

Wetland Delineation Report
Regal Solar Project
Benton County, Minnesota
May, 2019

Prepared for:

# Regal Solar LLC

Prepared by:



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## Introduction

Regal Solar LLC is proposing to develop a new 100 megawatt (MW) solar energy production facility in Benton County, Minnesota. The 812 acre project area is located in Sections 12 and 13 of Township 38 North Range 32 West and Sections 18 and 19 of Township 38 North Range 31 West in Benton County, Minnesota (Figure 1). HDR completed a wetland delineation to identify wetlands and other Waters of the U.S. within the project area.

This report incorporates additional wetland areas identified by the Benton County Technical Evaluation Panel (TEP) during the onsite review on April 17, 2019.

### Methods

Evaluation for the presence of wetlands and wetland hydrology within the project area was performed using protocols defined in the July 2016 Minnesota Board of Water and Soil Resources (BWSR) and U.S. Army Corps of Engineers (USACE) *Guidance for Offsite Hydrology/Wetland Determinations* (USACE 2016). Potential wetland areas were identified based on aerial photography interpretation and historical aerial photography review, National Wetland Inventory (NWI), hydric soil map units, 2 foot light detection and ranging (LiDAR) contours, and 2 foot digital elevation models (DEM). These areas were then visited in the field to confirm the presence or absence of wetland characteristics. Wetlands identified in the field were delineated in accordance with methods outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2) (USACE 2010). The USACE defines areas as wetlands based on the following:

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 [33 CFR 328 3.b].

Wetland delineations are based on the presence of the following three parameters:

- Indicators of wetland hydrology
- Predominance of hydrophytic vegetation
- Presence of hydric soils

"Atypical" or "problem areas" may be missing one or more of the three parameters, and still be classified as wetlands but must be justified using USACE criteria.

An onsite wetland delineation was performed by HDR wetland scientists on June 25-29, 2018. Additionally, an onsite TEP review took place on April 17, 2019.

# Site Description

The project area is located in northern Benton County, approximately 2 miles northwest of Rice, Minnesota within the Eastern Broadleaf Forest – Anoka Sand Plain Subsection as defined by The Minnesota Department of Natural Resources (MNDNR) (MNDNR, 2005). This area is described as flat, sandy lake plain along the Mississippi River. Broad sandy plains occupy much of the subsection (MNDNR 2005). Presettlement vegetation was oak barrens and openings (MNDNR 2005). The project area has been in crop production since at least 1953 based on historical aerial photography review.

#### **Climate Data**

The Minnesota Climatology Working Group (MNCWG, 2018) has an online calculator that provides a multi-month precipitation score for any date selected from a calendar. Scores of 6 to 9 are considered "dry", 10 to 14 "normal", and 15 to 18 "wet". For the time of the on-site delineation, precipitation for the Project area was considered "dry" with a score of 8 from MNCWG.

#### **Historical Climate Data**

A review of historical climate data for the project area was performed against the dates of historical aerial photos readily available through the Minnesota Historical Aerial Photographs Online (MHAPO) program and Farm Service Agency National Agriculture Imagery Program (NAIP). USACE guidance states that historical photographs should be reviewed for indicators of wetland hydrology when normal precipitation conditions are present (USACE 2016). This review of historical aerial photography was used to evaluate the frequency of occurrence and extent of offsite delineated wetland boundaries. Normal conditions are determined by weighing precipitation data from the three months prior to the date of the imagery against the length of time since the precipitation contributed to the water budget (i.e. more recent precipitation is given greater weight). The Minnesota Climatology Working Group (MNCWG, 2016) has an online calculator that provides a multi-month precipitation score for each aerial image reviewed. Scores of 6 to 9 are considered "dry", 10 to 14 "normal", and 15 to 18 "wet". Of the publically available MHAPO and NAIP aerial photos, 2017, 2009, 2008, 2006 and 1953 had normal precipitation multi-month scores and therefore were selected for use in the historical aerial photography review (Table 1).

**Table 1. Historical Aerial Photography Information** 

| Year of Photo | Date of Photo | Source of Photo | MNCWG Multi-<br>Month Score |
|---------------|---------------|-----------------|-----------------------------|
| 1953          | October 19    | МНРО            | 10 - Normal                 |
| 2006          | June 18       | NAIP            | 10 - Normal                 |
| 2008          | July 5        | NAIP            | 13 - Normal                 |
| 2009          | June 15       | NAIP            | 10 - Normal                 |
| 2017          | July 29       | NAIP            | 12 - Normal                 |

#### Soils

A summary of the soil map units that occur onsite and their corresponding hydric ratings are listed in Table 2. Soil map units are included in Figure 2.

**Table 2. Mapped Soil Types Onsite** 

| Map Unit Symbol | Map Unit name  | Hydric Rating                 |
|-----------------|--|-------------------------------|
| D8E             | Sandberg loamy coarse sand, 6 to 30 percent slopes           | Non-hydric (0%)               |
| D20A            | Isan-Isan, frequently ponded, complex, 0 to 2 percent slopes | Predominantly<br>Hydric (95%) |
| D67A            | Hubbard loamy sand, 0 to 2 percent slopes                    | Predominantly non-hydric (1%) |
| D67B            | Hubbard loamy sand, 1 to 6 percent slopes                    | Predominantly non-hydric (3%) |
| D67C            | Hubbard loamy sand, 2 to 12 percent slopes                   | Non-hydric (0%)               |
| W               | Water  | NA                            |

## Results

Offsite review of historical aerial photography resulted in the identification of 2 potential wetland areas (Table 3). Both locations, Wetland 1 and Wetland 2, tested positive for wetland hydrology based on historical aerial review and were visibly identifiable as wetland areas on 2017 aerial photography. No other areas of the site showed evidence of wetland hydrology.

**Table 3. Historical Aerial Photography Interpretation Results** 

| Potential _ | Ну   | drology | Signat | ture | % Years<br>Wetland |                        |                            |     |
|-------------|------|---------|--------|------|--------------------|------------------------|----------------------------|-----|
| Wetland ID  | 1953 | 2006    | 2008   | 2009 | 2017               | Hydrology<br>Signature | Hydric<br>Soil             | NWI |
| Wetland 1   | WS   | WS      | WS     | WS   | WS                 | 100                    | NA<br>(mapped<br>as water) | Yes |
| Wetland 2   | WS   | WS      | WS     | WS   | WS                 | 100                    | Yes                        | Yes |

Areas identified through historical aerial review were delineated in the field and the entire project area was reviewed for additional wetlands. Wetland boundaries for Wetland 1 and Wetland 2 were delineated based on the extent of the hydrophytic vegetation and the toe of slope of the surrounding topography. Wetlands TEP 1 and TEP 2 were identified by the Benton County TEP by utilizing offsite resources after conclusion of the April 17, 2019 onsite TEP review. A total of 6.50 acres of wetland were field delineated in the project area.

Wetland 1 consists of a depressional open pond (PUB/Type 5) feature ringed by a palustrian emergent wetland (PEM/Type 2) dominated by reed canary grass (*Phalaris arundinacea*) and black willow (*salix nigra*) saplings. The adjacent upland vegetation to Wetland 1 consists of row

cropped agricultural land along the north boundary and a stand of planted white pine (*Pinus strobus*) along the southern boundary.

Wetland 2 is a palustrian emergent wetland (PEM/Type 2) dominated by reed canary grass. Wetland 2 extends beyond the Project Area boundary, the area beyond the project boundary consists of a series of open water feature which are bisected by dikes which facilitate a center pivot irrigation to traverse the wetland feature. The adjacent upland to Wetland 2 is agricultural row crop.

TEP 1 and TEP 2 are deperssional seasonal wetland features (PEMf/Type 1) that are farmed during years of normal precipitation. The boundaries of TEP 1 and TEP 2 were identified via LiDAR contours by the Benton County TEP.

Table 4 summarizes wetland acreages and wetland types. The delineated wetland boundaries are shown in Figure 2. Photos and USACE routine wetland data forms for the delineated wetlands are included as Appendix A. One additional wetland data form was collected in a closed depressional upland area and is also included in Appendix A. Additional ground level photography of the project area is included in Appendix B, with photo locations shown on Figure 2.

**Table 4. Offsite Delineated Wetlands** 

| Wetland ID | NWI Wetland Type                    | Eggers and Reed Vegetative<br>Community | Area (acres) |
|------------|-------------------------------------|---|--------------|
| Wetland 1  | Palustrian Emergent<br>(PEM)        | Shallow Marsh                           | 5.49         |
| Wetland 2  | Palustrian Emergent<br>(PEM)        | Fresh Wet Meadow                        | 0.16         |
| TEP 1      | Palustrian Emergent – farmed (PEMf) | Fresh Wet Meadow                        | 0.26         |
| TEP 2      | Palustrian Emergent – farmed (PEMf) | Fresh Wet Meadow                        | 0.59         |
|            |                                     | Total                                   | 6.50         |

## Conclusions

Four wetland areas were identified and delineated within the Project area. The wetland boundaries were delineated in accordance with delineation methodologies as described in the July 2016 USACE and BWSR guidance and the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2) (USACE 2010) and as directed by the Benton County TEP. Development activities within the boundaries of these wetland areas

is subject to review and approval by the USACE and Benton County (Local Governmental Unit (LGU) responsible for implementing the Minnesota Wetland Conservation Act (WCA)).

