



# United States Department of the Interior

NATIONAL PARK SERVICE  
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State College, PA 16803

March 2020

## Memorandum

To: Leigh Johnson, Community Planner, DOI Unified Regions 3, 4, and 5  
CC: John Snyder, Biologist, VOYA  
From: Peter Sharpe Ph.D., PWS, Interior Region 1, North Atlantic - Appalachian/WRD  
Subject: Wetland Delineation Report, Voyageurs National Park – Kettle Falls Area

## Summary

The objective of this investigation was to respond to a request for technical assistance for a comprehensive delineation of wetland habitats subject to jurisdiction under Section 404 of the Clean Water Act (CWA) and all wetlands subject to National Park Service (NPS) procedures for implementing *Director's Order #77-1: Wetland Protection* for National Park Service lands within the Kettle Falls recreation area of Voyageurs National Park. This work utilized the U.S. Army Corps of Engineers (USACE) Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region Version 2.0 (January 2012) as the primary methodology for making wetland determinations in the field. A total of 6 palustrine wetlands encompassing 9.57 ac (3.88 ha) of land were identified and delineated within the Kettle Falls study area boundary (70 ac; Fig. 1). Wetland habitats within the Kettle Falls study area were a mixture of forested, broad-leaved deciduous, scrub-shrub, and emergent wetlands with seasonally flooded/saturated hydrologic water regimes. These wetlands bordered existing roads, trails, buildings, or other infrastructure within the study area. With the exception of Wetland-6, which extended beyond our study area boundary to the Northeast, the majority of the wetland systems appeared to be “isolated” in terms of meeting the U.S. Army Corps of Engineers criteria for potential jurisdiction. However all of these wetlands system would fall under NPS policy jurisdiction under DO #77-1, therefore the park is encouraged to share this report and recommendations with our service-wide wetland lead (Kevin Noon). No new waterway features (classified as riverine wetlands by Cowardin et al. 1979) were identified or delineated within the project study area. With regards to recommendations, the park should explore the possibility of avoiding or minimizing ( $\leq 0.10$  ac) impacts to the mapped wetland systems described and delineated in this report. Should wetland impacts arising from a proposed action occur, Kevin Noon will be able to provide an official determination of DO #77-1 compliance and provide requirements upon receipt of this report, mapping, and supporting data.



Figure 1. VOYA – Kettle Falls study area map, showing the location of the palustrine wetland features identified and delineated in September 2019. Wetlands-6A and B are separated by an existing access road to the Kettle Falls Hotel and this wetland system extends beyond the study area boundary to the Northeast – see Hop et al. (2001) for more details.

## Study Objectives

The purpose of this effort was to provide detailed wetland/aquatic resource identification and boundary information for the Kettle Falls Environmental Assessment study area located within Voyageurs National Park, MN. The information may be utilized for park compliance purposes if VOYA proceeds with plans to make infrastructure improvements within the proposed study area boundary (Figure 1).

## Field Participants

Peter J. Sharpe, Interior Region 1/WRD – The National Park Service  
John Snyder, VOYA – The National Park Service

## Introduction

It is the mission of the National Park Service to preserve and maintain the natural and cultural resources of Voyageurs National Park (VOYA) and to interpret those same resources to the visiting public and the scientific and scholarly community.

The NPS, through Director's Order #77-1, requires mapping of wetlands and all other "waters of the United States" via a slightly different criteria than the USACE 1987 manual and associated regional supplements, thus the two types of wetland determination methods employed at VOYA were: (1) the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual : Northcentral and Northeast Region Version 2.0 (January 2012) and (2) the revised 1979 USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (FGDC, 2013). The NPS recognizes that most wetlands on NPS lands will have all three parameters; therefore, D.O. #77-1 provides procedures for field biologists to follow so that wetland delineation and mapping projects on NPS lands will satisfy both US Army Corps criteria and the NPS standard for identifying wetlands which is the revised 1979 USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (FGDC, 2013). For brevity, only the standards applicable for VOYA within the state of Minnesota are described below – for a more detailed treatment of the other standards, see D.O #77-1 (NPS, 2016).

An important hydrologic note for this work is that the International Falls, MN area experienced above average rainfall totals for the month of September (**Actual rainfall – 6.64 inches** versus the **1981-2010 average 2.99 inches**) when this investigation was performed (US Climate Data - <https://www.usclimatedata.com/climate/international-falls/minnesota/united-states/usmn0376>). Non-normal (i.e. excessively wet or dry) climatic conditions can make effective wetland delineations difficult as the areas investigated in this case may have exhibited soil saturation or flooding in non-wetland habitats. However, false positives were ruled out in these instances by focusing on primary indicators of wetland vegetation, soils, and hydrology.

## Interim Regional Supplement USACE Method (3-Parameter Approach)

The USACE method for identifying the wetland / upland boundary uses the definition as outlined in the U.S. Army Corps of Engineers *Wetlands Delineation Manual, 1987*, which defines a wetland as:

“Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

Wetland boundaries were primarily determined by establishing a series of transects from a known wetland into known upland locations surrounding the area under examination. At suspected boundary locations along the transect, investigators looked for evidence of hydric soils, hydrophytic vegetation, and wetland hydrology. The wetland/upland boundary line was thus delineated and any obvious topographic changes (e.g. abrupt toe-of-slope line) along the wetland/upland perimeter that might occur. In many cases at VOYA, abrupt toe-of-slope boundaries, standing water, saturated soils, and hydrophytic plants were present and thus served as reliable indicators of wetland/upland boundaries.

### *Parameter 1- Hydrophytic Vegetation Criteria*

To determine presence of hydrophytic vegetation, plant species within each community were visually identified by strata (e.g. trees, saplings/shrubs, herbs and woody vines) and listed in descending order of dominance. The USACE defined sampling stratum has 5 percent or more total plant cover. If a stratum had less than 5 percent cover during the growing season, then those species and their cover values were recorded on the data form, assuming application of Indicator 3 (Prevalence Test) was necessary. However, these species were not generally included on the data sheets if the wetland determination could be made via Indicator 1 (Rapid Test) or Indicator 2 (Dominance Test). For Indicators 1 and 2 only those species that comprised 5% or more of a given strata were assessed.

Vegetation survey plots conformed to current USACE guidelines and involved the use of a series of nested circular plots (Fig. 2). Plot sizes were as follows:

1. Tree stratum – 30 ft (9.1 m) radius
2. Woody vines – 30 ft (9.1 m) radius
3. Herb stratum – 5 ft (1.5 m) radius
4. Sapling/shrub stratum – 15 ft (4.6 m) radius

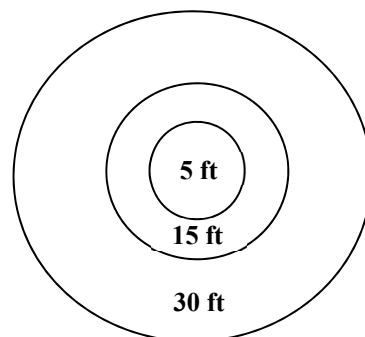


Figure 2. Typical wetland vegetation survey plot conforming to USACE interim regional supplement Northcentral and Northeast Region.

The wetland indicator status of observed dominant plant species was determined using the 2016 National Wetland Plant List for the Northcentral and Northeast Region contained within a iOS-based application (Sharpe et al., 2015):

- **OBL** (Obligate Wetland Plants) occur greater than 99 percent of the time in wetlands under natural conditions.
- **FACW** (Facultative Wetland Plants) occur between 67 and 99 percent of the time in wetlands under natural conditions.
- **FAC** (Facultative Plants) occur between 33 and 67 percent of the time in wetlands under natural conditions.
- **FACU** (Facultative Upland Plants) occur between 1 and 33 percent of the time in wetlands under natural conditions.
- **UPL** (Obligate Upland Plants) occur less than 1 percent of the time in wetlands under natural conditions.

Plant species dominance was determined as the most abundant species that individually or collectively accounted for more than 50 percent of the vegetation coverage in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total (i.e. the 50/20 Rule).

The interim regional supplement to the original 1987 USACE manual identifies 4 primary indicators of hydrophytic vegetation, any of which, when met, is indicative of a wetland plant community. For purposes of brevity, this section will cover only the two most commonly encountered indicators at MNRR (e.g. Indicators 1 and 2). For a complete description of all of the indicators, see U.S Army Corps of Engineers (USACE) Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region Version 2.0 (January 2012).

For a plant community to meet the vegetation criteria under Indicator 1, the following description must be met: “All dominant species across all strata are rated OBL or FACW, or a combination of these two categories, based on a visual assessment.” Under Indicator 2 (a commonly employed indicator at MNRR) more than 50 percent of the dominant plant species across all strata must be rated OBL, FACW, or FAC.

### *Parameter 2 - Hydrology Criteria*

Wetland hydrology indicators provide evidence that episodes of inundation or soil saturation lasting more than a few days during the growing season have occurred repeatedly over a period of years and that the timing, duration, and frequency of wet conditions have been sufficient to produce a characteristic wetland plant community and hydric soil morphology. Ideally wetland delineation work is conducted during the growing season which begins when two or more non-evergreen vascular plant species growing within the study area exhibit one or more of the following biological indicators:

1. Emergence of herbaceous plants from the ground
2. Appearance of new growth from vegetative crowns (e.g., in graminoids, bulbs, and corms)
3. Coleoptile/cotyledon emergence from seed
4. Bud burst on woody plants (i.e., some green foliage is visible between
5. spreading bud scales)
6. Emergence or elongation of leaves of woody plants
7. Emergence or opening of flowers

Growing season conditions can also be met if soil temperature measured at 12 in. (30 cm) depth is 41 °F (5 °C) or higher.

Hydrologic indicators of wetland conditions are based on direct observation of surface water or groundwater during a site visit (Group A indicators), evidence that the site is subject to flooding or ponding, although the inundation need not be directly observed at the time of the investigation (Group B indicators). The inundation (Group B) indicators include water marks, drift deposits, sediment deposits, and similar features. Other hydrologic indicators consist of evidence that the soil is saturated currently or was saturated recently such as oxidized rhizospheres and the presence of reduced iron or sulfur in the soil profile (Group C indicators), which indicate that the soil has been saturated for an extended period. The final group of hydrologic indicators (Group D) consists of landscape, vegetation, and soil features that indicate contemporary rather than historical wet conditions. Wetland hydrology indicators are intended as one-time observations of site conditions that are sufficient evidence of wetland hydrology in areas where hydric soils and hydrophytic vegetation are present. For a site to meet the wetland hydrologic criteria it need only possess one primary indicator or two secondary indicators from one of the aforementioned groups.

### *Parameter 3 - Hydric Soil Criteria*

The National Technical Committee for Hydric Soils defines a hydric soil as a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (USDA Soil Conservation Service 1994).

Soil pits were excavated to a maximum depth of 20 inches (45.72 cm) using a sharp-shooter shovel, unless on-site conditions such as shallow bedrock prohibited excavation or one or more of the hydric soil indicators were met. The data sheets for each mapped wetland include information on the soil profile colors, presence/absence of redoximorphic features, texture, and presence/absence of any shallow confining layers and their depths on-site).

## GPS Survey of Wetland Boundaries

Wetland delineation flags were marked with a unique alphanumeric code and hung at regular intervals around the perimeter of each identified wetland habitat and located using a sub-meter accurate GPS system. Representative wetland test pits were similarly flagged and located. GPS-based coordinates were collected for wetland test pit and boundary flags from 11 September 2019, using a Trimble Geo7X receiver with an external Hurricane antenna in datum WGS 1984 (Data were later projected into NAD83 UTM Zone 15N), meter coordinates and TerraSync software. A minimum of 4 satellites were tracked. Where possible a maximum Position Dilution of Precision (PDOP) of 6 was maintained for each set and a minimum of 50 positions were taken at each point feature wherever possible. For Wetland-6 the “Line” feature was used to delineate the wetland boundary due to clear topographic breaks in the landscape and to minimize the visual impact of the delineation (flagging) on the landscape around the Kettle Falls Hotel. The data were post-processed and differentially corrected using Pathfinder Office 5.85 and base data downloaded from the CORS, ASH LAKE (MNAS) - MINNESOTA base station. The corrected data were then exported to shapefile format for polygon creation in ARCMAP 10.5. No tests were done to confirm the X/Y direction accuracy during this investigation. Table 1 below shows a complete breakdown the GPS data’s horizontal precision for the wetland boundary mapping.

