H	C	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Corn growing adjacent to stream on southwest end of study area.
Food plot/cover crop growing to the north.
Signs of past excessive sediment deposition in stream and wetland.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	X				
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection	X				
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes		X			

FUNCTION	RATIONALE
Floristic Integrity	Predominance of invasive exotic plant species. Tree stratum missing in some areas.
Human Use Values	Wetland is a narrow strip of bench along streambanks. Small wetland size and surrounding land use (active row crops and food plots) precludes its use for human recreation.
Wildlife Habitat	Wetland may provide some habitat for birds and deer, but its small size and lack of connectivity to natural areas significantly reduce its value as wildlife habitat.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey, but it is possible that the wetland could hold water for periods of time during wetter seasons.
Shoreline Protection	Dense vegetation growing along the bank of the stream provides some erosion protection, however there are signs of past excessive sedimentation of the stream and there is erosion along the streambanks.
Flood and Stormwater Storage	Wetland will hold some overbank flow from stream but will not hold water for extended periods of time.
Water Quality Protection	Wetland buffer to stream is very thin and doesn't provide much protection from runoff. Signs of past excessive sediment deposition in stream, and runoff from agriculture fields evident.
Groundwater Processes	Iron deposits and oxidized rhizospheres suggest there is a groundwater component to the wetland hydrology.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/24/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV025e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 1-2% Lat.: 46.357619 Long.: -90.684001 Datum: WGS 1984
Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation X, soil X, or hydrology X significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ___, soil ___, or hydrology ___ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

PEM wetland located within agricultural row crop (corn, [Zea mays]) field. Soils, hydrology, and vegetation are disturbed from farming.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

Remarks:
Soils, hydrology, and vegetation disturbed by farming. Two secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV025e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Phalaris arundinacea*	86	Y	FACW
2	*Onoclea sensibilis*	3	N	FACW
3	*Scirpus atrovirens*	3	N	OBL
4	*Rubus idaeus*	3	N	FAC
5	*Festuca rubra*	3	N	FACU
6	*Solidago gigantea*	0.5	N	FACW
7	*Juncus effusus*	0.5	N	OBL
8				
9				
10				
11				
12				
13				
14				
15				
		99	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	20	50
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	3.5	x 1 =	3.5
FACW species	89.5	x 2 =	179
FAC species	3	x 3 =	9
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column totals	99 (A)		203.5 (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV025e_W

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-3	10YR 4/3	98	10YR 4/6	2	C	M	Silt loam	
3-10	10YR 5/2	60	10YR 3/2	19	D	M	Silt loam	
			10YR 4/3	19	C	M		
			10YR 4/6	2	C	M		
10-14	10YR 3/2	70	10YR 4/3	14	C	M	Silt loam	
			10YR 5/2	14	C	M		
			10YR 4/6	2	C	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Subsoil indicative of plow layer. Indicator Depleted Matrix (F3) is present; parameter is met.

Photograph 1: WASV025e_W, West

Photograph 2: WASV025e_W, North

Photograph 3: WASV025e_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/24/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV025/26_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Upland road Local relief (concave, convex, none): Flat
Slope (%): 3-5% Lat.: 46.357599 Long.: -90.683889 Datum: WGS 1984
Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation X, soil X, or hydrology X significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ___, soil ___, or hydrology ___ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Upland data point taken within unmaintained road right-of-way between WASV025 and WASV026; indicative of non-farmed uplands in the surrounding area.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

Remarks:
No hydrology indicators observed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV025/26_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Tsuga canadensis*	15	Y	FACU
2	*Populus tremuloides*	3	N	FAC
3	*Prunus serotina*	1	N	FACU
4				
5				
6				
7				
8				
9				
10				
		19	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Populus tremuloides*	1		FAC
2				
3				
4				
5				
6				
7				
8				
9				
10				
		1	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Pteridium aquilinum*	86	Y	FACU
2	*Rubus idaeus*	15	N	FAC
3	*Onoclea sensibilis*	3	N	FACW
4	*Asclepias syriaca*	3	N	UPL
5	*Abies balsamea*	3	N	FAC
6	*Symphyotrichum lateriflorum*	3	N	FAC
7	*Equisetum pratense*	3	N	FACW
8				
9				
10				
11				
12				
13				
14				
15				
		116	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	4	10
Sapling/Shrub Stratum	0	1
Herb Stratum	23	58
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	6	x 2 =	12	
FAC species	25	x 3 =	75	
FACU species	102	x 4 =	408	
UPL species	3	x 5 =	15	
Column totals	136	(A)	510	(B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV025/26_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-4	10YR 4/3	100					Silt loam	
4-12	10YR 4/3	95	10YR 4/6	5	C	M	Silt loam	
12-14	10YR 5/2	90	10YR 4/3	8	C	M	Silt loam	
			10YR 4/6	2	C	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
No indicators of hydric soil observed.

Photograph 1: WASV025/026_U, West

Photograph 2: WASV025/026_U, East

Photograph 3: WASV025/026_U, South

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV025**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/24/2019
Location: PLSS: 45N03W Lat: 46.357672 Long: -90.684075 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS14, Headwaters Bad River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.068 acres / Wetland Area Impacted: 0.068 acres
Hydrology: Receiving surface water runoff from surrounding landscape. Wetland was partially planted with corn, although little to no corn is growing.	Vegetation: Plant Community Description(s): Partially farmed wetland: *Zea mays* Unfarmed wetland: *Scirpus cyperinus, Phalaris arundinacea, Onoclea sensibilis*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	N	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	N	N	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	N	N	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	Y	Y	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

WQ: Wetland is partially farmed.
ST & WQ: Wetland is capturing surface water runoff from active agricultural field.
WH10, FA2, FA4: No standing water at time of survey and wetland does not appear to hold water for long periods of time.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Deer tracks
	X	Songbirds

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Zea mays*	corn	0	PEM	partially farmed
Lolium perenne	English rye grass, perennial rye grass	0	PEM	
Hypericum majus	larger Canadian St. John's-wort	5	PEM	
Carex stipata	common fox sedge, owl-fruit sedge	2	PEM	
Panicum virgatum	switch grass	4	PEM	
Persicaria hydropiper	marsh-pepper smartweed, water-pepper	0	PEM	
Echinochloa muricate	barnyard grass, cockspur grass, rough barnyard grass	1	PEM	
Polygonum aviculare	common knotweed, prostrate knotweed	0	PEM	
Glyceria maxima	reed manna grass	0	PEM	
Cyperus esculentus	field nut sedge, flat sedge, yellow nut sedge	0	PEM	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PEM	
**Phalaris arundinacea*	reed canary grass	0	PEM	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	
Onoclea sensibilis	sensitive fern	5	PEM	
Epilobium coloratum	cinnamon willow-herb, eastern willow-herb	3	PEM	
Solidago gigantea	giant goldenrod	3	PEM	
Scirpus cyperinus	wool-grass	4	PEM	
Scirpus atrovirens	dark-green bulrush		PEM	
Rubus idaeus	American red raspberry		PEM	
Festuca rubra	red fescue		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Wetland partially farmed, canary reed grass is dominant.
FQI=8.2, Mean C of C=2.0

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		M	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
X	X		M	UC	Polluted runoff
					Pond construction
X	X		H	C	Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
	X		L	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		H	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		H	C	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Wetland partially farmed. A road is approximately 150 feet away. *Phalaris* dominates unfarmed portion of wetland.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	X				
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage	X				
Water Quality Protection		X			
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	A portion of the wetland was plowed and planted with corn. Other portion of the wetland is dominated by an invasive exotic species.
Human Use Values	Agricultural use of wetland precludes human recreation use.
Wildlife Habitat	Wetland provides some habitat for deer and potentially songbirds.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey and little evidence that the wetland can hold standing water.
Shoreline Protection	N/A
Flood and Stormwater Storage	Limited capacity for water storage due in part to agricultural use of wetland.
Water Quality Protection	Wetland receives surface water inputs from agricultural field.
Groundwater Processes	No observed evidence of a groundwater component to the hydrology. It appears to be surface water driven, receiving surface water runoff from adjacent agricultural field.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/23/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV024s_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 0-2% Lat.: 46.35712 Long.: -90.68447 Datum: WGS 1984
Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in PSS component of wetland WASV024. Wetland is surrounded by a corn field. Hydrology driven by surface water runoff from agricultural field and nearby access road.

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	____	No	X	Depth (inches):	____
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV024s_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Salix bebbiana*	38	Y	FACW
2	*Salix discolor*	38	Y	FACW
3	*Cornus alternifolia*	10	N	FACU
4				
5				
6				
7				
8				
9				
10				
		86	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Onoclea sensibilis*	85	Y	FACW
2	*Scirpus atrovirens*	10	N	OBL
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		95	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV024s_W	0	0
Sapling/Shrub Stratum	17	43
Herb Stratum	19	48
Woody Vine Stratum	0	0

None

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	10	x 1 =	10
FACW species	161	x 2 =	322
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column totals	181 (A)		372 (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Dominance Test and Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV024s_W

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-6	10YR 3/2	100					Silt loam	
6-10	10YR 4/2	98	10YR 4/6	2	C	M	Silt loam	
10-14	10YR 4/2	80	10YR 6/2	18	C	M	Silt loam	
10-14			10YR 4/6	2	C	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Indicator Depleted Matrix (F3) is present; parameter is met.

Photograph 1: WASV024s_W, West

Photograph 2: WASV024s_W, North

Photograph 3: WASV024s_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/23/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV024e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 0-2% Lat.: 46.35727 Long.: -90.68447 Datum: WGS 1984
Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in PEM component of WASV024. Wetland is surrounded by a corn field. Hydrology driven by surface water runoff from agricultural field and nearby access road.

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X 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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV024e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Scirpus atrovirens*	85	Y	OBL
2	*Persicaria sagittata*	10	N	OBL
3	*Typha X glauca*	10	N	OBL
4	*Salix bebbiana*	3	N	FACW
5	*Salix discolor*	3	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		111	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	22	56
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	105	x 1 =	105	
FACW species	6	x 2 =	12	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	111	(A)	117	(B)

Prevalence Index = B/A = 1.05

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Dominance Test and Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV024e_W

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-3	10YR 4/2	100					Silt loam	
3-10	10YR 4/2	95	10YR 4/6	5	C	M	Silt loam	
10-16	10YR 4/2	75	10YR 6/2	20	C	M	Silt loam	
10-16			10YR 4/6	5	C	M		
16-18+	10YR 6/2	95	10YR 4/6	5	C	M	Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Indicator Depleted Matrix (F3) is present; parameter is met.

Photograph 1: WASV024e_W, West

Photograph 2: WASV024e_W, North

Photograph 3: WASV024e_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/23/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV024_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 3-5% Lat.: 46.35707 Long.: -90.68433 Datum: WGS 1984
Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation X, soil X, or hydrology ___ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ___, soil ___, or hydrology ___ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in active cornfield adjacent to WASV023. Virtual monoculture of corn planted and soils regularly tilled.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:

Subsurface hydrologic conditions not observed in order to avoid damage to crops.

VEGETATION - Use scientific names of plants

Sampling Point: WASV024_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		0	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	0	0
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 0 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	0	(A)	0	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Zea mays subsp. *mays* (UPL) cover at 96%, no other vegetation

SOIL **Sampling Point:** WASV024_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
No soils taken to avoid damage to crops. Soils assumed to be non-hydric due to lack of hydrology indicators and hydrophytes.

Photograph 1: WASV024_U, East

Photograph 2: WASV024_U, North

Photograph 3: WASV024_U, South

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV024**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/23/19
Location: PLSS: 45N03W Lat: 46.35711 Long: -90.68447 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS14, Headwaters Bad River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.398 acres / Wetland Area Impacted: 0.398 acres
Hydrology: Wetland captures surface water runoff from agriculture field and adjacent road. Depressional wetland, 0-3% slope; algal mats, saturated at surface.	Vegetation: Plant Community Description(s): PEM: *Scirpus cyperinus, Onoclea sensibilis, Juncus effusus* PSS: *Salix discolor, Salix bebbiana*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	Y	Y	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	N	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	Y	Y	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

ST1: Depressional, basin wetland with no obvious drainage outlet that receives water from surrounding landscape.
WH10, FA2: No standing water at time of survey, but the wetland has the potential to hold water during wetter seasons.
WQ7: Wetland receives major hydrology inputs from adjacent agricultural corn field.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Deer trails, scat, tracks
	X	Songbirds

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	No signs of fish or other aquatic life. No standing water in wetland at the time of this survey, but the wetland has the potential to hold water during wetter seasons.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Salix bebbiana*	beaked willow, Bebb's willow	7	PSS	
**Salix discolor*	pussy willow	2	PSS	
**Onoclea sensibilis*	sensitive fern	5	PEM/PSS	
Scirpus cyperinus	wool-grass	4	PEM/PSS	
Scirpus pedicellatus	stalked wool-grass	6	PEM	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PEM	
Phalaris arundinacea	reed canary grass	0	PEM	
Typha latifolia	broad-leaved cat-tail, common cat-tail	1	PEM	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	
Persicaria sagittata	arrow-leaved tearthumb, arrow vine	6	PEM	
Carex intumescens	greater bladder sedge, shining bur sedge	5	PEM/PSS	
Carex crinata	fringed sedge	6	PEM/PSS	
Cornus alternifolia	pagoda dogwood		PSS	
**Scirpus atrovirens*	dark-green bulrush		PEM/PSS	
Typha X glauca	hybrid cattail		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Relatively high incidence of invasive exotic plant species, but high diversity of native wetland flora.
PEM FQI=12.6, Mean C of C = 4.0
PSS FQI=11.8, Mean C of C = 4.8

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		M	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
X	X		M	UC	Polluted runoff
					Pond construction
X	X		M	C	Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X	X	M	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		M	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
X	X		M	UC	Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Wetland bound on the south by road and on other sides by agriculture field. Agriculture field increases sediment and nutrient load of runoff water received by wetland.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	X				
Human Use Values	X				
Wildlife Habitat		X			
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Diverse assemblage of native flora. Strata are missing from some areas, and a relatively high incidence of invasive exotic plant species are present in the wetland.
Human Use Values	Small wetland size and surrounding land use (active row crops) limits the wetland's utility for human recreation.
Wildlife Habitat	Heavy use of wetland by deer. Wetland may also provide habitat for other wildlife, e.g., small mammals, songbirds, etc.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey, but it is possible that the wetland could hold water for periods of time during wetter seasons.
Shoreline Protection	N/A
Flood and Stormwater Storage	Depressional, basin wetland with water storage potential.
Water Quality Protection	Receives runoff from agriculture field and road. Can provide adequate treatment during normal precipitation events but may be overloaded by sediment and nutrients during heavy rain events.
Groundwater Processes	No sign of groundwater component to hydrology. The wetland hydrology is primarily driven by surface water runoff to wetland.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/24/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV026s_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 1-2% Lat.: 46.356894 Long.: -90.683625 Datum: WGS 1984
Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes NWI Classification: PEM1C
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point taken in PSS wetland with some larger open areas intermixed. Wetland receives hydrology from road and agricultural field.

HYDROLOGY

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)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

Remarks:
Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV026s_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Salix discolor*	98	Y	FACW
2				
3				
4				
5				
6				
7				
8				
9				
10				
		98	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Scirpus cyperinus*	38	Y	OBL
2	*Salix discolor*	3	N	FACW
3	*Onoclea sensibilis*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		44	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	20	49
Herb Stratum	9	22
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	38	x 1 =	38	
FACW species	104	x 2 =	208	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	142	(A)	246	(B)

Prevalence Index = B/A = 1.73

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV026s_W

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-3	7.5YR 3/2	100					Silt loam	
3-18	7.5YR 4/4	90	7.5YR 3/2	8	C	M	Silt loam	
			7.5YR 5/8	2	C	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
X Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Indicator Red Parent Material (F21) is present; parameter is met.

Photograph 1: WASV026s_W, East

Photograph 2: WASV026s_W, North

Photograph 3: WASV026s_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/24/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV025/26_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Upland road Local relief (concave, convex, none): Flat
Slope (%): 3-5% Lat.: 46.357599 Long.: -90.683889 Datum: WGS 1984
Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation X, soil X, or hydrology X significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ___, soil ___, or hydrology ___ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Upland data point taken within unmaintained road right-of-way between WASV025 and WASV026; indicative of non-farmed uplands in the surrounding area.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

Remarks:
No hydrology indicators observed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV025/26_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Tsuga canadensis*	15	Y	FACU
2	*Populus tremuloides*	3	N	FAC
3	*Prunus serotina*	1	N	FACU
4				
5				
6				
7				
8				
9				
10				
		19	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Populus tremuloides*	1		FAC
2				
3				
4				
5				
6				
7				
8				
9				
10				
		1	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Pteridium aquilinum*	86	Y	FACU
2	*Rubus idaeus*	15	N	FAC
3	*Onoclea sensibilis*	3	N	FACW
4	*Asclepias syriaca*	3	N	UPL
5	*Abies balsamea*	3	N	FAC
6	*Symphyotrichum lateriflorum*	3	N	FAC
7	*Equisetum pratense*	3	N	FACW
8				
9				
10				
11				
12				
13				
14				
15				
		116	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	4	10
Sapling/Shrub Stratum	0	1
Herb Stratum	23	58
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	6	x 2 =	12	
FAC species	25	x 3 =	75	
FACU species	102	x 4 =	408	
UPL species	3	x 5 =	15	
Column totals	136	(A)	510	(B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV025/26_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-4	10YR 4/3	100					Silt loam	
4-12	10YR 4/3	95	10YR 4/6	5	C	M	Silt loam	
12-14	10YR 5/2	90	10YR 4/3	8	C	M	Silt loam	
			10YR 4/6	2	C	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
No indicators of hydric soil observed.

Photograph 1: WASV025/026_U, West

Photograph 2: WASV025/026_U, East

Photograph 3: WASV025/026_U, South

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV026**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/24/2019
Location: PLSS: 45N03W Lat: 46.357013 Long: -90.683463 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS14, Headwaters Bad River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.781 acres / Wetland Area Impacted: 0.781 acres
Hydrology: Portion of wetland is mapped as PEM in NWI. Wetland collects surface water from surrounding landscape and exhibits signs of a groundwater component to the hydrology. Saturated at surface; oxidized rhizospheres; 0-2% slopes	Vegetation: Plant Community Description(s): PSS *Salix bebbiana, Scirpus cyperinus, Onoclea sensibilis*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	Y	Y	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	N	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	Y	Y	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	Y	Y	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
WH2: Herbaceous and shrub layer dominant with a few scattered trees throughout.
WH6: There are PFO components mixed with PSS components. Some trees and saplings present, but not dominant.
WH10, FA2, FA4: No standing water at time of survey, but potential to hold water in microtopography during wetter seasons.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Deer tracks; evidence of deer browsing on plants
	X	Songbirds

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	No standing water at time of survey. Microtopography suggests the wetland is inundated during wetter seasons.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Scirpus cyperinus*	wool-grass	4	PSS	Dominant
Panicum virgatum	switch grass	4	PSS	
Solidago gigantea	giant goldenrod	3	PSS	
Epilobium coloratum	cinnamon willow-herb, eastern willow-herb	3	PSS	
Onoclea sensibilis	sensitive fern	5	PSS	Dominant
Symphyotrichum lateriflorum	side-flowering aster	3	PSS	
Acer saccharum	hard maple, sugar maple	5	PSS	
Carex suberecta	prairie straw sedge, wedge-fruited oval sedge	8	PSS	
Fragaria virginiana	thick-leaved wild strawberry, Virginia strawberry	1	PSS	
Salix bebbiana	beaked willow, Bebb's willow	7	PSS	Dominant
**Salix discolor*	pussy willow	2	PSS	Dominant
Populus tremuloides	aspen, quaking aspen	2	PSS	
Rubus occidentalis	black-cap, black raspberry	2	PSS	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PSS	
Equisetum pratense	meadow horsetail	9	PSS	
Cornus sericea	red osier dogwood	3	PSS	
Dryopteris cristata	crested shield fern, crested wood fern	7	PSS	
Betula alleghaniensis	yellow birch	7	PSS	
Scirpus pedicellatus	stalked wool-grass	6	PSS	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Diverse community of native wetland plant species.
FQI=19.5, Mean C of C=4.5

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
X	X		L	UC	Drainage – tiles, ditches
X	X		L	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
X	X		L	UC	Polluted runoff
					Pond construction
X	X		M	C	Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		M	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Small ditch drains wetland and connects to a downstream wetland feature.
Wetland receives surface runoff from road and adjacent corn field.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat		X			
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes		X			

FUNCTION	RATIONALE
Floristic Integrity	Wetland has good assemblage of common native wetland plant species.
Human Use Values	The wetland is barely visible from the road, and it is not accessible to the public (located on private property).
Wildlife Habitat	Wetland provides habitat for deer and potentially songbirds. Signs of deer throughout wetland.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at the time of this survey, but the wetland has potential to hold water in wetter seasons.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland has the capacity to capture and store surface water run-off from storm events.
Water Quality Protection	Wetland is primarily receiving surface water runoff inputs from corn field and road.
Groundwater Processes	Observed hydrology indicators included saturation at the ground surface and oxidized rhizospheres, both of which indicate a groundwater component to the hydrology. Wetland is located near headwaters in a natural landscape.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/5/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV064e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 0-3% Lat.: 46.356532 Long.: -90.682326 Datum: WGS 1984
Soil Map Unit Name Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation _____, soil _____, or hydrology _____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in a roadside drainage feature. Wetland is connected to WASV065e via culvert underneath access road.

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met. Rainfall during data collection. Subsurface indicators were not observed due to the potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV064e_W

Tree Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Onoclea sensibilis*	15	Y	FACW
2	*Symphyotrichum lateriflorum*	15	Y	FAC
3	*Clematis virginiana*	3	N	FAC
4	*Solidago gigantea*	3	N	FACW
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		36	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV064e_W	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	7	18
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	18	x 2 =	36	
FAC species	18	x 3 =	54	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	36	(A)	90	(B)

Prevalence Index = B/A = 2.50

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Dominance Test indicator present; parameter is met. Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV064e_W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:

No soils were sampled due to the potential for underground utilities. It was assumed soils were hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV064e_W, East

Photograph 2: WASV064e_W, South

Photograph 3: WASV064e_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/7/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV064/065_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex
Slope (%): 0-3% Lat.: 46.356412 Long.: -90.682229 Datum: WGS 1984
Soil Map Unit Name Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Upland data point located in horse pasture adjacent to roadside drainage features WASV064 and WASV065.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:
No indicators of wetland hydrology are present; parameter is not met. Subsurface hydrologic conditions were not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV064/065_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Festuca rubra*	63	Y	FACU
2	*Plantago major*	15	N	FACU
3	*Ranunculus acris*	5	N	FAC
4	*Trifolium pratense*	3	N	FACU
5	*Prunella vulgaris*	1	N	FAC
6	*Lotus corniculatus*	1	N	FACU
7	*Symphyotrichum lateriflorum*	1	N	FAC
8				
9				
10				
11				
12				
13				
14				
15				
		89	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV063e_W	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	18	45
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	7	x 3 =	21	
FACU species	82	x 4 =	328	
UPL species	0	x 5 =	0	
Column totals	89	(A)	349	(B)

Prevalence Index = B/A = 3.92

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation indicators present; parameter is not met.

SOIL **Sampling Point:** WASV064/065_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be non-hydric due to absence of hydrology indicators and dominance of upland vegetation.

Photograph 1: WASV064/065_U, East

Photograph 2: WASV064/065_U, South

Photograph 3: WASV064/065_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV064**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/5/2019
Location: PLSS: 45N03W Lat: 46.356538 Long: -90.68231 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes Field Verified: Soils were not investigated due to the potential for underground utilities.	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.007 acres / Wetland Area Impacted: 0.007 acres Vegetation: Plant Community Description(s): PEM: *Onoclea sensibilis*, *Symphyotrichum lateriflorum*, *Clematis virginiana*
Hydrology: PEM wetlands are located in two roadside drainage features that are connected via culvert underneath an access road. Hydrologic indicators: Saturation, Drainage Patterns, FAC-Neutral Test.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh, shrub/emergent, wetland/upland complex, etc.)
7	N	N	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	N	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	N	N	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	Y	Y	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
FA2, FA4 - Wetland is a roadside drainage feature that will hold water. No standing water at time of survey; unclear if water would stay for significant durations during wetter seasons.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
		No wildlife habitat is present in this roadside drainage feature

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	No standing water at time of survey; could potentially hold water during wetter seasons.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Betula alleghaniensis	yellow birch	7	PEM	
**Onoclea sensibilis*	sensitive fern	5	PEM	
**Symphyotrichum lateriflorum*	side-flowering aster	3	PEM	
Clematis virginiana	devil's-darning-needle, virgin's-bower	4	PEM	
Solidago gigantea	giant goldenrod	3	PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

PEM FQI = 7.5, Mean C of C = 3.8

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
X			H	C	Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
	X		M	UC	Polluted runoff
					Pond construction
	X		M	C	Agriculture – row crops
					Agriculture – hay
	X		M	C	Agriculture – pasture
	X		H	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
	X		L	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		M	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
PEM wetland is a roadside drainage feature that receives runoff from road and surrounding farms/pastures during rain events. Any pollution from the road flows into this wetland.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	X				
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Tree and shrub strata are missing in wetland and diversity is low.
Human Use Values	Wetland too small to support human use recreational use.
Wildlife Habitat	Roadside drainage feature does not provide habitat for wildlife.
Fish and Aquatic Life Habitat	No standing water at time of survey, potential for some standing water at wetter times of year, although duration of time that water would be held is unclear.
Shoreline Protection	N/A
Flood and Stormwater Storage	Captures stormwater runoff from the road and surrounding agricultural landscape.
Water Quality Protection	Some pollutants expected from roadway and pasture and cornfields.
Groundwater Processes	No signs of groundwater processes observed. Subsurface indicators of hydrology were not investigated due to the potential for underground utilities.

Additional Plant list

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/5/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV065e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 0-3% Lat.: 46.356532 Long.: -90.682004 Datum: WGS 1984
Soil Map Unit Name Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in a roadside drainage feature. Wetland is connected to WASV064e via culvert underneath access road.

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met. Rainfall during data collection. Subsurface indicators were not observed due to the potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV065e_W

Tree Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Phalaris arundinacea*	63	Y	FACW
2	*Impatiens capensis*	15	N	FACW
3	*Onoclea sensibilis*	3	N	FACW
4	*Equisetum sylvaticum*	3	N	FACW
5	*Symphyotrichum lateriflorum*	3	N	FAC
6	*Clematis virginiana*	1	N	FAC
7				
8				
9				
10				
11				
12				
13				
14				
15				
		88	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV063e_W	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	18	44
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	84	x 2 =	168	
FAC species	4	x 3 =	12	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	88	(A)	180	(B)

Prevalence Index = B/A = 2.05

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Rapid Test indicator present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV065e_W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:

No soils were sampled due to the potential for underground utilities. It was assumed soils were hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV065e_W, East

Photograph 2: WASV065e_W, South

Photograph 3: WASV065e_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/7/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV064/065_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex
Slope (%): 0-3% Lat.: 46.356412 Long.: -90.682229 Datum: WGS 1984
Soil Map Unit Name Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Upland data point located in horse pasture adjacent to roadside drainage features WASV064 and WASV065.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:
No indicators of wetland hydrology are present; parameter is not met. Subsurface hydrologic conditions were not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV064/065_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Festuca rubra*	63	Y	FACU
2	*Plantago major*	15	N	FACU
3	*Ranunculus acris*	5	N	FAC
4	*Trifolium pratense*	3	N	FACU
5	*Prunella vulgaris*	1	N	FAC
6	*Lotus corniculatus*	1	N	FACU
7	*Symphyotrichum lateriflorum*	1	N	FAC
8				
9				
10				
11				
12				
13				
14				
15				
		89	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV063e_W	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	18	45
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	7	x 3 =	21	
FACU species	82	x 4 =	328	
UPL species	0	x 5 =	0	
Column totals	89	(A)	349	(B)

Prevalence Index = B/A = 3.92

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation indicators present; parameter is not met.

SOIL **Sampling Point:** WASV064/065_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be non-hydric due to absence of hydrology indicators and dominance of upland vegetation.

Photograph 1: WASV064/065_U, East

Photograph 2: WASV064/065_U, South

Photograph 3: WASV064/065_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV065**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/5/2019
Location: PLSS: 45N03W Lat: 46.356538 Long: -90.68231 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes Field Verified: Soils were not investigated due to the potential for underground utilities.	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.017 acres / Wetland Area Impacted: 0.017 acres Vegetation: Plant Community Description(s): PEM: *Onoclea sensibilis*, *Symphyotrichum lateriflorum*, *Clematis virginiana*
Hydrology: PEM wetlands are located in two roadside drainage features that are connected via culvert underneath an access road. Hydrologic indicators: Saturation, Drainage Patterns, FAC-Neutral Test.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh, shrub/emergent, wetland/upland complex, etc.)
7	N	N	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	N	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	N	N	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	Y	Y	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
FA2, FA4 - Wetland is a roadside drainage feature that will hold water. No standing water at time of survey; unclear if water would stay for significant durations during wetter seasons.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
		No wildlife habitat is present in this roadside drainage feature

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	No standing water at time of survey; could potentially hold water during wetter seasons.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Betula alleghaniensis	yellow birch	7	PEM	
Onoclea sensibilis	sensitive fern	5	PEM	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	
Clematis virginiana	devil's-darning-needle, virgin's-bower	4	PEM	
Solidago gigantea	giant goldenrod	3	PEM	
**Phalaris arundinacea*	reed canary grass		PEM	
Impatiens capensis	spotted touch-me-not		PEM	
Equisetum sylvaticum	wood horsetail		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

PEM FQI = 7.5, Mean C of C = 3.8

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
X			H	C	Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
	X		M	UC	Polluted runoff
					Pond construction
	X		M	C	Agriculture – row crops
					Agriculture – hay
	X		M	C	Agriculture – pasture
	X		H	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
	X		L	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		M	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
PEM wetland is a roadside drainage feature that receives runoff from road and surrounding farms/pastures during rain events. Any pollution from the road flows into this wetland.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	X				
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Tree and shrub strata are missing in wetland and diversity is low.
Human Use Values	Wetland too small to support human use recreational use.
Wildlife Habitat	Roadside drainage feature does not provide habitat for wildlife.
Fish and Aquatic Life Habitat	No standing water at time of survey, potential for some standing water at wetter times of year, although duration of time that water would be held is unclear.
Shoreline Protection	N/A
Flood and Stormwater Storage	Captures stormwater runoff from the road and surrounding agricultural landscape.
Water Quality Protection	Some pollutants expected from roadway and pasture and cornfields.
Groundwater Processes	No signs of groundwater processes observed. Subsurface indicators of hydrology were not investigated due to the potential for underground utilities.