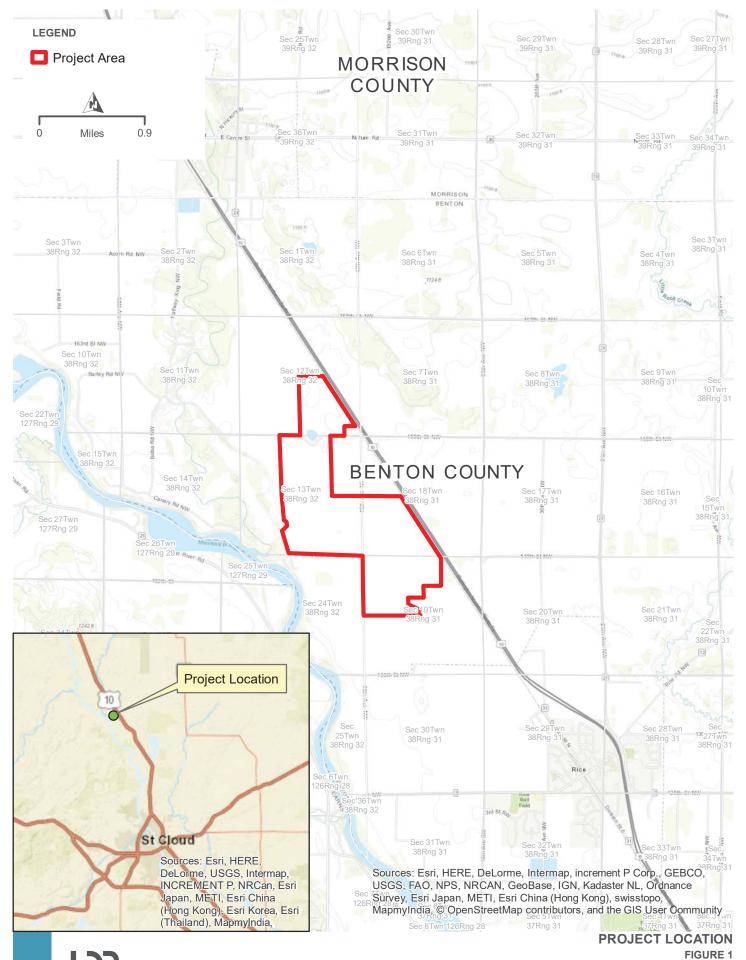
### References

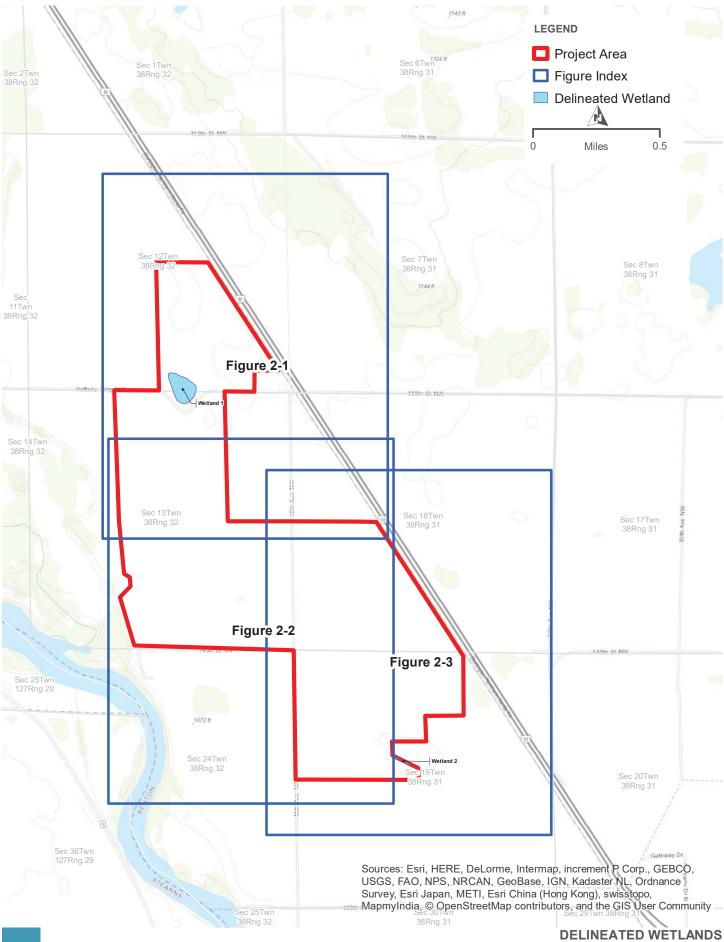
- Minnesota Climatology Working Group. 2018. Wetland Delineation Precipitation Data Retrieval from a Gridded Database for Two Rivers Township, MN. <a href="http://climate.umn.edu/gridded\_data/precip/wetland/wetland.asp">http://climate.umn.edu/gridded\_data/precip/wetland/wetland.asp</a>.
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- U.S. Army Corps of Engineers and Minnesota Board of Water and Soil Resources. 2016.

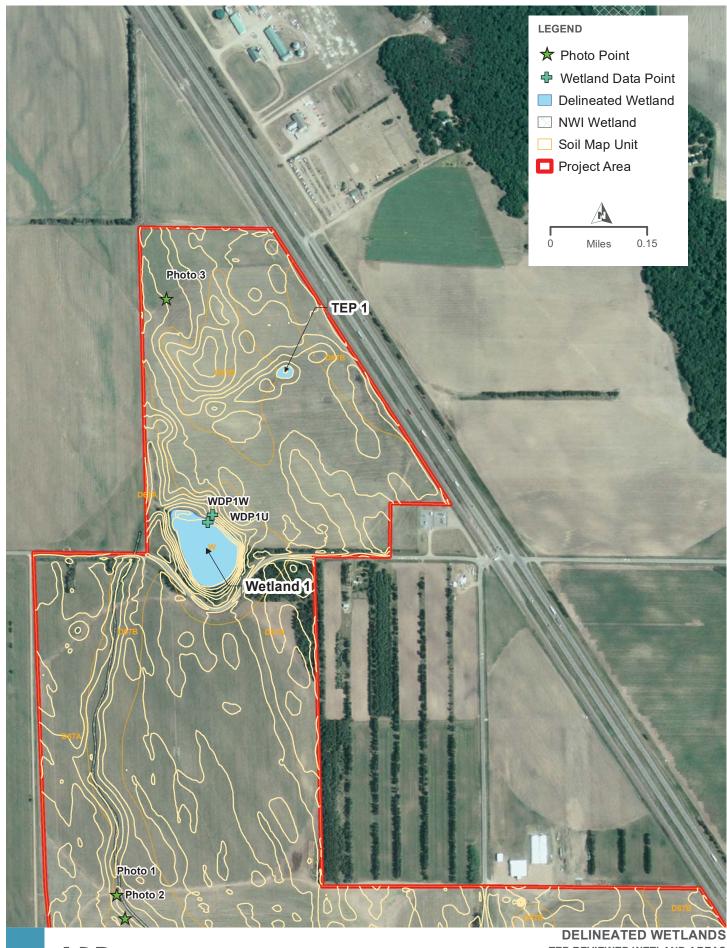
  Guidance for Offsite Hydrology/Wetland Determinations.

  <a href="http://www.bwsr.state.mn.us/wetlands/delineation/Guidance\_for\_Offsite\_Hydrology\_and\_wetland\_Determinations.pdf">http://www.bwsr.state.mn.us/wetlands/delineation/Guidance\_for\_Offsite\_Hydrology\_and\_wetland\_Determinations.pdf</a>

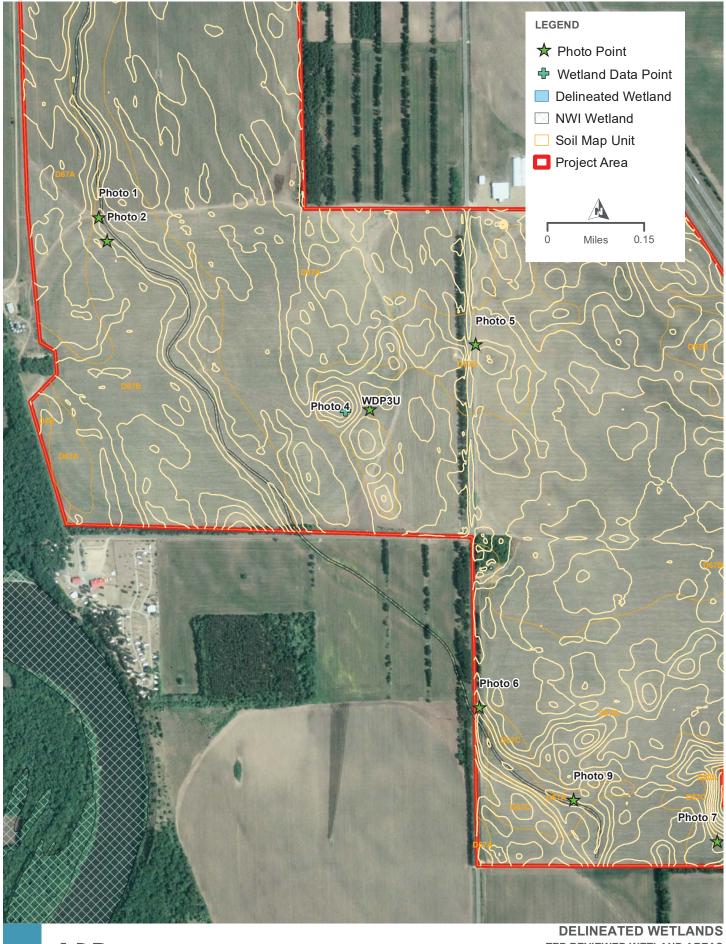
Figures







TEP REVIEWED WETLAND AREAS APRIL 22, 2019



TEP REVIEWED WETLAND AREAS APRIL 22, 2019



TEP REVIEWED WETLAND AREAS
APRIL 22, 2019

# Appendix A

Ground Level Photography



Photo 1. Field verified upland, mapped NWI, orientation north

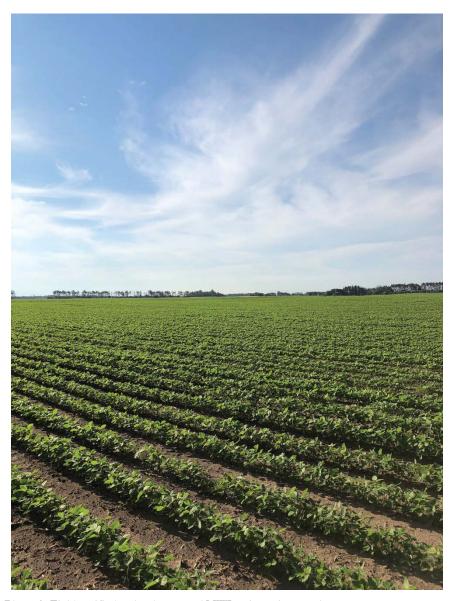


Photo 2. Field verified upland, mapped NWI, orientation south



Photo 3. Upland field edge, orientation north



Photo 4. Slope down to Wetland Data Point WDP3U, orientation west



Photo 5. Upland field edge, orientation south



Photo 6. Field verified upland, mapped NWI, orientation south

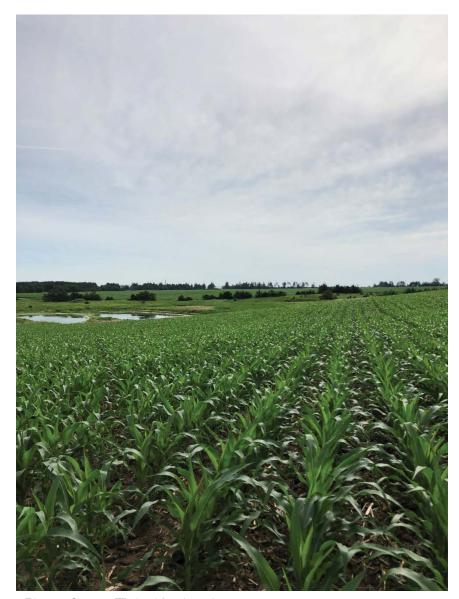


Photo 7. Slope to Wetland 2, orientation east



Photo 8. Upland field edge, orientation east



Photo 9. Field verified pland, mapped NWI, orientation south east.