Table 1. Estimated accuracies for the 3787 corrected GPS positions for the Kettle Falls (VOYA) wetlands work.

| Horizontal Precision | Percentage of GPS Positions within Range |
|----------------------|------------------------------------------|
| 0 - 2 in             | -                                        |
| 2 - 6 in             | 14.89%                                   |
| 6 - 12 in            | 27.12%                                   |
| 12 - 20 in           | 27.12%                                   |
| 20 - 40 in           | 29.60%                                   |
| 40 - 79 in           | 19.07%                                   |
| 79- 197 in           | 5.41%                                    |
| >197 in              | -                                        |

## Wetland Descriptions

Six unique palustrine wetland habitats, totaling 9.71 ac (3.93 ha), were observed over the course of this inventory. Table 1 provides a summary of the wetland habitats, their size, and Cowardin class/description and primary wetland function and values based on a rapid

qualitative assessment utilizing the US Army Corps of Engineers – New England District (*The Highway Methodology Workbook Supplement*, September 1999). Of these 6 wetland habitats, only one had previously been mapped at Kettle Falls (Wetland-6) – this site and its vegetative community had been included in the park’s vegetation mapping (Hop et al. 2001) and was comprised of three distinct forested/scrub-shrub community types: Northern Tamarack Rich Swamp, Black Ash-Mixed Hardwood, and Speckled Alder Swamp (see Photo 1).

**Table 1.** Summary table of identified and mapped wetland habitats from VOYA. Sampling point identification codes correspond to the data points shown on park mapping and the data sheets found in the report Appendices.

| Wetland ID<br>(Sampling Point ID) | Cowardin<br>(revised FGDC, 2013)<br>classification code | Wetland Function and Values<br>(New England USACE Method)                                              | Size  |          |
|-----------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-------|----------|
|                                   |                                                         |                                                                                                        | Acres | Hectares |
| Wetland-1<br>(WTP-1)              | PSS1E                                                   | GW Recharge, Sediment Retention, Floodflow Alteration, Wildlife Habitat, Recreation/Educational Values | 0.81  | 0.33     |
| Wetland-2<br>(WTP-2)              | PFO1E                                                   | GW Recharge, Sediment Retention, Floodflow Alteration, Wildlife Habitat, Recreation/Educational Values | 0.16  | 0.07     |
| Wetland-3<br>(WTP-3)              | PEM2E                                                   | GW Recharge, Sediment Retention, Floodflow Alteration, Wildlife Habitat, Recreation/Educational Values | 0.04  | 0.02     |
| Wetland-4<br>(WTP-4)              | PFO1E                                                   | GW Recharge, Sediment Retention, Floodflow Alteration                                                  | 0.14  | 0.06     |
| Wetland-5<br>(WTP-5)              | PEM2E                                                   | GW Recharge, Sediment/Toxicant Retention                                                               | 0.06  | 0.03     |
| Wetland-6<br>(WTP-6)              | PFO1E                                                   | GW Recharge, Sediment Retention, Floodflow Alteration, Wildlife Habitat, Recreation/Educational Values | 8.36  | 3.38     |



Photograph 1 (48.501391 N, -92.639820 W) – Wetland 6 view is 62° NE looking at the habitat and what was previously mapped as Speckled Alder Swamp. Photo Date 11 September 2019 – P. Sharpe. See Appendix C for additional photographs.

As can be seen in Photo 1 it appears as if the speckled alder swamp portion of Wetland-6 has been succeeding over time into a forested wetland community type that might better resemble a mixed hardwood swamp. However, detailed evaluations of wetland plant community changes over time within the Kettle Falls study area goes beyond the scope of this TA request. What was noted however, was that the previously mapped wetland boundaries near the existing road and boat launch (see Figure 2) did not appear to be accurate based on conditions observed in the field.

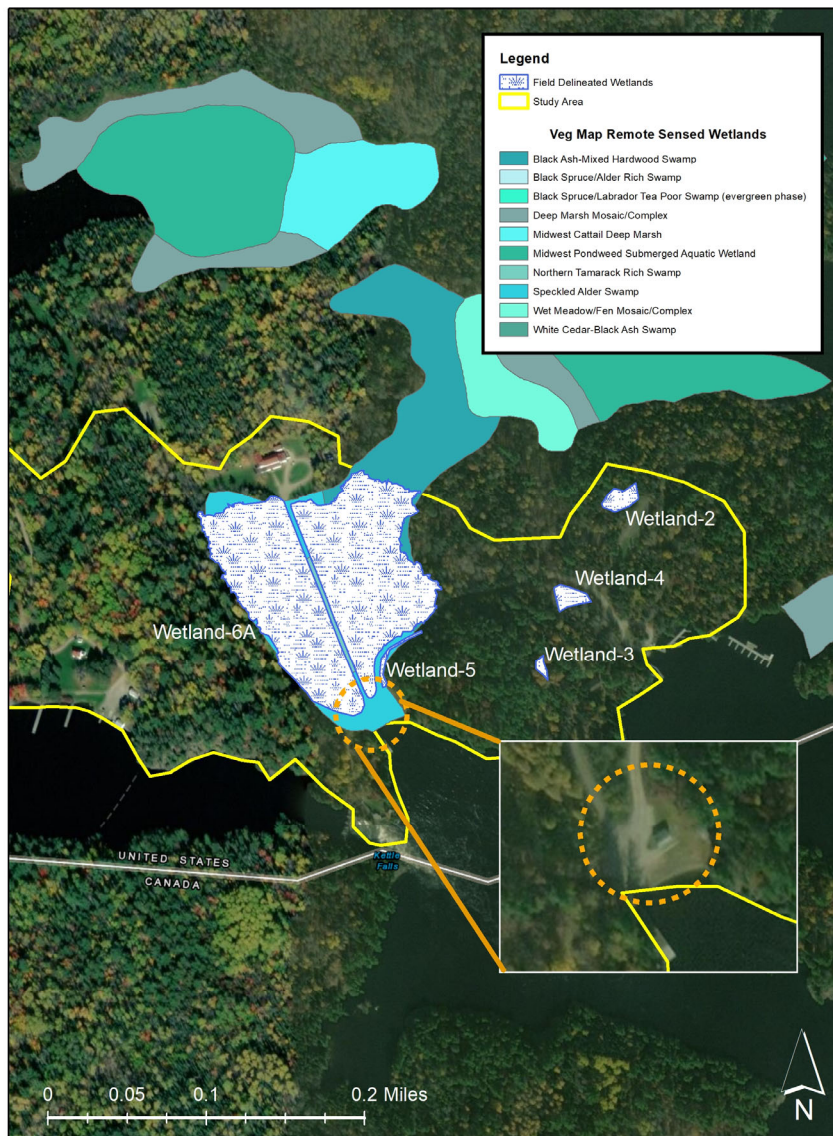


Figure 2 – Image of Wetland 6 the field delineated areas of Wetland 6 are overlain on top of the Veg Map remote sensed wetland polygons. The orange dashed circle highlights an existing road, parking, and boat dock area that **is not** wetland habitat but was shown as such on the Vegetation Mapping for the park.

Figure 2 illustrates locations where the park has remote sensed veg map wetland data within the project study area. Note that the general wetland location and boundary information is useful for general planning purposes. However, detailed boundary data on specific wetlands is still important to obtain as the example in Figure 2 highlights some of the limitations of remote sensed products in terms of boundary accuracy. As can be seen in Fig. 2 (orange dotted circle), the remote sensed wetlands layer extends well beyond the actual habitat boundary and shows wetlands occurring in areas occupied by park roads, parking areas, and the boat landing zones of Kettle Falls.

With this in mind for Clean Water Act and DO #77.1, compliance efforts the wetland boundary work described and provided to the park here should supersede any other wetland wetlands layers (i.e. Vegetation Map and NWI) within the study area boundaries.

## Recommendations

In keeping with NPS policy of no net loss of wetland habitat (DO #77.1: Wetland Protection Revised June 2016), it is my recommendation that the park attempt to avoid and minimize all wetland impacts within the study area defined by this project.

Should a proposed building site or helipad improvement zone require wetland impacts to meet other project goals then the park is advised to contact Kevin Noon our NPS wetlands program lead and share this report along with any data herein. I am available to answer any questions or elaborate on field conditions if necessary.

## Potential Wetland Restoration Opportunities

With the notable exception of Wetland 5, which essentially occupies a narrow ditch between a hill toe-of-slope and an access road (See Appendix A and C), the majority of the delineated wetland habitats of the study area appeared to be relatively undisturbed. However, given past and current land use activities at this location, none of these wetland systems could be classified as having no existing or potential impairments. The majority of the direct impairments (based on field observations September 2019) stem from adjacent park roads such as those shown in



Photograph 2 (48.50264 N, -92.63985 W) – Wetland 6A (right side of road) and Wetland 6B (left side of Road) view is 149° SE looking at the main Kettle Falls Hotel access road that bisects Wetland 6 into two components. Photo Date 11 September 2019 – P. Sharpe. This is a prime location for a restoration project should the park desire to execute one at this location.

Photograph 2. Specifically, these roads can contribute to sedimentation impacts, road salts, noise/light pollution, be a vector of exotic invasive plant species, inhibit hydrologic exchange between wetlands and the surrounding landscape, and inhibit safe movement between habitats by reptiles and amphibians.

Of the wetlands observed and mapped on September 2019 – Wetland 6 (shown in Photograph 2 above) presents a potential on-site restoration opportunity should the park be required to compensate for any wetland impacts arising from proposed development actions at Kettle Falls. The access road shown in Photograph 2, Figs. 1 and 2, and in greater detail in Appendix A bisects the habitat. A single 12 inch diameter corrugated metal culvert (see location in Appendix A) appears to be the only means of surface flow exchange between the two main sections of Wetland 6. Not only is this single culvert likely inadequate to handle flood flows (thereby causing road flooding), but it also inhibits free exchange of surface waters between the two wetland units (Wetland 6A and 6B). The road itself creates an artificial open space within what naturally would be interior swamp and contributes to noise, light, and sediment/toxicant pollution within the wetland. Potential restoration ideas to mitigate some or all of these impacts include (but are not limited too) the following:

1. Installing additional culverts within the road prism to promote greater surface water exchange
2. Removal of road and replacement with a Turnpike system
3. Road removal, wetland grade matching and replanting within the existing corridor to match the native plant community described by Hop et al. (2001)

VOYA already has at least two viable wetland restoration projects in various stages of completion (personal communication John Snyder September 2019) so it's also possible that should the NPS wetlands program require wetland compensation under DO #77.1 one or both of those projects may qualify.