Additional Plant list

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/5/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV062f_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave
Slope (%): 5-15% Lat.: 46.355242 Long.: -90.682936 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in PFO wetland adjacent to stream SASV020p. Portions of wetland acting as floodplain to stream.

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	X	No	____	Depth (inches): 1
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met. Rainfall during data collection.

VEGETATION - Use scientific names of plants

Sampling Point: WASV062f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	38	Y	FAC
2	*Fraxinus nigra*	38	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		76	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Betula alleghaniensis*	38	Y	FAC
3	*Acer saccharum*	15	N	FACU
4				
5				
6				
7				
8				
9				
10				
		91	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Scirpus hattorianus*	63	Y	OBL
2	*Symphyotrichum lateriflorum*	15	N	FAC
3	*Equisetum sylvaticum*	15	N	FACW
4	*Dirca palustris*	3	N	FAC
5	*Rubus idaeus*	3	N	FAC
6	*Mitchella repens*	3	N	FACU
7	*Equisetum arvense*	3	N	FAC
8	*Glyceria striata*	3	N	OBL
9				
10				
11				
12				
13				
14				
15				
		108	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	15	38
Sapling/Shrub Stratum	18	46
Herb Stratum	22	54
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	66	x 1 =	66	
FACW species	91	x 2 =	182	
FAC species	100	x 3 =	300	
FACU species	18	x 4 =	72	
UPL species	0	x 5 =	0	
Column totals	275	(A)	620	(B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Rapid Test indicator present; parameter is met. Dominance Test and Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV062f_W

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-10	7.5YR 3/1	80	5YR 5/6	20	C	PL/M	Silt Loam	
10-15	7.5YR 3/1	100					Silt Loam	
15+								Refusal due to rock

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: Rock
Depth (inches): 15

Hydric soil present? Y

Remarks:
Indicator Redox Dark Surface (F6) is present; parameter is met. Auger refusal at 15 inches due to rock.

Photograph 1: WASV062f_W, East

Photograph 2: WASV062f_W, North

Photograph 3: WASV062f_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/5/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV062e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 0-3% Lat.: 46.353059 Long.: -90.682369 Datum: WGS 1984
Soil Map Unit Name Tula-Wormet-Gogebic complex, 0-6% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation X, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in PEM component of larger wetland complex. Stream SASV020p dissipates into PEM portion of wetland located in a horse pasture. Wetland was historically connected to WASV063, but it is now only connected via culvert underneath an access road. It was raining at the time of survey.

HYDROLOGY

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	X	No	____	Depth (inches):	1
Water table present?	Yes	X	No	____	Depth (inches):	surface
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met. Note: Rainfall during data collection. Subsurface indicators of wetland hydrology were not observed due to the potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV062e_W

Tree Stratum	Plot Size (30' X 50')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' X 50')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Glyceria maxima*	85	Y	OBL
2	*Myosotis scorpioides*	15	N	OBL
3	*Lycopus americanus*	3	N	OBL
4	*Juncus effusus*	3	N	OBL
5	*Impatiens capensis*	1	N	FACW
6	*Ranunculus acris*	1	N	FAC
7				
8				
9				
10				
11				
12				
13				
14				
15				
		108	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	22	54
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	106	x 1 =	106	
FACW species	1	x 2 =	2	
FAC species	1	x 3 =	3	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	108	(A)	111	(B)

Prevalence Index = B/A = 1.03

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Rapid Test indicator present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV062e_W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:

No soils were sampled due to the potential for underground utilities. It was assumed soils were hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV062e_W, East

Photograph 2: WASV062e_W, South

Photograph 3: WASV062e_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/5/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV061/62/63_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 5-8% Lat.: 46.353222 Long.: -90.682413 Datum: WGS 1984
Soil Map Unit Name Tula-Wormet-Gogebic complex, 0-6% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in horse pasture on hillslope. Point representative of upland conditions for WASV061, WASV062, and WASV063.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:

No indicators of wetland hydrology are present; parameter is not met. Heavy rainfall on the day of data collection. Episaturation observed. Present due to rainfall, but dry at 4 inches of depth.

VEGETATION - Use scientific names of plants

Sampling Point: WASV061/62/63_U

Tree Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Trifolium pratense*	63	Y	FACU
2	*Plantago lanceolata*	38	Y	FACU
3	*Asclepias syriaca*	3	N	UPL
4	*Agrostis perennans*	3	N	FACU
5	*Achillea millefolium*	3	N	FACU
6	*Symphyotrichum novae-angliae*	1	N	FACW
7	*Symphyotrichum lateriflorum*	1	N	FAC
8				
9				
10				
11				
12				
13				
14				
15				
		112	= Total Cover	

Woody Vine Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	22	56
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	1	x 2 =	2	
FAC species	1	x 3 =	3	
FACU species	107	x 4 =	428	
UPL species	3	x 5 =	15	
Column totals	112	(A)	448	(B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation indicators present; parameter is not met.

SOIL **Sampling Point:** WASV061/62/63_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	7.5YR 3/3	100					clay loam	
8-18	7.5YR 3/4	100					clay loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
No hydric soil indicators present and soil does not meet NTCHS definition of hydric soil; parameter is not met.

Photograph 1: WASV061/062/063_U, South

Photograph 2: WASV061/062/063_U, North

Photograph 3: WASV061/062/063_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV062**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/5/2019
Location: PLSS: 45N03W Lat: 46.355242 Long: -90.682936 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes; Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony; Gogebic-Pence complex, 18-35% slopes, very stony Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood swamp, Fresh (Wet) Meadow Wetland Size: 1.294 acres / Wetland Area Impacted: 1.294 acres
Hydrology: Wetlands is located in riparian area of SASV020p. Hydrology indicators: surface water (1-inch), high water table, saturated soils, drainage patterns, geomorphic position, and FAC-Neutral test. PEM portion of wetland located in pastureland with same hydrologic characteristics.	Vegetation: Plant Community Description(s): PEM: *Glyceria maxima*, *Juncus effusus*, *Myosotis scorpioides* PFO: *Betula alleghaniensis*, *Fraxinus nigra*, *Scirpus hattorianus*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	Y	Y	In or adjacent to RED FLAG areas List: Krause Creek (Class I Trout)
6	N	Y	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh, shrub/emergent, wetland/upland complex, etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	Y	Y	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	Y	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	Y	Stormwater or surface water from agricultural land is major hydrology source
8	Y	Y	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
WH4 – Buffer is impacted by horse pasture to the north, south and east, but unimpacted elsewhere
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	X	Songbirds
	X	Area sensitive species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	Standing water has potential to support aquatic invertebrates. Water in stream has potential to support fish.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Betula alleghaniensis	yellow birch	7	PFO	
Fraxinus nigra	black ash	8	PFO	
Acer saccharum	hard maple, sugar maple	5	PFO	
Scirpus hattorianus	early dark-green bulrush, mosquito bulrush	3	PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO	
Dirca palustris	eastern leatherwood, rope-bark	9	PFO	
Rubus idaeus	wild red raspberry	3	PFO	
Mitchella repens	partridgeberry	6	PFO	
Equisetum arvense	common horsetail, field horsetail	1	PFO	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PFO	
Juncus effusus	common rush, soft rush	4	PEM/PFO	
Lycopus americanus	American water-horehound, common water-horehound	4	PEM	
Ranunculus acris	common buttercup, blister plant, meadow buttercup,	0	PEM	
Myosotis scorpioides	common forget-me-not, forget-me-not	0	PEM	
Impatiens capensis	orange jewelweed, orange touch-me-not	2	PEM	
**Glyceria maxima*	great mannagrass, weed mannagrass		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

PEM FQI = 4.1, Mean C of C = 1.7	Tree strata missing within PEM wetland and an increase in exotic species present.
PFO FQI = 16.9, Mean C of C = 5.1	

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
X	X		M	C	Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
PEM is in active horse pasture. Active horse pasture is also located within buffer of PFO wetland.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection		X			
Flood and Stormwater Storage	X				
Water Quality Protection		X			
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Ground composition of common native species; tree and shrub strata are missing in PEM wetland, which is located in active pastureland.
Human Use Values	Wetland is on private property, there are signs that the buffer area is used for hunting, but the wetland does not appear to be used for recreation.
Wildlife Habitat	Within tract of land containing a patchwork of human disturbances related to agricultural and residential uses.
Fish and Aquatic Life Habitat	1-inch of standing water at time of survey in PEM portion of wetland, potential for more at wetter times of year, but no evidence of aquatic life directly observed during survey. Stream that runs through center of study area likely holds fish and other aquatic life.
Shoreline Protection	Drains into SASV020p where it provides some shoreline protection, but there are signs of erosion throughout.
Flood and Stormwater Storage	Medium-sized wetland receives some run-off from surrounding area but would not hold large amounts of water during a storm.
Water Quality Protection	Some pollutants expected from horse pasture.
Groundwater Processes	Although saturation and standing water are present within the PEM portion of the wetland, this is not the majority condition. Stream dissipates into PEM portion of wetland.

Additional Plant list

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/5/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV063e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 0-3% Lat.: 46.355162 Long.: -90.68165 Datum: WGS 1984
Soil Map Unit Name Gogebic-Pence complex, 18-35% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in a PEM wetland that transitions into PSS just off-site. A stream originates at the PEM/PSS interface. Wetland is historically connected to WASV062 but is now only connected via culvert underneath an access road.

HYDROLOGY

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	X	No	____	Depth (inches):	1
Water table present?	Yes	X	No	____	Depth (inches):	surface
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met. Rainfall during data collection. Subsurface indicators were not observed due to he potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV063e_W

Tree Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Glyceria maxima*	85	Y	OBL
2	*Juncus effusus*	38	Y	OBL
3	*Lycopus americanus*	15	N	OBL
4	*Ranunculus acris*	3	N	FAC
5	*Lotus corniculatus*	3	N	FACU
6	*Bidens aristosa*	1	N	FACW
7	*Persicaria sagittata*	1	N	OBL
8				
9				
10				
11				
12				
13				
14				
15				
		146	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV063e_W	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	29	73
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	139	x 1 =	139
FACW species	1	x 2 =	2
FAC species	3	x 3 =	9
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column totals	146 (A)		162 (B)

Prevalence Index = B/A = 1.11

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Rapid Test indicator present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV063e_W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
No soils were sampled due to the potential for underground utilities. It was assumed soils were hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV063e_W, East

Photograph 2: WASV063e_W, North

Photograph 3: WASV063e_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/5/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV061/62/63_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 5-8% Lat.: 46.353222 Long.: -90.682413 Datum: WGS 1984
Soil Map Unit Name Tula-Wormet-Gogebic complex, 0-6% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in horse pasture on hillslope. Point representative of upland conditions for WASV061, WASV062, and WASV063.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:

No indicators of wetland hydrology are present; parameter is not met. Heavy rainfall on the day of data collection. Episaturation observed. Present due to rainfall, but dry at 4 inches of depth.

VEGETATION - Use scientific names of plants

Sampling Point: WASV061/62/63_U

Tree Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Trifolium pratense*	63	Y	FACU
2	*Plantago lanceolata*	38	Y	FACU
3	*Asclepias syriaca*	3	N	UPL
4	*Agrostis perennans*	3	N	FACU
5	*Achillea millefolium*	3	N	FACU
6	*Symphyotrichum novae-angliae*	1	N	FACW
7	*Symphyotrichum lateriflorum*	1	N	FAC
8				
9				
10				
11				
12				
13				
14				
15				
		112	= Total Cover	

Woody Vine Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	22	56
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	1	x 2 =	2	
FAC species	1	x 3 =	3	
FACU species	107	x 4 =	428	
UPL species	3	x 5 =	15	
Column totals	112	(A)	448	(B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation indicators present; parameter is not met.

SOIL **Sampling Point:** WASV061/62/63_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	7.5YR 3/3	100					clay loam	
8-18	7.5YR 3/4	100					clay loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
No hydric soil indicators present and soil does not meet NTCHS definition of hydric soil; parameter is not met.

Photograph 1: WASV061/062/063_U, South

Photograph 2: WASV061/062/063_U, North

Photograph 3: WASV061/062/063_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV063**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/5/2019
Location: PLSS: 45N03W Lat: 46.355119 Long: -90.681659 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Pence complex, 18-35% slopes, very stony Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.021 acres / Wetland Area Impacted: 0.021 acres Vegetation: Plant Community Description(s): PEM: *Glyceria maxima*, *Juncus effusus*, *Myosotis scorpioides*
Hydrology: Wetland is located in riparian area of SASV020p. Hydrology indicators: high water table, saturated soils, drainage patterns, geomorphic position, and FAC-Neutral test.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	Y	Y	In or adjacent to RED FLAG areas List: Krause Creek (Class I Trout)
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh, shrub/emergent, wetland/upland complex, etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	Y	Stormwater or surface water from agricultural land is major hydrology source
8	Y	Y	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
WH4 – Buffer is impacted by cattle pasture to the north, south and east, but unimpacted elsewhere
WQ4 – Wetland connects to a stream off-site, stream is likely intermittent.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	X	Songbirds
	X	Area sensitive species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	Standing water has potential to support aquatic invertebrates.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Glyceria striata	fowl manna grass, fowl meadow grass	4	PFO	
Juncus effusus	common rush, soft rush	4	PEM/PFO	
Lycopus americanus	American water-horehound, common water-horehound	4	PEM	
Ranunculus acris	common buttercup, blister plant, meadow buttercup,	0	PEM	
Lotus corniculatus	bird's-foot deer-vetch, bird's-foot trefoil	0	PEM	
Bidens aristosa	midwestern tickseed-sunflower, swamp marigold	2	PEM	
Persicaria sagittata	arrow-leaved tearthumb, arrow vine	6	PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

PEM FQI = 6.0, Mean C of C = 2.3

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
X	X		M	C	Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
PEM is in active horse pasture. Active horse pasture is also located within buffer of PFO wetland.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	X				
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage	X				
Water Quality Protection		X			
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Low diversity of common native species with non-native species intermixed; tree and sapling/shrub strata missing.
Human Use Values	Wetland is relatively small and located on private property within a horse pasture.
Wildlife Habitat	Wetland is relatively small and located within an active horse pasture.
Fish and Aquatic Life Habitat	1-inch of standing water at time of survey, potential for more at wetter times of year.
Shoreline Protection	A potentially intermittent stream connects to the wetland off-site and was not assessed.
Flood and Stormwater Storage	Medium-sized groundwater-driven wetland, receives some run-off from surrounding area but would not hold large amounts of water during a storm.
Water Quality Protection	Some pollutants expected from horse pasture.
Groundwater Processes	Saturation at surface and standing water observed. Wetland receiving surface water from adjacent WASV062 via a culvert.

Additional Plant list

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/5/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV061f_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.352881 Long.: -90.681725 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in a forested wetland draining southeast and connecting to Krause Creek (SASV019p). Other portions of wetland exhibiting drainage patterns.

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:
Primary and secondary indicators of wetland hydrology are present; parameter is met. Rainfall during data collection.

VEGETATION - Use scientific names of plants

Sampling Point: WASV061f_W

Tree Stratum (Plot Size: 30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Betula alleghaniensis*	15	Y	FAC
2 *Acer saccharum*	15	Y	FACU
3 *Ulmus americana*	3	N	FACW
4			
5			
6			
7			
8			
9			
10			
	33	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Salix bebbiana*	15	Y	FACW
2 *Betula alleghaniensis*	15	Y	FAC
3 *Acer rubrum*	3	N	FAC
4			
5			
6			
7			
8			
9			
10			
	33	= Total Cover	

Herb Stratum (Plot Size: 15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Matteuccia struthiopteris*	15	Y	FAC
2 *Glyceria striata*	15	Y	OBL
3 *Equisetum sylvaticum*	15	Y	FACW
4 *Rubus pubescens*	15	Y	FACW
5 *Dryopteris intermedia*	3	N	FAC
6 *Equisetum pratense*	3	N	FACW
7 *Cornus canadensis*	3	N	FAC
8 *Carex intumescens*	1	N	FACW
9 *Carex crinita*	1	N	OBL
10 *Athyrium filix-femina*	1	N	FAC
11			
12			
13			
14			
15			
	72	= Total Cover	

Woody Vine Stratum (Plot Size: 5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	7	17
Sapling/Shrub Stratum	7	17
Herb Stratum	14	36
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across: 8 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 87.50% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	16	x 1 =	16
FACW species	52	x 2 =	104
FAC species	55	x 3 =	165
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column totals	138 (A)		345 (B)

Prevalence Index = B/A = 2.50

Hydrophytic Vegetation Indicators:

- X Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Dominance Test indicator present; parameter is met. Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV061f_W

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-7	7.5YR 3/2	98	10YR 5/6	2	C	M	clay loam	
7-13	10YR 3/2	80	10YR 6/2	10	D	M	loamy clay	
7-13			10YR 4/6	10	C	M	loamy clay	
13-18	5YR 4/3	80	7.5YR 3/4	20	C	M	fine sandy loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ Redox Dark Surface (F6)
_X_ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
Indicators Redox Dark Surface (F6) and Depleted Dark Surface (F7) are present; parameter is met.

Photograph 1: WASV061f_W, Northeast

Photograph 2: WASV061f_W, Southeast

Photograph 3: WASV061f_W, Northwest

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/5/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV061e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 5-10% Lat.: 46.353059 Long.: -90.682369 Datum: WGS 1984
Soil Map Unit Name: Tula-Wormet-Gogebic complex, 0-6% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation X, soil ____, or hydrology ____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in horse pasture. PEM draining into the PFO portion of the complex. It was raining at the time of data collection.

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	____	No	X	Depth (inches):	____
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met. Rainfall during data collection.

VEGETATION - Use scientific names of plants

Sampling Point: WASV061e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Scirpus hattorianus*	63	Y	OBL
2	*Onoclea sensibilis*	15	N	FACW
3	*Symphyotrichum lateriflorum*	3	N	FAC
4	*Viola cucullata*	3	N	OBL
5	*Plantago major*	3	N	FACU
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		87	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	17	44
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	66	x 1 =	66	
FACW species	15	x 2 =	30	
FAC species	3	x 3 =	9	
FACU species	3	x 4 =	12	
UPL species	0	x 5 =	0	
Column totals	87	(A)	117	(B)

Prevalence Index = B/A = 1.34

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Rapid Test indicator present; paramater is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV061e_W

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-18	5YR 3/3	80	7.5YR 4/4	20	C	PL/M	loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
X Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Indicator Red Parent Material (F21) is present; parameter is met.

Photograph 1: WASV061e_W, North

Photograph 2: WASV061e_W, East

Photograph 3: WASV061e_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/5/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV061/62/63_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 5-8% Lat.: 46.353222 Long.: -90.682413 Datum: WGS 1984
Soil Map Unit Name Tula-Wormet-Gogebic complex, 0-6% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in horse pasture on hillslope adjacent to PEM portion of WASV061. Point representative of upland conditions for WASV061, WASV062, and WASV063.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:
No indicators of wetland hydrology are present; parameter is not met. Heavy rainfall on the day of data collection. Episaturation observed. Present due to rainfall, but dry at 4 inches of depth.

VEGETATION - Use scientific names of plants

Sampling Point: WASV061/62/63_U

Tree Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Trifolium pratense*	63	Y	FACU
2	*Plantago lanceolata*	38	Y	FACU
3	*Asclepias syriaca*	3	N	UPL
4	*Agrostis perennans*	3	N	FACU
5	*Achillea millefolium*	3	N	FACU
6	*Symphyotrichum novae-angliae*	1	N	FACW
7	*Symphyotrichum lateriflorum*	1	N	FAC
8				
9				
10				
11				
12				
13				
14				
15				
		112	= Total Cover	

Woody Vine Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	22	56
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	1	x 2 =	2	
FAC species	1	x 3 =	3	
FACU species	107	x 4 =	428	
UPL species	3	x 5 =	15	
Column totals	112	(A)	448	(B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation indicators present; parameter is not met.

SOIL **Sampling Point:** WASV061/62/63_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	7.5YR 3/3	100					clay loam	
8-18	7.5YR 3/4	100					clay loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
No hydric soil indicators present and soil does not meet NTCHS definition of hydric soil; parameter is not met.

Photograph 1: WASV061/062/063_U, South

Photograph 2: WASV061/062/063_U, North

Photograph 3: WASV061/062/063_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV061**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/3/2019
Location: PLSS: 45N03W Lat: 46.352881 Long: -90.681725 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River
SITE DESCRIPTION	
Soils: Mapped Type(s): Tula-Wormet-Gogebic complex, 0-6% slopes, very stony; Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood swamp, Fresh (Wet) Meadow Wetland Size: 0.926 acres / Wetland Area Impacted: 0.926 acres
Hydrology: PFO wetland drains southeast to Krause Creek (SASV019p). Hydrology indicators: saturated soils and FAC-Neutral test. PEM portion of wetland located in pastureland with same hydrologic characteristics.	Vegetation: Plant Community Description(s): PEM: *Scirpus hattorianus*, *Onoclea sensibilis*, *Symphyotrichum lateriflorum* PFO: *Betula alleghaniensis*, *Acer saccharum*, *Matteuccia struthiopteris*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	Y	Y	In or adjacent to RED FLAG areas List: Krause Creek (Class I Trout)
6	N	Y	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh, shrub/emergent, wetland/upland complex, etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	Y	Y	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	Y	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	Y	Y	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
WH4 – Buffer is impacted by cattle pasture to the north and west, but unimpacted elsewhere
WH10, FA2, FA4: No standing water at time of survey and wetland does not appear to hold water for long periods of time.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	X	Songbirds
	X	Area sensitive species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Scirpus hattorianus*	early dark-green bulrush, mosquito bulrush	3	PEM	
Onoclea sensibilis	sensitive fern	5	PEM	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	
Viola cucullata	blue marsh violet, hooded violet, marsh blue viole	7	PEM	
Plantago major	broad-leaved plantain, common plantain, plantain	0	PEM	
**Betula alleghaniensis*	yellow birch	7	PFO	
**Acer saccharum*	hard maple, sugar maple	5	PFO	
Ulmus americana	American elm, white elm	3	PFO	
**Salix bebbiana*	beaked willow, Bebb's willow	7	PFO	
Acer rubrum	red maple	3	PFO	
**Matteuccia struthiopteris*	American ostrich fern, ostrich fern	5	PFO	
**Glyceria striata*	fowl manna grass, fowl meadow grass	4	PFO	
**Equisetum sylvaticum*	wood horsetail, woodland horsetail	7	PFO	
**Rubus pubescens*	dwarf red raspberry	7	PFO	
Dryopteris intermedia	fancy wood fern, glandular wood fern, intermediate	7	PFO	
Equisetum pratense	meadow horsetail	9	PFO	
Cornus canadensis	bunchberry, bunchberry dogwood, dwarf cornel	7	PFO	
Carex intumescens	greater bladder sedge, shining bur sedge, swollen	5	PFO	
Carex crinita	fringed sedge	6	PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PFO	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

PEM FQI = 8.0, Mean C of C = 3.6	Tree and shrub/sapling layers are missing in the PEM area; increased number of exotic species as well.
PFO FQI = 22.5, Mean C of C = 5.8	

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
X	X		M	C	Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
PEM is in active horse pasture. Active pasture is located within buffer of PFO wetland.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat		X			
Fish and Aquatic Life Habitat	X				
Shoreline Protection	X				
Flood and Stormwater Storage	X				
Water Quality Protection	X				
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Ground composition of common native species; tree and shrub strata are missing in PEM wetland, which is located in an active horse pasture.
Human Use Values	Wetland is adjacent to a trout stream, but is located on private property and is adjacent to/within a horse pasture. This area is unlikely to be used for human recreation.
Wildlife Habitat	Within tract of forest containing a patchwork of human disturbances related to agricultural and residential uses, but adjacent to a Trout Stream.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey and little evidence that the wetland can hold standing water.
Shoreline Protection	Drains into Krause Creek where it provides minimal shoreline protection due to short span of stream reach wetland encompasses.
Flood and Stormwater Storage	Medium-sized groundwater-driven wetland, receives some run-off from surrounding area but would not hold large amounts of water during a storm.
Water Quality Protection	Some pollutants expected from horse pasture, but inputs otherwise minimal.
Groundwater Processes	None observed; surface water-driven wetland.

Additional Plant list

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/11/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV076f_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave
Slope (%): 2% Lat.: 46.351832 Long.: -90.680465 Datum: WGS 1984
Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in a PFO wetland adjacent to Krause Creek, which is intersected by a 10-foot wide old road bed.

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	X	No	____	Depth (inches):	surface
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met. Some pockets of inundation away from data point, but within wetland system.

VEGETATION - Use scientific names of plants

Sampling Point: WASV076f_W

Tree Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	63	Y	FAC
2	*Fraxinus nigra*	38	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		101	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Betula alleghaniensis*	15	Y	FAC
3				
4				
5				
6				
7				
8				
9				
10				
		53	= Total Cover	

Herb Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Rubus pubescens*	15	Y	FACW
2	*Equisetum sylvaticum*	15	Y	FACW
3	*Onoclea sensibilis*	15	Y	FACW
4	*Carex crinita*	15	Y	OBL
5	*Juncus effusus*	3	N	OBL
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		63	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV063e_W	20	51
Sapling/Shrub Stratum	11	27
Herb Stratum	13	32
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across 8 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	18	x 1 =	18
FACW species	121	x 2 =	242
FAC species	78	x 3 =	234
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	217 (A)		494 (B)

Prevalence Index = B/A = 2.28

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation
X Dominance test is >50%
X Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Rapid Test indicator present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV076f_W

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-4	7.5YR 2.5/1	100					Silt loam	Auger refusal at 4"

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- X Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: Rock
Depth (inches): 4"

Hydric soil present? Y

Remarks:

While not technically meeting depth requirement of a Histisol, soil presumed hydric due to saturation and accumulation of organic material; parameter is met.

Photograph 1: WASV076f_W, East

Photograph 2: WASV076f_W, South

Photograph 3: WASV076f_W, North

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/10/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV076/077_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave
Slope (%): 0-3% Lat.: 46.350872 Long.: -90.680821 Datum: WGS 1984
Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Upland point located in regenerating hardwood forest representative of uplands south of Krause Creek and related wetlands WASV076 and WASV077.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:

No indicators of wetland hydrology are present; parameter is not met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV076/077_U

Tree Stratum	Plot Size (10' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula papyrifera*	15	Y	FACU
2	*Abies balsamea*	15	Y	FAC
3	*Acer saccharum*	5	N	FACU
4	*Acer rubrum*	3	N	FAC
5	*Populus tremuloides*	3	N	FAC
6				
7				
8				
9				
10				
		41	= Total Cover	

Sapling/Shrub Stratum	Plot Size (10' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Corylus americana*	38	Y	FACU
2	*Acer saccharum*	15	Y	FACU
3	*Ostrya virginiana*	15	Y	FACU
4				
5				
6				
7				
8				
9				
10				
		68	= Total Cover	

Herb Stratum	Plot Size (10' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	86	Y	FACU
2	*Pteridium aquilinum*	15	N	FACU
3	*Abies balsamea*	5	N	FAC
4	*Carex pedunculata*	3	N	FACU
5	*Pyrola americana*	1	N	FAC
6	*Fraxinus pennsylvanica*	0.5	N	FACW
7				
8				
9				
10				
11				
12				
13				
14				
15				
		110.5	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV063e_W	8	21
Sapling/Shrub Stratum	14	34
Herb Stratum	22	55
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 16.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0.5	x 2 =	1	
FAC species	27	x 3 =	81	
FACU species	192	x 4 =	768	
UPL species	0	x 5 =	0	
Column totals	219.5	(A)	850	(B)

Prevalence Index = B/A = 3.87

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No indicators of hydrophytic vegetation present; parameter is not met.

SOIL **Sampling Point:** WASV076/077_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 3/3	100					Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: Rock
Depth (inches): 6"

Hydric soil present? N

Remarks:
No hydric soil indicators present; parameter is not met.

Photograph 1: WASV076/077_U, East

Photograph 2: WASV076/077_U, West

Photograph 3: WASV076/077_U, North

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV076**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/11/2019
Location: PLSS: 45N03W Lat: 46.311265 Long: -90.636009 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.543 acres / Wetland Area Impacted: 0.543 acres
Hydrology: Wetland located on hillslope and draining northwest toward stream SASV019p (Krause Creek). At toe-of-slope, wetland also serves as floodplain to Krause Creek. Oxbow of Krause Creek crosses through wetland; saturated at surface; water table at surface	Vegetation: Plant Community Description(s): PFO: *Betula alleghaniensis, Acer saccharum, Carex crinita*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	Y	Y	Used for recreation (hunting, birding, hiking, etc.). List: **birding**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	Y	Y	In or adjacent to RED FLAG areas List: Trout Stream
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	Y	Y	Wetland is connected or contiguous with perennial stream or lake
2	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	Y	Y	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	Y	Y	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
HU1 – Wetland is used for hunting, hunting stand observed at top of wetland.
WH4 – Dirt road within wetland buffer and another path along the streambank is present.
WH10 – Standing water within oxbow.
FA1 – Wetland is contiguous with Krause Creek.
ST2 & WQ3 – Oxbow is 5 feet wide x 4 feet deep and Krause Creek is 20 feet wide x 5 feet deep.
ST4 – Drift deposits along stream bank.
GW1 – Groundwater seeping to the surface along hillslope at top of wetland.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	X	Songbirds
	X	Area sensitive species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	Fish and Amphibians. Oxbow holds standing water.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Acer rubrum	red maple	3	PFO	
Acer saccharum	hard maple, sugar maple	5	PFO	
**Fraxinus nigra*	black ash	8	PFO	
**Betula alleghaniensis*	yellow birch	7	PFO	
Corylus americana	American hazelnut	5	PFO	
Solidago gigantea	giant goldenrod	3	PFO	
Alnus incana	speckled alder	4	PFO	
Solidago flexicaulis	broad-leaved goldenrod	6	PFO	
Fragaria virginiana	Virginia strawberry,	1	PFO	
Dryopteris intermedia	fancy wood fern	7	PFO	
Matteuccia struthiopteris	American ostrich fern	5	PFO	
**Carex crinita*	fringed sedge	6	PFO	
**Rubus pubescens*	dwarf red raspberry	7	PFO	
Rumex obtusifolius	bitter dock	0	PFO	
Carex intumescens	greater bladder sedge	5	PFO	
Carex scabrata	eastern rough sedge	8	PFO	
**Equisetum sylvaticum*	woodland horsetail	7	PFO	
Glyceria striata	fowl manna grass	4	PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PFO	
Abies balsamea	balsam fir	5	PFO	
Populus tremuloides	quaking aspen	2	PFO	
Impatiens capensis	orange jewelweed	2	PFO	
Equisetum scirpoides	dwarf scouring rush	7	PFO	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Good diversity of native wetland plant species.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
X	X		L	UC	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
	X		L	UC	Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Two maintained dirt/vegetated paths within wetland and buffer areas, one along the streambank and one upslope in the wooded buffer.
Hunting stand located just outside wetland at top of hillslope.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values		X			
Wildlife Habitat		X			
Fish and Aquatic Life Habitat		X			
Shoreline Protection		X			
Flood and Stormwater Storage		X			
Water Quality Protection	X				
Groundwater Processes		X			

FUNCTION	RATIONALE
Floristic Integrity	Good diversity of common native wetland species.
Human Use Values	Hunting stand just outside of wetland.
Wildlife Habitat	Part of large contiguous area of forest land.
Fish and Aquatic Life Habitat	Oxbow within wetland provides continuous source of standing water.
Shoreline Protection	Wetland helps stabilize a portion of stream bank, but other reaches of streambank are composed of bedrock; protection provided by wetland is minimal at these locations.
Flood and Stormwater Storage	Hillslope portion of the wetland does not hold water, but the portion located in the floodplain can store water for periods of time.
Water Quality Protection	Wetland receives few stressors or pollutants from surrounding landscape, limiting its ability to provide water quality protection functions.
Groundwater Processes	Evidence of groundwater processes present including groundwater seeping from base of hillslope and saturation at surface.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

Additional Plant Species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Onoclea sensibilis*	sensitive fern		PFO	
Juncus effusus	soft rush		PFO	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/4/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV059s_W1
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 10-15% Lat.: 46.351274 Long.: -90.681934 Datum: WGS 1984
Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located along streambank in floodplain of Krause Creek. Blown out beaver dam artificially flooded wetland in the past.