# Appendix B

**USACE** Routine Wetland Delineation Data Forms

### WETLAND DETERMINATION DATA FORM - Midwest Region

| Project/Site: Geronimo Regal Solar                    |                      | City/County:       | Morrison               | Sampling Date            | e: 6/28/2018       |                    |
|---|----------------------|--------------------|------------------------|--------------------------|--------------------|--------------------|
| Applicant/Owner: Geronimo                             |                      | _                  | State: Minn            | esota Sampling Poin      | nt: WDP2W          |                    |
| Investigators: M Swenson                              |                      |                    | Section, Township,     | Range:                   |                    |                    |
| Landform (hillslope, terrace, etc.): Depression       |                      | Local Reli         | ief (concave, convex   | , none): Concave         | Slope              | (%): 3             |
| Subregion (LRR):                                      | Lat: 45.8117         | 779 Long:          | : -94.274986           | Datum: V                 | VGS84              |                    |
| Soil Map Unit Name:                                   |                      |                    | NWI Classifi           | cation: PUB              |                    |                    |
| Are climatic / hydrologic conditions on the site typi | cal for this time of | year? Yes          | s <u>X</u> No          | (If No, explain in Ren   | marks)             |                    |
| Are Vegetation: Soil or Hydrology                     | significantly d      | isturbed?          | Are "Normal Circur     | mstances" present?       | Yes X              | No                 |
| Are Vegetation: Soil or Hydrology                     | naturally prob       |                    | , , ,                  | any answers in Remar     | ,                  |                    |
| SUMMARY OF FINDINGS - Attach a s                      | ite map showi        | ng sampling        | point locations        | s, transects, impo       | rtant feature      | es, etc.           |
| Hydrophytic Vegetation Present? Yes                   | X No                 |                    |                        |                          |                    |                    |
| Hydric Soil Present? Yes _                            | X No                 | Is the             | e Sampled Area         |                          |                    |                    |
| Wetland Hydrology Present? Yes                        | X No                 | withi              | n a Wetland?           | Yes _                    | X                  | No                 |
| Remarks:  |                      |                    |                        |                          |                    |                    |
| Plot is located adjacent to pond feature. Wetland     |                      | neated based on    | ı topographic break li | ne and the presence of   | f hydrophytic ve   | getation.          |
| VEGETATION – Use scientific names                     |                      |                    |                        | T                        |                    |                    |
|   | Absolute             | Dominant           | Indicator              | Dominance Test W         |                    |                    |
| <u>Tree Statum</u> (Plot size: )                      | % Cover              | Species?           | Status                 | Number of Dominant       | •                  |                    |
| 1.  |                      |                    |                        | That Are OBL, FACV       | _                  | 2 (A)              |
| 2.  |                      |                    |                        | Total Number of Don      |                    | 0 (D)              |
| 3.  |                      |                    |                        | Species Across All S     | _                  | 2 (B)              |
| 4.  |                      |                    |                        | Percent of Dominant      | •                  | 400 (A/D)          |
| 5   |                      | - Total Cayer      |                        | That Are OBL, FACV       | v, or FAC:         | 100 (A/B)          |
| Conline/Chruh Ctratum (Diet aire)                     |                      | = Total Cover      |                        | Prevalence Index w       | roulcoboots        |                    |
| Sapling/Shrub Stratum (Plot size: )                   | 20                   | Voo                | OBL                    |                          |                    | ly by:             |
| 1. Salix nigra  | 20                   | Yes                | _ <u>OBL</u>           | Total % Cover of:        | Multip             |                    |
| 2.<br>3.  |                      |                    | _                      | OBL species FACW species | 20 x1= _<br>95 x2= | 20<br>190          |
| 4.  |                      |                    | _                      | FAC species –            | 5 x3=              | 15                 |
| 5.  |                      |                    |                        | FACU species             | x4=                | 0                  |
| ·   | 20                   | = Total Cover      |                        | UPL species              | x5=                | 0                  |
| Herb Stratum (Plot size: )                            |                      | rotal Gover        |                        | Column Totals:           | 120 (A)            | 225 (B)            |
| Phalaris arundinacea                                  | 90                   | Yes                | FACW                   | _                        |                    | (2)                |
| Rumex crispus   | 5                    | No                 | FAC                    | -                        |                    |                    |
| 3. Carex vulpinoidea                                  | 5                    | No                 | FACW                   | Prevalence Index         | x = B/A =          | 1.88               |
| 4.  |                      |                    |                        | Hydrophytic Vegeta       | ation Indicators   | <br>5:             |
| 5.  |                      |                    | _                      | X Dominance Te           | est is >50%        |                    |
| 6.  |                      |                    | _                      | X Prevalence Inc         | dex is ≤3.01       |                    |
| 7.  |                      |                    |                        | Morphological            | Adaptations1 (I    | Provide            |
| 8.  |                      |                    |                        | data in Re               | marks or on a s    | separate sheet)    |
|   | 100                  | = Total Cover      | _                      | Problematic H            | ydrophytic Vege    | etation1 (Explain) |
| Woody Vine Stratum (Plot size: )                      |                      |                    |                        |                          |                    |                    |
| 1   |                      |                    |                        | Indicators of hydric s   | oil and wetland    | hydrology          |
| 2.  |                      |                    |                        | must be present, unle    | ess disturbed o    | r problematic.     |
|   |                      | = Total Cover      |                        | Hydrophytic              |                    |                    |
| % Bare Ground in Herb Stratum                         | % Co                 | ver of Biotic Crus | <u></u>                | Vegetation<br>Present?   | Yes X              | <u> </u>           |
| Remarks:  |                      |                    |                        | 1                        |                    |                    |
|   |                      |                    |                        |                          |                    |                    |