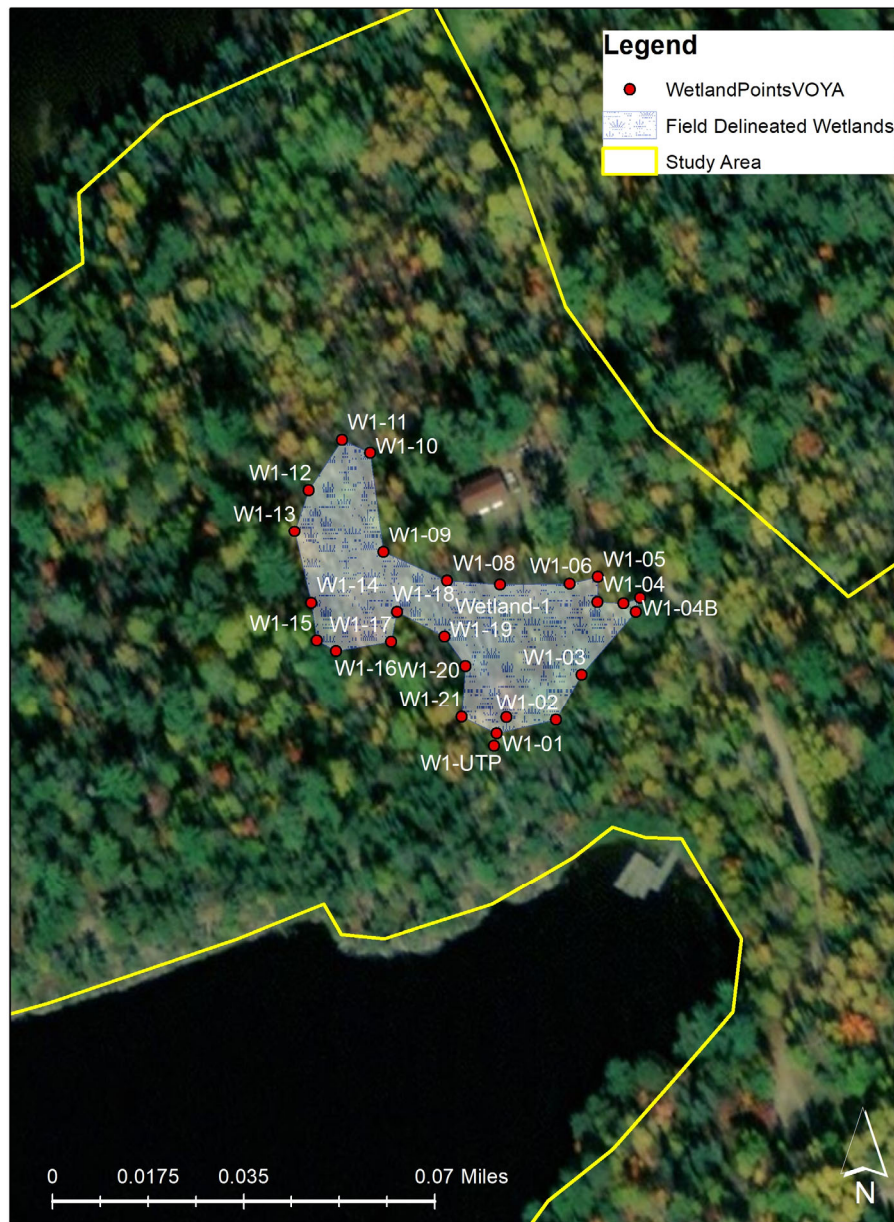
If you have any questions regarding this report please call Peter Sharpe (267) 858-1001. Wetland data sheets and supporting GIS data will be provided to VOYA and posted to the NPS IRMA site.

cc: (by e-mail only)  
WRD - K. Noon  
Region 1 – Carmen Chapin

## References Cited

- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS. Technical Report Y-87-1.
- Federal Geographic Data Committee. 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC.
- Hop, K., and Others. 2001. Vegetation Information for the Voyageurs National Park Vegetation Inventory Project. La Crosse, WI. NPS-IRMA:  
<https://irma.nps.gov/DataStore/Reference/Profile/2167389>
- National Park Service. 2016. National Park Service Procedural Manual #77-1: Wetland Protection.
- Sharpe, P.J., A. Kozlowski, and L. McElroy. 2015. Wetland Delineation Field Data Collection Application. NPS-IRMA:  
<https://irma.nps.gov/DataStore/Reference/Profile/2220340>.
- U. S. Army Corps of Engineers. 2011. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J.F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Army Corps of Engineers (New England District). September 1999. The Highway Methodology Workbook Supplement. NAEEP-360-1-30a.
- USDA Natural Resources Conservation Service. 1994. National food security act manual, third edition (as amended). Washington, DC.

## Appendix A – Detailed Project Mapping



Wetland-1 showing the individual boundary points and data collection locations relative to an existing NPS maintenance building.



Wetland-2 showing the individual boundary points and data collection locations relative to an existing water treatment system.



Wetlands-3 and 4 showing the individual boundary points and data collection locations relative to an existing trail at Kettle Falls.



Wetlands-5 showing the individual boundary points and data collection locations relative to the existing boat dock, roads, and helipad area. Portions of the largest wetland encountered (Wetland-6) also appears in this figure.



Wetland-6 the largest system mapped as part of this effort in relation to the Kettle Falls Hotel and access roads, helipad, Wetland-5, etc... To reduce the visual impact of the delineation and because Wetland-6 demonstrated clear topographic breaks facilitating easy field delineation individual boundary points we not collected. Instead – Trimble’s line feature was utilized to collect the boundary data.

## Appendix B – Wetland Delineation/Function and Value Data Sheets

### WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: VOYA - KF City/County: St. Louis Co. Sampling Date: 9/10/2019  
 Applicant/Owner: NPS State: MN Sampling Point: UTP-1  
 Investigator(s): P. Sharpe, Section, Township, Range: Township 70N, Range 18W  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope (%): 2%  
 Subregion (LRR or MLRA): LRR K Lat: 48.5023932 Long: -92.6444745 Datum: NAD83  
 Soil Map Unit Name: 2srqs - Insula-Conic-Wahlsten NWI Classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.)

Are ☐ Vegetation ☐ Soil ☐ Hydrology significantly disturbed? Are "Normal Circumstances" present? ☒ Yes ☐ No

Are ☐ Vegetation ☐ Soil ☐ 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? <input checked="" type="radio"/> Yes <input type="radio"/> No | Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No |
| Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No            |                                                                                                     |
| Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No      |                                                                                                     |
| If yes, optional Wetland Site ID: _____                                                       |                                                                                                     |
| Remarks:                                                                                      |                                                                                                     |

#### HYDROLOGY

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wetland Hydrology Indicators:</b><br>Primary Indicators (minimum of one is required; check all that apply)<br><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)<br><input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Presence of Reduced Iron (C4)<br><input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)<br><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Thin Muck Surface (C7)<br><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Other (Explain in Remarks)<br><input type="checkbox"/> Drift Deposits (B3)<br><input type="checkbox"/> Algal Mat or Crust (B4)<br><input type="checkbox"/> Iron Deposits (B5)<br><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)<br><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)<br><input type="checkbox"/> Water Stained Leaves (B9)<br><input type="checkbox"/> Aquatic Fauna (B13)<br><input type="checkbox"/> Marl Deposits (B15)<br><input type="checkbox"/> Hydrogen Sulfide Odor (C1) |  | Secondary Indicators (minimum of two required)<br><input type="checkbox"/> Surface Soil Cracks (B6)<br><input type="checkbox"/> Drainage Patterns (B10)<br><input type="checkbox"/> Moss Trim Lines (B16)<br><input type="checkbox"/> Dry-Season Water Table (C2)<br><input type="checkbox"/> Crayfish Burrows (C8)<br><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)<br><input type="checkbox"/> Stunted or Stressed Plants (D1)<br><input checked="" type="checkbox"/> Geomorphic Position (D2)<br><input type="checkbox"/> Shallow Aquitard (D3)<br><input type="checkbox"/> Microtopographic Relief (D4)<br><input type="checkbox"/> FAC-Neutral Test (D5) |
| <b>Field Observations:</b><br>Surface Water Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____<br>Water Table Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____<br>Saturation Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____<br>(includes capillary fringe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Remarks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

Sampling Point: UTP-1

Northcentral and Northeast Region

Sampling Point: UTP-1

Northcentral and Northeast Region

# **WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: VOYA - KF City/County: St. Louis Co. Sampling Date: 9/10/2019  
 Applicant/Owner: NPS State: MN Sampling Point: W1-WTP  
 Investigator(s): P. Sharpe, Section, Township, Range: Township 70N, Range 18W  
 Landform (hillslope, terrace, etc.): Toe of Slope Local relief (concave, convex, none): Concave Slope (%): 0-1%  
 Subregion (LRR or MLRA): LRR K Lat: 48.5024691 Long: -92.6444243 Datum: NAD83  
 Soil Map Unit Name: 2srqs - Insula-Conic-Wahlsten NWI Classification: PSS1E

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.)

Are ☐ Vegetation ☐ Soil ☐ Hydrology significantly disturbed? Are "Normal Circumstances" present? ☒ Yes ☐ No

Are ☐ Vegetation ☐ Soil ☐ 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? <input checked="" type="radio"/> Yes <input type="radio"/> No | Is the Sampled Area within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No<br>If yes, optional Wetland Site ID: _____ |
| Hydric Soil Present? <input checked="" type="radio"/> Yes <input type="radio"/> No            |                                                                                                                                                |
| Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No      |                                                                                                                                                |
| Remarks:                                                                                      |                                                                                                                                                |

## **HYDROLOGY**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wetland Hydrology Indicators:</b><br>Primary Indicators (minimum of one is required; check all that apply)<br><input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)<br><input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Presence of Reduced Iron (C4)<br><input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)<br><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Thin Muck Surface (C7)<br><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Other (Explain in Remarks)<br><input type="checkbox"/> Drift Deposits (B3)<br><input type="checkbox"/> Algal Mat or Crust (B4)<br><input type="checkbox"/> Iron Deposits (B5)<br><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)<br><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)<br><input checked="" type="checkbox"/> Water Stained Leaves (B9)<br><input type="checkbox"/> Aquatic Fauna (B13)<br><input type="checkbox"/> Marl Deposits (B15)<br><input type="checkbox"/> Hydrogen Sulfide Odor (C1) |  | Secondary Indicators (minimum of two required)<br><input type="checkbox"/> Surface Soil Cracks (B6)<br><input checked="" type="checkbox"/> Drainage Patterns (B10)<br><input type="checkbox"/> Moss Trim Lines (B16)<br><input type="checkbox"/> Dry-Season Water Table (C2)<br><input type="checkbox"/> Crayfish Burrows (C8)<br><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)<br><input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)<br><input checked="" type="checkbox"/> Geomorphic Position (D2)<br><input type="checkbox"/> Shallow Aquitard (D3)<br><input checked="" type="checkbox"/> Microtopographic Relief (D4)<br><input type="checkbox"/> FAC-Neutral Test (D5) |
| <b>Field Observations:</b><br>Surface Water Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>2.5</u><br>Water Table Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>0.0</u><br>Saturation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>0.0</u><br>(includes capillary fringe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Remarks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: W1-WTP