HYDROLOGY

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met. Rainfall on the previous day.

VEGETATION - Use scientific names of plants

Sampling Point: WASV059s_W1

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Alnus incana*	85	Y	FACW
2	*Salix discolor*	15	N	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		100	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Calamagrostis canadensis*	85	Y	OBL
2	*Carex intumescens*	15	N	FACW
3	*Hydrocotyle americana*	15	N	OBL
4	*Impatiens capensis*	3	N	FACW
5	*Mentha arvensis*	3	N	FACW
6	*Onoclea sensibilis*	3	N	FACW
7	*Persicaria sagittata*	3	N	OBL
8	*Carex crinita*	3	N	OBL
9	*Rumex crispus*	3	N	FAC
10				
11				
12				
13				
14				
15				
		133	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV059s_W	0	0
Sapling/Shrub Stratum	20	50
Herb Stratum	27	67
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	106	x 1 =	106	
FACW species	124	x 2 =	248	
FAC species	3	x 3 =	9	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	233	(A)	363	(B)

Prevalence Index = B/A = 1.56

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Rapid Test indicator present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV059s_W1

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-24	10YR 2/1	100					muck	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- X Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Indicator Histisol (A1) is present; parameter is met.

Photograph 1: WASV059s_W1, West

Photograph 2: WASV059s_W1, North

Photograph 3: WASV059s_W1, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/11/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV059s_W2
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave
Slope (%): 2% Lat.: 46.35128 Long.: -90.681526 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: R5UBH
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in the PSS portion of a streamside wetland. No soil taken due to proximity to old road and possible utilities.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

N/A

Remarks:
Two secondary indicators of wetland hydrology are present; parameter is met. Soil boring to observe subsurface indicators was not performed due to restrictions on ground disturbance because of the potential for underground utilities near old roadbed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV059s_W2

Tree Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Alnus incana*	38	Y	FACW
2	*Salix bebbiana*	15	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		53	= Total Cover	

Herb Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Glyceria striata*	38	Y	OBL
2	*Onoclea sensibilis*	15	Y	FACW
3	*Galium asprellum*	3	N	OBL
4	*Impatiens capensis*	3	N	FACW
5	*Symphyotrichum lateriflorum*	3	N	FAC
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		62	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV063e_W	0	0
Sapling/Shrub Stratum	11	27
Herb Stratum	12	31
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	41	x 1 =	41
FACW species	71	x 2 =	142
FAC species	3	x 3 =	9
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	115 (A)		192 (B)

Prevalence Index = B/A = 1.67

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Rapid Test indicator present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only. Modified vegetation plot shape (10' x 30').

SOIL **Sampling Point:** WASV059s_W2

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
No soils were sampled due to the potential for underground utilities near the old roadbed. It was assumed soils were hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV059s_W2, East

Photograph 2: WASV059s_W2, West

Photograph 3: WASV059s_W2, North

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/4/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV059f_W1
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Base of Hillslope Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.349371 Long.: -90.683211 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located at base of hillslope in forested wetland. Wetland originates at the top of a hillslope, widens and flattens at 0-3% slopes at base. Portions of wetland complex connect to Krause Creek. Standing water is present in lowest areas.

HYDROLOGY

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- X Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	X	No	___	Depth (inches):	4
Water table present?	Yes	X	No	___	Depth (inches):	surface
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met. Rainfall on the previous day.

VEGETATION - Use scientific names of plants

Sampling Point: WASV059f_W1

Tree Stratum (Plot Size: 30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Fraxinus pennsylvanica*	38	Y	FACW
2 *Ulmus americana*	5	N	FACW
3 *Tilia americana*	3	N	FACU
4			
5			
6			
7			
8			
9			
10			
	46	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Fraxinus pennsylvanica*	38	Y	FACW
2 *Acer saccharum*	5	N	FACU
3 *Ulmus americana*	3	N	FACW
4 *Tilia americana*	1	N	FACU
5			
6			
7			
8			
9			
10			
	47	= Total Cover	

Herb Stratum (Plot Size: 15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Carex bromoides*	63	Y	FACW
2 *Rubus pubescens*	5	N	FACW
3 *Mentha arvensis*	3	N	FACW
4 *Carex intumescens*	1	N	FACW
5 *Symphyotrichum lateriflorum*	1	N	FAC
6 *Dryopteris intermedia*	0.5	N	FAC
7 *Impatiens capensis*	0.5	N	FACW
8			
9			
10			
11			
12			
13			
14			
15			
	74	= Total Cover	

Woody Vine Stratum (Plot Size: 5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	9	23
Sapling/Shrub Stratum	9	24
Herb Stratum	15	37
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	156.5	x 2 =	313	
FAC species	1.5	x 3 =	4.5	
FACU species	9	x 4 =	36	
UPL species	0	x 5 =	0	
Column totals	167	(A)	353.5	(B)

Prevalence Index = B/A = 2.12

Hydrophytic Vegetation Indicators:

- X Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Rapid Test indicator is present; paramater is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV059f_W1

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-10	10YR 2.5/1	100					Mucky peat	Fibric root material present
10-18	10YR 3/1	100					Clay loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
X Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Indicator Black Histic (A3) is present; parameter is met.

Photograph 1: WASV059f_W1, West

Photograph 2: WASV059f_W1, North

Photograph 3: WASV059f_W1, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/4/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV059f_W2
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 10-15% Lat.: 46.351274 Long.: -90.681934 Datum: WGS 1984
Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Second PFO data point representative of conditions closer to Krause Creek. Point located in a drainage feature uphill of SASV019p.

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	X	No	____	Depth (inches):	surface
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met. Rainfall on the previous day.

VEGETATION - Use scientific names of plants

Sampling Point: WASV059f_W2

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	85	Y	FAC
2				
3				
4				
5				
6				
7				
8				
9				
10				
		85	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	63	Y	FAC
2	*Tilia americana*	5	N	FACU
3	*Abies balsamea*	5	N	FAC
4				
5				
6				
7				
8				
9				
10				
		73	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	38	Y	OBL
2	*Glyceria striata*	15	Y	OBL
3	*Glyceria canadensis*	15	Y	OBL
4	*Juncus effusus*	15	Y	OBL
5	*Thelypteris palustris*	5	N	FACW
6	*Lysimachia nummularia*	1	N	FACW
7	*Rubus hispidus*	1	N	FACW
8				
9				
10				
11				
12				
13				
14				
15				
		90	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	17	43
Sapling/Shrub Stratum	15	37
Herb Stratum	18	45
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	83	x 1 =	83	
FACW species	7	x 2 =	14	
FAC species	153	x 3 =	459	
FACU species	5	x 4 =	20	
UPL species	0	x 5 =	0	
Column totals	248	(A)	576	(B)

Prevalence Index = B/A = 2.32

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Dominance Test indicator present; parameter is met. Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV059f_W2

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-10	10YR 2/2	98	7.5 YR 5/6	2	C	PL	muck	
10+							rock	Auger refusal

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- X Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: Rock
Depth (inches): 10 inches

Hydric soil present? Y

Remarks:
Indicator Histisol (A1) is present; parameter is met.

Photograph 1: WASV059f_W2, South

Photograph 2: WASV059f_W2, North

Photograph 3: WASV059f_W2, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/11/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV059f_W3
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave
Slope (%): 2% Lat.: 46.35056 Long.: -90.680863 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in the PFO portion of a streamside wetland. Partially bisected by a roadbed. No soil taken due to proximity to old road.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

N/A

Remarks:
Two secondary indicators of wetland hydrology are present; parameter is met. Soil boring to observe subsurface indicators was not performed due to restrictions on ground disturbance because of the potential for underground utilities near old roadbed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV059f_W3

Tree Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	68	Y	FAC
2				
3				
4				
5				
6				
7				
8				
9				
10				
		68	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	15	Y	FAC
2	*Alnus incana*	15	Y	FACW
3	*Abies balsamea*	15	Y	FAC
4	*Acer saccharum*	3	N	FACU
5				
6				
7				
8				
9				
10				
		48	= Total Cover	

Herb Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	38	Y	OBL
2	*Osmunda cinnamomea*	15	Y	FACW
3	*Mitchella repens*	3	N	FACU
4	*Solidago gigantea*	3	N	FACW
5	*Onoclea sensibilis*	3	N	FACW
6	*Dryopteris intermedia*	3	N	FAC
7				
8				
9				
10				
11				
12				
13				
14				
15				
		65	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV063e_W	14	34
Sapling/Shrub Stratum	10	24
Herb Stratum	13	33
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	38	x 1 =	38
FACW species	36	x 2 =	72
FAC species	101	x 3 =	303
FACU species	6	x 4 =	24
UPL species	0	x 5 =	0
Column totals	181 (A)		437 (B)

Prevalence Index = B/A = 2.41

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Rapid Test indicator present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV059f_W3

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
No soils were sampled due to the potential for underground utilities near the old roadbed. It was assumed soils were hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV059f_W3, East

Photograph 2: WASV059f_W3, South

Photograph 3: WASV059f_W3, North

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/4/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV059_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex
Slope (%): 0-3% Lat.: 46.351222 Long.: -90.682632 Datum: WGS 1984
Soil Map Unit Name Tula-Wormet-Gogebic complex, 0-6% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in upland forest. Data point is representative of conditions in upland habitats surrounding WASV059.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:
No indicators of wetland hydrology are present; parameter is not met. Heavy rainfall on the previous day.

VEGETATION - Use scientific names of plants

Sampling Point: WASV059_U

Tree Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	15	Y	FAC
2	*Acer saccharum*	15	Y	FACU
3	*Ostrya virginiana*	5	N	FACU
4	*Populus tremuloides*	1	N	FAC
5	*Tilia americana*	1	N	FACU
6				
7				
8				
9				
10				
		37	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Ostrya virginiana*	15	Y	FACU
3	*Betula alleghaniensis*	5	N	FAC
4	*Tilia americana*	3	N	FACU
5				
6				
7				
8				
9				
10				
		61	= Total Cover	

Herb Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	86	Y	FACU
2	*Lonicera canadensis*	1	N	FACU
3	*Pyrola americana*	1	N	FAC
4	*Ranunculus acris*	1	N	FAC
5	*Acer saccharum*	1	N	FACU
6	*Ostrya virginiana*	1	N	FACU
7	*Solidago flexicaulis*	1	N	FACU
8	*Dryopteris intermedia*	1	N	FAC
9	*Fraxinus nigra*	0.5	N	FACW
10	*Symphyotrichum lateriflorum*	0.5	N	FAC
11				
12				
13				
14				
15				
		94	= Total Cover	

Woody Vine Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	7	19
Sapling/Shrub Stratum	12	31
Herb Stratum	19	47
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 20.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0.5	x 2 =	1	
FAC species	24.5	x 3 =	73.5	
FACU species	167	x 4 =	668	
UPL species	0	x 5 =	0	
Column totals	192	(A)	742.5	(B)

Prevalence Index = B/A = 3.87

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation indicators present; parameter is not met.

SOIL **Sampling Point:** WASV059_U

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-6	7.5YR 3/2	98	7.5YR 4/6	2	C	M	silt loam	
6-18	7.5YR 3/4	100					silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
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___ Sandy Mucky Mineral (S1)
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___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
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___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
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___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
No hydric soil indicators present and soil does not meet NTCHS definition of hydric soil; parameter is not met.

Photograph 1: WASV059_U, West

Photograph 2: WASV059_U, North

Photograph 3: WASV059_U, South

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV059**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/04/2019
Location: PLSS: 45N02W Lat: 46.350317 Long: -90.682941 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony; Tula-Wormet-Gogebic complex, 0-6% slopes, very stony; Gogebic-Metonga-Rock outcrop complex, 10-35% slopes, very stony Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Alder Stand, Hardwood Swamp Wetland Size: 5.499 acres / Wetland Area Impacted: 5.499 acres
Hydrology: Headwater drainage systems flowing southeast across project area; 20-30% slopes; saturated at surface; oxidized rhizospheres; water table at 6 inches; standing water in low areas; water stained leaves; flat wide area of wetland appears to stay saturated year round; wetland drains to floodplain; PSS portion along stream. Wetland connects to Krause Creek.	Vegetation: Plant Community Description(s): PFO: *Ulmus americana, Fraxinus pennsylvanica, Carex scabrata* PSS: *Alnus incana, Salix bebbiana, Calamagrostis canadensis*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Birding**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	Y	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	Y	Y	In or adjacent to RED FLAG areas List: Trout Stream
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	Y	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	Y	Y	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	Y	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	Y	Y	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	Y	Y	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	Y	Y	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	Y	Y	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
ST4: Drift deposits in floodplain.
HU1: Hunting stands observed throughout area.
WH10 & FA2: Some standing pools of water within wetland.
ST2: Drainage patterns are present; where wetland connects to Krause Creek, the stream is 25 feet wide by 5 feet deep.
GW1: Oxidize rhizospheres, saturated at surface, high water table.
GW2: Wetland is a headwater wetland.
GW3: A3, black histic soils observed.
SP2: Riverbank is mostly bedrock.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	X	Songbirds
	X	White-tailed deer
X		Beaver dam
X		Woodpecker holes
	X	Area Sensitive Species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	Frogs and Salamanders – Standing water at time of survey due to recent rain
	X	Fish – Wetland is adjacent to a trout stream (Krause Creek)

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Acer saccharum	*hard maple, sugar maple*	5	PFO	
Tilia americana	*American linden, basswood*	5	PFO	
Athyrium filix-femina	*common lady fern, lady fern*	5	PFO	
Ulmus americana	*American elm, white elm*	3	PFO	
**Fraxinus pennsylvanica*	*green ash, red ash*	2	PFO	
**Abies balsamea*	*balsam fir*	5	PFO	
Rubus pubescens	*dwarf red raspberry*	7	PFO	
Agrimonia gryposepala	*common agrimony, tall hairy agrimony*	2	PFO	
Dryopteris intermedia	*fancy wood fern, glandular wood fern*	7	PFO	
Solidago flexicaulis	*broad-leaved goldenrod, zigzag goldenrod*	6	PFO	
Symphyotrichum lateriflorum	*side-flowering aster*	3	PFO	
**Carex bromoides*	*brome-like sedge*	8	PFO	
**Onoclea sensibilis*	*sensitive fern*	5	PSS	
**Glyceria striata*	*fowl manna grass, fowl meadow grass*	4	PSS/PFO	
Carex scabrata	*eastern rough sedge*	8	PFO	
Lonicera canadensis	*American fly honeysuckle*	8	PFO	
Prunella vulgaris	*heal-all, lawn prunella, self-heal*	1	PFO	
Equisetum sylvaticum	*wood horsetail, woodland horsetail*	7	PFO	
Matteuccia struthiopteris	*American ostrich fern, ostrich fern*	5	PFO	
Elymus hystrix	*bottlebrush grass, eastern bottlebrush grass, glum*	6	PFO	
Dryopteris carthusiana	*spinulose wood fern, toothed wood fern*	7	PFO	
Mentha canadensis	*field mint, wild mint*	3	PSS	
Impatiens capensis	*orange jewelweed, orange touch-me-not*	2	PSS	
Ranunculus acris	*common buttercup, blister plant, meadow buttercup*	0	PSS	
**Betula alleghaniensis*	*yellow birch*	7	PFO	
Pyrola americana	*American wintergreen, round-leaved shin-leaf*	8	PSS	
**Alnus incana*	*speckled alder*	4	PSS	
**Salix bebbiana*	*beaked willow, Bebb's willow*	7	PSS	
**Carex crinita*	*fringed sedge*	6	PFO	
**Calamagrostis canadensis*	*blue-joint grass*	5	PSS	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Diverse assemblage of common native wetland species. (Additional plant list below.)
PSS FQI = 15.4, Mean C of C = 4.6
PFO FQI = 26.2, Mean C of C = 5.2

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		L	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	X	M	C	Removal of tree or shrub strata – logging, unprescribed fire
X	X		L	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Increased runoff associated with dirt road bisecting the top of the headwater wetland.
Signs of earthworms in upland buffer.
Area has been cleared in the past. Most trees are 1-4 inches in diameter and the stand age is uniform.
Hydrologic changes occurred to the PSS portion as evidenced by the blown out beaver dam.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values		X			
Wildlife Habitat			X		
Fish and Aquatic Life Habitat			X		
Shoreline Protection		X			
Flood and Stormwater Storage			X		
Water Quality Protection	X				
Groundwater Processes			X		

FUNCTION	RATIONALE
Floristic Integrity	Good diversity of common native wetland plant species; size of wetland and PSS/PFO habitats provide higher than usual diversity.
Human Use Values	The wetland is located on private property. The area is possibly used for hunting as stands and blinds were observed in other areas of the property. It is also possible that the landowner fishes the river, which is a designated trout stream.
Wildlife Habitat	Wetland is located within a large contiguous forested tract that could provide habitat for area sensitive species. Signs of wildlife (beaver dam, deer browse, woodpecker holes, etc.) observed throughout the wetland.
Fish and Aquatic Life Habitat	No aquatic life was observed at the time of survey; however, parts of the wetland hold water for extended periods of time and would provide habitat for frogs, salamanders, and aquatic invertebrates. The river supports fish and other species.
Shoreline Protection	While associated with a river, the majority of the riverbank is composed of bedrock.
Flood and Stormwater Storage	Wetland is a drainage feature that collects water from surrounding hillslopes. Water would drain downslope to Krause Creek due to steep grade of wetland. Some channelization observed throughout the wetland. Overbank flow due to storm events would be captured in PSS portion of wetland.
Water Quality Protection	Wetland and surrounding landscape is undeveloped, providing little opportunity for the wetland to capture pollutants.
Groundwater Processes	Headwater wetland with several signs of groundwater processes. A3 (Black Histic) hydric soil indicator suggests wetland is saturated year-round.

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

Additional Plant Species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Mitchella repens	partridgeberry		PFO	
Solidago gigantea	giant goldenrod	3	PFO	
**Osmunda cinnamomea*	cinnamon fern	7	PFO	
Fraxinus nigra	black ash	8	PFO	
Ilex verticillata	common winterberry	7	PSS	
Vitis riparia	frost grape, river bank grape	2	PSS	
Salix discolor	American pussy willow		PSS	
Carex intumescens	bladder sedge		PSS	
Hydrocotyle americana	American water-pennywort		PSS	
Mentha arvensis	wild mint		PSS	
Persicaria sagittata	arrow-leaved tearthumb		PSS	
Rumex crispus	curly dock		PSS	
Galium asprellum	rough bedstraw		PSS	
**Glyceria canadensis*	rattlesnake mannagrass		PFO	
**Juncus effusus*	soft rush		PFO	
Thelypteris palustris	Eastern marsh fern		PFO	
Lysimachia nummularia	creeping jenny		PFO	
Rubus hispidus	bristly dewberry		PFO	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/11/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV077f_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression/Terrace Local relief (concave, convex, none): Concave
Slope (%): 5% Lat.: 46.349632 Long.: -90.679821 Datum: WGS 1984
Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point is located in a PFO wetland system which is fed by streamside groundwater discharge. Wetland widens into a large beaver-impounded PEM wetland just offsite.

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	X	No	____	Depth (inches):	2
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV077f_W

Tree Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	38	Y	FAC
2	*Fraxinus nigra*	15	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		53	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	15	Y	FACW
2	*Betula alleghaniensis*	15	Y	FAC
3	*Acer saccharum*	15	Y	FACU
4	*Alnus incana*	3	N	FACW
5				
6				
7				
8				
9				
10				
		48	= Total Cover	

Herb Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	15	Y	OBL
2	*Rubus pubescens*	15	Y	FACW
3	*Chasmanthium latifolium*	15	Y	FACW
4	*Onoclea sensibilis*	3	N	FACW
5	*Glyceria striata*	3	N	OBL
6	*Equisetum arvense*	3	N	FAC
7	*Cornus canadensis*	3	N	FAC
8	*Osmunda cinnamomea*	3	N	FACW
9				
10				
11				
12				
13				
14				
15				
		60	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV063e_W	11	27
Sapling/Shrub Stratum	10	24
Herb Stratum	12	30
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across all Strata: 8 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 87.50% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	18	x 1 =	18	
FACW species	69	x 2 =	138	
FAC species	59	x 3 =	177	
FACU species	15	x 4 =	60	
UPL species	0	x 5 =	0	
Column totals	161	(A)	393	(B)

Prevalence Index = B/A = 2.44

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Rapid Test indicator present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV077f_W

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-6	10YR 2/1	100					mucky loam	
6								Auger refusal

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
X Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: Rock
Depth (inches): 6

Hydric soil present? Y

Remarks:
While not technically meeting depth requirement of a black histic, soil presumed hydric due to saturation and accumulation of mucky organics; parameter is met.

Photograph 1: WASV077f_W, East

Photograph 2: WASV077f_W, South

Photograph 3: WASV077f_W, North

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/10/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV076/077_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave
Slope (%): 0-3% Lat.: 46.350872 Long.: -90.680821 Datum: WGS 1984
Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Upland point located in regenerating hardwood forest representative of uplands east of Krause Creek.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:

No indicators of wetland hydrology are present; parameter is not met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV076/077_U

Tree Stratum	Plot Size (10' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula papyrifera*	15	Y	FACU
2	*Abies balsamea*	15	Y	FAC
3	*Acer saccharum*	5	N	FACU
4	*Acer rubrum*	3	N	FAC
5	*Populus tremuloides*	3	N	FAC
6				
7				
8				
9				
10				
		41	= Total Cover	

Sapling/Shrub Stratum	Plot Size (10' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Corylus americana*	38	Y	FACU
2	*Acer saccharum*	15	Y	FACU
3	*Ostrya virginiana*	15	Y	FACU
4				
5				
6				
7				
8				
9				
10				
		68	= Total Cover	

Herb Stratum	Plot Size (10' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	86	Y	FACU
2	*Pteridium aquilinum*	15	N	FACU
3	*Abies balsamea*	5	N	FAC
4	*Carex pedunculata*	3	N	FACU
5	*Pyrola americana*	1	N	FAC
6	*Fraxinus pennsylvanica*	0.5	N	FACW
7				
8				
9				
10				
11				
12				
13				
14				
15				
		110.5	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV063e_W	8	21
Sapling/Shrub Stratum	14	34
Herb Stratum	22	55
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 16.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0.5	x 2 =	1	
FAC species	27	x 3 =	81	
FACU species	192	x 4 =	768	
UPL species	0	x 5 =	0	
Column totals	219.5	(A)	850	(B)

Prevalence Index = B/A = 3.87

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No indicators of hydrophytic vegetation present; parameter is not met.

SOIL **Sampling Point:** WASV076/077_U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 3/3	100					Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: Rock
Depth (inches): 6"

Hydric soil present? N

Remarks:
No hydric soil indicators present; parameter is not met.

Photograph 1: WASV076/077_U, East

Photograph 2: WASV076/077_U, West

Photograph 3: WASV076/077_U, North

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV077**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/11/2019
Location: PLSS: 45N03W Lat: 46.349633 Long: -90.679828 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony Field Verified: Yes	WWI Class: T3/E2K Wetland Type(s): Hardwood Swamp Wetland Size: 0.364 acres / Wetland Area Impacted: 0.364 acres
Hydrology: Hydrology is groundwater-driven with pockets of standing water from 1 to 5 inches in depth throughout; wetland drains north to Krause Creek; boulders throughout.	Vegetation: Plant Community Description(s): PFO: *Betula alleghaniensis, Acer saccharum, Carex crinita*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: **birding**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	Y	Y	In or adjacent to RED FLAG areas List: Trout Stream
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	Y	Y	Wetland is connected or contiguous with perennial stream or lake
2	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	N	N	Dense, persistent vegetation
4	Y	Y	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	N	N	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
HU1 – Hunting stand observed in wetland along streambank.
WH10 – Pockets of water 1 to 5 inches deep in wetland.
SP2 & WQ3 – Streambank is composed of bedrock in this area.
ST2 – Krause Creek channel is 20 feet wide x 5 feet deep.
ST4 – Drift deposits along stream bank.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	X	Songbirds
	X	Area sensitive species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	Frogs and Salamanders. Wetland receives overbank flow from Krause Creek and appears to hold water for
		periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Ulmus rubra	red elm, slippery elm	4	PFO	
**Betula alleghaniensis*	yellow birch	7	PFO	
**Fraxinus nigra*	black ash	8	PFO	
**Carex crinita*	fringed sedge	6	PFO	
Glyceria striata	fowl manna grass	4	PFO	
Abies balsamea	balsam fir	5	PFO	
Tilia americana	basswood	5	PFO	
**Acer saccharum*	sugar maple	5	PFO	
Rumex obtusifolius	bitter dock	0	PFO	
Gaultheria procumbens	eastern teaberry	6	PFO	
Pyrola americana	American wintergreen	8	PFO	
Osmunda cinnamomea	cinnamon fern	7	PFO	
Dryopteris intermedia	fancy wood fern	7	PFO	
Athyrium filix-femina	common lady fern	5	PFO	
Carex scabrata	eastern rough sedge	8	PFO	
Alnus incana	speckled alder, grey alder		PFO	
**Rubus pubescens*	dwarf raspberyy		PFO	
**Chasmanthium latifolium*	northern seaoat, indian woodoat		PFO	
Onoclea sensibilis	sensitive fern		PFO	
Equisetum arvense	field horsetail		PFO	
Cornus canadensis	bunchberry dogwood		PFO	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Good diversity of native wetland plant species.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
X	X		L	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Trail crossing shallow part of stream and going along streambank.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat		X			
Fish and Aquatic Life Habitat		X			
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection	X				
Groundwater Processes		X			

FUNCTION	RATIONALE
Floristic Integrity	Good diversity of common native wetland species.
Human Use Values	Hunting stand in wetland but not accessible to the general public (located on private property).
Wildlife Habitat	Wetland part of large contiguous area of forest land and is adjacent to a trout stream.
Fish and Aquatic Life Habitat	Standing water from 1 to 5 inches in depth throughout wetland. Wetland is adjacent to a trout stream.
Shoreline Protection	N/A. Streambank composed of bedrock at wetland location.
Flood and Stormwater Storage	Wetland receives overbank flow from Krause Creek and holds it for periods of time.
Water Quality Protection	Wetland receives few stressors or pollutants from surrounding landscape limiting its ability to provide water quality protection functions.
Groundwater Processes	Evidence of groundwater processes; hydrology is driven by both surface and groundwater inputs.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-14

Applicant/Owner: Enbridge State: WI Sampling Point: wasc068s_w

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.349814 Long: -90.678469 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

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

The wetland is an alder thicket located in a closed depression and surrounded by a young upland forest.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrologic regime is seasonally saturated, with recharge hydrology. The wetland extends outside of the survey area, but appears to be a closed depression.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc068s_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Alnus incana*	40.0	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	40.0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Calamagrostis canadensis*	30.0	Y	OBL
2. *Juncus effusus*	20.0	Y	OBL
3. *Symphyotrichum puniceum*	5.0	N	OBL
4. *Glyceria striata*	5.0	N	OBL
5. *Verbena hastata*	5.0	N	FACW
6. *Onoclea sensibilis*	5.0	N	FACW
7. *Solidago gigantea*	5.0	N	FACW
8. *Carex gracillima*	5.0	N	FACU
9. *Alnus incana*	5.0	N	FACW
10. *Equisetum sylvaticum*	2.0	N	FACW
11. *Persicaria sagittata*	2.0	N	OBL
12. *Scutellaria lateriflora*	2.0	N	OBL
	91 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	64	x 1 =	64
FACW species	62	x 2 =	124
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	131 (A)		208 (B)

Prevalence Index = B/A = 1.59

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

The wetland is an alder thicket with a dense herbaceous layer primarily composed of Calamagrostis canadensis, with Juncus effusus present in high amounts on the border of the wetland within the survey area.