SOIL Sampling Point: WDP2W

|  | iption: (Describe to   | the depth need                                   |   |   |                                   |         | nice of indicators.  |   |  |
|--|--|--|---|---|-----------------------------------|---------|--|---|--|
| Depth  | Matrix   |  |   | x Feature   |                                   |         | Totalous   | Demonder  |  |
| (inches)   | Color (moist)  | %  | Color (moist)   | <u></u> %   | Туре                              | Loc     | Texture  | Remarks   |  |
| 0-3  | 10YR 2/1   | 100  |   |   |                                   |         | Sandy Clay   |   |  |
| 3-14   | 10YR 4/2   | 90   | 10YR 4/6  | 10  | C                                 | M       | Sandy Clay   |   |  |
|  |  |  |   |   |                                   |         |  |   |  |
|  |  |  |   |   |                                   |         |  |   |  |
|  |  |  |   |   |                                   |         |  |   |  |
|  |  |  |   |   |                                   |         |  |   |  |
|  |  |  |   |   |                                   |         |  |   |  |
|  |  |  |   |   |                                   |         |  |   |  |
|  |  |  | ed Matrix, CS=Covere unless otherwise not   |   | ed Sand Gr                        |         | Location Indicators for Problem  | n: PL=Pore Lining, M=Matrix.  |  |
| -  |  | ne to all LKKs,                                  |   |   |                                   |         |  | •   |  |
| — Histos   | ` '  | _  | Sandy Redox (S5   | ,   |                                   |         | 1 cm Muck (A   |   |  |
|  | Epipedon (A2)  | _  | Stripped Matrix (S  | ,   |                                   |         | 2 cm Muck (A   | , ,   |  |
|  | Histic (A3)  | _  | Loamy Mucky Mir   | . ,   |                                   |         | Reduced Verti  |   |  |
|  | gen Sulfide (A4)   |  | Loamy Gleyed Ma   |   |                                   |         | Red Parent M   |   |  |
|  | ed Layers (A5) (LRR  | <b>C</b> )                                       | Depleted Matrix (I  | ,   |                                   |         | Other (Explain   | in Remarks)   |  |
|  | Muck (A9) (LRR D)  |  | Redox Dark Surfa  | . ,   |                                   |         |  |   |  |
|  | ed Below Dark Surfac   | ce (A11)   | Depleted Dark Su  | , ,   |                                   |         |  |   |  |
| Thick Dark Surface (A12)  Redox Depression (F8)  |  |  |   |   |                                   |         | , ,  | hytic vegetation and  |  |
| Sandy Mucky Mineral (S1)  Vermal Pools (F9)  |  |  |   |   |                                   |         | wetland hydrology must be present,   |   |  |
|  | Gleyed Matrix (S4)   |  |   |   |                                   |         | unless disturbed   | or problematic.   |  |
| Restrictive  | Layer (if present):  |  |   |   |                                   |         |  |   |  |
|  |  |  |   |   |                                   |         |  |   |  |
| Type:  |  |  |   |   |                                   |         |  |   |  |
| • •  | (inches):  |  |   |   |                                   |         | Hydric Soil Preser   | nt? Yes <u>X</u> No   |  |
| Depth<br>Remarks:  | ·  |  |   |   |                                   |         | Hydric Soil Preser   | nt? Yes <u>X</u> No _   |  |
| Depth Remarks:   |  |  |   |   |                                   |         | Hydric Soil Preser   | nt? Yes X No  |  |
| Depth Remarks:  HYDROLO Wetland Hy   | GY<br>vdrology Indicators:   |  |   |   |                                   |         |  |   |  |
| Depth Remarks:  HYDROLO Wetland Hy Primary Indi  | OGY<br>rdrology Indicators:<br>icators (minimum of o   | ne required; che                                 | 11.37   |   |                                   |         | Secondary Indicato   | rs (2 or more required)   |  |
| Depth Remarks:  HYDROLO Wetland Hy Primary Indi X Surface  | oGY rdrology Indicators: icators (minimum of o   | ne required; che                                 | Salt Crust (B11)  |   |                                   |         | Secondary Indicato Water Marks (   | rs (2 or more required)<br>B1) ( <b>Riverine</b> )  |  |
| Depth Remarks:  HYDROLO  Wetland Hy Primary Indi X Surfac X High V   | rdrology Indicators:<br>icators (minimum of o<br>e Water (A1)<br>Vater Tables (A2)   | ne required; che                                 | Salt Crust (B11) Biotic Crust (B12)   |   |                                   |         | Secondary Indicato Water Marks (   | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine)  |  |
| Depth Remarks:  HYDROLO  Wetland Hy Primary Indi  X Surfac  X High W X Satura  | rdrology Indicators:<br>icators (minimum of o<br>e Water (A1)<br>Vater Tables (A2)<br>tion (A3)  | -<br>-<br>-                                      | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra  | ates (B13)  |                                   |         | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits   | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine)  |  |
| Depth Remarks:  HYDROLO Wetland Hy Primary Indi X Surfac X High W X Satura Water   | rdrology Indicators:<br>icators (minimum of o<br>e Water (A1)<br>Vater Tables (A2)<br>tion (A3)<br>Marks (B1) (Nonriver  | rine)  | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra Hydrogen Sulfide   | ates (B13)<br>Odor (C1)   | )                                 |         | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits Drainage Patte  | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine) erns (B10)   |  |
| Depth Remarks:  HYDROLO  Wetland Hy Primary Indi X Surfac X High W X Satura Water Sedim  | rdrology Indicators:<br>icators (minimum of o<br>e Water (A1)<br>Vater Tables (A2)<br>tion (A3)<br>Marks (B1) (Nonriver<br>ent Deposits (B2) (No   | rine)  | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp  | ates (B13)<br>Odor (C1)<br>heres alor                           | )<br>ng Living R                  | ` ′     | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits Drainage Patte Dry-Season W   | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine) erns (B10) dater Table (C2)  |  |
| Depth Remarks:  HYDROLO  Wetland Hy Primary Indi  X Surfac  X High W X Satura  Water Sedim Surfac  | rdrology Indicators:<br>icators (minimum of o<br>e Water (A1)<br>Vater Tables (A2)<br>tion (A3)<br>Marks (B1) (Nonriver<br>ent Deposits (B2) (No   | rine)<br>onriverine)                             | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Recent Iron Redu   | ates (B13)<br>Odor (C1)<br>heres alor<br>ction in Til           | )<br>ng Living R                  | ` ′     | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits Drainage Patt Dry-Season W Saturation Vis                                 | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine) erns (B10) rater Table (C2) ible on Aeriel Imagery (C9)                    |  |
| Depth Remarks:  HYDROLO Wetland Hy Primary Indi X Surfac X High W X Satura Water Sedim Surfac X Inunda   | rdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) (Nonriver ent Deposits (B2) (No e Soil Cracks (B6) ation Visible of Aeriel I  | rine)<br>onriverine)                             | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Recent Iron Redu Thin Muck Surfac  | ates (B13)<br>Odor (C1)<br>heres alor<br>ction in Til<br>e (C7) | )<br>ng Living R<br>lled Soils (( | ` ′     | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits Drainage Patte Dry-Season W Saturation Vis Shallow Aquita                 | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine) erns (B10) vater Table (C2) sible on Aeriel Imagery (C9) ard (D3)          |  |
| Depth Remarks:  HYDROLO Wetland Hy Primary Indi X Surfac X High W X Satura Water Sedim Surfac X Inunda   | rdrology Indicators:<br>icators (minimum of o<br>e Water (A1)<br>Vater Tables (A2)<br>tion (A3)<br>Marks (B1) (Nonriver<br>ent Deposits (B2) (No   | rine)<br>onriverine)                             | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Recent Iron Redu   | ates (B13)<br>Odor (C1)<br>heres alor<br>ction in Til<br>e (C7) | )<br>ng Living R<br>lled Soils (( | ` ′     | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits Drainage Patt Dry-Season W Saturation Vis                                 | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine) erns (B10) vater Table (C2) sible on Aeriel Imagery (C9) ard (D3)          |  |
| Depth Remarks:  HYDROLO Wetland Hy Primary Indi X Surfac X High W X Satura Water Sedim Surfac X Inunda   | rdrology Indicators:<br>icators (minimum of o<br>e Water (A1)<br>Vater Tables (A2)<br>tion (A3)<br>Marks (B1) (Nonriver<br>ent Deposits (B2) (No<br>e Soil Cracks (B6)<br>ation Visible of Aeriel I  | rine)<br>onriverine)                             | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Recent Iron Redu Thin Muck Surfac Other (Explain in                                  | ates (B13)<br>Odor (C1)<br>heres alor<br>ction in Til<br>e (C7) | )<br>ng Living R<br>lled Soils (( | ` ′     | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits Drainage Patte Dry-Season W Saturation Vis Shallow Aquita                 | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine) erns (B10) vater Table (C2) sible on Aeriel Imagery (C9) ard (D3)          |  |
| Depth Remarks:  HYDROLO  Wetland Hy Primary Indi  X Surfac  X High W X Satura  Water  Sedim Surfac  X Inunda  Water-  Field Obser  | rdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) (Nonriver ent Deposits (B2) (No e Soil Cracks (B6) ation Visible of Aeriel I -Stained Leaves (B9) rvations: ter Present? Yes  | rine)  | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Recent Iron Redu Thin Muck Surfac Other (Explain in                                  | ates (B13)<br>Odor (C1)<br>heres alor<br>ction in Til<br>e (C7) | )<br>ng Living R<br>lled Soils (( | ` ′     | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits Drainage Patte Dry-Season W Saturation Vis Shallow Aquita                 | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine) erns (B10) vater Table (C2) sible on Aeriel Imagery (C9) ard (D3)          |  |
| Depth Remarks:  HYDROLO Wetland Hy Primary Indi X Surfac X High W X Satura Water Sedim Surfac X Inunda Water- Field Obset Surface Wa Water Table                           | rdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tition (A3) Marks (B1) (Nonriver ent Deposits (B2) (No e Soil Cracks (B6) ation Visible of Aeriel I -Stained Leaves (B9) rvations: ter Present? Yes e Present? Yes   | rine) onriverine) Imagery (B7)  X No X No        | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Recent Iron Redu Thin Muck Surfac Other (Explain in  Depth (inches): Depth (inches): | ates (B13)<br>Odor (C1)<br>heres alor<br>ction in Til<br>e (C7) | ng Living R Illed Soils (0        | (26)    | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits Drainage Patte Dry-Season W Saturation Vis Shallow Aquita X FAC-Neutral T | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine) erns (B10) /ater Table (C2) ible on Aeriel Imagery (C9) ard (D3) Fest (D5) |  |
| Depth Remarks:  HYDROLO  Wetland Hy Primary Indi X Surfac X High W X Satura Water Sedim Surfac X Inunda Water- Field Obser Surface Wa Water Table Saturation F             | regy Indicators: icators (minimum of of e Water (A1) Vater Tables (A2) Ition (A3) Marks (B1) (Nonriver) Indicators (B2) (None Soil Cracks (B6) Indicators (B9) | rine)  | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Recent Iron Redu Thin Muck Surfac Other (Explain in                                  | ates (B13)<br>Odor (C1)<br>heres alor<br>ction in Til<br>e (C7) | )<br>ng Living R<br>Iled Soils (0 | (26)    | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits Drainage Patte Dry-Season W Saturation Vis Shallow Aquita                 | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine) erns (B10) /ater Table (C2) ible on Aeriel Imagery (C9) ard (D3) Fest (D5) |  |
| Depth Remarks:  HYDROLO  Wetland Hy Primary Indi X Surfac X High W X Satura Water Sedim Surfac X Inunda Water- Field Obser Surface Wa Water Table Saturation F             | rdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tition (A3) Marks (B1) (Nonriver ent Deposits (B2) (No e Soil Cracks (B6) ation Visible of Aeriel I -Stained Leaves (B9) rvations: ter Present? Yes e Present? Yes   | rine) onriverine) Imagery (B7)  X No X No        | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Recent Iron Redu Thin Muck Surfac Other (Explain in  Depth (inches): Depth (inches): | ates (B13)<br>Odor (C1)<br>heres alor<br>ction in Til<br>e (C7) | ng Living R Illed Soils (0        | C6)     | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits Drainage Patte Dry-Season W Saturation Vis Shallow Aquita X FAC-Neutral T | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine) erns (B10) /ater Table (C2) ible on Aeriel Imagery (C9) ard (D3) Fest (D5) |  |
| Depth Remarks:  HYDROLO Wetland Hy Primary Indi X Surfac X High W X Satura Water Sedim Surfac X Inunda Water- Field Obset Surface Wa Water Table Saturation F (includes ca | rdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) (Nonriver ent Deposits (B2) (No e Soil Cracks (B6) ation Visible of Aeriel I estained Leaves (B9) rvations: ter Present? Yes e Present? Yes present? Yes upillary fringe)   | rine)  porriverine)  magery (B7)  X No X No X No | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Recent Iron Redu Thin Muck Surfac Other (Explain in  Depth (inches): Depth (inches): | otes (B13) Odor (C1) heres alor ction in Til e (C7) Remarks)    | 0.5<br>0.0<br>0.0                 | Wetland | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits Drainage Patt Dry-Season W Saturation Vis Shallow Aquita X FAC-Neutral T  | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine) erns (B10) /ater Table (C2) ible on Aeriel Imagery (C9) ard (D3) Fest (D5) |  |
| Depth Remarks:  HYDROLO Wetland Hy Primary Indi X Surfac X High W X Satura Water Sedim Surfac X Inunda Water- Field Obse Surface Wa Water Table Saturation F (includes ca  | rdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) (Nonriver ent Deposits (B2) (No e Soil Cracks (B6) ation Visible of Aeriel I estained Leaves (B9) rvations: ter Present? Yes e Present? Yes present? Yes upillary fringe)   | rine)  porriverine)  magery (B7)  X No X No X No | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Recent Iron Redu Thin Muck Surfac Other (Explain in  Depth (inches): Depth (inches): | otes (B13) Odor (C1) heres alor ction in Til e (C7) Remarks)    | 0.5<br>0.0<br>0.0                 | Wetland | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits Drainage Patt Dry-Season W Saturation Vis Shallow Aquita X FAC-Neutral T  | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine) erns (B10) /ater Table (C2) ible on Aeriel Imagery (C9) ard (D3) Fest (D5) |  |
| Depth Remarks:  HYDROLO Wetland Hy Primary Indi X Surfac X High W X Satura Water Sedim Surfac X Inunda Water- Field Obset Surface Wa Water Table Saturation F (includes ca | drology Indicators: icators (minimum of of e Water (A1) Vater Tables (A2) Ition (A3) Marks (B1) (Nonriver) Indicators (B6) Ind | rine)  porriverine)  magery (B7)  X No X No X No | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Recent Iron Redu Thin Muck Surfac Other (Explain in  Depth (inches): Depth (inches): | otes (B13) Odor (C1) heres alor ction in Til e (C7) Remarks)    | 0.5<br>0.0<br>0.0                 | Wetland | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits Drainage Patt Dry-Season W Saturation Vis Shallow Aquita X FAC-Neutral T  | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine) erns (B10) /ater Table (C2) ible on Aeriel Imagery (C9) ard (D3) Fest (D5) |  |
| Depth Remarks:  HYDROLO Wetland Hy Primary Indi X Surfac X High W X Satura Water Sedim Surfac X Inunda Water- Field Obset Surface Wa Water Table Saturation F (includes ca | rdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) (Nonriver ent Deposits (B2) (No e Soil Cracks (B6) ation Visible of Aeriel I estained Leaves (B9) rvations: ter Present? Yes e Present? Yes present? Yes upillary fringe)   | rine)  porriverine)  magery (B7)  X No X No X No | Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Recent Iron Redu Thin Muck Surfac Other (Explain in  Depth (inches): Depth (inches): | otes (B13) Odor (C1) heres alor ction in Til e (C7) Remarks)    | 0.5<br>0.0<br>0.0                 | Wetland | Secondary Indicato Water Marks ( Sediment Dep Drift Deposits Drainage Patt Dry-Season W Saturation Vis Shallow Aquita X FAC-Neutral T  | rs (2 or more required) B1) (Riverine) osits (B2) (Riverine) (B3) (Riverine) erns (B10) /ater Table (C2) ible on Aeriel Imagery (C9) ard (D3) Fest (D5) |  |