| Tree Stratum (Plot size: _____ )                                           | Absolute % Cover | Dominant Species?                                             | Indicator Status | Dominance Test worksheet:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------|------------------|---------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <i>Acer rubrum</i>                                                      | 17.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FAC              | Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2. _____                                                                   | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            | Total Number of Dominant Species Across All Strata: 4 (B)                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 3. _____                                                                   | _____            | _____                                                         | _____            | Percent of Dominant Species That Are OBL, FACW, or FAC: 100.000 % (A/B)                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 4. _____                                                                   | _____            | _____                                                         | _____            | <b>Prevalence Index worksheet:</b><br>Total % Cover of: _____ Multiply by: _____<br>OBL species 21 x 1 = 21<br>FACW species 108.5 x 2 = 217<br>FAC species 55 x 3 = 165<br>FACU species 0 x 4 = 0<br>UPL species 0 x 5 = 0<br>Column Totals: 184.5 (A) 403 (B)<br><br>Prevalence Index = B/A = 2.184                                                                                                                                                                                                     |
| 5. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. _____                                                                   | _____            | _____                                                         | _____            | <b>Hydrophytic Vegetation Indicators:</b><br><input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation<br><input checked="" type="checkbox"/> 2 - Dominance Test is >50%<br><input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0*<br><input type="checkbox"/> 4 - Morphological Adaptations*<br><input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain)                                                                                                   |
| 17.5 = Total Cover<br>50% of total cover: 8.75 20% of total cover: 3.5     |                  |                                                               |                  | *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Sapling/Shrub Stratum (Plot size: _____ )</b>                           |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1. <i>Alnus incana</i>                                                     | 87.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FACW             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2. <i>Fraxinus nigra</i>                                                   | 17.5             | <input type="radio"/> Yes <input checked="" type="radio"/> No | FACW             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. <i>Abies balsamea</i>                                                   | 7.5              | <input type="radio"/> Yes <input checked="" type="radio"/> No | FAC              | <b>Definitions of Four Vegetation Strata:</b><br><br><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.<br><br><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.<br><br><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.<br><br><b>Woody vine</b> – All woody vines greater than 3.28 ft in height. |
| 4. _____                                                                   | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                   | _____            | _____                                                         | _____            | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |
| 8. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 9. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 10. _____                                                                  | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 112.5 = Total Cover<br>50% of total cover: 56.25 20% of total cover: 22.5  |                  |                                                               |                  | <b>Remarks:</b> (If observed, list morphological adaptations below).<br>Sphagnum moss covered all non-inundated areas of the Wetland - 87.5% estimated cover                                                                                                                                                                                                                                                                                                                                             |
| <b>Herb Stratum (Plot size: _____ )</b>                                    |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1. <i>Lycopus uniflorus</i>                                                | 3.5              | <input type="radio"/> Yes <input type="radio"/> No            | OBL              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2. <i>Dryopteris carthusiana</i>                                           | 3.5              | <input type="radio"/> Yes <input type="radio"/> No            | FACW             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. <i>Equisetum arvense</i>                                                | 1.5              | <input type="radio"/> Yes <input type="radio"/> No            | FAC              | <b>Woody Vine Stratum (Plot size: _____ )</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 4. <i>Trientalis borealis</i>                                              | 3.5              | <input type="radio"/> Yes <input type="radio"/> No            | FAC              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5. <i>Carex rostrata</i>                                                   | 17.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | OBL              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. <i>Acer rubrum</i>                                                      | 7.5              | <input type="radio"/> Yes <input type="radio"/> No            | FAC              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. <i>Abies balsamea</i>                                                   | 17.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FAC              | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |
| 8. <i>Rubus sp.</i>                                                        | 3.5              | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 9. _____                                                                   | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 10. _____                                                                  | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 58 = Total Cover<br>50% of total cover: 29 20% of total cover: 11.6        |                  |                                                               |                  | <b>Woody Vine Stratum (Plot size: _____ )</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Woody Vine Stratum (Plot size: _____ )</b>                              |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1. _____                                                                   | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. _____                                                                   | _____            | _____                                                         | _____            | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |
| 4. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ = Total Cover<br>50% of total cover: _____ 20% of total cover: _____ |                  |                                                               |                  | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Woody Vine Stratum (Plot size: _____ )</b>                              |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Woody Vine Stratum (Plot size: _____ )</b>                              |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Woody Vine Stratum (Plot size: _____ )</b>                              |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

Sampling Point: W1-WTP

Northcentral and Northeast Region

# **WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: VOYA - KF City/County: St. Louis Co. Sampling Date: 9/10/2019  
 Applicant/Owner: NPS State: MN Sampling Point: UTP-2  
 Investigator(s): P. Sharpe, Section, Township, Range: Township 70N, Range 18W  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Slope Slope (%): 3%  
 Subregion (LRR or MLRA): LRR K Lat: 48.5026211 Long: -92.6352765 Datum: NAD83  
 Soil Map Unit Name: 2srrk - Insula-Conic-Wahlsten NWI Classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.)

Are ☐ Vegetation ☐ Soil ☐ Hydrology significantly disturbed? Are "Normal Circumstances" present? ☒ Yes ☐ No

Are ☐ Vegetation ☐ Soil ☐ 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? <input checked="" type="radio"/> Yes <input type="radio"/> No | Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No |
| Hydric Soil Present? <input checked="" type="radio"/> Yes <input type="radio"/> No            |                                                                                                     |
| Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No      | If yes, optional Wetland Site ID: _____                                                             |
| Remarks:                                                                                      |                                                                                                     |

## **HYDROLOGY**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wetland Hydrology Indicators:</b><br>Primary Indicators (minimum of one is required; check all that apply)<br><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)<br><input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Presence of Reduced Iron (C4)<br><input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)<br><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Thin Muck Surface (C7)<br><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Other (Explain in Remarks)<br><input type="checkbox"/> Drift Deposits (B3)<br><input type="checkbox"/> Algal Mat or Crust (B4)<br><input type="checkbox"/> Iron Deposits (B5)<br><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)<br><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)<br><input type="checkbox"/> Water Stained Leaves (B9)<br><input type="checkbox"/> Aquatic Fauna (B13)<br><input type="checkbox"/> Marl Deposits (B15)<br><input type="checkbox"/> Hydrogen Sulfide Odor (C1) |  | Secondary Indicators (minimum of two required)<br><input type="checkbox"/> Surface Soil Cracks (B6)<br><input type="checkbox"/> Drainage Patterns (B10)<br><input type="checkbox"/> Moss Trim Lines (B16)<br><input type="checkbox"/> Dry-Season Water Table (C2)<br><input type="checkbox"/> Crayfish Burrows (C8)<br><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)<br><input type="checkbox"/> Stunted or Stressed Plants (D1)<br><input checked="" type="checkbox"/> Geomorphic Position (D2)<br><input type="checkbox"/> Shallow Aquitard (D3)<br><input type="checkbox"/> Microtopographic Relief (D4)<br><input type="checkbox"/> FAC-Neutral Test (D5) |
| <b>Field Observations:</b><br>Surface Water Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____<br>Water Table Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____<br>Saturation Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____<br>(includes capillary fringe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <b>Wetland Hydrology Present?</b> <input type="radio"/> Yes <input checked="" type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Remarks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: UTP-2

| Tree Stratum (Plot size: _____ )                                           | Absolute % Cover | Dominant Species?                                             | Indicator Status | Dominance Test worksheet:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------|------------------|---------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <i>Abies balsamea</i>                                                   | 67.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FAC              | Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2. <i>Acer rubrum</i>                                                      | 37.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FAC              | Total Number of Dominant Species Across All Strata: 5 (B)                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 3. _____                                                                   | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            | Percent of Dominant Species That Are OBL, FACW, or FAC: 100.000 % (A/B)                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 4. _____                                                                   | _____            | _____                                                         | _____            | <b>Prevalence Index worksheet:</b><br>Total % Cover of: _____ Multiply by: _____<br>OBL species 0 x 1 = 0<br>FACW species 7.5 x 2 = 15<br>FAC species 145 x 3 = 435<br>FACU species 2.5 x 4 = 10<br>UPL species 0 x 5 = 0<br>Column Totals: 155 (A) 460 (B)<br><br>Prevalence Index = B/A = 2.968                                                                                                                                                                                                        |
| 5. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ = Total Cover<br>50% of total cover: 52.5 20% of total cover: 21     |                  |                                                               |                  | <b>Hydrophytic Vegetation Indicators:</b><br><input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation<br><input checked="" type="checkbox"/> 2 - Dominance Test is >50%<br><input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0*<br><input type="checkbox"/> 4 - Morphological Adaptations*<br><input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain)<br><br>*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.    |
| <b>Sapling/Shrub Stratum (Plot size: _____ )</b>                           |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1. <i>Abies balsamea</i>                                                   | 37.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FAC              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2. <i>Quercus rubra</i>                                                    | 2.5              | <input type="radio"/> Yes <input checked="" type="radio"/> No | FACU             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. _____                                                                   | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4. _____                                                                   | _____            | _____                                                         | _____            | <b>Definitions of Four Vegetation Strata:</b><br><br><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.<br><br><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.<br><br><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.<br><br><b>Woody vine</b> – All woody vines greater than 3.28 ft in height. |
| 5. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ = Total Cover<br>50% of total cover: 20 20% of total cover: 8        |                  |                                                               |                  | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Herb Stratum (Plot size: _____ )</b>                                    |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1. <i>Acer rubrum</i>                                                      | 2.5              | <input checked="" type="radio"/> Yes <input type="radio"/> No | FAC              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2. <i>Dendrolycopodium dendroideum</i>                                     | 7.5              | <input checked="" type="radio"/> Yes <input type="radio"/> No | FACU             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. _____                                                                   | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4. _____                                                                   | _____            | _____                                                         | _____            | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |
| 5. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ = Total Cover<br>50% of total cover: 5 20% of total cover: 2         |                  |                                                               |                  | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Woody Vine Stratum (Plot size: _____ )</b>                              |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1. _____                                                                   | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4. _____                                                                   | _____            | _____                                                         | _____            | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |
| 5. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. _____                                                                   | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ = Total Cover<br>50% of total cover: _____ 20% of total cover: _____ |                  |                                                               |                  | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Remarks: (If observed, list morphological adaptations below).</b>       |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                            |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                            |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                            |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

Sampling Point: UTP-2

Northcentral and Northeast Region

# **WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: VOYA - KF City/County: St. Louis Co. Sampling Date: 9/10/2019  
 Applicant/Owner: NPS State: MN Sampling Point: W2-WTP  
 Investigator(s): P. Sharpe, Section, Township, Range: Township 70N, Range 18W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-1%  
 Subregion (LRR or MLRA): LRR K Lat: 48.5025375 Long: -92.6352345 Datum: NAD83  
 Soil Map Unit Name: 2srrk - Insula-Conic-Wahlsten NWI Classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.)

Are ☐ Vegetation ☐ Soil ☐ Hydrology significantly disturbed? Are "Normal Circumstances" present? ☒ Yes ☐ No

Are ☐ Vegetation ☐ Soil ☐ 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? <input checked="" type="radio"/> Yes <input type="radio"/> No | Is the Sampled Area within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No |
| Hydric Soil Present? <input checked="" type="radio"/> Yes <input type="radio"/> No            |                                                                                                     |
| Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No      | If yes, optional Wetland Site ID: _____                                                             |
| Remarks:                                                                                      |                                                                                                     |

## **HYDROLOGY**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wetland Hydrology Indicators:</b><br>Primary Indicators (minimum of one is required; check all that apply)<br><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)<br><input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Presence of Reduced Iron (C4)<br><input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)<br><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Thin Muck Surface (C7)<br><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Other (Explain in Remarks)<br><input type="checkbox"/> Drift Deposits (B3)<br><input type="checkbox"/> Algal Mat or Crust (B4)<br><input type="checkbox"/> Iron Deposits (B5)<br><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)<br><input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)<br><input checked="" type="checkbox"/> Water Stained Leaves (B9)<br><input type="checkbox"/> Aquatic Fauna (B13)<br><input type="checkbox"/> Marl Deposits (B15)<br><input type="checkbox"/> Hydrogen Sulfide Odor (C1) |  | <b>Secondary Indicators (minimum of two required)</b><br><input type="checkbox"/> Surface Soil Cracks (B6)<br><input checked="" type="checkbox"/> Drainage Patterns (B10)<br><input type="checkbox"/> Moss Trim Lines (B16)<br><input type="checkbox"/> Dry-Season Water Table (C2)<br><input type="checkbox"/> Crayfish Burrows (C8)<br><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)<br><input type="checkbox"/> Stunted or Stressed Plants (D1)<br><input type="checkbox"/> Geomorphic Position (D2)<br><input type="checkbox"/> Shallow Aquitard (D3)<br><input type="checkbox"/> Microtopographic Relief (D4)<br><input type="checkbox"/> FAC-Neutral Test (D5) |
| <b>Field Observations:</b><br>Surface Water Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____<br>Water Table Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>2.0</u><br>Saturation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>0.0</u><br>(includes capillary fringe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | <b>Wetland Hydrology Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Remarks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: W2-WTP