SOIL

Sampling Point: wasc068s_w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/2	100					MMI	
9-14	7.5YR 3/3	100					CL	
14-18	7.5YR 3/4	90	5YR 3/4	10	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ✓ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Surface layer of mucky mineral observed.

wasc068s_w_E

wasc068s_w_N

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): BRG/JSW
File #: wasc068	Date of visit(s): 10/14/2019
Location: PLSS: 045N-003W-25 Lat: 46.349823 Long: -90.678471 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5172B Gogebic, very stony-Pence, very stony-Cathro complex, 809C Gogebic-Metonga-Rock outcrop complex Field Verified: Series not verified. The soils consist of a modified mucky mineral over a clay loam over a clay texture.	WWI Class: N/A Wetland Type(s): PSS - alder thicket Wetland Size: 0.10	Wetland Area Impacted 0.10
Hydrology: The wetland is a closed depressional feature, and has a seasonally saturated hydrologic regime with recharge hydrology.	Vegetation: Plant Community Description(s): Alder thicket is dominated by Alnus incana, Calamagrostis canadensis, and Juncus effusus.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	N	Part of a large habitat block that supports area sensitive species
9	N	Y	Ephemeral pond with water present ≥ 45 days
10	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	Y	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	Y	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-4: the surrounding area is disturbed, but the wetland itself may hold some aesthetic value
FA-2: the wetland is likely frequently saturated, with evidence of standing water in small areas throughout the wetland

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Deer
	Y	Avian

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	Y	Frogs
	Y	Aquatic invertebrates

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☑	S3 ☐	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☑	Common ☐	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Alnus incana			PSS	Common
Calamagrostis canadensis			PSS	Common
Juncus effusus			PSS	Common
Symphyotrichum puniceum			PSS	Rare
Glyceria striata			PSS	Rare
Verbena hastata			PSS	Rare
Onoclea sensibilis			PSS	Rare
Solidago gigantea			PSS	Rare
Carex gracillima			PSS	Rare
Equisetum sylvaticum			PSS	Rare
Persicaria sagittata			PSS	Rare
Scutellaria lateriflora			PSS	Rare

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The wetland contains a good assembly of native species representative of the wetland community type.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
		X	H	U	Removal of tree or shrub strata – logging, unprescribed fire
	X		M	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The area has been logged in the past, and worms are present.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity			✓		
Human Use Values		✓			
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat			✓		
Shoreline Protection					✓
Flood and Stormwater Storage			✓		
Water Quality Protection		✓			
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Good assembly of native species
Human Use Values	Hunting
Wildlife Habitat	Deer and avian habitat
Fish and Aquatic Life Habitat	Frequent saturation and standing water in areas
Shoreline Protection	N/A
Flood and Stormwater Storage	Closed and densely vegetated depression
Water Quality Protection	See above, a nearby unpaved trail is present, but does not contribute significant runoff
Groundwater Processes	Groundwater recharge, periods of standing water

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-14

Applicant/Owner: Enbridge State: WI Sampling Point: wasc068_u

Investigator(s): JSW/BRG Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Side slope Local relief (concave, convex, none): None Slope (%): 3-7%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.349777 Long: -90.678603 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

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

The upland is located in a young mesic hardwood forest.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc068_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	50.0	Y	FAC
2. *Ostrya virginiana*	25.0	Y	FACU
3. *Acer saccharum*	10.0	N	FACU
4. *Abies balsamea*	10.0	N	FAC
5.			
6.			
7.			
	95.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Pteridium aquilinum*	25.0	Y	FACU
2. *Athyrium angustum*	20.0	Y	FAC
3. *Mitchella repens*	10.0	N	FACU
4. *Eurybia macrophylla*	10.0	N	UPL
5. *Carex pedunculata*	5.0	N	FAC
6. *Solidago flexicaulis*	5.0	N	FACU
7. *Carex gracillima*	5.0	N	FACU
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	85	x 3 =	255
FACU species	80	x 4 =	320
UPL species	10	x 5 =	50
Column Totals:	175 (A)		625 (B)

Prevalence Index = B/A = 3.57

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

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

The upland is dominated by red maple and bracken fern.

SOIL

Sampling Point: wasc068_u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 3/3	100					CL	
10-18	5YR 4/4	100					SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No hydric soil indicators observed.

wasc068_u_S

wasc068_u_W

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-14

Applicant/Owner: Enbridge State: WI Sampling Point: wasc070e_w

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.348646 Long: -90.675195 Datum: WGS84

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

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

The wetland is a fresh wet meadow filled with weedy/advantageous species.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrologic regime is seasonally saturated, with recharge hydrology. The wetland receives some runoff from soil compacted on the intersecting unpaved trail.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc070e_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rhamnus cathartica*	5.0	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5.0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Doellingeria umbellata*	40.0	Y	FACW
2. *Scirpus cyperinus*	20.0	Y	OBL
3. *Juncus effusus*	10.0	N	OBL
4. *Agrostis gigantea*	5.0	N	FACW
5. *Solidago altissima*	5.0	N	FACU
6. *Impatiens capensis*	5.0	N	FACW
7. *Rubus idaeus*	5.0	N	FAC
8. *Athyrium angustum*	2.0	N	FAC
9. *Symphyotrichum lateriflorum*	2.0	N	FAC
10. *Persicaria sagittata*	2.0	N	OBL
11. *Cirsium arvense*	1.0	N	FACU
12.			
	97 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	32	x 1 =	32
FACW species	50	x 2 =	100
FAC species	14	x 3 =	42
FACU species	6	x 4 =	24
UPL species	0	x 5 =	0
Column Totals:	102 (A)		198 (B)

Prevalence Index = B/A = 1.94

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

The wetland is dominated by Doellingeria umbellata and other advantageous species. Some vegetation is compacted due to a trail running through the edge of the wetland.

SOIL

Sampling Point: wasc070e_w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-13	7.5YR 2.5/2	100					MMI	
13-18	5YR 4/4	90	7.5YR 4/6	10	C	M	FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ✓ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Mucky mineral over red fine sandy loam.

wasc070e_w_E

wasc070e_w_W

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): BRG/JSW
File #: wasc070	Date of visit(s): 10/14/2019
Location: PLSS: 045N-003W-25 Lat: 46.348652 Long: -90.675218 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5172B Gogebic, very stony-Pence, very stony-Cathro complex, 809C Gogebic-Metonga-Rock outcrop complex Field Verified: Series not verified. The soils consist of a modified mucky mineral over a fine sandy loam.	WWI Class: N/A Wetland Type(s): PEM - fresh wet meadow	
	Wetland Size: 0.06	Wetland Area Impacted 0.06
Hydrology: The hydrologic regime is seasonally saturated, with recharge hydrology.	Vegetation: Plant Community Description(s): Fresh wet meadow is dominated by Doellingeria umbellata and Scirpus cyperinus.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	N	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	Y	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

ST-5: runoff from intersecting paved trail

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Deer
	Y	Avian

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	Y	Frogs
	Y	Aquatic invertebrates

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☑	<10% ☐
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☑	All strata present and good assemblage of native species ☐	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☑	S3 ☐	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☑	Common ☐	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Rhamnus cathartica			PEM	Rare
Doellingeria umbellata			PEM	Common
Scirpus cyperinus			PEM	Common
Juncus effusus			PEM	Uncommon
Agrostis gigantea			PEM	Rare
Solidago altissima			PEM	Rare
Impatiens capensis			PEM	Rare
Rubus idaeus			PEM	Rare
Athyrium angustum			PEM	Rare
Symphyotrichum lateriflorum			PEM	Rare
Persicaria sagittata			PEM	Rare
Cirsium arvense			PEM	Rare

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Some troublesome invasive species are present in the wetland, and species diversity is low.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		H	C	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
	X		M	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
		X	H	C	Removal of tree or shrub strata – logging, unprescribed fire
X	X		H	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		H	C	Cover of non-native and/or invasive species
	X		M	C	Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland has been disturbed by historic logging, the nearby residential area, and the unpaved trail running through it.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	✓				
Human Use Values		✓			
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat	✓				
Shoreline Protection					✓
Flood and Stormwater Storage			✓		
Water Quality Protection			✓		
Groundwater Processes	✓				

FUNCTION	RATIONALE
Floristic Integrity	Invasives and low diversity, weedy species
Human Use Values	Hunting
Wildlife Habitat	Deer and avian habitat
Fish and Aquatic Life Habitat	Some potential for habitat after rain events
Shoreline Protection	N/A
Flood and Stormwater Storage	Dense vegetation and a closed depression that stores trail runoff water
Water Quality Protection	Filteration of runoff water
Groundwater Processes	Groundwater recharge

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Low
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Low
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-14

Applicant/Owner: Enbridge State: WI Sampling Point: wasc070_u

Investigator(s): JSW/BRG Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Side slope Local relief (concave, convex, none): None Slope (%): 3-7%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.348754 Long: -90.675303 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

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

The upland is located in a disturbed woodland near an ATV trail.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc070_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	50.0	Y	FAC
2. *Picea glauca*	25.0	Y	FACU
3.			
4.			
5.			
6.			
7.			
	75.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus idaeus*	50.0	Y	FAC
2. *Rhamnus cathartica*	25.0	Y	FAC
3.			
4.			
5.			
6.			
7.			
	75.0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	10.0	Y	UPL
2. *Dryopteris carthusiana*	10.0	Y	FACW
3. *Fragaria virginiana*	5.0	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25.0 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4.0 (A)

Total Number of Dominant Species Across All Strata: 7.0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57.14285714285714 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.0	x 1 =	0.0
FACW species	10.0	x 2 =	20.0
FAC species	125.0	x 3 =	375.0
FACU species	30.0	x 4 =	120.0
UPL species	10.0	x 5 =	50.0
Column Totals:	175.0 (A)		565.0 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

The upland is dominated by quaking aspen and raspberry.

SOIL

Sampling Point: wasc070_u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/3	100					CL	
6-18	7.5YR 3/4	100					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No hydric soil indicators observed.

wasc070_u_N

wasc070_u_W

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-14

Applicant/Owner: Enbridge State: WI Sampling Point: wasc069s_w

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.347181 Long: -90.678001 Datum: WGS84

Soil Map Unit Name: Tula-Wormet-Gogebic complex, 0 to 6 percent slopes, very stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

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

The wetland is an alder thicket with a variably dense herbaceous layer. It is surrounded by young mixed forest.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrologic regime is seasonally saturated, with recharge hydrology.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc069s_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	5.0	Y	FAC
2. *Tilia americana*	5.0	Y	FACU
3. *Acer rubrum*	5.0	Y	FAC
4.			
5.			
6.			
7.			
	15.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Alnus incana*	60.0	Y	FACW
2. *Populus tremuloides*	10.0	N	FAC
3. *Ilex verticillata*	5.0	N	FACW
4.			
5.			
6.			
7.			
	75 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Glyceria striata*	30.0	Y	OBL
2. *Dryopteris carthusiana*	10.0	Y	FACW
3. *Rubus pubescens*	5.0	N	FACW
4. *Juncus effusus*	5.0	N	OBL
5. *Carex crinita*	5.0	N	OBL
6. *Solidago gigantea*	5.0	N	FACW
7. *Brachyelytrum erectum*	2.0	N	FACU
8. *Verbena hastata*	2.0	N	FACW
9. *Alnus incana*	2.0	N	FACW
10. *Symphyotrichum lateriflorum*	1.0	N	FAC
11. *Onoclea sensibilis*	1.0	N	FACW
12.			
	68 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	90	x 2 =	180
FAC species	21	x 3 =	63
FACU species	7	x 4 =	28
UPL species	0	x 5 =	0
Column Totals:	158 (A)		311 (B)

Prevalence Index = B/A = 1.97

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

The wetland is dominated by Alnus incana and Glyceria striata.

SOIL

Sampling Point: wasc069s_w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 2.5/1	100					MMI	
5-18	5YR 4/4	100					SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ✓ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Red sandy clay loam beneath dark mucky loam.

wasc069s_w_E

wasc069s_w_W

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): BRG/JSW
File #: wasc069	Date of visit(s): 10/14/2019
Location: PLSS: 045N-003W-25 Lat: 46.347181 Long: -90.678001 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5171B Tula-Wormet-Gogebic complex, 809C Gogebic-Metonga-Rock outcrop complex Field Verified: Series not verified. The soils consist of a modified mucky mineral over a sandy clay loam.	WWI Class: T3K Wetland Type(s): PSS - alder thicket	
	Wetland Size: 0.83	Wetland Area Impacted 0.83
Hydrology: The wetland is a closed depressional feature, and has a seasonally saturated hydrologic regime with recharge hydrology.	Vegetation: Plant Community Description(s): Alder thicket is dominated by Alnus incana and Glyceria striata.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	N	Part of a large habitat block that supports area sensitive species
9	N	Y	Ephemeral pond with water present ≥ 45 days
10	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	Y	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	Y	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

ST-1: the wetland is a closed depressional feature

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Deer (observed in the area nearby)
	Y	Avian

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	Y	Frogs
	Y	Aquatic invertebrates

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☑	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☑	Common ☐	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Populus tremuloides			PSS	Uncommon
Tilia americana			PSS	Rare
Acer rubrum			PSS	Rare
Alnus incana			PSS	Abundant
Ilex verticillata			PSS	Rare
Glyceria striata			PSS	Common
Dryopteris carthusiana			PSS	Uncommon
Rubus pubescens			PSS	Rare
Juncus effusus			PSS	Rare
Carex crinita			PSS	Rare
Solidago gigantea			PSS	Rare
Brachyelytrum erectum			PSS	Rare
Verbena hastata			PSS	Rare
Symphyotrichum lateriflorum			PSS	Rare
Onoclea sensibilis			PSS	Rare

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The wetland contains a good assembly of native species representative of the wetland community type.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
	X		L	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
		X	M	U	Removal of tree or shrub strata – logging, unprescribed fire
	X		L	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
	X		L	U	Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The area has been logged in the past, and worms are present. Nearby is a residential house, but this does not significantly affect the wetland.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity			✓		
Human Use Values		✓			
Wildlife Habitat			✓		
Fish and Aquatic Life Habitat			✓		
Shoreline Protection					✓
Flood and Stormwater Storage			✓		
Water Quality Protection		✓			
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Good assembly of native species
Human Use Values	Hunting
Wildlife Habitat	Deer and avian habitat
Fish and Aquatic Life Habitat	Frequent saturation and standing water in areas
Shoreline Protection	N/A
Flood and Stormwater Storage	Closed and densely vegetated depression
Water Quality Protection	See above. Nearby unpaved trails are present, but do not contribute significantly to runoff
Groundwater Processes	Groundwater recharge, periods of standing water

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-14

Applicant/Owner: Enbridge State: WI Sampling Point: wasc069_u

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.347386 Long: -90.678020 Datum: WGS84

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

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

The upland is located at the bottom of a slope, and is a young mixed forest. Although the vegetation meets hydrophytic requirements due to the dominance of facultative species, no other wetland indicators are present and the area is definitively upland.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc069_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Abies balsamea*	30.0	Y	FAC
2. *Acer rubrum*	20.0	Y	FAC
3. *Prunus serotina*	10.0	N	FACU
4. *Populus tremuloides*	5.0	N	FAC
5.			
6.			
7.			
	65.0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *Ilex verticillata*	20.0	Y	FACW
2. *Corylus cornuta*	10.0	Y	FACU
3. *Abies balsamea*	10.0	Y	FAC
4.			
5.			
6.			
7.			
	40	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Mitchella repens*	40.0	Y	FACU
2. *Carex gracillima*	2.0	N	FACU
3. *Acer rubrum*	2.0	N	FAC
4. *Trientalis borealis*	1.0	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	45	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	68	x 3 =	204
FACU species	62	x 4 =	248
UPL species	0	x 5 =	0
Column Totals:	150 (A)		492 (B)

Prevalence Index = B/A = 3.28

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

The upland primarily contains facultative vegetation, and is dominated by Abies balsamea, Ilex verticillata, and Mitchella repens.

SOIL

Sampling Point: wasc069_u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 2.5/2	100					CL	
10-14	7.5YR 5/2	100					SIL	
14-18	5YR 4/4	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No hydric soil indicators observed.

wasc069_u_N

wasc069_u_W

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project **City/County:** Ashland **Sampling Date:** 04-Oct-19

Applicant/Owner: Enbridge **State:** WI **Sampling Point:** wasw031f

Investigator(s): ES/WC **Section, Township, Range:** S. 25 T. 45N R. 3W

Landform (hillslope, terrace, etc.): Swale **Local relief (concave, convex, none):** tussocks **Slope:** 0.0 % / 0.0

Subregion (LRR or MLRA): LRR K **Lat.:** 46.34673249 **Long.:** -90.68462228 **Datum:** WGS 1984

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○		
Hydric Soil Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○		

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

Tussock/hummock forested depression wetland that drains into sasw014.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches): 1	
Water Table Present?	Yes ◉	No ○	Depth (inches): 6	**Wetland Hydrology Present?** Yes ◉ No ○
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 6	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: wasw031f

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Quercus rubra*	5	☐	7.5%	FACU
2. *Fraxinus nigra*	15	☑	22.4%	FACW
3. *Ostrya virginiana*	5	☐	7.5%	FACU
4. *Abies balsamea*	3	☐	4.5%	FAC
5. *Acer rubrum*	7	☐	10.4%	FAC
6. *Acer saccharum*	7	☐	10.4%	FACU
7. *Betula alleghaniensis*	25	☑	37.3%	FAC
	67	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15')				
1. *Ostrya virginiana*	10	☐	16.4%	FACU
2. *Abies balsamea*	7	☐	11.5%	FAC
3. *Acer rubrum*	15	☑	24.6%	FAC
4. *Fraxinus nigra*	20	☑	32.8%	FACW
5. *Ulmus americana*	7	☐	11.5%	FACW
6. *Acer saccharum*	2	☐	3.3%	FACU
7.	0	☐	0.0%	
	61	= Total Cover		

Herb Stratum (Plot size: 5')				
1. *Carex bromoides*	70	☑	78.7%	FACW
2. *Solidago gigantea*	5	☐	5.6%	FACW
3. *Carex intumescens*	10	☐	11.2%	FACW
4. *Calamagrostis canadensis*	2	☐	2.2%	OBL
5. *Pyrola elliptica*	2	☐	2.2%	FACU
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	89	= Total Cover		

Woody Vine Stratum (Plot size: 15')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	2	x 1 =	2	
FACW species	127	x 2 =	254	
FAC species	57	x 3 =	171	
FACU species	31	x 4 =	124	
UPL species	0	x 5 =	0	
Column Totals:	217	(A)	551	(B)

Prevalence Index = B/A = 2.539

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ◉ No ○

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FW

Soil

Sampling Point: wasw031f

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-5	10YR	3/1	100						Silty Clay Loam	
5-10	10YR	3/1	40	7.5YR	4/6	20	C	M	Clay Loam	
+mottle	7.5YR	4/3	40						Clay Loam	
10-24	7.5YR	4/3	75	7.5YR	4/6	25	C	M	Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☑ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Plot ID: **wasw031f** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Photos\

Photo File: **DSCN7830.JP** Orientation: -facing

Lat/Long or UTM : Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7832.JPG** Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

Plot ID: **wasw031f**

Photo Path: C:\WetForm\ERM Line 5 Pipeline\Pho

Photo File: **DSCN7833.JP** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7834.JPG** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

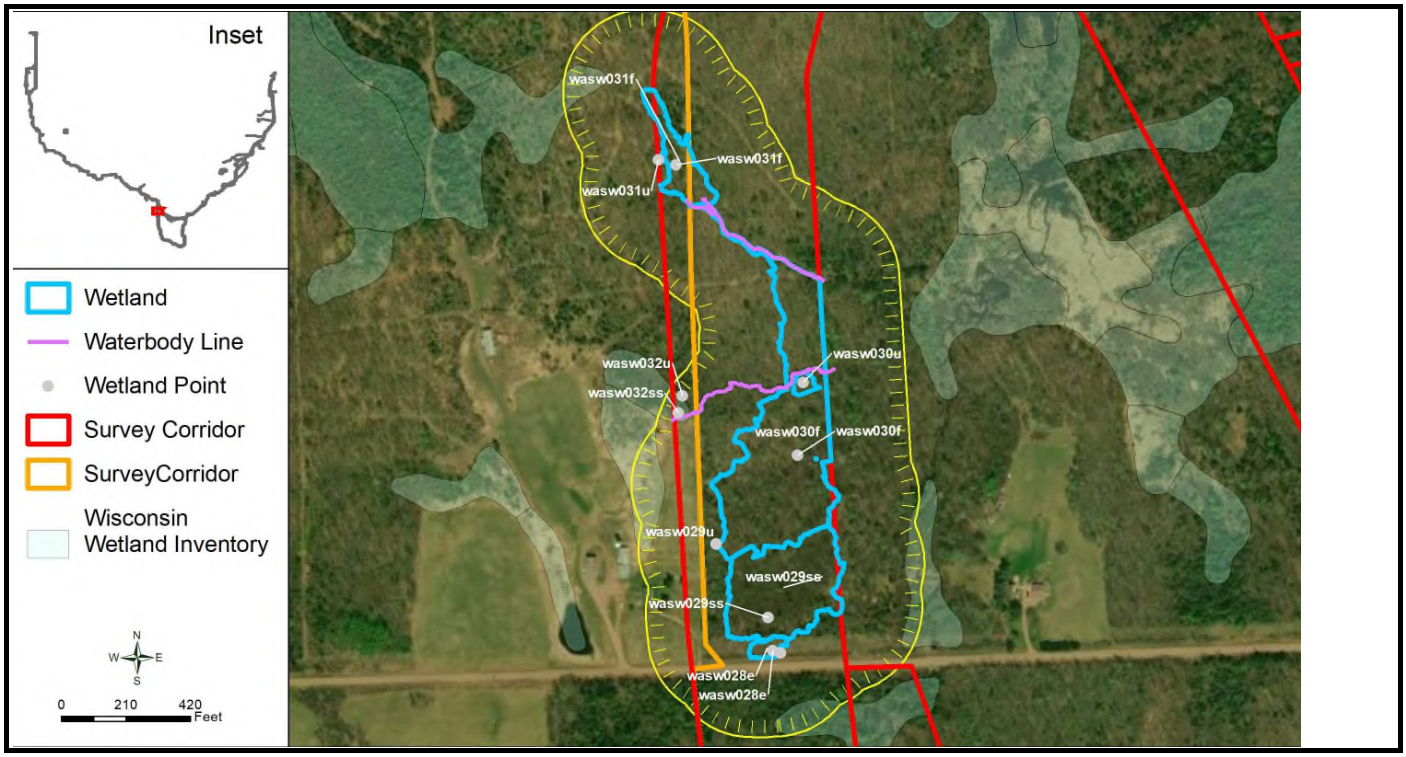
Long/Easting: Lat/Northing:

Description:

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION wasw028e, wasw029ss, wasw030f, wasw031f, wasw032ss,	
Project name: Line 5 Pipeline Relocation Project	Evaluator(s): Emily Stulik and Wes Conway
File #:	Date of visit(s): 10/3/19
Location: PLSS: WI46 T45N R3W SN25 Lat: 46.342364 (wasw028e) 46.342663 (wasw029ss) 46.344109 (wasw030f) 46.346732 (wasw031f) 46.344517 (wasw032ss) Long: -90.683561 -90.683606 -90.683167 -90.684622 -90.684687 County: Ashland Town/City/Village:	Ecological Landscape: North Central Forest Watershed: Upper bad river 0401030203
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very Field Verified: Yes	WWI Class: T3K (032ss), none (all others) Wetland Type(s): fresh wet meadow, Alder thicket, hardwood swamp Wetland Size: 1.58 / Wetland Area Impacted
Hydrology: seasonal high groundwater table in alder thicket, flooding from adjacent stream in pss and adjacent pfo	Vegetation: Plant Community Description(s): Plant Community Description(s): ulmus americana, alnus incana thicket, carex intumescens; forested pfo hardwood swamp: fraxinus species ulmus americana, ilex verticillata, juncus effusis, euthamia graminifolia

SITE MAP



SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	Y		Used for recreation (hunting, birding, hiking, etc.). List: hunting tree/deer stand observed
2	N		Used for educational or scientific purposes
3	N		Visually or physically accessible to public
4	Y		Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N		In or adjacent to RED FLAG areas List:
6	Y		Supports or provides habitat for endangered, threatened or special concern species
7		P	In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y		Wetland and contiguous habitat >10 acres
2	Y		3 or more strata present (>10% cover)
3	N		Within or adjacent to habitat corridor or established wildlife habitat area
4	Y		100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N		Occurs in a Joint Venture priority township
6	Y		Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y		Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y		Part of a large habitat block that supports area sensitive species
9	Y		Ephemeral pond with water present ≥ 45 days
10	Y		Standing water provides habitat for amphibians and aquatic invertebrates
11	N		Seasonally exposed mudflats present
12	N		Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N		Wetland is connected or contiguous with perennial stream or lake
2	Y		Standing water provides habitat for amphibians and aquatic invertebrates
3	N		Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4		P	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N		Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N		Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N		Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y		Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y		Water flow through wetland is NOT channelized
3	Y		Dense, persistent vegetation
4	Y		Evidence of flashy hydrology
5	N		Point or non-point source inflow
6	N		Impervious surfaces cover >10% of land surface within the watershed
7	N		Within a watershed with ≤10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N		Provides substantial storage of storm and floodwater based on previous section
2	N		Basin wetland or constricted outlet
3	Y		Water flow through wetland is NOT channelized
4	Y		Vegetated wetland associated with a lake or stream
5	Y		Dense, persistent vegetation
6	N		Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N		Stormwater or surface water from agricultural land is major hydrology source
8	Y		Discharge to surface water
9	N		Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y		Springs, seeps or indicators of groundwater present
2	Y		Location near a groundwater divide or a headwater wetland
3	Y		Wetland remains saturated for an extended time period with no additional water inputs
4	N		Wetland soils are organic
5	N		Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

wetlands comprise large, diverse habitat complex that are contiguous with streams (unmapped)
intermittent stream flows through pfo complex
pss alder thicket wetland is contiguous with pfo hardwood swamp
forest potential to support nesting bird habitat, trees for state fed listed bat species
wetland complex located nearby mapped Krause Creek, ASNRI Outstanding and exceptional stream
Krause Creek Class I trout stream

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
		ranid frog observed, species unknown
		chipmunk , Tamias striatus
		gray cheeked thrush, Catharus minimus
		forest, upland, scrub shrub habitat connectivity potential for rare threatened species habitat

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4 wasw029ss & wasw032ss (only)	S3 all others	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32 all except wasw030f, & wasw031f	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7 all except wasw030f, & wasw031f

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Abies balsamea*	balsam fir	5	wasw031f; wasw032ss	25%
Acer rubrum*	red maple	3	wasw031f	22%
Acer saccharum	hard maple, sugar maple	5	wasw031f; wasw032ss	12%
Alnus incana*	speckled alder	4	wasw029ss; wasw032ss	155%
Betula alleghaniensis*	yellow birch	7	wasw031f; wasw032ss	60%
Calamagrostis canadensis	blue-joint grass	5	wasw031f	2%
Carex bromoides*	brome-like sedge	8	wasw031f; wasw032ss	160%
Carex crinita	fringed sedge	6	wasw032ss	10%
Carex intumescens*	greater bladder sedge, shining bur sedge, swollen	6	wasw032ss	10%
Doellingeria umbellata	flat-top aster, parasol aster, tall flat-topped white aster	6	wasw028e; wasw030f	5%
Equisetum pratense	meadow horsetail	9	wasw029ss	5%
Euthamia graminifolia	common flat-topped goldenrod, grass-leaved goldenrod	4	wasw030f	25%
Fraxinus americana*	white ash	5	wasw030f	15%
Fraxinus nigra*	black ash	8	wasw029ss; wasw030f; wasw031f	55%
Fraxinus pennsylvanica*	green ash, red ash	2	wasw030f	12%
Ilex verticillata	common winterberry	7	wasw030f	17%
Juncus effusus	common rush, soft rush	4	wasw028e; wasw030f	55%
Onoclea sensibilis	sensitive fern	5	wasw028e; wasw030f; wasw032ss	9%
Ostrya virginiana	eastern hop-hornbeam, ironwood	5	wasw031f	15%
Parthenocissus quinquefolia*	Virginia creeper, woodbine	5	wasw032ss	15%
Picea glauca	white spruce	7	wasw029ss	7%
Populus tremuloides*	aspen, quaking aspen	2	wasw028e; wasw029ss; wasw030f	45%
Prunus serotina	wild black cherry	3	wasw032ss	10%
Pyrola elliptica	elliptic shin-leaf, large-leaved shin-leaf, wax-fl	6	wasw031f	2%
Quercus rubra	northern red oak	5	wasw031f	5%
Rubus hispidus	bristly dewberry, swamp dewberry	4	wasw032ss	7%
Rubus pubescens	dwarf red raspberry	7	wasw029ss	7%
Salix discolor	pussy willow	2	wasw032ss	5%

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Continued on next page.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4 wasw029ss & wasw032ss (only)	S3 all others	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32 all except wasw030f, & wasw031f	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7 all except wasw030f, & wasw031f

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Scirpus cyperinus	wool-grass	4	wasw028e	5%
Scirpus atrovirens	black bulrush, dark-green bulrush	3	wasw028e	15%
Solidago gigantea	giant goldenrod	3	wasw029ss; wasw030f; wasw031f	17%
Symphyotrichum lateriflorum	side-flowering aster	3	wasw029ss; wasw030f	17%
Tilia americana	American linden, basswood	5	wasw030f	5%
Ulmus americana*	American elm, white elm	3	wasw029ss; wasw030f; wasw031f	57%

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
x	x		L	UC	Agriculture – pasture
					Roads or railroad
x			L	C	Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
x	x		L	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

portions of wetland are located adjacent to pasture
grassy two track ATV road adjacent wetlands
wasw028e located within overhead utility line corridor

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		x			
Human Use Values	x				
Wildlife Habitat			x		
Fish and Aquatic Life Habitat	x				
Shoreline Protection					x
Flood and Stormwater Storage		x			
Water Quality Protection		x			
Groundwater Processes		x			

FUNCTION	RATIONALE
Floristic Integrity	good assemblage of native species, diversity of plants
Human Use Values	private use for hunting
Wildlife Habitat	high quality stream, pss and pfo and upland wetland and forest complex types in system. Potential to support rare species
Fish and Aquatic Life Habitat	stream quality rated high, no macroinvert. species or fish observed in stream
Shoreline Protection	N/A
Flood and Stormwater Storage	forested depressions, basins with dense persistent vegetation
Water Quality Protection	forested depressions, basins with dense persistent vegetation
Groundwater Processes	groundwater indicators: high water table, surface water, saturation evident

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	temporary trenching, soil storage, and backfilling, tree clearing	high
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation and tree removal for construction.	medium
Cumulative Impacts	Operational vegetation maintenance	medium
Spatial/Habitat Integrity	Temporary construction impacts	medium, high quality habitat complex
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project **City/County:** Ashland **Sampling Date:** 04-Oct-19

Applicant/Owner: Enbridge **State:** WI **Sampling Point:** wasw031u

Investigator(s): ES/WC **Section, Township, Range:** S. 25 T. 45N R. 3W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** undulating **Slope:** 26.7 % / 15.0

Subregion (LRR or MLRA): LRR K **Lat.:** 46.34678264 **Long.:** -90.68484705 **Datum:** WGS 1984

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

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

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: wasw031u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Acer saccharum*	30	☑	39.0%	FACU
2. *Abies balsamea*	20	☑	26.0%	FAC
3. *Tilia americana*	15	☐	19.5%	FACU
4. *Ostrya virginiana*	5	☐	6.5%	FACU
5. *Quercus rubra*	7	☐	9.1%	FACU
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	77	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15')				
1. *Abies balsamea*	15	☐	18.8%	FAC
2. *Ostrya virginiana*	20	☑	25.0%	FACU
3. *Quercus rubra*	20	☑	25.0%	FACU
4. *Acer saccharum*	20	☑	25.0%	FACU
5. *Tilia americana*	5	☐	6.3%	FACU
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	80	= Total Cover		

Herb Stratum (Plot size: 5')				
1. *Mitchella repens*	30	☑	69.8%	FACU
2. *Tilia americana*	5	☐	11.6%	FACU
3. *Athyrium filix-femina*	3	☐	7.0%	FAC
4. *Dryopteris carthusiana*	5	☐	11.6%	FACW
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	43	= Total Cover		

Woody Vine Stratum (Plot size: 15')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	16.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	5	x 2 =	10	
FAC species	38	x 3 =	114	
FACU species	157	x 4 =	628	
UPL species	0	x 5 =	0	
Column Totals:	200	(A)	752	(B)

Prevalence Index = B/A = 3.760

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ○ No ◉

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FW

Soil

Sampling Point: wasw031u

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type [1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR	3/2	100					Silty Clay Loam	
6-24	10YR	3/2	40						
+mottle	7.5R	4/4	60						

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Plot ID: **wasw031u** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Photos\

Photo File: **DSCN7839.JP** Orientation: -facing

Lat/Long or UTM : Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7840.JPG** Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

Plot ID: **wasw031u** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Pho

Photo File: **dscn7841.jpg** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **None.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **None.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **None.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/4/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV060f_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 20-25% Lat.: 46.346475 Long.: -90.682986 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located within a seep slope on forested hillside.