Sampling Site: WDP2W



Photo Name: Photo\_180622112525.jpg

Direction:

Caption:

### WETLAND DETERMINATION DATA FORM - Midwest Region

| Project/Site: Ger        | onimo Regal    | Solar                 |                     | City/County:       | Morrison             | Sampling Date                    | : 6/28/2018     |                    |
|--------------------------|----------------|-----------------------|---------------------|--------------------|----------------------|----------------------------------|-----------------|--------------------|
| Applicant/Owner:         | Geronimo       |                       |                     | _                  | State: Minne         | esota Sampling Poin              | t: WDP1U        |                    |
| Investigators: M S       | wenson         |                       |                     |                    | Section, Township,   | Range:                           |                 |                    |
| Landform (hillslope, t   | errace, etc.): | Depression            |                     | Local Reli         | ef (concave, convex, | none): Concave                   | Slope           | (%): 3             |
| Subregion (LRR):         |                |                       | Lat: 45.7943        | <br>12 Long:       | -94.269089           | Datum: W                         | /GS84           |                    |
| Soil Map Unit Name:      |                |                       |                     | _                  | NWI Classific        | cation: NA                       |                 |                    |
| Are climatic / hydrolo   | gic conditions | s on the site typical | for this time of y  | /ear? Yes          | s X No               | (If No, explain in Ren           | narks)          |                    |
| Are Vegetation: X        | Soil           | or Hydrology          | significantly di    | sturbed?           | Are "Normal Circun   | nstances" present?               | Yes             | K No               |
| Are Vegetation:          | Soil           | or Hydrology          | naturally probl     | ematic?            | (If needed, explain  | any answers in Remar             | ks.)            |                    |
| <b>SUMMARY OF F</b>      | INDINGS        | - Attach a site       | map showing         | ng sampling        | point locations      | , transects, impo                | rtant featur    | es, etc.           |
| Hydrophytic Vegetati     | on Present?    | Yes                   | No X                |                    |                      |                                  |                 |                    |
| Hydric Soil Present?     |                | Yes                   | No X                | Is the             | Sampled Area         |                                  |                 |                    |
| Wetland Hydrology P      | resent?        | Yes                   | No X                | within             | n a Wetland?         | Yes                              |                 | No X               |
| Remarks:                 |                |                       |                     |                    |                      |                                  |                 |                    |
| Plot is located at field |                |                       |                     | ricultural row cro | pp activities.       |                                  |                 |                    |
| VEGETATION –             | Use scier      | ntific names of       | <u> </u>            |                    |                      |                                  |                 |                    |
|                          |                |                       | Absolute            | Dominant           | Indicator            | Dominance Test W                 |                 |                    |
| Tree Statum (Plo         | ot size:)      |                       | % Cover             | Species?           | Status               | Number of Dominant               | •               |                    |
| 1                        |                |                       |                     |                    |                      | That Are OBL, FACV               | -               | 0 (A)              |
| 2.                       |                |                       |                     |                    |                      | Total Number of Don              |                 |                    |
| 3.                       |                |                       |                     |                    |                      | Species Across All S             | -               | 1 (B)              |
| 4                        |                |                       |                     |                    |                      | Percent of Dominant              |                 |                    |
| 5                        |                |                       |                     |                    |                      | That Are OBL, FACV               | √, or FAC:<br>- | 0 (A/B)            |
|                          |                |                       |                     | = Total Cover      |                      |                                  |                 |                    |
| Sapling/Shrub Stratu     | m (Plot s      | size: )               |                     |                    |                      | Prevalence Index w               |                 |                    |
| 1.                       |                |                       |                     |                    |                      | Total % Cover of:                |                 | oly by:            |
| 2.                       |                |                       |                     |                    |                      | OBL species                      | x1= _           |                    |
| 3.                       |                |                       |                     |                    |                      | FACW species                     | 5 x2= _         | 10                 |
| 4                        |                |                       |                     |                    |                      | FAC species                      | x3= _           | 0                  |
| 5.                       |                |                       |                     |                    |                      | FACU species                     | 90 x4= _        | 360                |
|                          |                |                       |                     | = Total Cover      |                      | UPL species —                    | 5 x5= _         | 25                 |
| •                        | ot size:)      |                       | 0.5                 |                    | F4.011               | Column Totals:                   | 100 (A)         | 395 (B)            |
| 1. Bromus inermis        |                |                       | 85                  | Yes                | FACU                 |                                  |                 |                    |
| 2. Cirsium arvense       |                |                       | 5                   | No                 | FACU                 | Donne le me en la classe         | D/A             | 0.05               |
| 3. Phalaris arundir      |                |                       | <u>5</u>            | No                 | - FACW               | Prevalence Index                 |                 | 3.95               |
| 4. Convolvulus arv       | rensis         |                       |                     | No                 | _ UPL                | Hydrophytic Vegeta  Dominance Te |                 | S:                 |
| 5.<br>6.                 |                |                       |                     |                    |                      | Prevalence Inc                   |                 |                    |
| 7.                       |                |                       |                     |                    |                      | <u> </u>                         | Adaptations1 (  | (Provido           |
| 8.                       |                |                       |                     |                    |                      | _                                |                 | separate sheet)    |
| o                        |                |                       | 100                 | = Total Cover      |                      |                                  |                 | etation1 (Explain) |
| Woody Vine Stratum       | (Plot size: )  |                       |                     | - Total Cover      |                      | 1 Toblematic Ti                  | raiopilytic veg | etation (Explain)  |
| 1.                       | (FIOL SIZE. )  |                       |                     |                    |                      | Indicators of hydric s           | oil and wetland | l hydrology        |
| 2.                       |                |                       |                     |                    |                      | must be present, unle            |                 |                    |
|                          |                |                       |                     | = Total Cover      |                      | Hydrophytic                      |                 | problematic.       |
| % Bare Ground in He      | arh Stratum    |                       | 0/ <sub>2</sub> Cov | er of Biotic Crus  | t                    | Vegetation                       | Yes I           | No X               |
| 70 Date Orbuild III He   | no ottatuiii   |                       | - 70 COV            | CI OI DIOIIC CIUS  |                      | Present?                         | —               | No X               |
|                          |                |                       |                     |                    |                      | i i cociit !                     |                 |                    |
| Remarks:                 |                |                       |                     |                    |                      |                                  |                 |                    |
|                          |                |                       |                     |                    |                      |                                  |                 |                    |
|                          |                |                       |                     |                    |                      |                                  |                 |                    |

SOIL Sampling Point: WDP1U

| Profile Desc                                | ription: (Describe to t                               | the depth need   | led to document the              | indicator o | or confirm    | the abse    | nce of indicators.)                 |                  |             |          |
|---|---|------------------|----------------------------------|-------------|---------------|-------------|-------------------------------------|------------------|-------------|----------|
| Depth                                       | Matrix  |                  | Red                              | ox Feature  | s             |             |                                     |                  |             |          |
| (inches)                                    | Color (moist)   | %                | Color (moist)                    | %           | Туре          | Loc         | Texture                             | Rem              | arks        |          |
| 0-12  | 10YR 3/3  |                  |                                  |             |               |             | Sandy Loam                          |                  |             |          |
| 12-20                                       | 10YR 4/3  | 95               | 10YR 4/6                         | 5           | C             | M           | Sandy Loam                          |                  |             |          |
|   |   |                  |                                  |             |               |             |                                     |                  |             |          |
|   |   |                  |                                  |             |               |             |                                     |                  |             |          |
|   |   |                  |                                  |             |               |             |                                     |                  |             |          |
|   |   |                  |                                  |             |               |             |                                     |                  |             |          |
|   |   |                  |                                  |             |               |             |                                     |                  |             |          |
|   |   |                  |                                  |             |               |             |                                     |                  |             |          |
| Type: C= Co                                 | ncentration, D= Deplet                                | tion, RM=Reduc   | ced Matrix, CS=Covere            | ed or Coat  | ed Sand Gr    | ains.       | Location:                           | PL=Pore Linino   | g, M=Matrix | ζ.       |
| Hydric Soil I                               | ndicators: (Applicab                                  | le to all LRRs,  | unless otherwise no              | ted.)       |               |             | Indicators for Problems             | atic Hydric So   | ils:        |          |
| Histos                                      | sol (A1)  | _                | Sandy Redox (S                   | 5)          |               |             | 1 cm Muck (A9) (                    | LRR C)           |             |          |
| Histic                                      | Epipedon (A2)   | _                | Stripped Matrix (                | S6)         |               |             | 2 cm Muck (A10)                     | (LRR B)          |             |          |
| Black                                       | Histic (A3)   | _                | Loamy Mucky Mi                   | ineral (F1) |               |             | Reduced Vertic (                    | <del>-</del> 18) |             |          |
| Hydro                                       | gen Sulfide (A4)                                      | _                | Loamy Gleyed M                   | latrix (F2) |               |             | Red Parent Mate                     | rial (TF2)       |             |          |
| Stratif                                     | ied Layers (A5) ( <b>LRR</b> (                        | C) _             | Depleted Matrix (                | (F3)        |               |             | Other (Explain in                   | Remarks)         |             |          |
|   | Muck (A9) ( <b>LRR D</b> )                            | _                | Redox Dark Surf                  | . ,         |               |             |                                     |                  |             |          |
|   | ted Below Dark Surfac                                 | e (A11)          | Depleted Dark S                  |             | )             |             |                                     |                  |             |          |
|   | Dark Surface (A12)                                    | _                | Redox Depression                 | , ,         |               |             | Indicators of hydrophy              | _                |             |          |
| Sandy Mucky Mineral (S1)  Vermal Pools (F9) |   |                  |                                  |             |               |             | wetland hydrology m                 | •                | ,           |          |
|   | / Gleyed Matrix (S4)                                  |                  |                                  |             |               |             | unless disturbed or p               | roblematic.      |             |          |
| Restrictive                                 | Layer (if present):                                   |                  |                                  |             |               |             |                                     |                  |             |          |
| Type:                                       |   |                  |                                  |             |               |             |                                     |                  |             |          |
| Depth                                       | (inches):   |                  |                                  |             |               |             | Hydric Soil Present?                | Yes              | No          | X        |
| Remarks:                                    |   |                  |                                  |             |               |             |                                     |                  |             |          |
| No indicators                               | of hydric soils are pres                              | sent.            |                                  |             |               |             |                                     |                  |             |          |
|   |   |                  |                                  |             |               |             |                                     |                  |             |          |
| HYDROLO                                     | OGY   |                  |                                  |             |               |             |                                     |                  |             |          |
|   |   |                  |                                  |             |               |             |                                     |                  |             |          |
| 1   | ydrology Indicators:<br>licators (minimum of or       | aa raguirad, ah  | ack all that apply)              |             |               |             | Casandami Indiantam                 | O ar mara rasu   | iro d)      |          |
| l — ,                                       |   | ne required; che | 11 77                            |             |               |             | Secondary Indicators                |                  | urea)       |          |
|   | ce Water (A1)   | -                | Salt Crust (B11)                 | Λ.          |               |             | Water Marks (B1                     |                  | ma\         |          |
|   | Water Tables (A2)                                     | _                | Biotic Crust (B12                | •           |               |             | Sediment Deposi                     |                  | ne)         |          |
|   | ation (A3)  | -                | Aquatic Invertebr                |             |               |             | Drift Deposits (B3                  |                  |             |          |
|   | Marks (B1) (Nonriver                                  | _                | Hydrogen Sulfide                 |             |               | acta (C2)   | Drainage Pattern                    | ,                |             |          |
|   | nent Deposits (B2) ( <b>No</b><br>ce Soil Cracks (B6) | nriverine) –     | Oxidized Rhizosp Recent Iron Red |             |               | ` '         | Dry-Season Water                    | ` ,              | gon/ (CO)   |          |
|   | ation Visible of Aeriel I                             |                  | Thin Muck Surface                |             | iled Solis (C | 50)         | Saturation Visible Shallow Aquitard |                  | gery (C9)   |          |
|   |   | -                |                                  | ` '         |               |             | FAC-Neutral Tes                     | ,                |             |          |
|   | -Stained Leaves (B9)                                  |                  | Other (Explain in                | Remarks)    |               | _           | FAC-Neutral Tes                     | (D3)             |             |          |
| Field Obse                                  |   | NI-              | Donath (in also as)              |             |               |             |                                     |                  |             |          |
|   | ater Present? Yes                                     | No               | Depth (inches):                  |             |               |             |                                     |                  |             |          |
| Water Table                                 |   | No               | Depth (inches):                  |             |               | Wetlene     | d Hudrology Brocont?                | Voc              | No          | v        |
| Saturation                                  | Present? Yes apillary fringe)                         | No               | Depth (inches):                  |             |               | vveuand     | d Hydrology Present?                | Yes              | No          | <u>X</u> |
|   |   |                  |                                  |             |               |             |                                     |                  |             |          |
| Describe Red                                | corded Date (stream ga                                | ague, monitorino | g well, aerial photos, p         | revious ins | spections), i | f available | e:                                  |                  |             |          |
|   |   |                  |                                  |             |               |             |                                     |                  |             |          |
| Remarks:                                    |   |                  |                                  |             |               |             |                                     |                  |             |          |
| No indicators                               | of wetland hydrology a                                | are present.     |                                  |             |               |             |                                     |                  |             |          |
|   |   |                  |                                  |             |               |             |                                     |                  |             |          |
|   |   |                  |                                  |             |               |             |                                     |                  |             |          |