| Tree Stratum (Plot size: _____ )                                                                                  | Absolute % Cover | Dominant Species?                                             | Indicator Status | Dominance Test worksheet:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <i>Acer rubrum</i>                                                                                             | 37.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FAC              | Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 2. <i>Fraxinus nigra</i>                                                                                          | 37.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FACW             | Total Number of Dominant Species Across All Strata: 6 (B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. <i>Betula papyrifera</i>                                                                                       | 7.5              | <input type="radio"/> Yes <input checked="" type="radio"/> No | FACU             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 4. <i>Abies balsamea</i>                                                                                          | 17.5             | <input type="radio"/> Yes <input checked="" type="radio"/> No | FAC              | Percent of Dominant Species That Are OBL, FACW, or FAC: 100.000 % (A/B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 5. _____                                                                                                          | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            | <b>Prevalence Index worksheet:</b><br>Total % Cover of: _____ Multiply by: _____<br>OBL species 10.5 x 1 = 10.5<br>FACW species 86 x 2 = 172<br>FAC species 66 x 3 = 198<br>FACU species 9 x 4 = 36<br>UPL species 0 x 5 = 0<br>Column Totals: 171.5 (A) 416.5 (B)<br><br>Prevalence Index = B/A = 2.429                                                                                                                                                                                                                                                                                                           |
| 6. _____                                                                                                          | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 7. _____                                                                                                          | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 8. _____                                                                                                          | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| _____ = Total Cover<br>50% of total cover: 50 20% of total cover: 20                                              |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Sapling/Shrub Stratum (Plot size: _____ )</b>                                                                  |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1. <i>Abies balsamea</i>                                                                                          | 7.5              | <input type="radio"/> Yes <input checked="" type="radio"/> No | FAC              | <b>Hydrophytic Vegetation Indicators:</b><br><input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation<br><input checked="" type="checkbox"/> 2 - Dominance Test is >50%<br><input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0*<br><input type="checkbox"/> 4 - Morphological Adaptations*<br><input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain)                                                                                                                                                                                                                        |
| 2. <i>Fraxinus nigra</i>                                                                                          | 7.5              | <input type="radio"/> Yes <input checked="" type="radio"/> No | FACW             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 3. <i>Alnus incana</i>                                                                                            | 37.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FACW             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 4. <i>Pinus strobus</i>                                                                                           | 1.5              | <input type="radio"/> Yes <input checked="" type="radio"/> No | FACU             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 5. _____                                                                                                          | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            | *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.<br><br><b>Definitions of Four Vegetation Strata:</b><br><br><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.<br><br><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.<br><br><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.<br><br><b>Woody vine</b> – All woody vines greater than 3.28 ft in height. |
| 6. _____                                                                                                          | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 7. _____                                                                                                          | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 8. _____                                                                                                          | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| _____ = Total Cover<br>50% of total cover: 27 20% of total cover: 10.8                                            |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Herb Stratum (Plot size: _____ )</b>                                                                           |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1. <i>Carex rostrata</i>                                                                                          | 7.5              | <input checked="" type="radio"/> Yes <input type="radio"/> No | OBL              | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2. <i>Dryopteris carthusiana</i>                                                                                  | 3.5              | <input checked="" type="radio"/> Yes <input type="radio"/> No | FACW             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 3. <i>Iris versicolor (veg)</i>                                                                                   | 1.5              | <input type="radio"/> Yes <input checked="" type="radio"/> No | OBL              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 4. <i>Acer rubrum (seedlings)</i>                                                                                 | 3.5              | <input checked="" type="radio"/> Yes <input type="radio"/> No | FAC              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 5. <i>Maianthemum trifolium (veg)</i>                                                                             | 1.5              | <input type="radio"/> Yes <input checked="" type="radio"/> No | OBL              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 6. _____                                                                                                          | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 7. _____                                                                                                          | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 8. _____                                                                                                          | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 9. _____                                                                                                          | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 10. _____                                                                                                         | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 11. _____                                                                                                         | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 12. _____                                                                                                         | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| _____ = Total Cover<br>50% of total cover: 8.75 20% of total cover: 3.5                                           |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Woody Vine Stratum (Plot size: _____ )</b>                                                                     |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1. _____                                                                                                          | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2. _____                                                                                                          | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 3. _____                                                                                                          | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 4. _____                                                                                                          | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 5. _____                                                                                                          | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| _____ = Total Cover<br>50% of total cover: _____ 20% of total cover: _____                                        |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Remarks: (If observed, list morphological adaptations below).<br>Sphagnum moss covers 67.5% of the Wetland floor. |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

Sampling Point: W2-WTP

Northcentral and Northeast Region

# **WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: VOYA - KF City/County: St. Louis Sampling Date: 9/10/2019  
 Applicant/Owner: NPS State: MN Sampling Point: UTP-3  
 Investigator(s): P. Sharpe, Section, Township, Range: Township 70N, Range 18W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Slope Slope (%): 4%  
 Subregion (LRR or MLRA): LRR K Lat: 48.5009908 Long: -92.6360515 Datum: WGS 84  
 Soil Map Unit Name: 2srrk - Insula-Conic-Wahlsten NWI Classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.)

Are ☐ Vegetation ☐ Soil ☐ Hydrology significantly disturbed? Are "Normal Circumstances" present? ☒ Yes ☐ No

Are ☐ Vegetation ☐ Soil ☐ 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? <input checked="" type="radio"/> Yes <input type="radio"/> No | Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No |
| Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No            |                                                                                                     |
| Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No      |                                                                                                     |
| If yes, optional Wetland Site ID: _____                                                       |                                                                                                     |
| Remarks:                                                                                      |                                                                                                     |

## **HYDROLOGY**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wetland Hydrology Indicators:</b><br>Primary Indicators (minimum of one is required; check all that apply)<br><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)<br><input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Presence of Reduced Iron (C4)<br><input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)<br><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Thin Muck Surface (C7)<br><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Other (Explain in Remarks)<br><input type="checkbox"/> Drift Deposits (B3)<br><input type="checkbox"/> Algal Mat or Crust (B4)<br><input type="checkbox"/> Iron Deposits (B5)<br><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)<br><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)<br><input type="checkbox"/> Water Stained Leaves (B9)<br><input type="checkbox"/> Aquatic Fauna (B13)<br><input type="checkbox"/> Marl Deposits (B15)<br><input type="checkbox"/> Hydrogen Sulfide Odor (C1) |  | Secondary Indicators (minimum of two required)<br><input type="checkbox"/> Surface Soil Cracks (B6)<br><input type="checkbox"/> Drainage Patterns (B10)<br><input type="checkbox"/> Moss Trim Lines (B16)<br><input type="checkbox"/> Dry-Season Water Table (C2)<br><input type="checkbox"/> Crayfish Burrows (C8)<br><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)<br><input type="checkbox"/> Stunted or Stressed Plants (D1)<br><input type="checkbox"/> Geomorphic Position (D2)<br><input type="checkbox"/> Shallow Aquitard (D3)<br><input type="checkbox"/> Microtopographic Relief (D4)<br><input type="checkbox"/> FAC-Neutral Test (D5) |
| <b>Field Observations:</b><br>Surface Water Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____<br>Water Table Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____<br>Saturation Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____<br>(includes capillary fringe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <b>Wetland Hydrology Present?</b> <input type="radio"/> Yes <input checked="" type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Remarks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: UTP-3

| Tree Stratum (Plot size: _____ )                                                                | Absolute % Cover | Dominant Species?                                             | Indicator Status | Dominance Test worksheet:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <i>Abies balsamea</i>                                                                        | 37.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FAC              | Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2. <i>Acer rubrum</i>                                                                           | 37.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FAC              | Total Number of Dominant Species Across All Strata: <u>5</u> (B)                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 3. <i>Betula papyrifera</i>                                                                     | 17.5             | <input type="radio"/> Yes <input checked="" type="radio"/> No | FACU             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4. _____                                                                                        | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            | Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80.000</u> % (A/B)                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 5. _____                                                                                        | _____            | _____                                                         | _____            | <b>Prevalence Index worksheet:</b><br>Total % Cover of: _____ Multiply by: _____<br>OBL species <u>0</u> x 1 = <u>0</u><br>FACW species <u>7.5</u> x 2 = <u>15</u><br>FAC species <u>92.5</u> x 3 = <u>277.5</u><br>FACU species <u>20</u> x 4 = <u>80</u><br>UPL species <u>0</u> x 5 = <u>0</u><br>Column Totals: <u>120</u> (A) <u>372.5</u> (B)<br><br>Prevalence Index = B/A = <u>3.104</u>                                                                                                         |
| 6. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <u>92.5</u> = Total Cover<br>50% of total cover: <u>46.25</u> 20% of total cover: <u>18.5</u>   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Sapling/Shrub Stratum (Plot size: _____ )                                                       |                  |                                                               |                  | <b>Hydrophytic Vegetation Indicators:</b><br><input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation<br><input checked="" type="checkbox"/> 2 - Dominance Test is >50%<br><input type="checkbox"/> 3 - Prevalence Index is ≤3.0*<br><input type="checkbox"/> 4 - Morphological Adaptations*<br><input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain)<br><br>*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.               |
| 1. <i>Abies balsamea</i>                                                                        | 17.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FAC              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2. _____                                                                                        | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5. _____                                                                                        | _____            | _____                                                         | _____            | <b>Definitions of Four Vegetation Strata:</b><br><br><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.<br><br><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.<br><br><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.<br><br><b>Woody vine</b> – All woody vines greater than 3.28 ft in height. |
| 6. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <u>17.5</u> = Total Cover<br>50% of total cover: <u>8.75</u> 20% of total cover: <u>3.5</u>     |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Herb Stratum (Plot size: _____ )                                                                |                  |                                                               |                  | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |
| 1. <i>Pseudotsugamicrocarpa caroliniana</i>                                                     | 7.5              | <input checked="" type="radio"/> Yes <input type="radio"/> No | FACW             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2. <i>Pinus strobus</i>                                                                         | 2.5              | <input checked="" type="radio"/> Yes <input type="radio"/> No | FACU             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. _____                                                                                        | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5. _____                                                                                        | _____            | _____                                                         | _____            | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |
| 6. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <u>10</u> = Total Cover<br>50% of total cover: <u>5</u> 20% of total cover: <u>2</u>            |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Woody Vine Stratum (Plot size: _____ )                                                          |                  |                                                               |                  | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |
| 1. _____                                                                                        | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5. _____                                                                                        | _____            | _____                                                         | _____            | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |
| 6. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. _____                                                                                        | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <u>_____</u> = Total Cover<br>50% of total cover: <u>_____</u> 20% of total cover: <u>_____</u> |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Remarks: (If observed, list morphological adaptations below).                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

Sampling Point: UTP-3

Northcentral and Northeast Region

# **WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: VOYA - KF City/County: St. Louis Co. Sampling Date: 9/10/2019  
 Applicant/Owner: NPS State: MN Sampling Point: W3-WTP  
 Investigator(s): P. Sharpe, Section, Township, Range: Township 70N, Range 18W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-1%  
 Subregion (LRR or MLRA): LRR K Lat: 48.5010264 Long: -92.6361815 Datum: NAD 83  
 Soil Map Unit Name: 2srrk - Insula-Conic-Wahlsten NWI Classification: PEM2E

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.)