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	6
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	surface

Indicators of wetland hydrology present? Y

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

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met. Rainfall on the previous day.

VEGETATION - Use scientific names of plants

Sampling Point: WASV060f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Tilia americana*	15	Y	FACU
3	*Fraxinus nigra*	15	Y	FACW
4	*Betula alleghaniensis*	3	N	FAC
5	*Acer rubrum*	1	N	FAC
6				
7				
8				
9				
10				
		72	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	15	Y	FAC
2	*Acer saccharum*	3	N	FACU
3	*Fraxinus nigra*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
		21	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Pyrola americana*	38	Y	FAC
2	*Athyrium filix-femina*	38	Y	FAC
3	*Equisetum pratense*	15	N	FACW
4	*Rubus pubescens*	5	N	FACW
5	*Carex crinita*	3	N	OBL
6	*Symphyotrichum lateriflorum*	3	N	FAC
7	*Ranunculus acris*	1	N	FAC
8	*Ribes triste*	1	N	OBL
9				
10				
11				
12				
13				
14				
15				
		104	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV060f_W	14	36
Sapling/Shrub Stratum	4	11
Herb Stratum	21	52
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	4	x 1 =	4	
FACW species	38	x 2 =	76	
FAC species	99	x 3 =	297	
FACU species	56	x 4 =	224	
UPL species	0	x 5 =	0	
Column totals	197	(A)	601	(B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

___ Prevalence index is ≤3.0*

___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Dominance Test indicator present; parameter is met. Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV060f_W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	7.5YR 3/2	100					silt loam	
6-16	7.5YR3/2	80	7.5YR 4/4	20	C	M	silt loam	
16-18	7.5YR 3/1	100					silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Redox dark surface (F6) is present; parameter is met.

Photograph 1: WASV060f_W, East

Photograph 2: WASV060f_W, North

Photograph 3: WASV060f_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/4/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV060_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Flat
Slope (%): 5-10% Lat.: 46.346816 Long.: -90.683479 Datum: WGS 1984
Soil Map Unit Name Tula-Wormet-Gogebic complex, 0-6% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Data point located in upland forest on hillslope above WASV060.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

N/A

Remarks:
No indicators of wetland hydrology are present; parameter is not met. Heavy rainfall on the previous day.

VEGETATION - Use scientific names of plants

Sampling Point: WASV060_U

Tree Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	15	Y	FACU
2	*Ulmus americana*	15	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		30	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus americana*	38	Y	FACW
2	*Acer saccharum*	15	Y	FACU
3	*Tilia americana*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		56	= Total Cover	

Herb Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Adiantum pedatum*	38	Y	FACU
2	*Mitchella repens*	15	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		53	= Total Cover	

Woody Vine Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	6	15
Sapling/Shrub Stratum	11	28
Herb Stratum	11	27
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	53	x 2 =	106	
FAC species	0	x 3 =	0	
FACU species	86	x 4 =	344	
UPL species	0	x 5 =	0	
Column totals	139	(A)	450	(B)

Prevalence Index = B/A = 3.24

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical 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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

No hydrophytic vegetation indicators present; parameter is not met.

SOIL **Sampling Point:** WASV060_U

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
1-20	7.5YR 3/4	80	7.5YR 5/6	20	C	M	silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
No hydric soil indicators present and soil does not meet NTCHS definition of hydric soil; parameter is not met.

Photograph 1: WASV060_U, East

Photograph 2: WASV060_U, North

Photograph 3: WASV060_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION **WASV060**	
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/3/2019
Location: PLSS: 45N02W Lat: 46.346475 Long: -90.682974 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.139 acres / Wetland Area Impacted: 0.139 acres
Hydrology: Groundwater-driven PFO wetland, as indicated by a high water table, saturated soils, and geomorphic position.	Vegetation: Plant Community Description(s): *Acer saccharum*, *Pyrola americana*, *Athyrium filix-femina*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	N	N	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
GW1 – Saturation at surface

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	X	Songbirds
	X	Area sensitive species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		No standing water observed at time of survey and wetland does not appear to hold water for extended periods of time

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Acer saccharum*	hard maple, sugar maple	5	PFO	
**Tilia americana*	American linden, basswood	5	PFO	
**Fraxinus nigra*	black ash	8	PFO	
**Betula alleghaniensis*	yellow birch	7	PFO	
Acer rubrum	red maple	3	PFO	
**Pyrola americana*	American wintergreen, round-leaved shin-leaf	8	PFO	
**Athyrium filix-femina*	common lady fern, lady fern	5	PFO	
Equisetum pratense	meadow horsetail	9	PFO	
Rubus pubescens	dwarf red raspberry	7	PFO	
Carex crinita	fringed sedge	6	PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PFO	
Ranunculus acris	common buttercup, blister plant, meadow buttercup,	0	PFO	
Ribes triste	swamp red currant	8	PFO	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

PEM FQI = 20.5, Mean C of C = 5.7

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
	X		L	UC	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
	X		L	UC	Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
ATV trails through wetland buffer as cleared vegetated paths

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat		X			
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage	X				
Water Quality Protection	X				
Groundwater Processes		X			

FUNCTION	RATIONALE
Floristic Integrity	Flora primarily composed of common native wetland species.
Human Use Values	Assessment area is relatively small and is located on private property, making it unlikely to be used for recreation.
Wildlife Habitat	Within large tract of forest with minor human disturbances, but no wildlife observed at time of survey.
Fish and Aquatic Life Habitat	No standing water at time of survey and wetland does not appear to hold water for significant amounts of time.
Shoreline Protection	N/A
Flood and Stormwater Storage	Relatively small wetland does not receive large amounts of run-off from surrounding area and would not hold large amounts of water during a storm.
Water Quality Protection	Few pollutants entering wetland, other than possibly from ATVs.
Groundwater Processes	Saturation at surface observed within wetland.

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-15

Applicant/Owner: Enbridge State: WI Sampling Point: wasc071f_w

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.344917 Long: -90.676694 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	If yes, optional Wetland Site ID: ____

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

The wetland is a large hardwood swamp that extends outside of the survey area. The wetland is surrounded by young disturbed mesic forest and exists largely due to its lower relative elevation.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrologic regime is seasonally saturated, with recharge hydrology.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc071f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	50.0	Y	FACW
2. *Betula alleghaniensis*	15.0	Y	FAC
3. *Thuja occidentalis*	5.0	N	FACW
4.			
5.			
6.			
7.			
	70.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Corylus cornuta*	5.0	Y	FACU
2. *Ilex verticillata*	5.0	Y	FACW
3. *Abies balsamea*	5.0	Y	FAC
4. *Acer rubrum*	5.0	Y	FAC
5.			
6.			
7.			
	20 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex bromoides*	40.0	Y	FACW
2. *Carex scabrata*	10.0	Y	OBL
3. *Carex crinita*	10.0	Y	OBL
4. *Athyrium angustum*	5.0	N	FAC
5. *Dryopteris intermedia*	5.0	N	FAC
6. *Equisetum sylvaticum*	5.0	N	FACW
7. *Acer rubrum*	2.0	N	FAC
8. *Rubus pubescens*	2.0	N	FACW
9. *Abies balsamea*	2.0	N	FAC
10.			
11.			
12.			
	81 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 88.89 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	107	x 2 =	214
FAC species	39	x 3 =	117
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	171 (A)		371 (B)

Prevalence Index = B/A = 2.17

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

The wetland is dominated by Fraxinus nigra and an herbaceous layer of Carex on frequent tussocks.

SOIL

Sampling Point: wasc071f_w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					MMI	
8-18	10YR 2/1	95	2.5YR 3/6	5	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ✓ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Soil is dark and mucky at the surface.

wasc071f_w_N

wasc071f_w_W

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): BRG/JSW
File #: wasc071	Date of visit(s): 10/15/2019
Location: PLSS: 045N-003W-25 Lat: 46.344999 Long: -90.676755 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River

SITE DESCRIPTION		
Soils: Mapped Type(s): 809C, 5171B, 5141A, 5172B, Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes, Tula-Wormet-Gogebic complex, 0 to 6 percent slopes, very stony, Lupton-Pleine-Cathro complex, 0 to 1 percent slopes, Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes Field Verified: Series not verified. The soils consist of a modified mucky mineral over a sandy clay loam.	WWI Class: N/A Wetland Type(s): PFO/PEM complex - Hardwood swamp/Fresh Wet Meadow	
	Wetland Size: 5.28	Wetland Area Impacted 5.28
Hydrology: The wetland is a large depressional feature and has a seasonally saturated hydrologic regime with recharge hydrology.	Vegetation: Plant Community Description(s): The hardwood swamp is dominated by Fraxinus nigra, with an herbaceous layer consisting primarily of Carex bromoides, C. crinita, and C. scabrata.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting, birding
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	Y	Ephemeral pond with water present ≥ 45 days
10	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	Y	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	NA	NA	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	NA	NA	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	NA	NA	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	Y	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

WH-10: frequent standing water between the small tussocks present throughout the wetland
ST-5: the wetland may obtain some runoff from nearby unpaved trails

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Deer
	Y	Avian
	Y	Amphibians

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	Y	Frogs
	Y	Aquatic invertebrates

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☑	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☑	Common ☐	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Fraxinus nigra			PFO	Abundant
Betula alleghaniensis			PFO	Common
Thuja occidentalis			PFO	Uncommon
Corylus cornuta			PFO	Uncommon
Ilex verticillata			PFO	Uncommon
Abies balsamea	balsam fir		PFO	Uncommon
Acer rubrum			PFO	Uncommon
Carex bromoides			PFO	Common
Carex scabrata			PFO	Common
Athyrium angustum			PFO	Uncommon
Dryopteris intermedia			PFO	Uncommon
Equisetum sylvaticum			PFO	Uncommon
Rubus pubescens			PFO	Uncommon
Carex crinita			PFO	Common

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The wetland contains a good assembly of native species representative of the wetland community type.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
	X		L	C	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
	X		L	U	Roads or railroad
	X		L	C	Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
	X		L	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
		X	M	U	Removal of tree or shrub strata – logging, unprescribed fire
	X		M	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		L	C	Cover of non-native and/or invasive species
	X		L	C	Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The area has been logged in the past, and worms are present. Residential land use and development has affected the surrounding area, but the wetland itself is comparatively unimpacted.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity			✓		
Human Use Values			✓		
Wildlife Habitat			✓		
Fish and Aquatic Life Habitat			✓		
Shoreline Protection					✓
Flood and Stormwater Storage			✓		
Water Quality Protection		✓			
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Good assembly of native species
Human Use Values	Hunting, birding (large wetland)
Wildlife Habitat	Deer and avian habitat
Fish and Aquatic Life Habitat	Frequent saturation and standing water in microdepressions between tussocks
Shoreline Protection	N/A
Flood and Stormwater Storage	Closed and densely vegetated depression
Water Quality Protection	Unpaved trails and sources of stormwater runoff are present nearby, but likely do not significantly contribute to the wetland
Groundwater Processes	Groundwater recharge, periods of standing water

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-15

Applicant/Owner: Enbridge State: WI Sampling Point: wasc071_u

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Side slope Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.344675 Long: -90.676663 Datum: WGS84

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

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

The upland is located in a mesic forest. Facultative tree cover meets the requirement for hydrophytic vegetation, but the area is otherwise a definite upland area.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed, as the upland is located on the side of a slope.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc071_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	20.0	Y	FACW
2. *Ulmus americana*	20.0	Y	FACW
3. *Acer rubrum*	10.0	N	FAC
4. *Tilia americana*	10.0	N	FACU
5.			
6.			
7.			
	60.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Fraxinus americana*	10.0	Y	FACU
2. *Abies balsamea*	5.0	Y	FAC
3. *Acer saccharum*	5.0	Y	FACU
4. *Ulmus americana*	5.0	Y	FACW
5.			
6.			
7.			
	25 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex pedunculata*	20.0	Y	FAC
2. *Pyrola elliptica*	10.0	Y	FACU
3. *Athyrium angustum*	10.0	Y	FAC
4. *Mitchella repens*	10.0	Y	FACU
5. *Abies balsamea*	2.0	N	FAC
6. *Symphyotrichum lateriflorum*	1.0	N	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	53 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	45	x 2 =	90
FAC species	48	x 3 =	144
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	138 (A)		414 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

The upland is a mesic forest dominated by a variety of trees and shrubs, with common upland herbaceous vegetation.

SOIL

Sampling Point: wasc071_u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-11	7.5YR 3/3	100					CL	
11-18	7.5YR 4/3	100					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No hydric soil indicators observed.

wasc071_u_E

wasc071_u_W

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project **City/County:** Ashland **Sampling Date:** 04-Oct-19

Applicant/Owner: Enbridge **State:** WI **Sampling Point:** wasw032ss

Investigator(s): ES/WC **Section, Township, Range: S.** 25 **T.** 45N **R.** 3W

Landform (hillslope, terrace, etc.): Terrace **Local relief (concave, convex, none):** tussocks **Slope:** 3.5 % / 2.0

Subregion (LRR or MLRA): LRR K **Lat.:** 46.34451715 **Long.:** -90.68468732 **Datum:** WGS 1984

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony **NWI classification:** PEM1C

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

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

Alder thicket wetland surrounding stream sasw013. Wetland classified as scrub-shrub due to dominance of alder, Alnus incana, in sapling, shrub statrum.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ◉ No ○	Depth (inches):	14
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: wasw032ss

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Abies balsamea*	15	☑	33.3%	FAC
2. *Betula alleghaniensis*	25	☑	55.6%	FAC
3. *Salix discolor*	5	☐	11.1%	FACW
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	45	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15')				
1. *Alnus incana*	75	☑	82.4%	FACW
2. *Betula alleghaniensis*	10	☐	11.0%	FAC
3. *Acer saccharum*	3	☐	3.3%	FACU
4. *Prunus serotina*	3	☐	3.3%	FACU
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	91	= Total Cover		

Herb Stratum (Plot size: 5')				
1. *Carex bromoides*	90	☑	74.4%	FACW
2. *Carex crinita*	10	☐	8.3%	OBL
3. *Rubus hispidus*	7	☐	5.8%	FACW
4. *Alnus incana*	5	☐	4.1%	FACW
5. *Prunus serotina*	7	☐	5.8%	FACU
6. *Onoclea sensibilis*	2	☐	1.7%	FACW
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	121	= Total Cover		

Woody Vine Stratum (Plot size: 15')				
1. *Parthenocissus quinquefolia*	15	☑	100.0%	FACU
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	15	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	80.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	10	x 1 =	10	
FACW species	184	x 2 =	368	
FAC species	50	x 3 =	150	
FACU species	28	x 4 =	112	
UPL species	0	x 5 =	0	
Column Totals:	272	(A)	640	(B)

Prevalence Index = B/A = 2.353

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ◉ No ○

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: wasw032ss

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-5	10YR	3/1	100						Silty Clay	
5-12	10YR	3/1	30	7.5YR	4/6	20	C	PL	Silty Clay	
+mottle				7.5YR	4/2	50	D	M	Silty Clay	
12-24	5YR	4/3	95	7.5YR	4/6	5	C	PL	Sandy Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2] Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Plot ID: **wasw032ss** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Photos\

Photo File: **DSCN7846.JPG** Orientation: -facing

Lat/Long or UTM : Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7850.JPG** Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

Plot ID: **wasw032ss**

Photo Path: C:\WetForm\ERM Line 5 Pipeline\Pho

Photo File: **DSCN7851.JPG** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7852.JPG** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

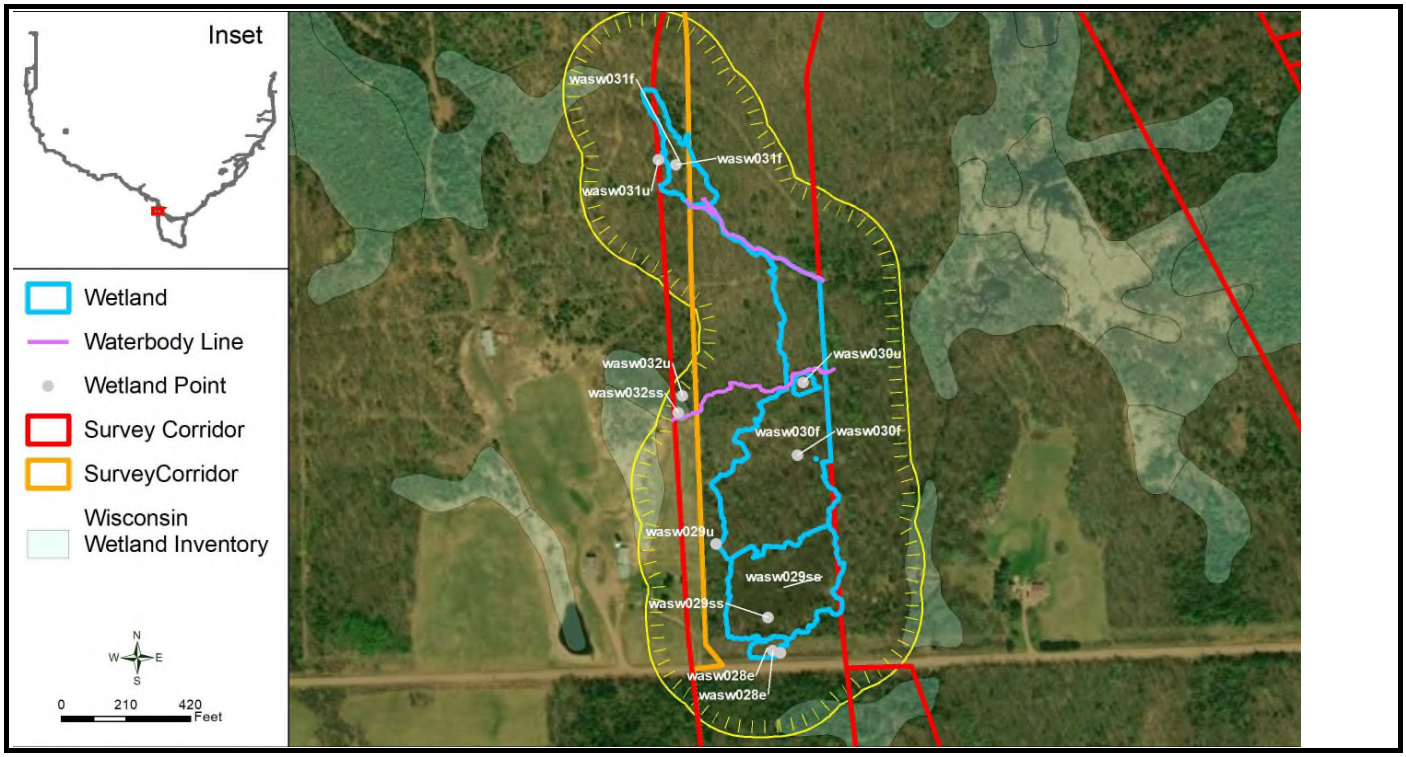
Long/Easting: Lat/Northing:

Description:

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION wasw028e, wasw029ss, wasw030f, wasw031f, wasw032ss,	
Project name: Line 5 Pipeline Relocation Project	Evaluator(s): Emily Stulik and Wes Conway
File #:	Date of visit(s): 10/3/19
Location: PLSS: WI46 T45N R3W SN25 Lat: 46.342364 (wasw028e) 46.342663 (wasw029ss) 46.344109 (wasw030f) 46.346732 (wasw031f) 46.344517 (wasw032ss) Long: -90.683561 -90.683606 -90.683167 -90.684622 -90.684687 County: Ashland Town/City/Village:	Ecological Landscape: North Central Forest Watershed: Upper bad river 0401030203
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very Field Verified: Yes	WWI Class: T3K (032ss), none (all others) Wetland Type(s): fresh wet meadow, Alder thicket, hardwood swamp Wetland Size: 1.58 / Wetland Area Impacted
Hydrology: seasonal high groundwater table in alder thicket, flooding from adjacent stream in pss and adjacent pfo	Vegetation: Plant Community Description(s): Plant Community Description(s): ulmus americana, alnus incana thicket, carex intumescens; forested pfo hardwood swamp: fraxinus species ulmus americana, ilex verticillata, juncus effusis, euthamia graminifolia

SITE MAP



SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	Y		Used for recreation (hunting, birding, hiking, etc.). List: hunting tree/deer stand observed
2	N		Used for educational or scientific purposes
3	N		Visually or physically accessible to public
4	Y		Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N		In or adjacent to RED FLAG areas List:
6	Y		Supports or provides habitat for endangered, threatened or special concern species
7		P	In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y		Wetland and contiguous habitat >10 acres
2	Y		3 or more strata present (>10% cover)
3	N		Within or adjacent to habitat corridor or established wildlife habitat area
4	Y		100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N		Occurs in a Joint Venture priority township
6	Y		Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y		Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y		Part of a large habitat block that supports area sensitive species
9	Y		Ephemeral pond with water present ≥ 45 days
10	Y		Standing water provides habitat for amphibians and aquatic invertebrates
11	N		Seasonally exposed mudflats present
12	N		Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N		Wetland is connected or contiguous with perennial stream or lake
2	Y		Standing water provides habitat for amphibians and aquatic invertebrates
3	N		Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4		P	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N		Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N		Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N		Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y		Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y		Water flow through wetland is NOT channelized
3	Y		Dense, persistent vegetation
4	Y		Evidence of flashy hydrology
5	N		Point or non-point source inflow
6	N		Impervious surfaces cover >10% of land surface within the watershed
7	N		Within a watershed with ≤10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N		Provides substantial storage of storm and floodwater based on previous section
2	N		Basin wetland or constricted outlet
3	Y		Water flow through wetland is NOT channelized
4	Y		Vegetated wetland associated with a lake or stream
5	Y		Dense, persistent vegetation
6	N		Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N		Stormwater or surface water from agricultural land is major hydrology source
8	Y		Discharge to surface water
9	N		Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y		Springs, seeps or indicators of groundwater present
2	Y		Location near a groundwater divide or a headwater wetland
3	Y		Wetland remains saturated for an extended time period with no additional water inputs
4	N		Wetland soils are organic
5	N		Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

wetlands comprise large, diverse habitat complex that are contiguous with streams (unmapped)
intermittent stream flows through pfo complex
pss alder thicket wetland is contiguous with pfo hardwood swamp
forest potential to support nesting bird habitat, trees for state fed listed bat species
wetland complex located nearby mapped Krause Creek, ASNRI Outstanding and exceptional stream
Krause Creek Class I trout stream

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
		ranid frog observed, species unknown
		chipmunk , Tamias striatus
		gray cheeked thrush, Catharus minimus
		forest, upland, scrub shrub habitat connectivity potential for rare threatened species habitat

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4 wasw029ss & wasw032ss (only)	S3 all others	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32 all except wasw030f, & wasw031f	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7 all except wasw030f, & wasw031f

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Abies balsamea*	balsam fir	5	wasw031f; wasw032ss	25%
Acer rubrum*	red maple	3	wasw031f	22%
Acer saccharum	hard maple, sugar maple	5	wasw031f; wasw032ss	12%
Alnus incana*	speckled alder	4	wasw029ss; wasw032ss	155%
Betula alleghaniensis*	yellow birch	7	wasw031f; wasw032ss	60%
Calamagrostis canadensis	blue-joint grass	5	wasw031f	2%
Carex bromoides*	brome-like sedge	8	wasw031f; wasw032ss	160%
Carex crinita	fringed sedge	6	wasw032ss	10%
Carex intumescens*	greater bladder sedge, shining bur sedge, swollen	6	wasw032ss	10%
Doellingeria umbellata	flat-top aster, parasol aster, tall flat-topped white aster	6	wasw028e; wasw030f	5%
Equisetum pratense	meadow horsetail	9	wasw029ss	5%
Euthamia graminifolia	common flat-topped goldenrod, grass-leaved goldenrod	4	wasw030f	25%
Fraxinus americana*	white ash	5	wasw030f	15%
Fraxinus nigra*	black ash	8	wasw029ss; wasw030f; wasw031f	55%
Fraxinus pennsylvanica*	green ash, red ash	2	wasw030f	12%
Ilex verticillata	common winterberry	7	wasw030f	17%
Juncus effusus	common rush, soft rush	4	wasw028e; wasw030f	55%
Onoclea sensibilis	sensitive fern	5	wasw028e; wasw030f; wasw032ss	9%
Ostrya virginiana	eastern hop-hornbeam, ironwood	5	wasw031f	15%
Parthenocissus quinquefolia*	Virginia creeper, woodbine	5	wasw032ss	15%
Picea glauca	white spruce	7	wasw029ss	7%
Populus tremuloides*	aspen, quaking aspen	2	wasw028e; wasw029ss; wasw030f	45%
Prunus serotina	wild black cherry	3	wasw032ss	10%
Pyrola elliptica	elliptic shin-leaf, large-leaved shin-leaf, wax-fl	6	wasw031f	2%
Quercus rubra	northern red oak	5	wasw031f	5%
Rubus hispidus	bristly dewberry, swamp dewberry	4	wasw032ss	7%
Rubus pubescens	dwarf red raspberry	7	wasw029ss	7%
Salix discolor	pussy willow	2	wasw032ss	5%

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Continued on next page.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4 wasw029ss & wasw032ss (only)	S3 all others	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32 all except wasw030f, & wasw031f	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7 all except wasw030f, & wasw031f

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Scirpus cyperinus	wool-grass	4	wasw028e	5%
Scirpus atrovirens	black bulrush, dark-green bulrush	3	wasw028e	15%
Solidago gigantea	giant goldenrod	3	wasw029ss; wasw030f; wasw031f	17%
Symphyotrichum lateriflorum	side-flowering aster	3	wasw029ss; wasw030f	17%
Tilia americana	American linden, basswood	5	wasw030f	5%
Ulmus americana*	American elm, white elm	3	wasw029ss; wasw030f; wasw031f	57%

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
x	x		L	UC	Agriculture – pasture
					Roads or railroad
x			L	C	Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
x	x		L	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

portions of wetland are located adjacent to pasture
grassy two track ATV road adjacent wetlands
wasw028e located within overhead utility line corridor

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		x			
Human Use Values	x				
Wildlife Habitat			x		
Fish and Aquatic Life Habitat	x				
Shoreline Protection					x
Flood and Stormwater Storage		x			
Water Quality Protection		x			
Groundwater Processes		x			

FUNCTION	RATIONALE
Floristic Integrity	good assemblage of native species, diversity of plants
Human Use Values	private use for hunting
Wildlife Habitat	high quality stream, pss and pfo and upland wetland and forest complex types in system. Potential to support rare species
Fish and Aquatic Life Habitat	stream quality rated high, no macroinvert. species or fish observed in stream
Shoreline Protection	N/A
Flood and Stormwater Storage	forested depressions, basins with dense persistent vegetation
Water Quality Protection	forested depressions, basins with dense persistent vegetation
Groundwater Processes	groundwater indicators: high water table, surface water, saturation evident

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	temporary trenching, soil storage, and backfilling, tree clearing	high
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation and tree removal for construction.	medium
Cumulative Impacts	Operational vegetation maintenance	medium
Spatial/Habitat Integrity	Temporary construction impacts	medium, high quality habitat complex
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project **City/County:** Ashland **Sampling Date:** 04-Oct-19

Applicant/Owner: Enbridge **State:** WI **Sampling Point:** wasw032u

Investigator(s): ES/WC **Section, Township, Range:** S. 25 T. 45N R. 3W

Landform (hillslope, terrace, etc.): Mound **Local relief (concave, convex, none):** convex **Slope:** 8.7 % / 5.0

Subregion (LRR or MLRA): LRR K **Lat.:** 46.34466711 **Long.:** -90.68462772 **Datum:** WGS 1984

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony **NWI classification:** PEM1C

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

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

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: wasw032u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Populus tremuloides*	1	☐	2.4%	FACU
2. *Abies balsamea*	20	☑	48.8%	FAC
3. *Acer rubrum*	15	☑	36.6%	FAC
4. *Betula alleghaniensis*	5	☐	12.2%	FAC
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	41	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15')				
1. *Ostrya virginiana*	5	☐	11.1%	FACU
2. *Quercus rubra*	3	☐	6.7%	FACU
3. *Amelanchier arborea*	15	☑	33.3%	FACU
4. *Alnus incana*	15	☑	33.3%	FACW
5. *Tilia americana*	2	☐	4.4%	FACU
6. *Fraxinus pennsylvanica*	3	☐	6.7%	FACW
7. *Salix discolor*	2	☐	4.4%	FACW
	45	= Total Cover		

Herb Stratum (Plot size: 5')				
1. *Carex pedunculata*	40	☑	55.6%	FAC
2. *Mitchella repens*	25	☑	34.7%	FACU
3. *Amelanchier arborea*	5	☐	6.9%	FACU
4. *Symphyotrichum lateriflorum*	2	☐	2.8%	FAC
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	72	= Total Cover		