# Sampling Site: WDP1U



Photo Name: Photo\_180622112631.jpg

Direction:

Caption:

### WETLAND DETERMINATION DATA FORM - Midwest Region

| Project/Site: Geronimo Regal Solar          |                                    | City/County:      | Minnesota            | Sampling Date           | : 6/28/2018                  |                  |
|---|------------------------------------|-------------------|----------------------|-------------------------|------------------------------|------------------|
| Applicant/Owner: Geronimo                   |                                    | -                 | State: Minne         |                         |                              |                  |
| Investigators: M Swenson                    |                                    |                   | Section, Township,   | Range:                  |                              |                  |
| Landform (hillslope, terrace, etc.): Hills  | lope                               | Local Reli        | ef (concave, convex, |                         | Slope(%                      | 6): 4            |
| Subregion (LRR):                            | Lat: 45.77256                      | -<br>80 Long:     | -94.250877           | Datum: W                | /GS84                        |                  |
| Soil Map Unit Name:                         |                                    |                   | NWI Classific        | cation: NA              |                              |                  |
| Are climatic / hydrologic conditions on the | ne site typical for this time of y | ear? Yes          | s X No               | (If No, explain in Rem  | narks)                       |                  |
| Are Vegetation: X Soil or H                 | ydrology significantly dis         | sturbed?          | Are "Normal Circur   | nstances" present?      | Yes X                        | No               |
| Are Vegetation: Soil or H                   | ydrology naturally proble          | ematic?           | (If needed, explain  | any answers in Remark   | <s.)< td=""><td></td></s.)<> |                  |
| SUMMARY OF FINDINGS - Att                   | ach a site map showir              | ng sampling       | point locations      | , transects, impoi      | rtant features               | s, etc.          |
| Hydrophytic Vegetation Present?             | Yes No X                           |                   |                      |                         |                              |                  |
| Hydric Soil Present?                        | Yes No X                           | Is the            | Sampled Area         |                         |                              |                  |
| Wetland Hydrology Present?                  | Yes No X                           | within            | n a Wetland?         | Yes                     |                              | No X             |
| Remarks:                                    |                                    |                   |                      |                         |                              |                  |
| Plot is located near toe of slope within p  | lanted corn field.                 |                   |                      |                         |                              |                  |
| The to too accurate the or diopo within p   | iantou com noia.                   |                   |                      |                         |                              |                  |
|   |                                    |                   |                      |                         |                              |                  |
| VEGETATION – Use scientific                 | names of plants                    |                   |                      |                         |                              |                  |
|   | Absolute                           | Dominant          | Indicator            | Dominance Test We       | orkshoot:                    |                  |
| <u>Tree Statum</u> (Plot size: )            | % Cover                            | Species?          | Status               | Number of Dominant      |                              |                  |
| 1.  |                                    | Орескоз:          |                      | That Are OBL, FACW      |                              | 1 (A)            |
| 2.  |                                    |                   |                      | Total Number of Dom     |                              | 1 (/1)           |
| 3.  |                                    |                   |                      | Species Across All St   |                              | 2 (B)            |
| 4.  |                                    |                   |                      | Percent of Dominant     |                              |                  |
| 5.  |                                    |                   |                      | That Are OBL, FACW      |                              | 50 (A/B)         |
|   |                                    | = Total Cover     | _                    | '                       |                              | (,,,_)           |
| Sapling/Shrub Stratum (Plot size: )         |                                    |                   |                      | Prevalence Index we     | orksheet:                    |                  |
| 1.  |                                    |                   |                      | Total % Cover of:       | Multiply                     | bv:              |
| 2.  |                                    |                   | _                    | OBL species             | x1=                          | <del></del>      |
| 3.  |                                    |                   | _                    | FACW species            | 10 x2=                       | 20               |
| 4.  |                                    |                   |                      | FAC species             | x3=                          | 0                |
| 5.  |                                    |                   |                      | FACU species            | 35 x4=                       | 140              |
|   |                                    | = Total Cover     |                      | UPL species             | x5=                          | 0                |
| Herb Stratum (Plot size: 5ft)               |                                    |                   |                      | Column Totals:          | 45 (A)                       | 160 (B)          |
| 1. Bromus inermis                           | 30                                 | Yes               | FACU                 | _                       |                              |                  |
| 2. Anemone canadensis                       | 10                                 | Yes               | FACW                 | `                       |                              |                  |
| Cirsium arvense                             | 5                                  | No                | FACU                 | Prevalence Index        | c = B/A =                    | 3.56             |
| 4.  |                                    |                   |                      | Hydrophytic Vegeta      | tion Indicators:             |                  |
| 5.  |                                    |                   |                      | Dominance Te            | st is >50%                   |                  |
| 6.  |                                    |                   |                      | Prevalence Ind          | ex is ≤3.01                  |                  |
| 7.  |                                    |                   |                      | Morphological A         | Adaptations1 (Pr             | ovide            |
| 8.  |                                    |                   |                      | data in Rei             | marks or on a se             | parate sheet)    |
|   | 45                                 | = Total Cover     |                      | Problematic Hy          | drophytic Vegeta             | ation1 (Explain) |
| Woody Vine Stratum (Plot size: )            |                                    |                   |                      |                         |                              |                  |
| 1.  |                                    |                   | _                    | Indicators of hydric so | oil and wetland h            | ydrology         |
| 2   |                                    |                   |                      | must be present, unle   | ess disturbed or p           | oroblematic.     |
|   |                                    | = Total Cover     |                      | Hydrophytic             |                              |                  |
| % Bare Ground in Herb Stratum               | % Cove                             | er of Biotic Crus | t                    | Vegetation              | Yes No                       | <u> </u>         |
|   |                                    |                   |                      | Present?                |                              |                  |
| Remarks:                                    |                                    |                   |                      |                         |                              |                  |
|   |                                    |                   |                      |                         |                              |                  |
|   |                                    |                   |                      |                         |                              |                  |
|   |                                    |                   |                      |                         |                              |                  |