Are ☐ Vegetation ☐ Soil ☐ Hydrology significantly disturbed? Are "Normal Circumstances" present? ☒ Yes ☐ No

Are ☒ Vegetation ☐ Soil ☐ 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? <input type="radio"/> Yes <input checked="" type="radio"/> No                  | Is the Sampled Area within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No |
| Hydric Soil Present? <input checked="" type="radio"/> Yes <input type="radio"/> No                             |                                                                                                     |
| Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No                       |                                                                                                     |
| If yes, optional Wetland Site ID: _____<br>Remarks:<br>Sparsely vegetated concave surface possible vernal pool |                                                                                                     |

## **HYDROLOGY**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wetland Hydrology Indicators:</b><br>Primary Indicators (minimum of one is required; check all that apply)<br><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)<br><input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Presence of Reduced Iron (C4)<br><input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)<br><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Thin Muck Surface (C7)<br><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Other (Explain in Remarks)<br><input type="checkbox"/> Drift Deposits (B3)<br><input type="checkbox"/> Algal Mat or Crust (B4)<br><input type="checkbox"/> Iron Deposits (B5)<br><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)<br><input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)<br><input checked="" type="checkbox"/> Water Stained Leaves (B9)<br><input type="checkbox"/> Aquatic Fauna (B13)<br><input type="checkbox"/> Marl Deposits (B15)<br><input type="checkbox"/> Hydrogen Sulfide Odor (C1) |  | Secondary Indicators (minimum of two required)<br><input type="checkbox"/> Surface Soil Cracks (B6)<br><input checked="" type="checkbox"/> Drainage Patterns (B10)<br><input type="checkbox"/> Moss Trim Lines (B16)<br><input type="checkbox"/> Dry-Season Water Table (C2)<br><input type="checkbox"/> Crayfish Burrows (C8)<br><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)<br><input type="checkbox"/> Stunted or Stressed Plants (D1)<br><input checked="" type="checkbox"/> Geomorphic Position (D2)<br><input type="checkbox"/> Shallow Aquitard (D3)<br><input type="checkbox"/> Microtopographic Relief (D4)<br><input type="checkbox"/> FAC-Neutral Test (D5) |
| <b>Field Observations:</b><br>Surface Water Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____<br>Water Table Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>7.0</u><br>Saturation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>5.0</u><br>(includes capillary fringe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Remarks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: W3-WTP

| Tree Stratum                                                                                                   | (Plot size: _____ )                          | Absolute % Cover | Dominant Species?                                             | Indicator Status |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------|---------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.                                                                                                             | _____                                        | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            | <b>Dominance Test worksheet:</b><br>Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)<br><br>Total Number of Dominant Species Across All Strata: <u>2</u> (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.000</u> % (A/B)                                                                                                                                                                                                                                    |
| 2.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ = Total Cover<br>50% of total cover: _____ 20% of total cover: _____                                     |                                              |                  |                                                               |                  | <b>Prevalence Index worksheet:</b><br>Total % Cover of: _____ Multiply by: _____<br>OBL species <u>45</u> x 1 = <u>45</u><br>FACW species <u>45</u> x 2 = <u>90</u><br>FAC species <u>0</u> x 3 = <u>0</u><br>FACU species <u>0</u> x 4 = <u>0</u><br>UPL species <u>0</u> x 5 = <u>0</u><br>Column Totals: <u>90</u> (A) <u>135</u> (B)<br><br>Prevalence Index = B/A = <u>1.500</u>                                                                                                                    |
| <b>Sapling/Shrub Stratum</b> (Plot size: _____ )                                                               |                                              |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1.                                                                                                             | <i>Alnus incana</i>                          | <u>37.5</u>      | <input checked="" type="radio"/> Yes <input type="radio"/> No | <u>FACW</u>      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2.                                                                                                             | <i>Fraxinus nigra</i>                        | <u>7.5</u>       | <input type="radio"/> Yes <input checked="" type="radio"/> No | <u>FACW</u>      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3.                                                                                                             | _____                                        | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ = Total Cover<br>50% of total cover: <u>22.5</u> 20% of total cover: <u>9</u>                            |                                              |                  |                                                               |                  | <b>Hydrophytic Vegetation Indicators:</b><br><input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation<br><input checked="" type="checkbox"/> 2 - Dominance Test is >50%<br><input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0*<br><input type="checkbox"/> 4 - Morphological Adaptations*<br><input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain)<br><br>*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.    |
| <b>Herb Stratum</b> (Plot size: _____ )                                                                        |                                              |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1.                                                                                                             | <i>Carex rostrata</i>                        | <u>7.5</u>       | <input type="radio"/> Yes <input checked="" type="radio"/> No | <u>OBL</u>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2.                                                                                                             | <i>Leersia oryzoides (veg) calamagrostis</i> | <u>37.5</u>      | <input checked="" type="radio"/> Yes <input type="radio"/> No | <u>OBL</u>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3.                                                                                                             | _____                                        | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ = Total Cover<br>50% of total cover: <u>22.5</u> 20% of total cover: <u>9</u>                            |                                              |                  |                                                               |                  | <b>Definitions of Four Vegetation Strata:</b><br><br><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.<br><br><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.<br><br><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.<br><br><b>Woody vine</b> – All woody vines greater than 3.28 ft in height. |
| <b>Woody Vine Stratum</b> (Plot size: _____ )                                                                  |                                              |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1.                                                                                                             | _____                                        | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5.                                                                                                             | _____                                        | _____            |                                                               | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ = Total Cover<br>50% of total cover: _____ 20% of total cover: _____                                     |                                              |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Remarks: (If observed, list morphological adaptations below).<br>Sparse veg - graminoid veg ID only no flowers |                                              |                  |                                                               |                  | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |

Sampling Point: W3-WTP

Northcentral and Northeast Region

# **WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: VOYA - KF City/County: St. Louis Co. Sampling Date: 9/10/2019  
 Applicant/Owner: NPS State: MN Sampling Point: W4-WTP  
 Investigator(s): P. Sharpe, Section, Township, Range: Township 70N, Range 18W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0.5%  
 Subregion (LRR or MLRA): LRR K Lat: 48.5016757 Long: -92.6358616 Datum: NAD83  
 Soil Map Unit Name: 2srrk - Insula-Conic-Wahlsten NWI Classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.)

Are ☐ Vegetation ☐ Soil ☐ Hydrology significantly disturbed? Are "Normal Circumstances" present? ☒ Yes ☐ No

Are ☐ Vegetation ☐ Soil ☐ 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? <input checked="" type="radio"/> Yes <input type="radio"/> No | Is the Sampled Area within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No |
| Hydric Soil Present? <input checked="" type="radio"/> Yes <input type="radio"/> No            |                                                                                                     |
| Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No      | If yes, optional Wetland Site ID: _____                                                             |
| Remarks:                                                                                      |                                                                                                     |

## **HYDROLOGY**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wetland Hydrology Indicators:</b><br>Primary Indicators (minimum of one is required; check all that apply)<br><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)<br><input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Presence of Reduced Iron (C4)<br><input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)<br><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Thin Muck Surface (C7)<br><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Other (Explain in Remarks)<br><input type="checkbox"/> Drift Deposits (B3)<br><input type="checkbox"/> Algal Mat or Crust (B4)<br><input type="checkbox"/> Iron Deposits (B5)<br><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)<br><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)<br><input checked="" type="checkbox"/> Water Stained Leaves (B9)<br><input type="checkbox"/> Aquatic Fauna (B13)<br><input type="checkbox"/> Marl Deposits (B15)<br><input type="checkbox"/> Hydrogen Sulfide Odor (C1) |  | <b>Secondary Indicators (minimum of two required)</b><br><input type="checkbox"/> Surface Soil Cracks (B6)<br><input checked="" type="checkbox"/> Drainage Patterns (B10)<br><input type="checkbox"/> Moss Trim Lines (B16)<br><input type="checkbox"/> Dry-Season Water Table (C2)<br><input type="checkbox"/> Crayfish Burrows (C8)<br><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)<br><input type="checkbox"/> Stunted or Stressed Plants (D1)<br><input checked="" type="checkbox"/> Geomorphic Position (D2)<br><input type="checkbox"/> Shallow Aquitard (D3)<br><input type="checkbox"/> Microtopographic Relief (D4)<br><input type="checkbox"/> FAC-Neutral Test (D5) |
| <b>Field Observations:</b><br>Surface Water Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____<br>Water Table Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>5.0</u><br>Saturation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>3.0</u><br>(includes capillary fringe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | <b>Wetland Hydrology Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Remarks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: W4-WTP

| Tree Stratum (Plot size: _____ )                                                                     | Absolute % Cover | Dominant Species?                                             | Indicator Status | Dominance Test worksheet:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <i>Acer rubrum</i>                                                                                | 87.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FAC              | Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2. <i>Populus tremuloides</i>                                                                        | 7.5              | <input type="radio"/> Yes <input checked="" type="radio"/> No | FACU             | Total Number of Dominant Species Across All Strata: 5 (B)                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 3. <i>Fraxinus nigra</i>                                                                             | 17.5             | <input type="radio"/> Yes <input checked="" type="radio"/> No | FACW             | Percent of Dominant Species That Are OBL, FACW, or FAC: 100.000 % (A/B)                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 4. <i>Abies balsamea</i>                                                                             | 17.5             | <input type="radio"/> Yes <input checked="" type="radio"/> No | FAC              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5. _____                                                                                             |                  | <input type="radio"/> Yes <input type="radio"/> No            |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. _____                                                                                             |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                                             |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. _____                                                                                             |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 130 = Total Cover                                                                                    |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 50% of total cover: 65      20% of total cover: 26                                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Sapling/Shrub Stratum (Plot size: _____ )</b>                                                     |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1. <i>Alnus incana</i>                                                                               | 7.5              | <input checked="" type="radio"/> Yes <input type="radio"/> No | FACW             | <b>Prevalence Index worksheet:</b><br>Total % Cover of: _____ Multiply by: _____<br>OBL species 1.5 x 1 = 1.5<br>FACW species 71 x 2 = 142<br>FAC species 121.5 x 3 = 364.5<br>FACU species 7.5 x 4 = 30<br>UPL species 0 x 5 = 0<br>Column Totals: 201.5 (A) 538 (B)<br><br>Prevalence Index = B/A = 2.670                                                                                                                                                                                              |
| 2. <i>Fraxinus nigra</i>                                                                             | 17.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FACW             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. <i>Abies balsamea</i>                                                                             | 7.5              | <input checked="" type="radio"/> Yes <input type="radio"/> No | FAC              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4. _____                                                                                             |                  | <input type="radio"/> Yes <input type="radio"/> No            |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5. _____                                                                                             |                  | <input type="radio"/> Yes <input type="radio"/> No            |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. _____                                                                                             |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                                             |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. _____                                                                                             |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 32.5 = Total Cover                                                                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 50% of total cover: 16.25      20% of total cover: 6.5                                               |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Herb Stratum (Plot size: _____ )</b>                                                              |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1. <i>Dryopteris carthusiana</i>                                                                     | 3.5              | <input type="radio"/> Yes <input checked="" type="radio"/> No | FACW             | <b>Hydrophytic Vegetation Indicators:</b><br><input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation<br><input checked="" type="checkbox"/> 2 - Dominance Test is >50%<br><input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0*<br><input type="checkbox"/> 4 - Morphological Adaptations*<br><input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain)                                                                                                              |
| 2. <i>Carex intumescens</i>                                                                          | 7.5              | <input type="radio"/> Yes <input checked="" type="radio"/> No | FACW             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. <i>Lycopus uniflorus</i>                                                                          | 1.5              | <input type="radio"/> Yes <input checked="" type="radio"/> No | OBL              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4. <i>Trientalis borealis</i>                                                                        | 1.5              | <input type="radio"/> Yes <input checked="" type="radio"/> No | FAC              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5. <i>Fraxinus nigra (seedlings)</i>                                                                 | 17.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FACW             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. <i>Equisetum arvense</i>                                                                          | 7.5              | <input type="radio"/> Yes <input checked="" type="radio"/> No | FAC              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                                             |                  | <input type="radio"/> Yes <input type="radio"/> No            |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. _____                                                                                             |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 9. _____                                                                                             |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 10. _____                                                                                            |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 11. _____                                                                                            |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 12. _____                                                                                            |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 39 = Total Cover                                                                                     |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 50% of total cover: 19.5      20% of total cover: 7.8                                                |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Woody Vine Stratum (Plot size: _____ )</b>                                                        |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1. _____                                                                                             |                  | <input type="radio"/> Yes <input type="radio"/> No            |                  | <b>Definitions of Four Vegetation Strata:</b><br><br><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.<br><br><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.<br><br><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.<br><br><b>Woody vine</b> – All woody vines greater than 3.28 ft in height. |
| 2. _____                                                                                             |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. _____                                                                                             |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4. _____                                                                                             |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5. _____                                                                                             |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ = Total Cover                                                                                  |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 50% of total cover: _____      20% of total cover: _____                                             |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Remarks: (If observed, list morphological adaptations below).                                        |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

Sampling Point: W4-WTP

Northcentral and Northeast Region

# **WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: VOYA - KF City/County: St. Louis Co. Sampling Date: 9/10/2019  
 Applicant/Owner: NPS State: MN Sampling Point: W5-WTP  
 Investigator(s): P. Sharpe, Section, Township, Range: Township 70N, Range 18W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1%  
 Subregion (LRR or MLRA): LRR K Lat: 48.5009208 Long: -92.6383657 Datum: NAD83  
 Soil Map Unit Name: 2srqm - Quetico-Insula NWI Classification: PEM2E

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.)