Woody Vine Stratum (Plot size: 15')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	66.7%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	20	x 2 =	40	
FAC species	82	x 3 =	246	
FACU species	56	x 4 =	224	
UPL species	0	x 5 =	0	
Column Totals:	158	(A)	510	(B)

Prevalence Index = B/A = 3.228

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ◉ No ○

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FW

Soil

Sampling Point: wasw032u

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)	%	Type [1]	Loc[2]	Texture	Remarks
0-6	10YR	3/2	80					Silt Loam	
+mottle	7.5YR	4/4	20					Silt Loam	
6-16	7.5YR	3/3	90					Silt Loam	
+mottle	10YR	3/2	10					Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: rock

Depth (inches): 16

Hydric Soil Present? Yes ○ No ◉

Remarks:

Plot ID: **wasw032u** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Photos\

Photo File: **DSCN7856.JP** Orientation: -facing

Lat/Long or UTM : Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7857.JPG** Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

Plot ID: **wasw032u** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Pho

Photo File: **DSCN7858.JP** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7859.JPG** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project **City/County:** Ashland **Sampling Date:** 03-Oct-19

Applicant/Owner: Enbridge **State:** WI **Sampling Point:** wasw030f

Investigator(s): ES/WC **Section, Township, Range:** S. 25 T. 45N R. 3W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** concave **Slope:** 26.7 % / 15.0

Subregion (LRR or MLRA): LRR K **Lat.:** 46.34410873 **Long.:** -90.6831665 **Datum:** WGS 1984

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○		
Hydric Soil Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○		

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

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ◉ No ○	Depth (inches): 0	**Wetland Hydrology Present?** Yes ◉ No ○
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches): 0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: wasw030f

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Ulmus americana*	10	☑	21.3%	FACW
2. *Fraxinus pennsylvanica*	12	☑	25.5%	FACW
3. *Populus tremuloides*	10	☑	21.3%	FACU
4. *Fraxinus nigra*	15	☑	31.9%	FACW
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	47	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15')				
1. *Ulmus americana*	30	☑	48.4%	FACW
2. *Ilex verticillata*	12	☐	19.4%	FACW
3. *Fraxinus americana*	15	☑	24.2%	FACU
4. *Tilia americana*	5	☐	8.1%	FACU
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	62	= Total Cover		

Herb Stratum (Plot size: 5')				
1. *Symphyotrichum lateriflorum*	15	☐	18.3%	FAC
2. *Solidago gigantea*	5	☐	6.1%	FACW
3. *Doellingeria umbellata*	2	☐	2.4%	FACW
4. *Juncus effusus*	25	☑	30.5%	OBL
5. *Euthamia graminifolia*	25	☑	30.5%	FAC
6. *Onoclea sensibilis*	5	☐	6.1%	FACW
7. *Ilex verticillata*	5	☐	6.1%	FACW
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	82	= Total Cover		

Woody Vine Stratum (Plot size: 15')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	8	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	75.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	25	x 1 =	25	
FACW species	96	x 2 =	192	
FAC species	40	x 3 =	120	
FACU species	30	x 4 =	120	
UPL species	0	x 5 =	0	
Column Totals:	191	(A)	457	(B)

Prevalence Index = B/A = 2.393

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ◉ No ○

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FW

Soil

Sampling Point: wasw030f

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-4	10YR	3/2	100						Silty Clay Loam	
4-8	10YR	3/2	20	7.5YR	4/6	10	C	PL	Silty Clay Loam	
+mottle	10YR	5/3	70						Silty Clay Loam	
8-12	7.5YR	4/3	75	7.5YR	4/6	25	C	M	Sandy Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☑ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soils indicative of red parent material problematic indicator

Plot ID: **wasw030f** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Photos\

Photo File: **DSCN7784.JP** Orientation: -facing

Lat/Long or UTM : Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7792.JPG** Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

Plot ID: **wasw030f** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Pho

Photo File: **DSCN7794.JP** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7798.JPG** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

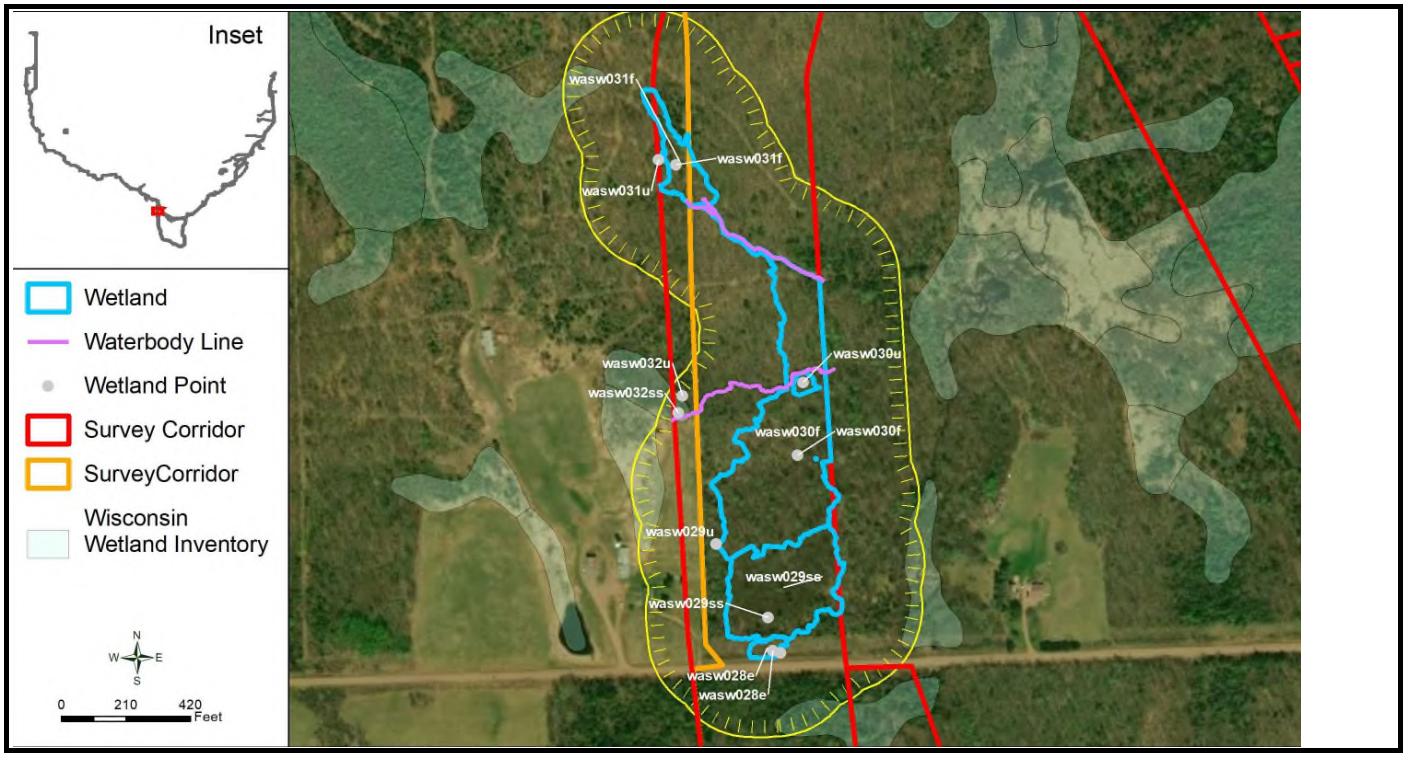
Long/Easting: Lat/Northing:

Description:

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION wasw028e, wasw029ss, wasw030f, wasw031f, wasw032ss,	
Project name: Line 5 Pipeline Relocation Project	Evaluator(s): Emily Stulik and Wes Conway
File #:	Date of visit(s): 10/3/19
Location: PLSS: WI46 T45N R3W SN25 Lat: 46.342364 (wasw028e) 46.342663 (wasw029ss) 46.344109 (wasw030f) 46.346732 (wasw031f) 46.344517 (wasw032ss) Long: -90.683561 -90.683606 -90.683167 -90.684622 -90.684687 County: Ashland Town/City/Village:	Ecological Landscape: North Central Forest Watershed: Upper bad river 0401030203
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very Field Verified: Yes	WWI Class: T3K (032ss), none (all others) Wetland Type(s): fresh wet meadow, Alder thicket, hardwood swamp Wetland Size: 1.58 / Wetland Area Impacted
Hydrology: seasonal high groundwater table in alder thicket, flooding from adjacent stream in pss and adjacent pfo	Vegetation: Plant Community Description(s): Plant Community Description(s): ulmus americana, alnus incana thicket, carex intumescens; forested pfo hardwood swamp: fraxinus species ulmus americana, ilex verticillata, juncus effusis, euthamia graminifolia

SITE MAP



SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	Y		Used for recreation (hunting, birding, hiking, etc.). List: hunting tree/deer stand observed
2	N		Used for educational or scientific purposes
3	N		Visually or physically accessible to public
4	Y		Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N		In or adjacent to RED FLAG areas List:
6	Y		Supports or provides habitat for endangered, threatened or special concern species
7		P	In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y		Wetland and contiguous habitat >10 acres
2	Y		3 or more strata present (>10% cover)
3	N		Within or adjacent to habitat corridor or established wildlife habitat area
4	Y		100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N		Occurs in a Joint Venture priority township
6	Y		Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y		Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y		Part of a large habitat block that supports area sensitive species
9	Y		Ephemeral pond with water present ≥ 45 days
10	Y		Standing water provides habitat for amphibians and aquatic invertebrates
11	N		Seasonally exposed mudflats present
12	N		Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N		Wetland is connected or contiguous with perennial stream or lake
2	Y		Standing water provides habitat for amphibians and aquatic invertebrates
3	N		Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4		P	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N		Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N		Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N		Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y		Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y		Water flow through wetland is NOT channelized
3	Y		Dense, persistent vegetation
4	Y		Evidence of flashy hydrology
5	N		Point or non-point source inflow
6	N		Impervious surfaces cover >10% of land surface within the watershed
7	N		Within a watershed with ≤10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N		Provides substantial storage of storm and floodwater based on previous section
2	N		Basin wetland or constricted outlet
3	Y		Water flow through wetland is NOT channelized
4	Y		Vegetated wetland associated with a lake or stream
5	Y		Dense, persistent vegetation
6	N		Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N		Stormwater or surface water from agricultural land is major hydrology source
8	Y		Discharge to surface water
9	N		Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y		Springs, seeps or indicators of groundwater present
2	Y		Location near a groundwater divide or a headwater wetland
3	Y		Wetland remains saturated for an extended time period with no additional water inputs
4	N		Wetland soils are organic
5	N		Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

wetlands comprise large, diverse habitat complex that are contiguous with streams (unmapped)
intermittent stream flows through pfo complex
pss alder thicket wetland is contiguous with pfo hardwood swamp
forest potential to support nesting bird habitat, trees for state fed listed bat species
wetland complex located nearby mapped Krause Creek, ASNRI Outstanding and exceptional stream
Krause Creek Class I trout stream

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
		ranid frog observed, species unknown
		chipmunk , Tamias striatus
		gray cheeked thrush, Catharus minimus
		forest, upland, scrub shrub habitat connectivity potential for rare threatened species habitat

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4 wasw029ss & wasw032ss (only)	S3 all others	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32 all except wasw030f, & wasw031f	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7 all except wasw030f, & wasw031f

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Abies balsamea*	balsam fir	5	wasw031f; wasw032ss	25%
Acer rubrum*	red maple	3	wasw031f	22%
Acer saccharum	hard maple, sugar maple	5	wasw031f; wasw032ss	12%
Alnus incana*	speckled alder	4	wasw029ss; wasw032ss	155%
Betula alleghaniensis*	yellow birch	7	wasw031f; wasw032ss	60%
Calamagrostis canadensis	blue-joint grass	5	wasw031f	2%
Carex bromoides*	brome-like sedge	8	wasw031f; wasw032ss	160%
Carex crinita	fringed sedge	6	wasw032ss	10%
Carex intumescens*	greater bladder sedge, shining bur sedge, swollen	6	wasw032ss	10%
Doellingeria umbellata	flat-top aster, parasol aster, tall flat-topped white aster	6	wasw028e; wasw030f	5%
Equisetum pratense	meadow horsetail	9	wasw029ss	5%
Euthamia graminifolia	common flat-topped goldenrod, grass-leaved goldenrod	4	wasw030f	25%
Fraxinus americana*	white ash	5	wasw030f	15%
Fraxinus nigra*	black ash	8	wasw029ss; wasw030f; wasw031f	55%
Fraxinus pennsylvanica*	green ash, red ash	2	wasw030f	12%
Ilex verticillata	common winterberry	7	wasw030f	17%
Juncus effusus	common rush, soft rush	4	wasw028e; wasw030f	55%
Onoclea sensibilis	sensitive fern	5	wasw028e; wasw030f; wasw032ss	9%
Ostrya virginiana	eastern hop-hornbeam, ironwood	5	wasw031f	15%
Parthenocissus quinquefolia*	Virginia creeper, woodbine	5	wasw032ss	15%
Picea glauca	white spruce	7	wasw029ss	7%
Populus tremuloides*	aspen, quaking aspen	2	wasw028e; wasw029ss; wasw030f	45%
Prunus serotina	wild black cherry	3	wasw032ss	10%
Pyrola elliptica	elliptic shin-leaf, large-leaved shin-leaf, wax-fl	6	wasw031f	2%
Quercus rubra	northern red oak	5	wasw031f	5%
Rubus hispidus	bristly dewberry, swamp dewberry	4	wasw032ss	7%
Rubus pubescens	dwarf red raspberry	7	wasw029ss	7%
Salix discolor	pussy willow	2	wasw032ss	5%

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Continued on next page.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4 wasw029ss & wasw032ss (only)	S3 all others	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32 all except wasw030f, & wasw031f	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7 all except wasw030f, & wasw031f

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Scirpus cyperinus	wool-grass	4	wasw028e	5%
Scirpus atrovirens	black bulrush, dark-green bulrush	3	wasw028e	15%
Solidago gigantea	giant goldenrod	3	wasw029ss; wasw030f; wasw031f	17%
Symphyotrichum lateriflorum	side-flowering aster	3	wasw029ss; wasw030f	17%
Tilia americana	American linden, basswood	5	wasw030f	5%
Ulmus americana*	American elm, white elm	3	wasw029ss; wasw030f; wasw031f	57%

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
x	x		L	UC	Agriculture – pasture
					Roads or railroad
x			L	C	Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
x	x		L	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

portions of wetland are located adjacent to pasture
grassy two track ATV road adjacent wetlands
wasw028e located within overhead utility line corridor

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		x			
Human Use Values	x				
Wildlife Habitat			x		
Fish and Aquatic Life Habitat	x				
Shoreline Protection					x
Flood and Stormwater Storage		x			
Water Quality Protection		x			
Groundwater Processes		x			

FUNCTION	RATIONALE
Floristic Integrity	good assemblage of native species, diversity of plants
Human Use Values	private use for hunting
Wildlife Habitat	high quality stream, pss and pfo and upland wetland and forest complex types in system. Potential to support rare species
Fish and Aquatic Life Habitat	stream quality rated high, no macroinvert. species or fish observed in stream
Shoreline Protection	N/A
Flood and Stormwater Storage	forested depressions, basins with dense persistent vegetation
Water Quality Protection	forested depressions, basins with dense persistent vegetation
Groundwater Processes	groundwater indicators: high water table, surface water, saturation evident

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	temporary trenching, soil storage, and backfilling, tree clearing	high
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation and tree removal for construction.	medium
Cumulative Impacts	Operational vegetation maintenance	medium
Spatial/Habitat Integrity	Temporary construction impacts	medium, high quality habitat complex
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project **City/County:** Ashland **Sampling Date:** 03-Oct-19

Applicant/Owner: Enbridge **State:** WI **Sampling Point:** wasw030u

Investigator(s): ES/WC **Section, Township, Range:** S. 25 T. 45N R. 3W

Landform (hillslope, terrace, etc.): Mound **Local relief (concave, convex, none):** undulating **Slope:** ___ % / ___

Subregion (LRR or MLRA): LRR K **Lat.:** 46.3447536 **Long.:** -90.68306571 **Datum:** WGS 1984

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

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

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches): ___
Water Table Present?	Yes ○	No ◉	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches): ___

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: wasw030u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Populus tremuloides*	15	☑	20.0%	FACU
2. *Acer saccharum*	40	☑	53.3%	FACU
3. *Ostrya virginiana*	20	☑	26.7%	FACU
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	75	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15')				
1. *Ulmus americana*	0	☐	0.0%	FACW
2. *Tilia americana*	10	☐	11.8%	FACU
3. *Acer saccharum*	5	☐	5.9%	FACU
4. *Fraxinus pennsylvanica*	3	☐	3.5%	FACW
5. *Ostrya virginiana*	60	☑	70.6%	FACU
6. *Quercus rubra*	7	☐	8.2%	FACU
7.	0	☐	0.0%	
	85	= Total Cover		

Herb Stratum (Plot size: 5')				
1. *Carex pedunculata*	15	☑	20.8%	FAC
2. *Mitchella repens*	55	☑	76.4%	FACU
3. *Fraxinus nigra*	2	☐	2.8%	FACW
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	72	= Total Cover		

Woody Vine Stratum (Plot size: 15')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	16.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	5	x 2 =	10	
FAC species	15	x 3 =	45	
FACU species	212	x 4 =	848	
UPL species	0	x 5 =	0	
Column Totals:	232	(A)	903	(B)

Prevalence Index = B/A = 3.892

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ○ No ◉

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FW

Soil

Sampling Point: wasw030u

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type [1]	Redox Features Loc[2]	Texture	Remarks
0-8	10YR	3/2	100					Silty Clay Loam	
8-24	10YR	3/2	15					Silty Clay Loam	
+mottle	7.5YR	3/4	85					Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Plot ID: **wasw030u** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Photos\

Photo File: **DSCN7799.JP** Orientation: -facing

Lat/Long or UTM : Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7800.JPG** Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

Plot ID: **wasw030u** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Pho

Photo File: **DSCN7801.JP** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-15

Applicant/Owner: Enbridge State: WI Sampling Point: wasc072f_w

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.344124 Long: -90.675065 Datum: WGS84

Soil Map Unit Name: Gogebic fine sandy loam, 1 to 6 percent slopes, very stony, rocky NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

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

The wetland is a hardwood swamp surrounded by young mesic forest. Ephemeral pools are present in places within the wetland.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 2
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrologic regime is seasonally saturated, with recharge hydrology. A rain event occurred prior to survey, causing pooled water in areas of the wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc072f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	35.0	Y	FACW
2. *Betula alleghaniensis*	5.0	N	FAC
3. *Ulmus americana*	5.0	N	FACW
4. *Abies balsamea*	5.0	N	FAC
5.			
6.			
7.			
	50.0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *Corylus cornuta*	5.0	Y	FACU
2. *Acer rubrum*	2.0	N	FAC
3. *Ilex verticillata*	2.0	N	FACW
4.			
5.			
6.			
7.			
	9	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Carex crinita*	30.0	Y	OBL
2. *Carex bromoides*	5.0	Y	FACW
3. *Equisetum sylvaticum*	5.0	Y	FACW
4. *Carex gracillima*	5.0	Y	FACU
5. *Symphyotrichum lateriflorum*	5.0	Y	FAC
6. *Rubus pubescens*	5.0	Y	FACW
7. *Juncus effusus*	5.0	Y	OBL
8. *Carex scirpoidea*	5.0	Y	FACU
9.			
10.			
11.			
12.			
	65.0	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 70.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	35	x 1 =	35
FACW species	57	x 2 =	114
FAC species	17	x 3 =	51
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	124 (A)		260 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

The wetland is dominated by Fraxinus nigra and Carex crinita. Herbaceous vegetation grows on tussocks.

SOIL

Sampling Point: wasc072f_w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 2/1	100					MMI	
11-18	10YR 2/1	95	7.5YR 5/4	5	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ✓ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Dark mucky clay over dark clay with redox.

wasc072f_w_E

wasc072f_w_W

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): BRG/JSW
File #: wasc072	Date of visit(s): 10/15/2019
Location: PLSS: 045N-003W-25 Lat: 46.344124 Long: -90.675065 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5354B Gogebic fine sandy loam, 809C Gogebic-Metonga-Rock outcrop complex Field Verified: Series not verified. The soils consist of a modified mucky mineral over a clay texture.	WWI Class: N/A Wetland Type(s): PFO - Hardwood swamp	
	Wetland Size: 0.62	Wetland Area Impacted 0.62
Hydrology: The wetland is a large depressional feature, and has a seasonally saturated hydrologic regime with recharge hydrology.	Vegetation: Plant Community Description(s): Hardwood swamp is dominated by Fraxinus nigra, with a somewhat variable herbaceous layer dominated by Carex crinita.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting, birding
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	Y	Y	Ephemeral pond with water present ≥ 45 days
10	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	Y	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	Y	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

WH-9: standing water is present in some area between tussocks in the wetland
ST-3: persistent tree layer and high cover of herbaceous vegetation

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Deer
	Y	Avian
	Y	Amphibians

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	Y	Frogs
	Y	Aquatic invertebrates

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☑	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☑	Common ☐	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Fraxinus nigra			PFO	Common
Betula alleghaniensis			PFO	Rare
Ulmus americana			PFO	Rare
Abies balsamea			PFO	Rare
Corylus cornuta			PFO	Rare
Acer rubrum			PFO	Rare
Ilex verticillata			PFO	Rare
Carex crinita			PFO	Common
Carex bromoides			PFO	Rare
Equisetum sylvaticum			PFO	Rare
Carex gracillima			PFO	Rare
Symphyotrichum lateriflorum			PFO	Rare
Rubus pubescens			PFO	Rare
Juncus effusus			PFO	Rare
Carex scirpoidea			PFO	Rare

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The wetland contains a good assembly of native species representative of the wetland community type.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
	X		L	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
		X	M	U	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The area has been logged in the past and is wormed, but the wetland is otherwise not significantly impacted.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity			✓		
Human Use Values			✓		
Wildlife Habitat			✓		
Fish and Aquatic Life Habitat			✓		
Shoreline Protection					✓
Flood and Stormwater Storage			✓		
Water Quality Protection		✓			
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Good assembly of native species
Human Use Values	Hunting, birding, near residential property
Wildlife Habitat	Deer and avian habitat
Fish and Aquatic Life Habitat	Frequent saturation and standing water in microdepressions between tussocks
Shoreline Protection	N/A
Flood and Stormwater Storage	Closed and densely vegetated depression
Water Quality Protection	Unpaved trails and sources of stormwater runoff are present nearby, but likely do not significantly contribute to the wetland
Groundwater Processes	Groundwater recharge, periods of standing water

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-15

Applicant/Owner: Enbridge State: WI Sampling Point: wasc072_u

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Side slope Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.344164 Long: -90.67525 Datum: WGS84

Soil Map Unit Name: Gogebic fine sandy loam, 1 to 6 percent slopes, very stony, rocky NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

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

The upland is a mesic forest, and is located in an NWI polygon.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed. The area has slightly concave topography, but no indications that the area receives or holds water for extended periods of time.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc072_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	30.0	Y	FAC
2. *Betula alleghaniensis*	20.0	Y	FAC
3. *Populus tremuloides*	20.0	Y	FAC
4. *Tsuga canadensis*	5.0	N	FACU
5.			
6.			
7.			
	75.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Corylus cornuta*	20.0	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	20.0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex pensylvanica*	30.0	Y	NI
2. *Pteridium aquilinum*	20.0	Y	FACU
3. *Lonicera canadensis*	15.0	Y	FACU
4. *Osmunda claytoniana*	10.0	N	FAC
5. *Mitchella repens*	10.0	N	FACU
6. *Carex gracillima*	10.0	N	FACU
7. *Abies balsamea*	5.0	N	FAC
8.			
9.			
10.			
11.			
12.			
	70.0 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3.0 (A)

Total Number of Dominant Species Across All Strata: 7.0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 42.857142857142854 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.0	x 1 =	0.0
FACW species	0.0	x 2 =	0.0
FAC species	85.0	x 3 =	255.0
FACU species	80.0	x 4 =	320.0
UPL species	0.0	x 5 =	0.0
Column Totals:	165.0 (A)		575.0 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

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

The upland is dominated by mesic forest trees, with common upland understory species present.

SOIL

Sampling Point: wasc072_u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	7.5YR 2.5/2	100					CL	
9-18	5YR 4/6	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No hydric soil indicators observed.

wasc072_u_E

wasc072_u_W

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-16

Applicant/Owner: Enbridge State: WI Sampling Point: wasc074e_w

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.343688 Long: -90.675895 Datum: WGS84

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

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

The wetland is a linear, depressional sedge meadow that is associated with an intermittent stream. Trees and shrubs are present in the mesic forest directly surrounding the wetland, but the wetland itself is a riparian emergent feature. The wetland becomes hardwood swamp just out of the survey area.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A heavy rain event occurred prior to the time of survey. The hydrologic regime is seasonally saturated, with discharge hydrology due to the stream running through the wetland center of the wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc074e_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus americana*	5.0	Y	FACW
2. *Populus tremuloides*	5.0	Y	FAC
3. *Malus sp.*	5.0	Y	
4.			
5.			
6.			
7.			
	10.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Ilex verticillata*	5.0	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	5.0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex bromoides*	70.0	Y	FACW
2. *Carex gracillima*	10.0	N	FACU
3. *Solidago gigantea*	2.0	N	FACW
4. *Symphyotrichum lateriflorum*	1.0	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	83.0 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4.0 (A)

Total Number of Dominant Species Across All Strata: 5.0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.0	x 1 =	0.0
FACW species	82.0	x 2 =	164.0
FAC species	6.0	x 3 =	18.0
FACU species	10.0	x 4 =	40.0
UPL species	0.0	x 5 =	0.0
Column Totals:	98.0 (A)		222.0 (B)

Prevalence Index = B/A = 2.3

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

Feature is dominated by Carex bromoides.

SOIL

Sampling Point: wasc074e_w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	7.5YR 2.5/1	100					MMI	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ✓ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Dark mucky mineral soil throughout the profile.

wasc074e_w_N

wasc074e_w_S

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): BRG/JSW
File #: wasc074	Date of visit(s): 10/16/2019
Location: PLSS: 045N-003W-25 Lat: 46.343674 Long: -90.675899 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River

SITE DESCRIPTION		
Soils: Mapped Type(s): 809C Gogebic-Metonga-Rock outcrop complex, 5172B Gogebic, very stony-Pence, very stony-Cathro complex Field Verified: Series not verified. The soils consist of a modified mucky mineral texture.	WWI Class: N/A Wetland Type(s): PEM - fresh wet meadow	
	Wetland Size: 0.21	Wetland Area Impacted 0.21
Hydrology: The hydrologic regime is seasonally saturated, with discharge hydrology. An intermittent stream runs through the wetland, and the wetland is riparian in nature.	Vegetation: Plant Community Description(s): Sedge meadow is dominated almost totally by Carex bromoides.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting, birding
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	Y	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	Y	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	Y	Y	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

ST-5: runoff from adjacent mowed residential land, and from the stream (which carries road/ditch stormwater runoff)

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Deer
	Y	Avian
		Black-capped chickadees

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	Y	Frogs
	Y	Aquatic invertebrates

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☑	All strata present and good assemblage of native species ☐	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☑	S3 ☐	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☑	Common ☐	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Ulmus americana			PEM	Rare
Populus tremuloides			PEM	Rare
Malus sp.			PEM	Rare
Ilex verticillata			PEM	Rare
Carex bromoides			PEM	Abundant
Carex gracillima			PEM	Uncommon
Solidago gigantea			PEM	Rare
Symphyotrichum lateriflorum			PEM	Rare

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Species diversity is very low, but no invasives were observed.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		H	C	Point source or stormwater discharge
	X		M	C	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
		X	M	U	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
	X		M	C	Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The area has been logged in the past and the surrounding forest is wormed. The wetland receives stormwater runoff from the stream.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		✓			
Human Use Values			✓		
Wildlife Habitat			✓		
Fish and Aquatic Life Habitat		✓			
Shoreline Protection		✓			
Flood and Stormwater Storage			✓		
Water Quality Protection			✓		
Groundwater Processes			✓		

FUNCTION	RATIONALE
Floristic Integrity	Low diversity
Human Use Values	Hunting, birding, near residential property
Wildlife Habitat	Deer and avian habitat
Fish and Aquatic Life Habitat	Intermittent stream and likely frequent spring inundation
Shoreline Protection	Associated with intermittent stream
Flood and Stormwater Storage	Densely vegetated depression associated with a stream, receives runoff
Water Quality Protection	Densely vegetated wetland associated with a stream that receives road runoff
Groundwater Processes	Groundwater discharge through the stream

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Low
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Low
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-16

Applicant/Owner: Enbridge State: WI Sampling Point: wasc074_u

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): None Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.343755 Long: -90.675829 Datum: WGS84

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

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

The upland is located at the foot of a slope in a mesic forest.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc074_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	40.0	Y	FAC
2. *Acer rubrum*	10.0	N	FAC
3. *Acer saccharum*	10.0	N	FACU
4. *Abies balsamea*	10.0	N	FAC
5. *Fraxinus americana*	5.0	N	FACU
6.			
7.			
	75.0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *Corylus cornuta*	20.0	Y	FACU
2. *Populus tremuloides*	10.0	Y	FAC
3. *Acer saccharum*	5.0	N	FACU
4.			
5.			
6.			
7.			
	35	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Mitchella repens*	30.0	Y	FACU
2. *Carex pensylvanica*	10.0	N	NI
3. *Prunus serotina*	5.0	N	FACU
4. *Pteridium aquilinum*	5.0	N	FACU
5. *Cornus canadensis*	5.0	N	FAC
6. *Rubus pubescens*	2.0	N	FACW
7. *Fraxinus americana*	2.0	N	FACU
8.			
9.			
10.			
11.			
12.			
	59	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	2	x 2 =	4
FAC species	75	x 3 =	225
FACU species	82	x 4 =	328
UPL species	0	x 5 =	0
Column Totals:	159 (A)		557 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

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

The upland is a mesic forest dominated by Populus tremuloides and Mitchella repens.