SOIL Sampling Point: WDP2U

| Profile Descr | iption: (Describe                                      | to the depth n    | eeded to document the in     | ndicator o | r confirm     | the abse   | ence of indicators.)    |               |            |    |
|---------------|--|-------------------|------------------------------|------------|---------------|------------|-------------------------|---------------|------------|----|
| Depth         |  | ıtrix             |                              | x Features |               |            | ,                       |               |            |    |
| (inches)      | Color (moist)  | %                 | Color (moist)                | %          | Туре          | Loc        | Texture                 | Re            | marks      |    |
| 0-12          | 10YR 4/3   | <u> </u>          |                              |            |               |            | Loamy Sand              |               |            |    |
|               | 1011(4/0   | <u> </u>          |                              |            |               |            |                         |               |            |    |
|               |  | <u> </u>          |                              |            |               |            |                         |               |            |    |
|               |  | _                 |                              |            |               |            |                         |               |            |    |
|               |  |                   | -                            |            |               |            |                         |               |            |    |
|               |  |                   |                              |            |               |            |                         |               |            |    |
|               | -  |                   |                              |            |               |            |                         |               |            |    |
|               |  |                   |                              |            |               |            |                         |               |            |    |
| Turas C= Car  | tration D-D  |                   | duced Matrix, CS=Covere      | d or Coots | d Cond Cr     |            |                         | OL =Doro Lini | na M-Matri | ., |
|               |  | ·                 |                              |            | ed Sand Gr    |            |                         | PL=Pore Lini  |            | x. |
| _             |  | icable to all LRI | Rs, unless otherwise not     |            |               |            | Indicators for Problema | •             | ooiis:     |    |
| — Histos      |  |                   | Sandy Redox (S5              | ,          |               |            | 1 cm Muck (A9) (        | ,             |            |    |
|               | Epipedon (A2)  |                   | Stripped Matrix (S           | ,          |               |            | 2 cm Muck (A10)         |               |            |    |
|               | Histic (A3)  |                   | Loamy Mucky Mir              |            |               |            | Reduced Vertic (I       |               |            |    |
|               | gen Sulfide (A4)                                       | DD C\             | Loamy Gleyed Ma              |            |               |            | Red Parent Mate         | ` '           |            |    |
|               | ed Layers (A5) ( <b>L</b><br>⁄luck (A9) ( <b>LRR D</b> |                   | Depleted Matrix (I           |            |               |            | Other (Explain in       | Remarks)      |            |    |
|               | ed Below Dark S  |                   | Depleted Dark Su             | ` '        |               |            |                         |               |            |    |
|               | Dark Surface (A1                                       | ` '               | Redox Depressio              |            |               |            | Indicators of hydrophy  | ic vegetation | and        |    |
|               | Mucky Mineral (S                                       |                   | Vermal Pools (F9             |            |               |            | wetland hydrology m     | •             |            |    |
|               | Gleyed Matrix (S                                       |                   | verman oois (i s             | )          |               |            | unless disturbed or p   |               | 111,       |    |
|               | • •  | •                 |                              |            |               |            | annoce dictarged or p   | - Continue    |            |    |
|               | Layer (if presen                                       | ι).               |                              |            |               |            |                         |               |            |    |
| Type:         | (in ab a a).   |                   | _                            |            |               |            | Unidaia Cail Bassanta   | V             | N.         | V  |
|               | (inches):  |                   | _                            |            |               |            | Hydric Soil Present?    | Yes           | No         | X  |
| Remarks:      |  |                   |                              |            |               |            |                         |               |            |    |
|               |  |                   |                              |            |               |            |                         |               |            |    |
|               |  |                   |                              |            |               |            |                         |               |            |    |
| HYDROLO       | · CV   |                   |                              |            |               |            |                         |               |            |    |
|               |  |                   |                              |            |               |            |                         |               |            |    |
| 1             | drology Indicate                                       |                   |                              |            |               |            |                         | -             |            |    |
|               | -  | of one required;  | check all that apply)        |            |               |            | Secondary Indicators (  |               | quired)    | -  |
|               | e Water (A1)   |                   | Salt Crust (B11)             |            |               |            | Water Marks (B1)        | ,             |            |    |
|               | Vater Tables (A2)                                      |                   | Biotic Crust (B12)           |            |               |            | Sediment Deposi         | ( / (         | rine)      |    |
|               | ition (A3)   |                   | Aquatic Invertebra           | , ,        |               |            | Drift Deposits (B3      |               |            |    |
|               | Marks (B1) (Non  | ,                 | Hydrogen Sulfide             |            |               |            | Drainage Pattern        |               |            |    |
|               | ent Deposits (B2)                                      | ` '               | Oxidized Rhizosp             |            | -             |            |                         | , ,           |            |    |
|               | e Soil Cracks (B6                                      | ,                 | Recent Iron Redu             |            | iled Solls (C | 56)        | Saturation Visible      |               | agery (C9) |    |
|               | ation Visible of Ae                                    |                   |                              |            |               |            | Shallow Aquitard        | ` '           |            |    |
|               | -Stained Leaves (                                      | B9)               | Other (Explain in            | Remarks)   |               |            | FAC-Neutral Tes         | (D5)          |            |    |
| Field Obse    |  |                   |                              |            |               |            |                         |               |            |    |
|               |  | es No             | Depth (inches):              |            |               |            |                         |               |            |    |
| Water Table   |  | es No             | Depth (inches):              |            |               |            |                         |               |            |    |
| Saturation F  |  | es No             | Depth (inches):              |            |               | Wetlan     | d Hydrology Present?    | Yes _         | No         | X  |
| (includes ca  | pillary fringe)  |                   |                              |            |               |            |                         |               |            |    |
| Describe Rec  | orded Date (strea                                      | m gague, monito   | ring well, aerial photos, pr | evious ins | pections), i  | f availabl | e:                      |               |            |    |
|               |  |                   |                              |            |               |            |                         |               |            |    |
| Remarks:      |  |                   |                              |            |               |            |                         |               |            |    |
|               | of wetland hydrol                                      | ogy are present.  |                              |            |               |            |                         |               |            |    |
|               | ,  |                   |                              |            |               |            |                         |               |            |    |
|               |  |                   |                              |            |               |            |                         |               |            |    |

Sampling Site: WDP2U



Photo Name: Photo\_180620100948.jpg

Direction:

Caption:

### WETLAND DETERMINATION DATA FORM - Midwest Region

| Project/Site: Geronimo Regal Solar                     |                       | City/County:      | Morrison            | Sampling Date          | e: 6/28/2018        |                 |
|--|-----------------------|-------------------|---------------------|------------------------|---------------------|-----------------|
| Applicant/Owner: Geronimo                              |                       | -                 | State: Minn         | esota Sampling Poir    | nt: WDP1W           |                 |
| Investigators: M Swenson                               |                       |                   | Section, Township,  | Range:                 |                     |                 |
| Landform (hillslope, terrace, etc.): Depression        |                       | Local Reli        | ef (concave, convex | , none): Concave       | Slope(%             | ): 3            |
| Subregion (LRR):                                       | Lat: 45.7725          | _<br>75           | -94.250870          | Datum: V               | VGS84               |                 |
| Soil Map Unit Name:                                    |                       |                   | NWI Classifi        | cation: PEM            |                     |                 |
| Are climatic / hydrologic conditions on the site typic | al for this time of y | ear? Yes          | s X No              | (If No, explain in Rer | marks)              |                 |
| Are Vegetation: Soil or Hydrology                      | significantly di      | sturbed?          | Are "Normal Circur  | mstances" present?     | Yes X               | No              |
| Are Vegetation: Soil or Hydrology                      | naturally probl       | ematic?           | (If needed, explain | any answers in Remar   | rks.)               |                 |
| SUMMARY OF FINDINGS - Attach a si                      | te map showii         | ng sampling       | point locations     | s, transects, impo     | rtant features      | , etc.          |
| Hydrophytic Vegetation Present? Yes                    | K No                  |                   |                     |                        |                     |                 |
| Hydric Soil Present? Yes                               | K No                  | Is the            | Sampled Area        |                        |                     |                 |
| Wetland Hydrology Present? Yes                         | K No                  | withi             | n a Wetland?        | Yes_                   | X                   | No              |
| Remarks:   |                       |                   |                     |                        |                     |                 |
| Plot is located in a PEM wetland adjacent to open      | water.                |                   |                     |                        |                     |                 |
|  |                       |                   |                     |                        |                     |                 |
|  |                       |                   |                     |                        |                     |                 |
| <b>VEGETATION – Use scientific names</b>               | of plants.            |                   |                     |                        |                     |                 |
|  | Absolute              | Dominant          | Indicator           | Dominance Test W       | orksheet:           |                 |
| Tree Statum (Plot size: )                              | % Cover               | Species?          | Status              | Number of Dominan      | t Species           |                 |
| 1.   |                       |                   |                     | That Are OBL, FACV     | N, or FAC:          | 1 (A)           |
| 2.   |                       |                   |                     | Total Number of Dor    | minant              |                 |
| 3.   |                       |                   |                     | Species Across All S   | Strata:             | 1 (B)           |
| 4.   |                       |                   |                     | Percent of Dominant    | Species             |                 |
| 5.   |                       |                   | _                   | That Are OBL, FACV     | N, or FAC:          | 100 (A/B)       |
|  |                       | = Total Cover     |                     |                        |                     |                 |
| Sapling/Shrub Stratum (Plot size: )                    |                       |                   |                     | Prevalence Index w     | orksheet:           |                 |
| 1  |                       |                   | _                   | Total % Cover of:      | Multiply            | <u>by:</u>      |
| 2  |                       |                   |                     | OBL species            | x1=                 |                 |
| 3.   |                       |                   |                     | FACW species           | 90 x2=              | 180             |
| 4.   |                       |                   |                     | FAC species            | x3=                 | 0               |
| 5.   |                       |                   |                     | FACU species           | 5 x4=               | 20              |
| Harl Objective (Diet size )                            |                       | = Total Cover     |                     | UPL species            | x5=                 | 0<br>(D)        |
| Herb Stratum (Plot size: )                             | 80                    | Vaa               | FACW                | Column Totals: -       | 95 (A)              | 200 (B)         |
| Phalaris arundinacea     Urtica dioica                 | 80<br>10              | Yes<br>No         | FACW FACW           |                        |                     |                 |
| Ambrosia artemisiifolia                                | 5                     | No                | FACU                | .  <br>Prevalence Inde | v – R/A–            | 2.11            |
| 4.   |                       | 140               | - 1700              | Hydrophytic Vegeta     |                     | 2.11            |
| 5.   |                       |                   | _                   | X Dominance Te         |                     |                 |
| 6.   |                       |                   | _                   | X Prevalence Inc       |                     |                 |
| 7.   |                       |                   |                     | Morphological          | Adaptations1 (Pro   | ovide           |
| 8.   |                       |                   |                     | · —                    | emarks or on a sep  |                 |
|  | 95                    | = Total Cover     |                     | Problematic H          | ydrophytic Vegeta   | tion1 (Explain) |
| Woody Vine Stratum (Plot size: )                       |                       |                   |                     |                        |                     |                 |
| 1.   |                       |                   |                     | Indicators of hydric s | soil and wetland hy | drology         |
| 2.   |                       |                   |                     | must be present, unl   | ess disturbed or p  | roblematic.     |
|  |                       | = Total Cover     |                     | Hydrophytic            |                     |                 |
| % Bare Ground in Herb Stratum                          | % Cov                 | er of Biotic Crus | t                   | Vegetation             | Yes X No            |                 |
|  |                       |                   |                     | Present?               |                     |                 |
| Remarks:   |                       |                   |                     | 1                      |                     |                 |
|  |                       |                   |                     |                        |                     |                 |
|  |                       |                   |                     |                        |                     |                 |
|  |                       |                   |                     |                        |                     |                 |