Are ☐ Vegetation ☐ Soil ☐ Hydrology significantly disturbed? Are "Normal Circumstances" present? ☒ Yes ☐ No

Are ☐ Vegetation ☐ Soil ☐ 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? <input checked="" type="radio"/> Yes <input type="radio"/> No | Is the Sampled Area within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No |
| Hydric Soil Present? <input checked="" type="radio"/> Yes <input type="radio"/> No            |                                                                                                     |
| Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No      | If yes, optional Wetland Site ID: _____                                                             |
| Remarks:                                                                                      |                                                                                                     |

## **HYDROLOGY**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wetland Hydrology Indicators:</b><br>Primary Indicators (minimum of one is required; check all that apply)<br><input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)<br><input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Presence of Reduced Iron (C4)<br><input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)<br><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Thin Muck Surface (C7)<br><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Other (Explain in Remarks)<br><input type="checkbox"/> Drift Deposits (B3)<br><input type="checkbox"/> Algal Mat or Crust (B4)<br><input type="checkbox"/> Iron Deposits (B5)<br><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)<br><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)<br><input checked="" type="checkbox"/> Water Stained Leaves (B9)<br><input type="checkbox"/> Aquatic Fauna (B13)<br><input type="checkbox"/> Marl Deposits (B15)<br><input type="checkbox"/> Hydrogen Sulfide Odor (C1) |  | <b>Secondary Indicators (minimum of two required)</b><br><input type="checkbox"/> Surface Soil Cracks (B6)<br><input type="checkbox"/> Drainage Patterns (B10)<br><input type="checkbox"/> Moss Trim Lines (B16)<br><input type="checkbox"/> Dry-Season Water Table (C2)<br><input type="checkbox"/> Crayfish Burrows (C8)<br><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)<br><input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)<br><input checked="" type="checkbox"/> Geomorphic Position (D2)<br><input type="checkbox"/> Shallow Aquitard (D3)<br><input type="checkbox"/> Microtopographic Relief (D4)<br><input type="checkbox"/> FAC-Neutral Test (D5) |
| <b>Field Observations:</b><br>Surface Water Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>1.0</u><br>Water Table Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>0.0</u><br>Saturation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>0.0</u><br>(includes capillary fringe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | <b>Wetland Hydrology Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Remarks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: W5-WTP

| Tree Stratum (Plot size: _____ )                                                                                                                                                                                                                                                                                                                                                                                                               | Absolute % Cover | Dominant Species?                                             | Indicator Status | Dominance Test worksheet:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <i>Populus tremuloides</i>                                                                                                                                                                                                                                                                                                                                                                                                                  | 7.5              | <input checked="" type="radio"/> Yes <input type="radio"/> No | FACU             | Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2. <i>Pinus banksiana</i>                                                                                                                                                                                                                                                                                                                                                                                                                      | 7.5              | <input checked="" type="radio"/> Yes <input type="radio"/> No | FACU             | Total Number of Dominant Species Across All Strata: <u>6</u> (B)                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 3. _____                                                                                                                                                                                                                                                                                                                                                                                                                                       | _____            | <input type="radio"/> Yes <input type="radio"/> No            | _____            | Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.667</u> % (A/B)                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 4. _____                                                                                                                                                                                                                                                                                                                                                                                                                                       | _____            | _____                                                         | _____            | <b>Prevalence Index worksheet:</b><br>Total % Cover of: _____ Multiply by: _____<br>OBL species <u>100</u> x 1 = <u>100</u><br>FACW species <u>25</u> x 2 = <u>50</u><br>FAC species <u>0</u> x 3 = <u>0</u><br>FACU species <u>15</u> x 4 = <u>60</u><br>UPL species <u>0</u> x 5 = <u>0</u><br>Column Totals: <u>140</u> (A) <u>210</u> (B)<br><br>Prevalence Index = B/A = <u>1.500</u>                                                                                                               |
| 5. _____                                                                                                                                                                                                                                                                                                                                                                                                                                       | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. _____                                                                                                                                                                                                                                                                                                                                                                                                                                       | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                                                                                                                                                                                                                                                                                                                                                                                       | _____            | _____                                                         | _____            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. _____                                                                                                                                                                                                                                                                                                                                                                                                                                       | _____            | _____                                                         | _____            | <b>Hydrophytic Vegetation Indicators:</b><br><input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation<br><input checked="" type="checkbox"/> 2 - Dominance Test is >50%<br><input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0*<br><input type="checkbox"/> 4 - Morphological Adaptations*<br><input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain)                                                                                                              |
| _____ <u>15</u> = Total Cover<br>50% of total cover: <u>7.5</u> 20% of total cover: <u>3</u>                                                                                                                                                                                                                                                                                                                                                   |                  |                                                               |                  | *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Sapling/Shrub Stratum (Plot size: _____ )</b><br>1. <i>Alnus incana</i> 17.5 <input checked="" type="radio"/> Yes <input type="radio"/> No FACW<br>2. <i>Cornus alba</i> (red osier) 7.5 <input checked="" type="radio"/> Yes <input type="radio"/> No FACW<br>3. _____ <input type="radio"/> Yes <input type="radio"/> No _____<br>4. _____<br>5. _____<br>6. _____<br>7. _____<br>8. _____                                                |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ <u>25</u> = Total Cover<br>50% of total cover: <u>12.5</u> 20% of total cover: <u>5</u>                                                                                                                                                                                                                                                                                                                                                  |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Herb Stratum (Plot size: _____ )</b><br>1. <i>Calamagrostis canadensis</i> 62.5 <input checked="" type="radio"/> Yes <input type="radio"/> No OBL<br>2. <i>Scirpus cyperinus</i> 37.5 <input checked="" type="radio"/> Yes <input type="radio"/> No OBL<br>3. _____ <input type="radio"/> Yes <input type="radio"/> No _____<br>4. _____<br>5. _____<br>6. _____<br>7. _____<br>8. _____<br>9. _____<br>10. _____<br>11. _____<br>12. _____ |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ <u>100</u> = Total Cover<br>50% of total cover: <u>50</u> 20% of total cover: <u>20</u>                                                                                                                                                                                                                                                                                                                                                  |                  |                                                               |                  | <b>Definitions of Four Vegetation Strata:</b><br><br><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.<br><br><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.<br><br><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.<br><br><b>Woody vine</b> – All woody vines greater than 3.28 ft in height. |
| <b>Woody Vine Stratum (Plot size: _____ )</b><br>1. _____ <input type="radio"/> Yes <input type="radio"/> No _____<br>2. _____<br>3. _____<br>4. _____<br>5. _____                                                                                                                                                                                                                                                                             |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ = Total Cover<br>50% of total cover: _____ 20% of total cover: _____                                                                                                                                                                                                                                                                                                                                                                     |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                           |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Remarks: (If observed, list morphological adaptations below).                                                                                                                                                                                                                                                                                                                                                                                  |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

Sampling Point: W5-WTP

Northcentral and Northeast Region

# **WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: VOYA - KF City/County: St. Louis Co. Sampling Date: 9/10/2019  
 Applicant/Owner: NPS State: MN Sampling Point: W6-WTP  
 Investigator(s): P. Sharpe, Section, Township, Range: Township 70N, Range 18W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0.5%  
 Subregion (LRR or MLRA): LRR K Lat: 48.5007925 Long: -92.6387567 Datum: WGS 84  
 Soil Map Unit Name: 2srrm - Brickton-Hassman NWI Classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.)

Are ☐ Vegetation ☐ Soil ☐ Hydrology significantly disturbed? Are "Normal Circumstances" present? ☒ Yes ☐ No

Are ☐ Vegetation ☐ Soil ☐ 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? <input checked="" type="radio"/> Yes <input type="radio"/> No | Is the Sampled Area within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No |
| Hydric Soil Present? <input checked="" type="radio"/> Yes <input type="radio"/> No            |                                                                                                     |
| Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No      | If yes, optional Wetland Site ID: _____                                                             |
| Remarks:                                                                                      |                                                                                                     |

## **HYDROLOGY**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wetland Hydrology Indicators:</b><br>Primary Indicators (minimum of one is required; check all that apply)<br><input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)<br><input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Presence of Reduced Iron (C4)<br><input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)<br><input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Thin Muck Surface (C7)<br><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Other (Explain in Remarks)<br><input type="checkbox"/> Drift Deposits (B3)<br><input type="checkbox"/> Algal Mat or Crust (B4)<br><input type="checkbox"/> Iron Deposits (B5)<br><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)<br><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)<br><input checked="" type="checkbox"/> Water Stained Leaves (B9)<br><input type="checkbox"/> Aquatic Fauna (B13)<br><input type="checkbox"/> Marl Deposits (B15)<br><input type="checkbox"/> Hydrogen Sulfide Odor (C1) |  | <b>Secondary Indicators (minimum of two required)</b><br><input type="checkbox"/> Surface Soil Cracks (B6)<br><input checked="" type="checkbox"/> Drainage Patterns (B10)<br><input checked="" type="checkbox"/> Moss Trim Lines (B16)<br><input type="checkbox"/> Dry-Season Water Table (C2)<br><input type="checkbox"/> Crayfish Burrows (C8)<br><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)<br><input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)<br><input checked="" type="checkbox"/> Geomorphic Position (D2)<br><input type="checkbox"/> Shallow Aquitard (D3)<br><input type="checkbox"/> Microtopographic Relief (D4)<br><input type="checkbox"/> FAC-Neutral Test (D5) |
| <b>Field Observations:</b><br>Surface Water Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>4-5</u><br>Water Table Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>0.0</u><br>Saturation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>0.0</u><br>(includes capillary fringe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | <b>Wetland Hydrology Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Remarks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: W6-WTP

| Tree Stratum (Plot size: _____ )                                           | Absolute % Cover | Dominant Species?                                             | Indicator Status | Dominance Test worksheet:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------|------------------|---------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <i>Larix laricina</i>                                                   | 17.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FACW             | Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2. <i>Salix pedicellaris</i> (veg)                                         | 7.5              | <input checked="" type="radio"/> Yes <input type="radio"/> No | OBL              | Total Number of Dominant Species Across All Strata: 5 (B)                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 3. _____                                                                   |                  | <input type="radio"/> Yes <input type="radio"/> No            |                  | Percent of Dominant Species That Are OBL, FACW, or FAC: 100.000 % (A/B)                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 4. _____                                                                   |                  |                                                               |                  | <b>Prevalence Index worksheet:</b><br>Total % Cover of: _____ Multiply by: _____<br>OBL species 130 x 1 = 130<br>FACW species 92.5 x 2 = 185<br>FAC species 0 x 3 = 0<br>FACU species 0 x 4 = 0<br>UPL species 0 x 5 = 0<br>Column Totals: 222.5 (A) 315 (B)<br><br>Prevalence Index = B/A = 1.416                                                                                                                                                                                                       |
| 5. _____                                                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. _____                                                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. _____                                                                   |                  |                                                               |                  | <b>Hydrophytic Vegetation Indicators:</b><br><input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation<br><input checked="" type="checkbox"/> 2 - Dominance Test is >50%<br><input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0*<br><input type="checkbox"/> 4 - Morphological Adaptations*<br><input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain)                                                                                                              |
| _____ = Total Cover<br>50% of total cover: 12.5 20% of total cover: 5      |                  |                                                               |                  | *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Sapling/Shrub Stratum (Plot size: _____ )</b>                           |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1. <i>Alnus incana</i>                                                     | 67.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | FACW             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2. <i>Chamaedaphne calyculata</i>                                          | 67.5             | <input checked="" type="radio"/> Yes <input type="radio"/> No | OBL              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. _____                                                                   |                  | <input type="radio"/> Yes <input type="radio"/> No            |                  | <b>Definitions of Four Vegetation Strata:</b><br><br><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.<br><br><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.<br><br><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.<br><br><b>Woody vine</b> – All woody vines greater than 3.28 ft in height. |
| 4. _____                                                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5. _____                                                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. _____                                                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7. _____                                                                   |                  |                                                               |                  | <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No                                                                                                                                                                                                                                                                                                                                                                                                     |
| 8. _____                                                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 9. _____                                                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 10. _____                                                                  |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 11. _____                                                                  |                  |                                                               |                  | <b>Remarks:</b> (If observed, list morphological adaptations below).                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 12. _____                                                                  |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ = Total Cover<br>50% of total cover: 50 20% of total cover: 20       |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Woody Vine Stratum (Plot size: _____ )</b>                              |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1. _____                                                                   |                  | <input type="radio"/> Yes <input type="radio"/> No            |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2. _____                                                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. _____                                                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4. _____                                                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5. _____                                                                   |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _____ = Total Cover<br>50% of total cover: _____ 20% of total cover: _____ |                  |                                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