SOIL

Sampling Point: wasc074_u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 3/3	100					L	
10-18	7.5YR 3/4	100					SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No hydric soil indicators observed.

wasc074_u_N

wasc074_u_S

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project **City/County:** Ashland **Sampling Date:** 03-Oct-19

Applicant/Owner: Enbridge **State:** WI **Sampling Point:** wasw029ss

Investigator(s): ES/WC **Section, Township, Range:** S. 25 T. 45N R. 3W

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0

Subregion (LRR or MLRA): LRR K **Lat.:** 46.34266275 **Long.:** -90.68360574 **Datum:** WGS 1984

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○		
Hydric Soil Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○		

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

Depressional wetland dominated by alder thicket. Wetland classified as scrub-shrub due to dominance of alder, Alnus incana, in sapling, shrub statrum.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches): 2	
Water Table Present?	Yes ◉ No ○	Depth (inches): 2	**Wetland Hydrology Present?** Yes ◉ No ○
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches): 0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: wasw029ss

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Populus tremuloides*	25	☑	53.2%	FACU
2. *Fraxinus nigra*	5	☐	10.6%	FACW
3. *Ulmus americana*	10	☑	21.3%	FACW
4. *Picea glauca*	7	☐	14.9%	FACU
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	47	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15')				
1. *Alnus incana*	75	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	75	= Total Cover		

Herb Stratum (Plot size: 5')				
1. *Carex intumescens*	65	☑	75.6%	FACW
2. *Solidago gigantea*	7	☐	8.1%	FACW
3. *Rubus pubescens*	7	☐	8.1%	FACW
4. *Symphyotrichum lateriflorum*	2	☐	2.3%	FAC
5. *Equisetum pratense*	5	☐	5.8%	FACW
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	86	= Total Cover		

Woody Vine Stratum (Plot size: 15')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	75.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	174	x 2 =	348	
FAC species	2	x 3 =	6	
FACU species	32	x 4 =	128	
UPL species	0	x 5 =	0	
Column Totals:	208	(A)	482	(B)

Prevalence Index = B/A = 2.317

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ◉ No ○

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: wasw029ss

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-4	10YR	4/3	100						Silty Clay Loam	
4-8	10YR	4/3	85	7.5YR	4/6	15	C	M	Silty Clay Loam	
8-24	7.5YR	4/4	90	5YR	4/4	10	C	M	Sandy Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2] Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☑ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soil sample meets problematic hydric soil indicator red parent material

Plot ID: **wasw029ss** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Photos\

Photo File: **DSCN7772.JPG** Orientation: -facing

Lat/Long or UTM : Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7773.JPG** Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

Plot ID: **wasw029ss** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Pho

Photo File: **DSCN7777.JPG** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

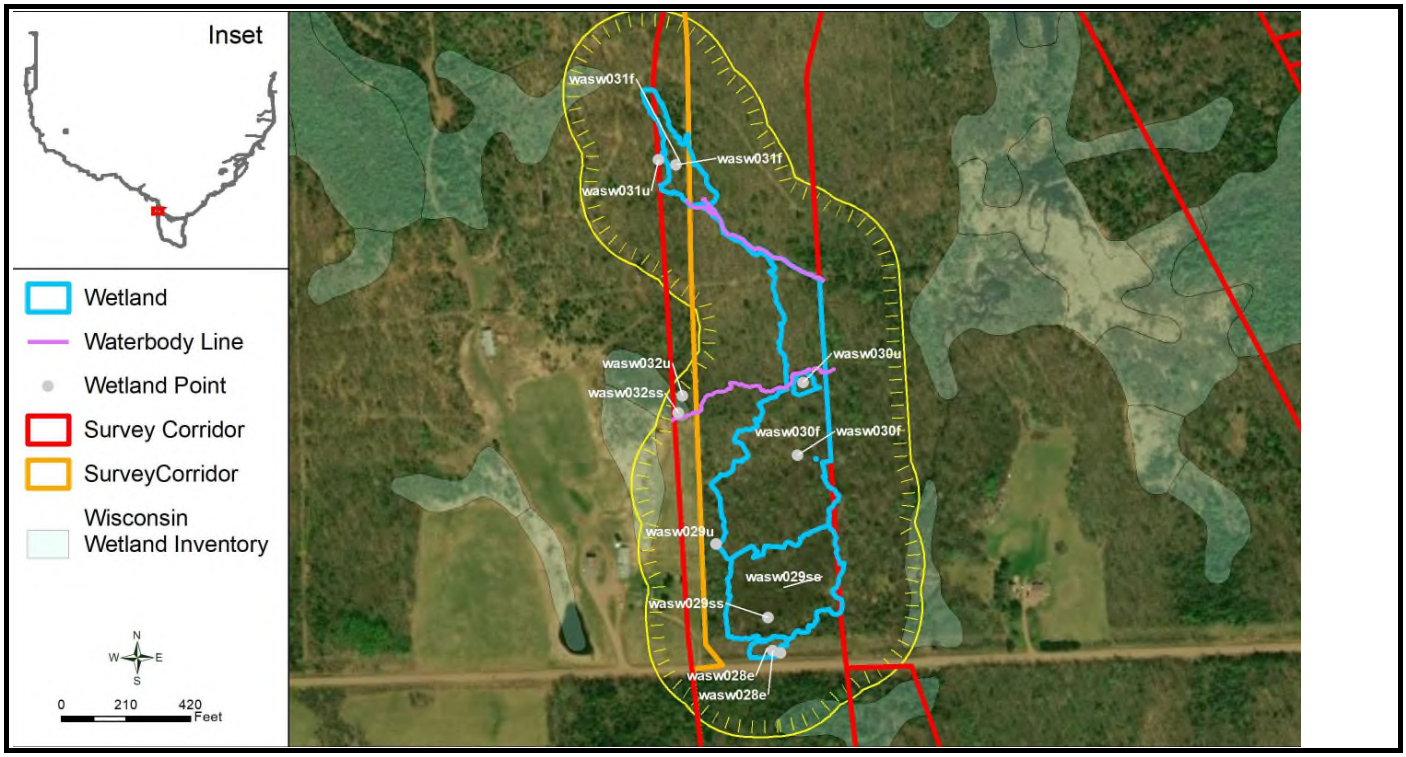
Long/Easting: Lat/Northing:

Description:

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION wasw028e, wasw029ss, wasw030f, wasw031f, wasw032ss,	
Project name: Line 5 Pipeline Relocation Project	Evaluator(s): Emily Stulik and Wes Conway
File #:	Date of visit(s): 10/3/19
Location: PLSS: WI46 T45N R3W SN25 Lat: 46.342364 (wasw028e) 46.342663 (wasw029ss) 46.344109 (wasw030f) 46.346732 (wasw031f) 46.344517 (wasw032ss) Long: -90.683561 -90.683606 -90.683167 -90.684622 -90.684687 County: Ashland Town/City/Village:	Ecological Landscape: North Central Forest Watershed: Upper bad river 0401030203
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very Field Verified: Yes	WWI Class: T3K (032ss), none (all others) Wetland Type(s): fresh wet meadow, Alder thicket, hardwood swamp Wetland Size: 1.58 / Wetland Area Impacted
Hydrology: seasonal high groundwater table in alder thicket, flooding from adjacent stream in pss and adjacent pfo	Vegetation: Plant Community Description(s): Plant Community Description(s): ulmus americana, alnus incana thicket, carex intumescens; forested pfo hardwood swamp: fraxinus species ulmus americana, ilex verticillata, juncus effusis, euthamia graminifolia

SITE MAP



SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	Y		Used for recreation (hunting, birding, hiking, etc.). List: hunting tree/deer stand observed
2	N		Used for educational or scientific purposes
3	N		Visually or physically accessible to public
4	Y		Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N		In or adjacent to RED FLAG areas List:
6	Y		Supports or provides habitat for endangered, threatened or special concern species
7		P	In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y		Wetland and contiguous habitat >10 acres
2	Y		3 or more strata present (>10% cover)
3	N		Within or adjacent to habitat corridor or established wildlife habitat area
4	Y		100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N		Occurs in a Joint Venture priority township
6	Y		Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y		Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y		Part of a large habitat block that supports area sensitive species
9	Y		Ephemeral pond with water present ≥ 45 days
10	Y		Standing water provides habitat for amphibians and aquatic invertebrates
11	N		Seasonally exposed mudflats present
12	N		Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N		Wetland is connected or contiguous with perennial stream or lake
2	Y		Standing water provides habitat for amphibians and aquatic invertebrates
3	N		Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4		P	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N		Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N		Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N		Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y		Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y		Water flow through wetland is NOT channelized
3	Y		Dense, persistent vegetation
4	Y		Evidence of flashy hydrology
5	N		Point or non-point source inflow
6	N		Impervious surfaces cover >10% of land surface within the watershed
7	N		Within a watershed with ≤10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N		Provides substantial storage of storm and floodwater based on previous section
2	N		Basin wetland or constricted outlet
3	Y		Water flow through wetland is NOT channelized
4	Y		Vegetated wetland associated with a lake or stream
5	Y		Dense, persistent vegetation
6	N		Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N		Stormwater or surface water from agricultural land is major hydrology source
8	Y		Discharge to surface water
9	N		Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y		Springs, seeps or indicators of groundwater present
2	Y		Location near a groundwater divide or a headwater wetland
3	Y		Wetland remains saturated for an extended time period with no additional water inputs
4	N		Wetland soils are organic
5	N		Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

wetlands comprise large, diverse habitat complex that are contiguous with streams (unmapped)
intermittent stream flows through pfo complex
pss alder thicket wetland is contiguous with pfo hardwood swamp
forest potential to support nesting bird habitat, trees for state fed listed bat species
wetland complex located nearby mapped Krause Creek, ASNRI Outstanding and exceptional stream
Krause Creek Class I trout stream

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
		ranid frog observed, species unknown
		chipmunk , Tamias striatus
		gray cheeked thrush, Catharus minimus
		forest, upland, scrub shrub habitat connectivity potential for rare threatened species habitat

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4 wasw029ss & wasw032ss (only)	S3 all others	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32 all except wasw030f, & wasw031f	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7 all except wasw030f, & wasw031f

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Abies balsamea*	balsam fir	5	wasw031f; wasw032ss	25%
Acer rubrum*	red maple	3	wasw031f	22%
Acer saccharum	hard maple, sugar maple	5	wasw031f; wasw032ss	12%
Alnus incana*	speckled alder	4	wasw029ss; wasw032ss	155%
Betula alleghaniensis*	yellow birch	7	wasw031f; wasw032ss	60%
Calamagrostis canadensis	blue-joint grass	5	wasw031f	2%
Carex bromoides*	brome-like sedge	8	wasw031f; wasw032ss	160%
Carex crinita	fringed sedge	6	wasw032ss	10%
Carex intumescens*	greater bladder sedge, shining bur sedge, swollen	6	wasw032ss	10%
Doellingeria umbellata	flat-top aster, parasol aster, tall flat-topped white aster	6	wasw028e; wasw030f	5%
Equisetum pratense	meadow horsetail	9	wasw029ss	5%
Euthamia graminifolia	common flat-topped goldenrod, grass-leaved goldenrod	4	wasw030f	25%
Fraxinus americana*	white ash	5	wasw030f	15%
Fraxinus nigra*	black ash	8	wasw029ss; wasw030f; wasw031f	55%
Fraxinus pennsylvanica*	green ash, red ash	2	wasw030f	12%
Ilex verticillata	common winterberry	7	wasw030f	17%
Juncus effusus	common rush, soft rush	4	wasw028e; wasw030f	55%
Onoclea sensibilis	sensitive fern	5	wasw028e; wasw030f; wasw032ss	9%
Ostrya virginiana	eastern hop-hornbeam, ironwood	5	wasw031f	15%
Parthenocissus quinquefolia*	Virginia creeper, woodbine	5	wasw032ss	15%
Picea glauca	white spruce	7	wasw029ss	7%
Populus tremuloides*	aspen, quaking aspen	2	wasw028e; wasw029ss; wasw030f	45%
Prunus serotina	wild black cherry	3	wasw032ss	10%
Pyrola elliptica	elliptic shin-leaf, large-leaved shin-leaf, wax-fl	6	wasw031f	2%
Quercus rubra	northern red oak	5	wasw031f	5%
Rubus hispidus	bristly dewberry, swamp dewberry	4	wasw032ss	7%
Rubus pubescens	dwarf red raspberry	7	wasw029ss	7%
Salix discolor	pussy willow	2	wasw032ss	5%

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Continued on next page.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4 wasw029ss & wasw032ss (only)	S3 all others	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32 all except wasw030f, & wasw031f	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7 all except wasw030f, & wasw031f

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Scirpus cyperinus	wool-grass	4	wasw028e	5%
Scirpus atrovirens	black bulrush, dark-green bulrush	3	wasw028e	15%
Solidago gigantea	giant goldenrod	3	wasw029ss; wasw030f; wasw031f	17%
Symphyotrichum lateriflorum	side-flowering aster	3	wasw029ss; wasw030f	17%
Tilia americana	American linden, basswood	5	wasw030f	5%
Ulmus americana*	American elm, white elm	3	wasw029ss; wasw030f; wasw031f	57%

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
x	x		L	UC	Agriculture – pasture
					Roads or railroad
x			L	C	Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
x	x		L	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

portions of wetland are located adjacent to pasture
grassy two track ATV road adjacent wetlands
wasw028e located within overhead utility line corridor

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		x			
Human Use Values	x				
Wildlife Habitat			x		
Fish and Aquatic Life Habitat	x				
Shoreline Protection					x
Flood and Stormwater Storage		x			
Water Quality Protection		x			
Groundwater Processes		x			

FUNCTION	RATIONALE
Floristic Integrity	good assemblage of native species, diversity of plants
Human Use Values	private use for hunting
Wildlife Habitat	high quality stream, pss and pfo and upland wetland and forest complex types in system. Potential to support rare species
Fish and Aquatic Life Habitat	stream quality rated high, no macroinvert. species or fish observed in stream
Shoreline Protection	N/A
Flood and Stormwater Storage	forested depressions, basins with dense persistent vegetation
Water Quality Protection	forested depressions, basins with dense persistent vegetation
Groundwater Processes	groundwater indicators: high water table, surface water, saturation evident

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	temporary trenching, soil storage, and backfilling, tree clearing	high
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation and tree removal for construction.	medium
Cumulative Impacts	Operational vegetation maintenance	medium
Spatial/Habitat Integrity	Temporary construction impacts	medium, high quality habitat complex
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project **City/County:** Ashland **Sampling Date:** 04-Oct-19

Applicant/Owner: Enbridge **State:** WI **Sampling Point:** wasw029u

Investigator(s): ES/WC **Section, Township, Range:** S. 25 T. 45N R. 3W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** concave **Slope:** ___ % / ___

Subregion (LRR or MLRA): LRR K **Lat.:** 46.34333445 **Long.:** -90.68424917 **Datum:** WGS 1984

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

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

Paired upland point with wasw029ss

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches): ___
Water Table Present?	Yes ○	No ◉	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches): ___

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: wasw029u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Populus tremuloides*	37	☑	35.2%	FACU
2. *Acer saccharum*	40	☑	38.1%	FACU
3. *Abies balsamea*	3	☐	2.9%	FAC
4. *Acer rubrum*	5	☐	4.8%	FAC
5. *Fraxinus americana*	15	☐	14.3%	FACU
6. *Amelanchier arborea*	5	☐	4.8%	FACU
7.	0	☐	0.0%	
	105	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15')				
1. *Acer rubrum*	30	☑	52.6%	FAC
2. *Ilex verticillata*	3	☐	5.3%	FACW
3. *Tsuga canadensis*	7	☐	12.3%	FACU
4. *Populus tremuloides*	10	☐	17.5%	FACU
5. *Fraxinus pennsylvanica*	7	☐	12.3%	FACW
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	57	= Total Cover		

Herb Stratum (Plot size: 5')				
1. *Carex pedunculata*	50	☑	57.5%	FAC
2. *Mitchella repens*	30	☑	34.5%	FACU
3. *Fraxinus pennsylvanica*	5	☐	5.7%	FACW
4. *Onoclea sensibilis*	2	☐	2.3%	FACW
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	87	= Total Cover		

Woody Vine Stratum (Plot size: 15')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	40.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	17	x 2 =	34	
FAC species	88	x 3 =	264	
FACU species	144	x 4 =	576	
UPL species	0	x 5 =	0	
Column Totals:	249	(A)	874	(B)

Prevalence Index = B/A = 3.510

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ○ No ◉

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FW

Soil

Sampling Point: wasw029u

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-10	7.5YR	3/4	100						Silty Clay Loam	
10-24	7.5YR	4/4	70	5YR	3/4	2	C	PL	Silty Clay Loam	
+mottle	10YR	3/2	28						Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Plot ID: **wasw029u** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Photos\

Photo File: **DSCN7818.JP** Orientation: -facing

Lat/Long or UTM : Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7820.JPG** Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

Plot ID: **wasw029u** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Pho

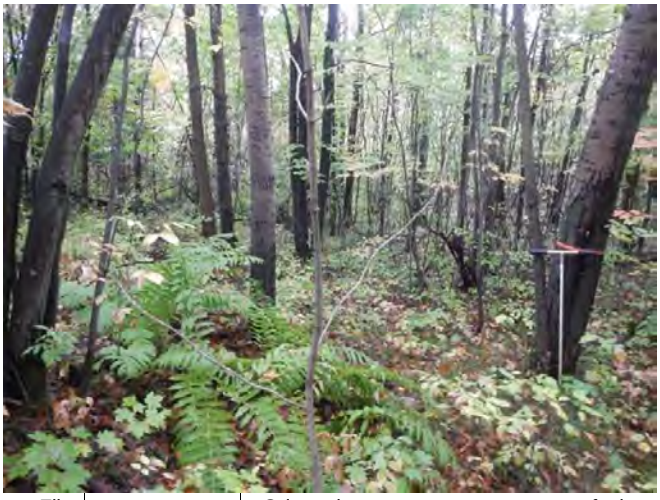


Photo File: **DSCN7821.JP** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **None.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project **City/County:** Ashland **Sampling Date:** 03-Oct-19

Applicant/Owner: Enbridge **State:** WI **Sampling Point:** wasw028e

Investigator(s): ES/WC **Section, Township, Range:** S. 25 T. 45N R. 3W

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** concave **Slope:** 17.6 % / 10.0

Subregion (LRR or MLRA): LRR K **Lat.:** 46.34236442 **Long.:** -90.68356052 **Datum:** WGS 1984

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

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

Emergent vegetated wetland within utility corridor

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 2

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Precipitation the night before

VEGETATION - Use scientific names of plants

Sampling Point: wasw028e

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Populus tremuloides*	10	☑	100.0%	FACU
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	10	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size: 5')				
1. *Scirpus cyperinus*	5	☐	9.1%	OBL
2. *Scirpus atrovirens*	15	☑	27.3%	OBL
3. *Juncus effusus*	30	☑	54.5%	OBL
4. *Doellingeria umbellata*	3	☐	5.5%	FACW
5. *Onoclea sensibilis*	2	☐	3.6%	FACW
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	55	= Total Cover		

Woody Vine Stratum (Plot size: 15')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	66.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	50	x 1 =	50	
FACW species	5	x 2 =	10	
FAC species	0	x 3 =	0	
FACU species	10	x 4 =	40	
UPL species	0	x 5 =	0	
Column Totals:	65	(A)	100	(B)

Prevalence Index = B/A = 1.538

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
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Hydrophytic Vegetation Present? Yes ◉ No ○

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FW

Soil

Sampling Point: wasw028e

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc[2]	Texture	Remarks

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Hydric Soil Indicators:

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- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
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- ☐ Sandy Gleyed Matrix (S4)
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- ☐ Stripped Matrix (S6)
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- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
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Indicators for Problematic Hydric Soils : [3]

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- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

No digging permitted in utlity corridor. Soils assumed hydric due to presence of hydrology and dominance of hydrophytic vegetation.

Plot ID: **wasw028e** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Photos\

Photo File: **DSCN7767.JP** Orientation: -facing

Lat/Long or UTM : Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7770.JPG** Orientation: -facing

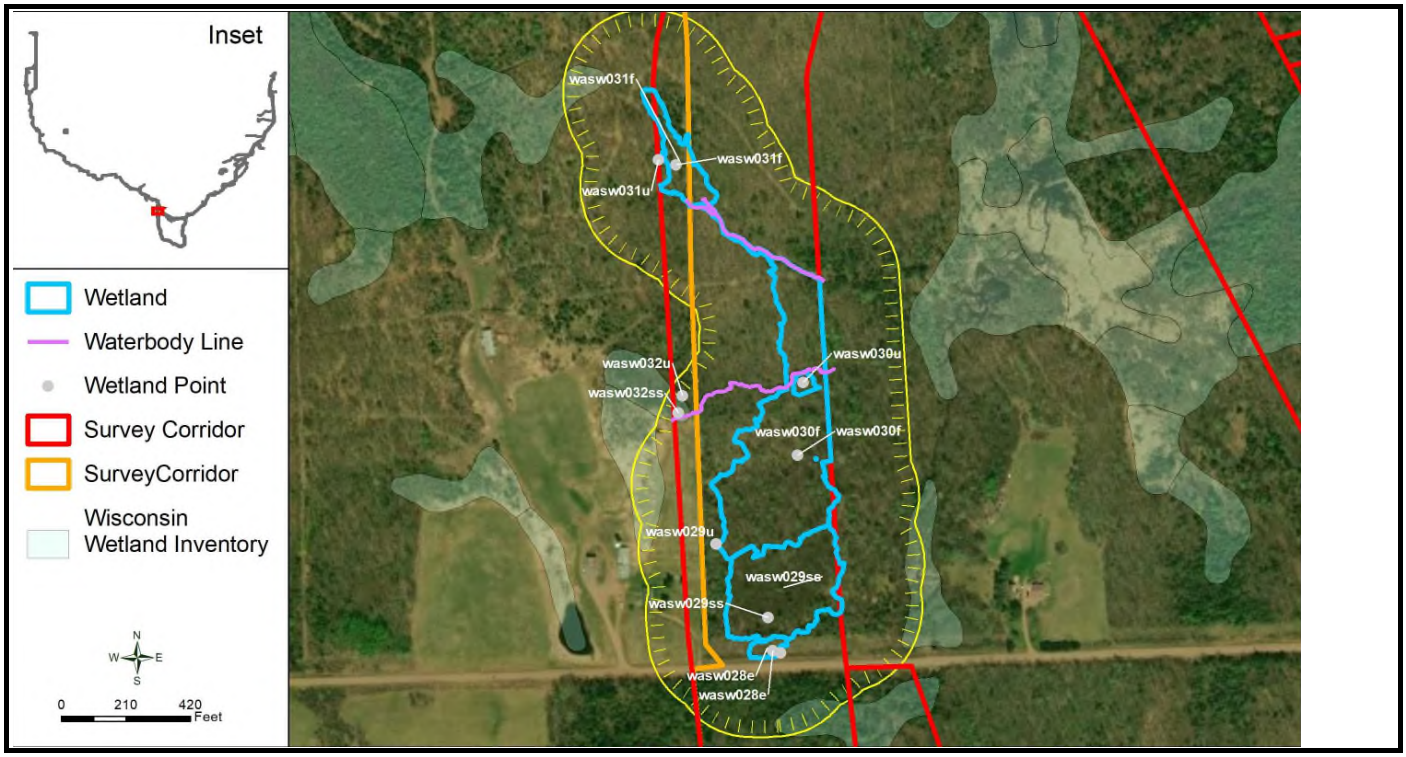
Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION wasw028e, wasw029ss, wasw030f, wasw031f, wasw032ss,	
Project name: Line 5 Pipeline Relocation Project	Evaluator(s): Emily Stulik and Wes Conway
File #:	Date of visit(s): 10/3/19
Location: PLSS: WI46 T45N R3W SN25 Lat: 46.342364 (wasw028e) 46.342663 (wasw029ss) 46.344109 (wasw030f) 46.346732 (wasw031f) 46.344517 (wasw032ss) Long: -90.683561 -90.683606 -90.683167 -90.684622 -90.684687 County: Ashland Town/City/Village:	Ecological Landscape: North Central Forest Watershed: Upper bad river 0401030203
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very Field Verified: Yes	WWI Class: T3K (032ss), none (all others) Wetland Type(s): fresh wet meadow, Alder thicket, hardwood swamp Wetland Size: 1.58 / Wetland Area Impacted
Hydrology: seasonal high groundwater table in alder thicket, flooding from adjacent stream in pss and adjacent pfo	Vegetation: Plant Community Description(s): Plant Community Description(s): ulmus americana, alnus incana thicket, carex intumescens; forested pfo hardwood swamp: fraxinus species ulmus americana, ilex verticillata, juncus effusis, euthamia graminifolia

SITE MAP



SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	Y		Used for recreation (hunting, birding, hiking, etc.). List: hunting tree/deer stand observed
2	N		Used for educational or scientific purposes
3	N		Visually or physically accessible to public
4	Y		Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N		In or adjacent to RED FLAG areas List:
6	Y		Supports or provides habitat for endangered, threatened or special concern species
7		P	In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y		Wetland and contiguous habitat >10 acres
2	Y		3 or more strata present (>10% cover)
3	N		Within or adjacent to habitat corridor or established wildlife habitat area
4	Y		100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N		Occurs in a Joint Venture priority township
6	Y		Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y		Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y		Part of a large habitat block that supports area sensitive species
9	Y		Ephemeral pond with water present ≥ 45 days
10	Y		Standing water provides habitat for amphibians and aquatic invertebrates
11	N		Seasonally exposed mudflats present
12	N		Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N		Wetland is connected or contiguous with perennial stream or lake
2	Y		Standing water provides habitat for amphibians and aquatic invertebrates
3	N		Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4		P	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N		Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N		Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N		Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y		Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y		Water flow through wetland is NOT channelized
3	Y		Dense, persistent vegetation
4	Y		Evidence of flashy hydrology
5	N		Point or non-point source inflow
6	N		Impervious surfaces cover >10% of land surface within the watershed
7	N		Within a watershed with ≤10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N		Provides substantial storage of storm and floodwater based on previous section
2	N		Basin wetland or constricted outlet
3	Y		Water flow through wetland is NOT channelized
4	Y		Vegetated wetland associated with a lake or stream
5	Y		Dense, persistent vegetation
6	N		Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N		Stormwater or surface water from agricultural land is major hydrology source
8	Y		Discharge to surface water
9	N		Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y		Springs, seeps or indicators of groundwater present
2	Y		Location near a groundwater divide or a headwater wetland
3	Y		Wetland remains saturated for an extended time period with no additional water inputs
4	N		Wetland soils are organic
5	N		Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

wetlands comprise large, diverse habitat complex that are contiguous with streams (unmapped)
intermittent stream flows through pfo complex
pss alder thicket wetland is contiguous with pfo hardwood swamp
forest potential to support nesting bird habitat, trees for state fed listed bat species
wetland complex located nearby mapped Krause Creek, ASNRI Outstanding and exceptional stream
Krause Creek Class I trout stream

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
		ranid frog observed, species unknown
		chipmunk , Tamias striatus
		gray cheeked thrush, Catharus minimus
		forest, upland, scrub shrub habitat connectivity potential for rare threatened species habitat

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4 wasw029ss & wasw032ss (only)	S3 all others	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32 all except wasw030f, & wasw031f	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7 all except wasw030f, & wasw031f

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Abies balsamea*	balsam fir	5	wasw031f; wasw032ss	25%
Acer rubrum*	red maple	3	wasw031f	22%
Acer saccharum	hard maple, sugar maple	5	wasw031f; wasw032ss	12%
Alnus incana*	speckled alder	4	wasw029ss; wasw032ss	155%
Betula alleghaniensis*	yellow birch	7	wasw031f; wasw032ss	60%
Calamagrostis canadensis	blue-joint grass	5	wasw031f	2%
Carex bromoides*	brome-like sedge	8	wasw031f; wasw032ss	160%
Carex crinita	fringed sedge	6	wasw032ss	10%
Carex intumescens*	greater bladder sedge, shining bur sedge, swollen	6	wasw032ss	10%
Doellingeria umbellata	flat-top aster, parasol aster, tall flat-topped white aster	6	wasw028e; wasw030f	5%
Equisetum pratense	meadow horsetail	9	wasw029ss	5%
Euthamia graminifolia	common flat-topped goldenrod, grass-leaved goldenrod	4	wasw030f	25%
Fraxinus americana*	white ash	5	wasw030f	15%
Fraxinus nigra*	black ash	8	wasw029ss; wasw030f; wasw031f	55%
Fraxinus pennsylvanica*	green ash, red ash	2	wasw030f	12%
Ilex verticillata	common winterberry	7	wasw030f	17%
Juncus effusus	common rush, soft rush	4	wasw028e; wasw030f	55%
Onoclea sensibilis	sensitive fern	5	wasw028e; wasw030f; wasw032ss	9%
Ostrya virginiana	eastern hop-hornbeam, ironwood	5	wasw031f	15%
Parthenocissus quinquefolia*	Virginia creeper, woodbine	5	wasw032ss	15%
Picea glauca	white spruce	7	wasw029ss	7%
Populus tremuloides*	aspen, quaking aspen	2	wasw028e; wasw029ss; wasw030f	45%
Prunus serotina	wild black cherry	3	wasw032ss	10%
Pyrola elliptica	elliptic shin-leaf, large-leaved shin-leaf, wax-fl	6	wasw031f	2%
Quercus rubra	northern red oak	5	wasw031f	5%
Rubus hispidus	bristly dewberry, swamp dewberry	4	wasw032ss	7%
Rubus pubescens	dwarf red raspberry	7	wasw029ss	7%
Salix discolor	pussy willow	2	wasw032ss	5%

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Continued on next page.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4 wasw029ss & wasw032ss (only)	S3 all others	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32 all except wasw030f, & wasw031f	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7 all except wasw030f, & wasw031f

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Scirpus cyperinus	wool-grass	4	wasw028e	5%
Scirpus atrovirens	black bulrush, dark-green bulrush	3	wasw028e	15%
Solidago gigantea	giant goldenrod	3	wasw029ss; wasw030f; wasw031f	17%
Symphyotrichum lateriflorum	side-flowering aster	3	wasw029ss; wasw030f	17%
Tilia americana	American linden, basswood	5	wasw030f	5%
Ulmus americana*	American elm, white elm	3	wasw029ss; wasw030f; wasw031f	57%

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
x	x		L	UC	Agriculture – pasture
					Roads or railroad
x			L	C	Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
x	x		L	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

portions of wetland are located adjacent to pasture
grassy two track ATV road adjacent wetlands
wasw028e located within overhead utility line corridor

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		x			
Human Use Values	x				
Wildlife Habitat			x		
Fish and Aquatic Life Habitat	x				
Shoreline Protection					x
Flood and Stormwater Storage		x			
Water Quality Protection		x			
Groundwater Processes		x			

FUNCTION	RATIONALE
Floristic Integrity	good assemblage of native species, diversity of plants
Human Use Values	private use for hunting
Wildlife Habitat	high quality stream, pss and pfo and upland wetland and forest complex types in system. Potential to support rare species
Fish and Aquatic Life Habitat	stream quality rated high, no macroinvert. species or fish observed in stream
Shoreline Protection	N/A
Flood and Stormwater Storage	forested depressions, basins with dense persistent vegetation
Water Quality Protection	forested depressions, basins with dense persistent vegetation
Groundwater Processes	groundwater indicators: high water table, surface water, saturation evident

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	temporary trenching, soil storage, and backfilling, tree clearing	high
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation and tree removal for construction.	medium
Cumulative Impacts	Operational vegetation maintenance	medium
Spatial/Habitat Integrity	Temporary construction impacts	medium, high quality habitat complex
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project **City/County:** Ashland **Sampling Date:** 03-Oct-19

Applicant/Owner: Enbridge **State:** WI **Sampling Point:** wasw028u

Investigator(s): ES/WC **Section, Township, Range:** S. 25 T. 45N R. 3W

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** convex **Slope:** 17.6 % / 10.0

Subregion (LRR or MLRA): LRR K **Lat.:** 46.34234398 **Long.:** -90.68346161 **Datum:** WGS 1984

Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6 to 18 percent slopes, very stony **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

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

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: wasw028u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Populus tremuloides*	5	☑	100.0%	FACU
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	5	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15')				
1. *Populus tremuloides*	10	☑	41.7%	FACU
2. *Acer rubrum*	10	☑	41.7%	FAC
3. *Salix discolor*	2	☐	8.3%	FACW
4. *Alnus incana*	2	☐	8.3%	FACW
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	24	= Total Cover		

Herb Stratum (Plot size: 5')				
1. *Pteridium aquilinum*	80	☑	82.5%	FACU
2. *Onoclea sensibilis*	2	☐	2.1%	FACW
3. *Poa compressa*	15	☐	15.5%	FACU
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	97	= Total Cover		

Woody Vine Stratum (Plot size: 15')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	25.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	6	x 2 =	12	
FAC species	10	x 3 =	30	
FACU species	110	x 4 =	440	
UPL species	0	x 5 =	0	
Column Totals:	126	(A)	482	(B)

Prevalence Index = B/A = 3.825

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ○ No ◉

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FW

Soil

Sampling Point: wasw028u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc[2]	Texture	Remarks

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

No digging permitted on parcel.

Plot ID: **wasw028u** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Photos\

Photo File: **dscn7768.jpg** Orientation: -facing

Lat/Long or UTM : Long/Easting: Lat/Northing:

Description:

Photo File: **dscn7769.jpg** Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-16

Applicant/Owner: Enbridge State: WI Sampling Point: wasc075e_w

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.342772 Long: -90.674039 Datum: WGS84

Soil Map Unit Name: Gogebic fine sandy loam, 1 to 6 percent slopes, very stony, rocky NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

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

The wetland is a fresh wet meadow within a roadside ditch.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 0.2
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes ✓ No _____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A rain event occurred prior to the time of survey. The hydrologic regime is seasonally saturated, with recharge hydrology, and the wetland obtains significant stormwater runoff from the adjacent gravel road. Shallow surface water is present, but subsurface indicators could not be observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc075e_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Populus tremuloides*	2.0	N	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	2.0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Calamagrostis canadensis*	40.0	Y	OBL
2. *Juncus effusus*	20.0	Y	OBL
3. *Scirpus cyperinus*	5.0	N	OBL
4. *Acer rubrum*	5.0	N	FAC
5. *Fragaria virginiana*	5.0	N	FACU
6. *Onoclea sensibilis*	2.0	N	FACW
7. *Equisetum sylvaticum*	1.0	N	FACW
8. *Symphyotrichum lateriflorum*	1.0	N	FAC
9.			
10.			
11.			
12.			
	79.0 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2.0 (A)

Total Number of Dominant Species Across All Strata: 2.0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:
OBL species	65.0	x 1 =	65.0
FACW species	3.0	x 2 =	6.0
FAC species	8.0	x 3 =	24.0
FACU species	5.0	x 4 =	20.0
UPL species	0.0	x 5 =	0.0
Column Totals:	81.0 (A)		115.0 (B)

Prevalence Index = B/A = 1.4

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

The wetland is dominated by Calamagrostis canadensis and Juncus effusus, and the vegetation has been recently mowed due to its location in a roadside ditch.

SOIL

Sampling Point: wasc075e_w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Soils could not be sampled due to the location in a roadside ditch. Soils are assumed hydric based on the landscape position and dominant vegetation.

wasc075e_w_N

wasc075e_w_S

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): BRG/JSW
File #: wasc075	Date of visit(s): 10/16/2019
Location: PLSS: 045N-003W-25 Lat: 46.342772 Long: -90.674039 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: Watershed:

SITE DESCRIPTION		
Soils: Mapped Type(s): 5354B Gogebic fine sandy loam Field Verified: Soils could not be sampled due to the location in a roadside ditch. Soils are assumed hydric based on the landscape position and dominant vegetation.	WWI Class: N/A Wetland Type(s): PEM - wet meadow	
	Wetland Size: 0.02	Wetland Area Impacted 0.02
Hydrology: The hydrologic regime is seasonally saturated, with recharge hydrology. The wetland receives significant runoff from the adjacent paved road.	Vegetation: Plant Community Description(s): Fresh wet meadow is dominated by Calamagrostis canadensis, and Juncus effusus.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	Y	Y	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	N	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	N	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	Y	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-4: artificial roadside ditch
ST-5: obtains runoff from the adjacent gravel road

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Avian

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	Y	Frogs
	Y	Aquatic invertebrates

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☑	All strata present and good assemblage of native species ☐	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☑	S3 ☐	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☑	Common ☐	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Populus tremuloides			PEM	Rare
Calamagrostis canadensis			PEM	Common
Juncus effusus			PEM	Common
Scirpus cyperinus			PEM	Rare
Acer rubrum			PEM	Rare
Fragaria virginiana			PEM	Rare
Onoclea sensibilis			PEM	Rare
Equisetum sylvaticum			PEM	Rare
Symphyotrichum lateriflorum			PEM	Rare

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Species diversity is low, as the area is a disturbed and polluted roadside ditch.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
X	X				Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
	X		H	C	Point source or stormwater discharge
	X		H	C	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
	X		H	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		H	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
	X	X	L	U	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
	X		L	C	Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland is an artificial roadside ditch, and as such is highly disturbed. The feature is adjacent to a gravel road.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	✓				
Human Use Values	✓				
Wildlife Habitat	✓				
Fish and Aquatic Life Habitat		✓			
Shoreline Protection					✓
Flood and Stormwater Storage			✓		
Water Quality Protection			✓		
Groundwater Processes	✓				

FUNCTION	RATIONALE
Floristic Integrity	Low diversity with weedy species
Human Use Values	No discernible uses
Wildlife Habitat	No quality habitat
Fish and Aquatic Life Habitat	Inundation after rain events, but obtains polluted runoff
Shoreline Protection	N/A
Flood and Stormwater Storage	Densely vegetated roadside ditch, but small size
Water Quality Protection	Filters stormwater runoff from adjacent road
Groundwater Processes	Groundwater recharge

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Low
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Low
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-16

Applicant/Owner: Enbridge State: WI Sampling Point: wasc075_u

Investigator(s): JSW/BRG Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Side slope Local relief (concave, convex, none): None Slope (%): 3-7%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.342770 Long: -90.674169 Datum: WGS84

Soil Map Unit Name: Gogebic fine sandy loam, 1 to 6 percent slopes, very stony, rocky NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

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

The upland is located in a young aspen stand near a road.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc075_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	50.0	Y	FAC
2. *Fraxinus americana*	25.0	Y	FACU
3.			
4.			
5.			
6.			
7.			
	75.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Osmunda claytoniana*	25.0	Y	FAC
2. *Mitchella repens*	10.0	Y	FACU
3. *Maianthemum canadense*	5.0	N	FACU
4. *Symphyotrichum lateriflorum*	5.0	N	FAC
5. *Carex gracillima*	5.0	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50.0 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2.0 (A)

Total Number of Dominant Species Across All Strata: 4.0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.0	x 1 =	0.0
FACW species	0.0	x 2 =	0.0
FAC species	80.0	x 3 =	240.0
FACU species	45.0	x 4 =	180.0
UPL species	0.0	x 5 =	0.0
Column Totals:	125.0 (A)		420.0 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

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

The upland is dominated by quaking aspen and interrupted fern.

SOIL

Sampling Point: wasc075_u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-13	7.5YR 3/3	100					CL	
13-18	5YR 4/6	100					SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No hydric soil indicators observed.

wasc075_u_N

wasc075_u_W

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-16

Applicant/Owner: Enbridge State: WI Sampling Point: wasc073e_w

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.342395 Long: -90.675055 Datum: WGS84

Soil Map Unit Name: Gogebic fine sandy loam, 1 to 6 percent slopes, very stony, rocky NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

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

The wetland is a fresh wet meadow that is associated with an intermittent stream. The wetland exists due to a combination of water input from the stream, runoff from the nearby gravel roads, and the depressional landform. The wetland extends into a mesic forest, but is still an emergent riparian feature.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes ✓ No _____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrologic regime is seasonally saturated. The wetland exhibits discharge hydrology as water flows from the wetland out through an intermittent stream, but recharge hydrology where water stands in the depression. A heavy rain event occurred prior to the time of survey, and shallow surface water is present in some areas.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc073e_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Glyceria canadensis*	40.0	Y	OBL
2. *Calamagrostis canadensis*	20.0	Y	OBL
3. *Scirpus hattorianus*	10.0	N	OBL
4. *Scirpus cyperinus*	10.0	N	OBL
5. *Typha X glauca*	5.0	N	OBL
6. *Juncus effusus*	5.0	N	OBL
7. *Symphyotrichum puniceum*	2.0	N	OBL
8. *Impatiens capensis*	2.0	N	FACW
9. *Persicaria sagittata*	1.0	N	OBL
10.			
11.			
12.			
	95.0 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2.0 (A)

Total Number of Dominant Species Across All Strata: 2.0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	93.0	x 1 =	93.0
FACW species	2.0	x 2 =	4.0
FAC species	0.0	x 3 =	0.0
FACU species	0.0	x 4 =	0.0
UPL species	0.0	x 5 =	0.0
Column Totals:	95.0 (A)		97.0 (B)

Prevalence Index = B/A = 1.0

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

The wetland is densely vegetated, and is dominated by Glyceria canadensis and Calamagrostis canadensis. In the forested area, the species distribution changes, with Carex bromoides becoming dominant.

SOIL

Sampling Point: wasc073e_w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Soils could not be sampled due to the proximity of existing buried utilities. Soils are assumed to be hydric based on the landscape position and dominant vegetation.

wasc073e_w_E

wasc073e_w_N

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): BRG/JSW
File #: wasc073	Date of visit(s): 10/16/2019
Location: PLSS: 045N-003W-25 Lat: 46.342395 Long: -90.675055 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River

SITE DESCRIPTION		
Soils: Mapped Type(s): 809C Gogebic-Metonga-Rock outcrop complex, 5354B Gogebic fine sandy loam Field Verified: Soils could not be sampled due to the proximity of existing buried utilities. Soils are assumed to be hydric based on the landscape position and dominant vegetation	WWI Class: N/A Wetland Type(s): PEM - fresh wet meadow	
	Wetland Size: 0.22	Wetland Area Impacted 0.22
Hydrology: The hydrologic regime is seasonally saturated, with discharge hydrology but a small recharge component. An intermittent stream runs through the wetland, and the wetland has a riparian nature.	Vegetation: Plant Community Description(s): Fresh wet meadow is dominated by Glyceria striata, Calamagrostis canadensis, and Carex bromoides.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting, birding
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	Y	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	Y	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	Y	Y	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

WH-6: a small amount of shrubs are present in the wetland, and surrounding the wetland is mesic forest
WH-10: in some areas of the wetland, water is more stationary and provides habitat
ST-5: runoff from gravel roads and roadside ditches

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Deer
	Y	Avian
	Y	Amphibians

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	Y	Frogs
	Y	Aquatic invertebrates

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☑	All strata present and good assemblage of native species ☐	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☑	S3 ☐	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☑	Common ☐	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Glyceria canadensis			PEM	Common
Calamagrostis canadensis			PEM	Common
Scirpus hattorianus			PEM	Uncommon
Scirpus cyperinus			PEM	Uncommon
Typha X glauca			PEM	Rare
Juncus effusus			PEM	Rare
Symphyotrichum puniceum			PEM	Rare
Impatiens capensis			PEM	Rare
Persicaria sagittata			PEM	Rare

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Species diversity is low, as the area is disturbed.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
X	X				Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
	X		H	C	Point source or stormwater discharge
	X		M	C	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
	X		H	C	Roads or railroad
X	X		H	C	Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
		X	M	U	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		M	C	Cover of non-native and/or invasive species
	X		M	C	Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The area has been logged in the past and the surrounding forest is wormed. The wetland is next to a gravel road, and itersects a powerline utility corridor.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	✓				
Human Use Values			✓		
Wildlife Habitat			✓		
Fish and Aquatic Life Habitat		✓			
Shoreline Protection		✓			
Flood and Stormwater Storage			✓		
Water Quality Protection			✓		
Groundwater Processes			✓		

FUNCTION	RATIONALE
Floristic Integrity	Low diversity, some invasive species cover
Human Use Values	Hunting, birding, near residential property
Wildlife Habitat	Deer and avian habitat
Fish and Aquatic Life Habitat	Standing water and an intermittent stream
Shoreline Protection	Associated with intermittent stream
Flood and Stormwater Storage	Densely vegetated depression associated with a stream, receives runoff
Water Quality Protection	Densely vegetated wetland associated with a stream that receives road runoff
Groundwater Processes	Groundwater recharge and some discharge through the stream

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Low
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Low
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-16

Applicant/Owner: Enbridge State: WI Sampling Point: wasc073_u

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Side slope Local relief (concave, convex, none): Convex Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.342489 Long: -90.675232 Datum: WGS84

Soil Map Unit Name: Gogebic fine sandy loam, 1 to 6 percent slopes, very stony, rocky NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

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

The upland is a young mesic forest edge that is wormed and adjacent to a cleared powerline corridor.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc073_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Abies balsamea*	30.0	Y	FAC
2. *Acer saccharum*	20.0	Y	FACU
3. *Ulmus americana*	10.0	N	FACW
4. *Fraxinus pennsylvanica*	5.0	N	FACW
5. *Populus tremuloides*	5.0	N	FAC
6. *Betula alleghaniensis*	5.0	N	FAC
7. *Thuja occidentalis*	2.0	N	FACW
	77.0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *Acer saccharum*	15.0	Y	FACU
2. *Abies balsamea*	10.0	Y	FAC
3. *Ilex verticillata*	5.0	N	FACW
4.			
5.			
6.			
7.			
	30	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Carex pensylvanica*	60.0	Y	NI
2. *Pyrola elliptica*	10.0	N	FACU
3. *Mitchella repens*	10.0	N	FACU
4. *Osmunda claytoniana*	5.0	N	FAC
5. *Acer saccharum*	5.0	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	22	x 2 =	44
FAC species	55	x 3 =	165
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	137 (A)		449 (B)

Prevalence Index = B/A = 3.28

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

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

The upland is the edge of a heavily disturbed young mesic forest.

SOIL

Sampling Point: wasc073_u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Soils could not be sampled due to the proximity of existing buried utilities. Soils are assumed non-hydric based on the landscape position and dominant vegetation.

wasc073_u_W

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-06

Applicant/Owner: Enbridge State: WI Sampling Point: wasb010e_w

Investigator(s): SAM/MAL Section, Township, Range: 045N-002W-31

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Superior Stony and Rocky Loamy Plains and Hills, Eastern Part Lat: 46.342192 Long: -90.673673 Datum: WGS84

Soil Map Unit Name: Gogebic fine sandy loam, 1 to 6 percent slopes, very stony, rocky NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

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

Area had likely been contiguous in terms of cover with the forested component of the complex. Area now kept clear due to the overhead utility and converted to a wet meadow community. Also, it appears that the utility company herbicides any and all woody encroachment within their corridor.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 2
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Portions of this component of the wetland with surface water. Feature receives water from a culvert to the west which is associated with Golf Course Road. Otherwise the feature in general is seasonally saturated.

VEGETATION – Use scientific names of plants.

Sampling Point: wasb010e_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Calamagrostis canadensis*	50.0	Y	OBL
2. *Carex crinita*	10.0	N	OBL
3. *Persicaria sagittata*	5.0	N	OBL
4. *Impatiens capensis*	5.0	N	FACW
5. *Alisma triviale*	5.0	N	OBL
6. *Glyceria canadensis*	5.0	N	OBL
7.			
8.			
9.			
10.			
11.			
12.			
	80.0 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1.0 (A)

Total Number of Dominant Species Across All Strata: 1.0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	75.0	x 1 =	75.0
FACW species	5.0	x 2 =	10.0
FAC species	0.0	x 3 =	0.0
FACU species	0.0	x 4 =	0.0
UPL species	0.0	x 5 =	0.0
Column Totals:	80.0 (A)		85.0 (B)

Prevalence Index = B/A = 1.1

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

Wet meadow community dominated by graminoid cover, primarily Canada bluejoint.

SOIL

Sampling Point: wasb010e_w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Soils were not examined due to the potential of buried utilities. Soils are assumed hydric based on vegetation, landscape position, and visible hydrology.

wasb010e_w_N

wasb010e_w_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-06

Applicant/Owner: Enbridge State: WI Sampling Point: wasb010f_w

Investigator(s): SAM/MAL Section, Township, Range: 045N-002W-31

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3-7%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.341128 Long: -90.672123 Datum: WGS84

Soil Map Unit Name: Gogebic fine sandy loam, 1 to 6 percent slopes, very stony, rocky NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

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

Large linear wet forest feature with hydrologic inputs from the south. Canopy of mostly black ash with mostly graminoid cover where vegetated. Topography of the feature is fairly well-defined. Eventually drains into a power line corridor that is now a converted to a wet meadow community.

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)
- ___ Marl Deposits (B15)
- ✓ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Drainage Patterns (B10)
- ✓ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Receives hydrologic inputs via a culvert from the south. Hydrology is mostly recharge but likely includes discharge. A portion of the wetland feature serves as a drainageway but there is no defined bed or bank.

VEGETATION – Use scientific names of plants.

Sampling Point: wasb010f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	50.0	Y	FACW
2. *Betula alleghaniensis*	25.0	Y	FAC
3.			
4.			
5.			
6.			
7.			
	75.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Fraxinus nigra*	10	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Athyrium angustum*	10.0	Y	FAC
2. *Carex scabrata*	10.0	Y	OBL
3. *Ribes glandulosum*	10.0	Y	FACW
4. *Carex gracillima*	5.0	N	FACU
5. *Symphyotrichum lateriflorum*	5.0	N	FAC
6. *Impatiens capensis*	5.0	N	FACW
7. *Equisetum sylvaticum*	5.0	N	FACW
8. *Arisaema triphyllum*	2.0	N	FAC
9. *Rubus pubescens*	2.0	N	FACW
10.			
11.			
12.			
	54.0 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	82	x 2 =	164
FAC species	42	x 3 =	126
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	139 (A)		320 (B)

Prevalence Index = B/A = 2.30

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

Black ash dominated wet forest with Carex bromoides and Carex scabrata.

SOIL

Sampling Point: wasb010f_w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	95	2.5YR 3/6	5	C	M	S	Prominent redox
5-18	10YR 3/2	80	2.5YR 3/6	20	C	M	CL	Prominent redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Meets several hydric soil indicators.

wasb010f_w_N

wasb010f_w_S

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): MAL/SAM
File #: wasb010	Date of visit(s): 09/06/2019
Location: PLSS: 045N-002W-31 Lat: 46.341128 Long: -90.672123 County: Ashland Town/City/Village: Morse town	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5354B Gogebic fine sandy loam 809C Gogebic-Metonga-Rock outcrop complex 5425A Foxpaw-Gay, stony complex, 0 to 2 percent slopes Field Verified: The series was not verified. Soils are sand over clay loam.	WWI Class: N/A Wetland Type(s): PFO - Hardwood Swamp, PEM - Fresh Wet Meadow	
	Wetland Size: 1.46	Wetland Area Impacted 1.46
Hydrology: The wetland receives hydrologic inputs from culvert to the south. Primarily recharge hydrology. A portion of the wetland feature serves as a drainageway but there is no defined bank or bed.	Vegetation: Plant Community Description(s): Black ash dominated wet forest dominated by native species.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	Y	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	Y	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	Y	Ephemeral pond with water present ≥ 45 days
10	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	Y	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	NA	NA	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	NA	NA	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	NA	NA	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	N	Y	Dense, persistent vegetation
4	N	Y	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	Y	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

WH-8: Within relatively close proximity to multiple state parks (2-10 mi), ST-1: Has through flow.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	The wetland has the potential to provide insect, songbird, mammal, amphibian habitat.

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☑	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Calamagrostis canadensis			PEM	Abundant
Fraxinus nigra			PFO	Abundant
Carex scabrata			PFO	Uncommon
Betula alleghaniensis			PFO	Common
Ribes glandulosum			PFO	Common
Athyrium angustum			PFO	Common
Equisetum sylvaticum			PFO	Uncommon
Impatiens capensis			PFO	Uncommon
Symphyotrichum lateriflorum			PFO	Uncommon
Carex gracillima			PFO	Uncommon
Arisaema triphyllum			PFO	Uncommon
Rubus pubescens			PFO	Uncommon
Carex crinita			PEM	Uncommon
Persicaria sagittata			PEM	Uncommon
Impatiens capensis			PEM	Uncommon
Alisma triviale			PEM	Uncommon
Glyceria canadensis			PEM	Uncommon

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Moderate floristic integrity in both hardwood swamp and wet meadow communities. Overall dominated by native species with diverse herb stratum and few invasives.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
	X		L	C	Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Large linear wet forest feature with hydrologic inputs from the south. Canopy of mostly black ash with mostly gramminoid cover where vegetated. Topography of the feature is fairly well defined. Eventually drains into a powerline corridor that is now converted to a wet meadow community.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		✓			
Human Use Values	✓				
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat		✓			
Shoreline Protection					✓
Flood and Stormwater Storage		✓			
Water Quality Protection		✓			
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	The wetland has a relatively diverse assemblage of native species with limited non-native species cover.
Human Use Values	The wetland is not accessible to the public.
Wildlife Habitat	The wetland provides multiple strata of vegetation.
Fish and Aquatic Life Habitat	The emergent portion of this feature provides standing water.
Shoreline Protection	
Flood and Stormwater Storage	The feature is linear and has through flow with a concave local relief.
Water Quality Protection	The wetland has relatively dense vegetation and serves as a drainageway.
Groundwater Processes	The wetland has a high water table is mostly recharge but also includes discharge.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-06

Applicant/Owner: Enbridge State: WI Sampling Point: wasb010_u

Investigator(s): SAM/MAL Section, Township, Range: 045N-002W-31

Landform (hillslope, terrace, etc.): Rise Local relief (concave, convex, none): None Slope (%): 3-7%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.341102 Long: -90.672306 Datum: WGS84

Soil Map Unit Name: Gogebic fine sandy loam, 1 to 6 percent slopes, very stony, rocky NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

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

Mesic hardwood community That includes sugar maple, yellow birch, and ironwood.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No primary or secondary indicators of wetland hydrology.

VEGETATION – Use scientific names of plants.

Sampling Point: wasb010_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	50.0	Y	FACU
2. *Betula alleghaniensis*	20.0	Y	FAC
3. *Quercus rubra*	10.0	N	FACU
4.			
5.			
6.			
7.			
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *Ostrya virginiana*	10.0	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	10.0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Carex pensylvanica*	15.0	Y	NI
2. *Maianthemum canadense*	10.0	Y	FACU
3. *Carex pedunculata*	5.0	N	FAC
4. *Carex intumescens*	5.0	N	FACW
5. *Trillium cernuum*	2.0	N	FAC
6. *Carex leptonervia*	2.0	N	FAC
7. *Actaea pachypoda*	2.0	N	UPL
8. *Caulophyllum thalictroides*	2.0	N	NI
9.			
10.			
11.			
12.			
	43	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	29	x 3 =	87
FACU species	80	x 4 =	320
UPL species	2	x 5 =	10
Column Totals:	116 (A)		427 (B)

Prevalence Index = B/A = 3.68

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✓

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

Area dominated by sugar maple.

SOIL

Sampling Point: wasb010_u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 3/4	100					SIL	
6-18	5YR 4/6	100					SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No redox features nor hydric soil indicators observed.

wasb010_u_NW

wasb010_u_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-16

Applicant/Owner: Enbridge State: WI Sampling Point: wasc076e_w

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.342337 Long: -90.675937 Datum: WGS84

Soil Map Unit Name: Gogebic fine sandy loam, 1 to 6 percent slopes, very stony, rocky NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____

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

The wetland is a small fresh wet meadow located along a road within a maintained powerline corridor. Soils are compacted and the wetland likely only exists because of this soil compaction and road runoff. The wetland shares upland point wasc073_u.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrologic regime is seasonally saturated, with recharge hydrology. The wetland receives runoff from the adjacent gravel road and driveway.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc076e_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Calamagrostis canadensis*	60.0	Y	OBL
2. *Scirpus cyperinus*	10.0	N	OBL
3. *Solidago gigantea*	5.0	N	FACW
4. *Verbena hastata*	5.0	N	FACW
5. *Persicaria sagittata*	5.0	N	OBL
6. *Glyceria striata*	5.0	N	OBL
7. *Juncus effusus*	2.0	N	OBL
8. *Rubus idaeus*	2.0	N	FAC
9. *Onoclea sensibilis*	2.0	N	FACW
10. *Rumex obtusifolius*	1.0	N	FAC
11.			
12.			
	97.0 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1.0 (A)

Total Number of Dominant Species Across All Strata: 1.0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	82.0	x 1 =	82.0
FACW species	12.0	x 2 =	24.0
FAC species	3.0	x 3 =	9.0
FACU species	0.0	x 4 =	0.0
UPL species	0.0	x 5 =	0.0
Column Totals:	97.0 (A)		115.0 (B)

Prevalence Index = B/A = 1.2

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

Feature is dominated by Calamagrostis canadensis.

SOIL

Sampling Point: wasc076e_w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Soils could not be sampled due to the proximity of potential buried utilities within the powerline corridor and roadside area. Soils are assumed to be hydric based on the landscape position and dominant vegetation.

wasc076e_w_N

wasc076e_w_S

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): BRG/JSW
File #: wasc076	Date of visit(s): 10/16/2019
Location: PLSS: 045N-003W-25 Lat: 46.342355 Long: -90.675951 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS14, Upper Bad River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5354B Gogebic fine sandy loam Field Verified: Soils could not be sampled due to the proximity of potential buried utilities within the powerline corridor and roadside area. Soils are assumed to be hydric based on the landscape position and dominant vegetation.	WWI Class: N/A Wetland Type(s): PEM - fresh wet meadow Wetland Size: 0.04	Wetland Area Impacted 0.04
Hydrology: The hydrologic regime is seasonally saturated, with recharge hydrology. The wetland receives runoff from the adjacent gravel road and driveway, and has compacted soils.	Vegetation: Plant Community Description(s): Fresh wet meadow is dominated by Calamagrostis canadensis, with other disturbance-tolerant species present.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	Y	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-3: near a road but on private property

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	Y	Aquatic invertebrates

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☑	All strata present and good assemblage of native species ☐	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☑	S3 ☐	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☑	Common ☐	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Calamagrostis canadensis			PEM	Abundant
Scirpus cyperinus			PEM	Uncommon
Solidago gigantea			PEM	Rare
Verbena hastata			PEM	Rare
Persicaria sagittata			PEM	Rare
Glyceria striata			PEM	Rare
Juncus effusus			PEM	Rare
Rubus idaeus			PEM	Rare
Onoclea sensibilis			PEM	Rare
Rumex obtusifolius			PEM	Rare

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Species diversity is low, as the area is disturbed.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
	X				Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
	X		H	C	Point source or stormwater discharge
	X		M	C	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
	X		H	C	Roads or railroad
X	X		H	C	Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		H	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
	X	X	L	U	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
	X		L	C	Cover of non-native and/or invasive species
	X		L	C	Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland is located in a powerline corridor adjacent to a road and driveway, and as such is heavily disturbed by a number of factors.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	✓				
Human Use Values	✓				
Wildlife Habitat	✓				
Fish and Aquatic Life Habitat		✓			
Shoreline Protection					✓
Flood and Stormwater Storage			✓		
Water Quality Protection			✓		
Groundwater Processes	✓				

FUNCTION	RATIONALE
Floristic Integrity	Low diversity, disturbed species present
Human Use Values	No clear uses
Wildlife Habitat	No good habitat
Fish and Aquatic Life Habitat	Some standing water potential after rain events
Shoreline Protection	N/A
Flood and Stormwater Storage	Densely vegetated depression that receives stormwater runoff
Water Quality Protection	See above
Groundwater Processes	Groundwater recharge

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Low
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Low
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-16

Applicant/Owner: Enbridge State: WI Sampling Point: wasc073_u

Investigator(s): BRG/JSW Section, Township, Range: 045N-003W-25

Landform (hillslope, terrace, etc.): Side slope Local relief (concave, convex, none): Convex Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.342489 Long: -90.675232 Datum: WGS84

Soil Map Unit Name: Gogebic fine sandy loam, 1 to 6 percent slopes, very stony, rocky NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

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

The upland is a young mesic forest edge that is wormed and adjacent to a cleared powerline corridor.

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wasc073_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Abies balsamea*	30.0	Y	FAC
2. *Acer saccharum*	20.0	Y	FACU
3. *Ulmus americana*	10.0	N	FACW
4. *Fraxinus pennsylvanica*	5.0	N	FACW
5. *Populus tremuloides*	5.0	N	FAC
6. *Betula alleghaniensis*	5.0	N	FAC
7. *Thuja occidentalis*	2.0	N	FACW
	77.0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *Acer saccharum*	15.0	Y	FACU
2. *Abies balsamea*	10.0	Y	FAC
3. *Ilex verticillata*	5.0	N	FACW
4.			
5.			
6.			
7.			
	30	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Carex pensylvanica*	60.0	Y	NI
2. *Pyrola elliptica*	10.0	N	FACU
3. *Mitchella repens*	10.0	N	FACU
4. *Osmunda claytoniana*	5.0	N	FAC
5. *Acer saccharum*	5.0	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	22	x 2 =	44
FAC species	55	x 3 =	165
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	137 (A)		449 (B)

Prevalence Index = B/A = 3.28

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

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

The upland is the edge of a heavily disturbed young mesic forest.

SOIL

Sampling Point: wasc073_u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Soils could not be sampled due to the proximity of existing buried utilities. Soils are assumed non-hydric based on the landscape position and dominant vegetation.

wasc073_u_W