Sampling Point: W6-WTP

Northcentral and Northeast Region

## Wetland Function-Value Evaluation Form

Total area of wetland 0.56 Human made? NO Is wetland part of a wildlife corridor? NO or a "habitat island"? YESAdjacent land use Roads, NPS Maintenance Distance to nearest roadway or other development 210 ft.Dominant wetland systems present PSSAE Contiguous undeveloped buffer zone present NOIs the wetland a separate hydraulic system? YES If not, where does the wetland lie in the drainage basin? -How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland ID WETRAD-1  
 Latitude 48.50 Longitude -92.64  
 Prepared by: PSS Date 2/26/20  
 Wetland Impact:  
 Type - Area -

Evaluation based on:  
 Office X Field X  
 Corps manual wetland delineation  
 completed? Y X N -

| Function/Value                   | Suitability<br>Y N | Rationale<br>(Reference #)* | Principal<br>Function(s)/Value(s) | Comments                             |
|----------------------------------|--------------------|-----------------------------|-----------------------------------|--------------------------------------|
| Groundwater Recharge/Discharge   | X                  | 6,15,2                      | 6                                 |                                      |
| Floodflow Alteration             | X                  | 2,5,6,7,15,18               | 5                                 |                                      |
| Fish and Shellfish Habitat       | X                  |                             |                                   |                                      |
| Sediment/Toxicant Retention      | X                  | 1,2,3,5,7,9                 | 5                                 |                                      |
| Nutrient Removal                 | X                  |                             |                                   |                                      |
| Production Export                | X                  |                             |                                   |                                      |
| Sediment/Shoreline Stabilization | X                  |                             |                                   |                                      |
| Wildlife Habitat                 | X                  | 1,3,5,11,13,15,17,19        | 17                                | Amphibian use observed w/in the site |
| Recreation                       | X                  | 1,5,8,10,11,12,1            | 1                                 |                                      |
| Educational/Scientific Value     | X                  | 2,4,6,10,12,15              | 12                                |                                      |
| Uniqueness/Heritage              | X                  |                             |                                   |                                      |
| Visual Quality/Aesthetics        | X                  |                             |                                   |                                      |
| Endangered Species Habitat       | X                  |                             |                                   |                                      |
| Other                            |                    |                             |                                   |                                      |

Notes:

\* Refer to backup list of numbered considerations.

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\* Refer to backup list of numbered considerations

## Wetland Function-Value Evaluation Form

Total area of wetland 0.04 ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? YesAdjacent land use ROADS Distance to nearest roadway or other development 215 ft.Dominant wetland systems present PERMRE Contiguous undeveloped buffer zone present NOIs the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? \_\_\_\_\_How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

| Function/Value                   | Suitability<br>Y N | Rationale<br>(Reference #)* | Principal<br>Function(s)/Value(s) | Comments |
|----------------------------------|--------------------|-----------------------------|-----------------------------------|----------|
| Groundwater Recharge/Discharge   | X                  | 1, 6, 8, 15                 | 15                                |          |
| Floodflow Alteration             | X                  | 2, 5, 6, 7, 9, 11, 15       | 5                                 |          |
| Fish and Shellfish Habitat       | X                  |                             |                                   |          |
| Sediment/Toxicant Retention      | X                  | 3, 6, 5, 9                  | 6                                 |          |
| Nutrient Removal                 | X                  |                             |                                   |          |
| Production Export                | X                  |                             |                                   |          |
| Sediment/Shoreline Stabilization | X                  |                             |                                   |          |
| Wildlife Habitat                 | X                  | 7                           | 7                                 |          |
| Recreation                       | X                  | 1, 4, 8, 10, 11             | 4                                 |          |
| Educational/Scientific Value     | X                  | 6, 10, 13, 14               | 6                                 |          |
| Uniqueness/Heritage              | X                  |                             |                                   |          |
| Visual Quality/Aesthetics        | X                  |                             |                                   |          |
| ES Endangered Species Habitat    | X                  |                             |                                   |          |
| Other                            |                    |                             |                                   |          |

Notes:

\* Refer to backup list of numbered considerations.

Wetland ID Wetland-3  
 Latitude 48.58 Longitude -92.63  
 Prepared by: PSS Date 2/26/20  
 Wetland Impact: Type - Area -

Evaluation based on:  
 Office X Field X  
 Corps manual wetland delineation  
 completed? Y X N -

## Wetland Function-Value Evaluation Form

Total area of wetland 0.14 (ac) Human made? NO Is wetland part of a wildlife corridor? NO or a "habitat island"? Yes  
 Adjacent land use Roads Distance to nearest roadway or other development 320 ft

Dominant wetland systems present PO1E Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? W44

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

| Function/Value                   | Suitability<br>Y N | Rationale<br>(Reference #)* | Principal<br>Function(s)/Value(s) | Comments                               |
|----------------------------------|--------------------|-----------------------------|-----------------------------------|----------------------------------------|
| Groundwater Recharge/Discharge   | X                  | 1,6,8,15                    | 15                                |                                        |
| Floodflow Alteration             | X                  | 2,3,5,6,9,18                | 5                                 |                                        |
| Fish and Shellfish Habitat       | X                  |                             |                                   |                                        |
| Sediment/Toxicant Retention      | X                  | 4,6,7,8,9                   | 2                                 | WPS spray beach field located adjacent |
| Nutrient Removal                 | X                  |                             |                                   |                                        |
| Production Export                | X                  |                             |                                   |                                        |
| Sediment/Shoreline Stabilization | X                  |                             |                                   |                                        |
| Wildlife Habitat                 | X                  |                             |                                   |                                        |
| Recreation                       | X                  |                             |                                   |                                        |
| Educational/Scientific Value     | X                  |                             |                                   |                                        |
| Uniqueness/Heritage              | X                  |                             |                                   |                                        |
| Visual Quality/Aesthetics        | X                  |                             |                                   |                                        |
| Endangered Species Habitat       | X                  |                             |                                   |                                        |
| Other                            |                    |                             |                                   |                                        |

Notes:

\* Refer to backup list of numbered considerations.

Wetland ID WETA-00-4  
 Latitude 48.50 Longitude 92.63  
 Prepared by: PSS Date 2/26/20  
 Wetland Impact: Type — Area —  
 Evaluation based on: Office X Field X  
 Corps manual wetland delineation completed? Y X N —

## Wetland Function-Value Evaluation Form

Total area of wetland 0.06 ac Human made? Yes Is wetland part of a wildlife corridor? No or a "habitat island"? YesAdjacent land use Road Distance to nearest roadway or other development 35 ftDominant wetland systems present PemAE Contiguous undeveloped buffer zone present NoIs the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? LowHow many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

| Function/Value                   | Suitability<br>Y N | Rationale<br>(Reference #)* | Principal<br>Function(s)/Value(s) | Comments                         |
|----------------------------------|--------------------|-----------------------------|-----------------------------------|----------------------------------|
| Groundwater Recharge/Discharge   | X                  | 6, 15                       | 15                                | low value drainage ditch wetland |
| Floodflow Alteration             | X                  |                             |                                   |                                  |
| Fish and Shellfish Habitat       | X                  |                             |                                   |                                  |
| Sediment/Toxicant Retention      | X                  | 3, 5, 9, 11, 15             | 3                                 |                                  |
| Nutrient Removal                 | X                  |                             |                                   |                                  |
| Production Export                | X                  |                             |                                   |                                  |
| Sediment/Shoreline Stabilization | X                  |                             |                                   |                                  |
| Wildlife Habitat                 | X                  |                             |                                   |                                  |
| Recreation                       | X                  |                             |                                   |                                  |
| Educational/Scientific Value     | X                  |                             |                                   |                                  |
| Uniqueness/Heritage              | X                  |                             |                                   |                                  |
| Visual Quality/Aesthetics        | X                  |                             |                                   |                                  |
| Endangered Species Habitat       | X                  |                             |                                   |                                  |
| Other                            |                    |                             |                                   |                                  |

Notes:

\* Refer to backup list of numbered considerations.

Wetland ID: Wetland-5Latitude 46.50 Longitude -92.63Prepared by: PSS Date: 2/24/20Wetland Impact:  
Type - Area -

Evaluation based on:

Office X Field XCorps manual wetland delineation completed? Y X N -

# Wetland Function-Value Evaluation Form

Total area of wetland 8.34 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Hotel, Roads, Trails Distance to nearest roadway or other development 15 ft

Dominant wetland systems present PoLE Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Low

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

| Function/Value                   | Suitability<br>Y N | Rationale<br>(Reference #)* | Principal<br>Function(s)/Value(s) | Comments |
|----------------------------------|--------------------|-----------------------------|-----------------------------------|----------|
| Groundwater Recharge/Discharge   | X                  | 6, 8, 13, 15                | 15                                |          |
| Floodflow Alteration             | X                  | 1, 3, 5, 6, 7, 9, 11, 15    | 2                                 |          |
| Fish and Shellfish Habitat       | X                  |                             |                                   |          |
| Sediment/Toxicant Retention      | X                  | 2, 2, 3, 4, 5, 7, 9         | 5                                 |          |
| Nutrient Removal                 | X                  |                             |                                   |          |
| Production Export                | X                  |                             |                                   |          |
| Sediment/Shoreline Stabilization | X                  |                             |                                   |          |
| Wildlife Habitat                 | X                  | 5, 7, 8, 9, 10, 11, 13, 14  | 11                                |          |
| Recreation                       | X                  | 1, 4, 5, 7, 10, 11, 12      | 4                                 |          |
| Educational/Scientific Value     | X                  | 3, 6, 7, 10, 12, 14, 15     | 12                                |          |
| Uniqueness/Heritage              | X                  |                             |                                   |          |
| Visual Quality/Aesthetics        | X                  |                             |                                   |          |
| ES Endangered Species Habitat    | X                  |                             |                                   |          |
| Other                            |                    |                             |                                   |          |

Notes:

\* Refer to backup list of numbered considerations.

Wetland ID Wetland-6  
 Latitude 48.50 Longitude -92.63  
 Prepared by: PSS Date 2/26/20  
 Wetland Impact: Type — Area —

Evaluation based on:  
 Office X Field X  
 Corps manual wetland delineation completed? Y X N —



Photograph 3 (48.50293 N, -92.64506 W) – Wetland 1 view is 210° SW looking at a previously unmapped wetland habitat. Photo Date 10 September 2019 – P. Sharpe.



Photograph 4 (48.50253 N, -92.63524 W) – Wetland 2 view is 126° SE looking at a previously unmapped wetland habitat. Photo Date 10 September 2019 – P. Sharpe.



Photograph 5 (48.50101 N, -92.63638 W) – Wetland 3 view is 148° SE looking at a previously unmapped wetland habitat. Photo Date 10 September 2019 – P. Sharpe.



Photograph 6 (48.50177 N, -92.63588 W) – Wetland 4 view is 113° NE looking at a previously unmapped wetland habitat. Photo Date 11 September 2019 – P. Sharpe.



Photograph 7 (48.50097 N, -92.63843 W) – Wetland 5 view is 27° NE looking at a previously unmapped wetland habitat adjacent to an active road, Wetland 5 drains via a 12-inch culvert into Wetland 6. Photo Date 11 September 2019 – P. Sharpe.