SOIL Sampling Point: WDP1W

|  |                              |                            | led to document the i    |               |               | the abse                                    | nce of indicators.)                      |                           |  |
|--|------------------------------|----------------------------|--------------------------|---------------|---------------|---|--|---------------------------|--|
| Depth Matrix                                     |                              |                            | Red                      | ox Feature    | S             |   |  |                           |  |
| (inches)   | Color (moist)                | %                          | Color (moist)            | %             | Туре          | Loc   | Texture                                  | Remarks                   |  |
| 0-6  | 10YR 2/2                     | 100                        |                          |               |               |   | Sandy Clay                               |                           |  |
| 6-18   | 10YR 4/2                     | 90                         | 10YR 4/6                 | 10            | С             | M   | Sandy Clay                               |                           |  |
|  |                              |                            |                          |               |               |   |  |                           |  |
|  |                              |                            |                          |               |               |   |  |                           |  |
|  |                              |                            |                          |               |               |   |  |                           |  |
|  |                              |                            |                          |               |               |   |  |                           |  |
|  |                              |                            |                          |               |               |   |  |                           |  |
|  |                              |                            |                          |               |               |   |  |                           |  |
| Type: C= Co                                      | ncentration, D= Deple        | etion, RM=Redu             | ced Matrix, CS=Covere    | ed or Coate   | ed Sand Gr    | ains.                                       | Location:                                | PL=Pore Lining, M=Matrix. |  |
| Hydric Soil I                                    | ndicators: (Applicat         | ole to all LRRs,           | unless otherwise no      | ted.)         |               |   | Indicators for Problem                   | natic Hydric Soils:       |  |
| Histos   | sol (A1)                     |                            | Sandy Redox (S           | 5)            |               |   | 1 cm Muck (A9)                           | (LRR C)                   |  |
| Histic   | Epipedon (A2)                | -                          | Stripped Matrix (        | S6)           |               |   | 2 cm Muck (A10) ( <b>LRR B</b> )         |                           |  |
| Black  | Histic (A3)                  | -                          | Loamy Mucky Mi           | neral (F1)    |               |   | Reduced Vertic (F18)                     |                           |  |
| Hydro  | gen Sulfide (A4)             | -                          | Loamy Gleyed M           | atrix (F2)    |               |   | Red Parent Material (TF2)                |                           |  |
| Stratif  | ied Layers (A5) ( <b>LRR</b> | <b>C</b> )                 | Depleted Matrix (        |               |               |   | Other (Explain in Remarks)               |                           |  |
| 1 cm l   | Muck (A9) ( <b>LRR D</b> )   | -                          | Redox Dark Surfa         | ace (F6)      |               |   |  |                           |  |
| X Deple  | ted Below Dark Surfa         | ce (A11)                   | Depleted Dark Si         | urface (F7)   | )             |   |  |                           |  |
| Thick  | Dark Surface (A12)           | -                          | Redox Depression         | n (F8)        |               |   | Indicators of hydrophytic vegetation and |                           |  |
| ——<br>Sandy                                      | y Mucky Mineral (S1)         | -                          | Vermal Pools (F9         | 9)            |               |   | wetland hydrology must be present,       |                           |  |
| Sandy  | Gleyed Matrix (S4)           | -                          |                          |               |               |   | unless disturbed or problematic.         |                           |  |
| Restrictive                                      | Layer (if present):          |                            |                          |               |               |   |  |                           |  |
| Type:  |                              |                            |                          |               |               |   |  |                           |  |
| Depth  | (inches):                    |                            |                          |               |               |   | Hydric Soil Present                      | ? Yes X No                |  |
| Remarks:<br>Indicators of                        | hydric soils are preser      | nt.                        |                          |               |               |   |  |                           |  |
|  |                              |                            |                          |               |               |   |  |                           |  |
| HYDROLO  | DGY                          |                            |                          |               |               |   |  |                           |  |
| Wetland H  | ydrology Indicators:         |                            |                          |               |               |   |  |                           |  |
| Primary Ind                                      | dicators (minimum of c       | one required; che          | eck all that apply)      |               |               |   | Secondary Indicators                     | (2 or more required)      |  |
| Surfac   | ce Water (A1)                | Salt Crust (B11)           |                          |               |               | Water Marks (B1) (Riverine)                 |  |                           |  |
| High Water Tables (A2)                           |                              |                            | Biotic Crust (B12        | )             |               |   | Sediment Deposits (B2) (Riverine)        |                           |  |
| X Satura   | ation (A3)                   | Aquatic Invertebr          | ates (B13)               | )             |               | Drift Deposits (B3) (Riverine)              |  |                           |  |
| Water  | Marks (B1) (Nonrive          | Hydrogen Sulfide           | Odor (C1                 | )             |               | Drainage Patterns (B10)                     |  |                           |  |
| Sedim  | nent Deposits (B2) (No       | Oxidized Rhizosp           | heres alor               | ng Living R   | oots (C3)     | , <u> </u>                                  |  |                           |  |
| Surfac   | ce Soil Cracks (B6)          | Recent Iron Redu           | uction in Ti             | lled Soils (0 | 26)           | X Saturation Visible on Aeriel Imagery (C9) |  |                           |  |
| Inunda   | ation Visible of Aeriel      | Thin Muck Surface          | ce (C7)                  |               |               | Shallow Aquitard (D3)                       |  |                           |  |
| Water  | -Stained Leaves (B9)         | Other (Explain in Remarks) |                          |               |               | X FAC-Neutral Te                            | st (D5)                                  |                           |  |
| Field Obse                                       | ervations:                   |                            |                          |               |               |   |  |                           |  |
| Surface Wa                                       | ater Present? Yes            | No                         | X Depth (inches):        |               |               |   |  |                           |  |
| Water Table Present? Yes No X Depth (inches):    |                              |                            |                          |               |               |   |  |                           |  |
| Saturation Present? Yes X No Depth (inches): 6.0 |                              |                            |                          |               |               | Wetland                                     | d Hydrology Present?                     | Yes X No                  |  |
| (includes ca                                     | apillary fringe)             |                            |                          |               |               |   |  |                           |  |
| Describe Rec                                     | corded Date (stream g        | ague, monitorin            | g well, aerial photos, p | revious ins   | spections), i | f availabl                                  | e:                                       |                           |  |
|  |                              |                            |                          |               |               |   |  |                           |  |
| Remarks:   |                              |                            |                          |               |               |   |  |                           |  |
| Indicators of                                    | wetland hydrology are        | present.                   |                          |               |               |   |  |                           |  |
|  |                              |                            |                          |               |               |   |  |                           |  |
|  |                              |                            |                          |               |               |   |  |                           |  |

Sampling Site: WDP1W



Photo Name: Photo\_180620100716.jpg

Direction:

Caption:

### WETLAND DETERMINATION DATA FORM - Midwest Region

| Project/Site:                  | Geronimo Regal           | Solar                 |                         | City/County:     | Morrison               | Sampling Date:                    | 6/28/2018        |                 |  |
|--------------------------------|--------------------------|-----------------------|-------------------------|------------------|------------------------|-----------------------------------|------------------|-----------------|--|
| Applicant/Owner:               | Geronimo                 |                       |                         |                  | State: MN              | Sampling Point: WDP3U             |                  |                 |  |
| Investigators:                 | M Swenson                |                       |                         |                  | Section, Township,     | Range:                            |                  |                 |  |
| Landform (hillslop             | e, terrace, etc.):       | Depression            |                         | Local Reli       | ief (concave, convex,  | none): Concave                    | Slope(%          | 6): 3           |  |
| Subregion (LRR):               |                          |                       | Lat: 45.75542           | 21 Long:         | -94.227097             | Datum: WG                         | SS84             |                 |  |
| Soil Map Unit Nar              | me:                      |                       |                         |                  | NWI Classific          | cation: NA                        |                  |                 |  |
| Are climatic / hyd             | rologic conditions       | s on the site typical | for this time of y      | rear? Yes        | s <u>X</u> No          | (If No, explain in Rema           | ırks)            |                 |  |
| Are Vegetation:                | X Soil                   | or Hydrology          | significantly dis       | sturbed?         | Are "Normal Circur     | nstances" present?                | Yes              | No X            |  |
| Are Vegetation:                | Soil                     | or Hydrology          | naturally proble        | ematic?          | (If needed, explain    | any answers in Remarks            | ;.)              |                 |  |
| SUMMARY O                      | F FINDINGS               | - Attach a site       | map showir              | ng sampling      | point locations        | , transects, import               | ant features     | s, etc.         |  |
| Hydrophytic Vege               | tation Present?          | Yes                   | No X                    |                  |                        |                                   |                  |                 |  |
| Hydric Soil Prese              | nt?                      | Yes                   | No X                    | Is the           | Sampled Area           |                                   |                  |                 |  |
| Wetland Hydrology Present? Yes |                          |                       | No X within a Wetland   |                  |                        | Yes                               |                  | No X            |  |
| Remarks:                       |                          |                       |                         |                  |                        |                                   |                  |                 |  |
| wetland hydrolog               | y. Hydric soils ar       | re not present.       |                         | ough geomorphi   | c position is present, | historical aerial review d        | os not indicate  | presence of     |  |
| VEGETATION                     | l – Use scien            | ntific names of       | plants.                 |                  |                        |                                   |                  |                 |  |
|                                |                          |                       | Absolute                | Dominant         | Indicator              | Dominance Test Wor                | rksheet:         |                 |  |
| Tree Statum                    | (Plot size: )            |                       | % Cover                 | Species?         | Status                 | Number of Dominant S              | pecies           |                 |  |
| 1                              |                          |                       |                         |                  | _                      | That Are OBL, FACW,               | or FAC:          | (A)             |  |
| 2.                             |                          |                       |                         |                  | _                      | Total Number of Domir             | nant             |                 |  |
| 3.                             |                          |                       |                         |                  | _                      | Species Across All Stra           | ata:             | (B)             |  |
| 4.                             |                          |                       |                         |                  | _                      | Percent of Dominant S             | pecies           |                 |  |
| 5.                             |                          |                       |                         |                  | _                      | That Are OBL, FACW,               | or FAC:          | (A/B)           |  |
|                                |                          |                       |                         | = Total Cover    |                        |                                   |                  |                 |  |
| Sapling/Shrub Str              | ratum (Plot s            | size: )               |                         |                  |                        | Prevalence Index wo               | rksheet:         |                 |  |
| 1.                             |                          |                       |                         |                  | _                      | Total % Cover of:                 | <u>Multiply</u>  | <u>by:</u>      |  |
| 2.                             |                          |                       |                         |                  | _                      | OBL species                       | x1=              |                 |  |
| 3.                             |                          |                       |                         |                  |                        | FACW species                      | x2=              | 0               |  |
| 4.                             |                          |                       |                         |                  |                        | FAC species                       | x3=              | 0               |  |
| 5.                             |                          |                       |                         |                  |                        | FACU species                      | x4=              | 0               |  |
|                                |                          |                       |                         | = Total Cover    |                        | UPL species                       | x5=              | 0               |  |
|                                | (Plot size: )            |                       |                         |                  |                        | Column Totals:                    | 0 (A)            | 0 (B)           |  |
| 1.                             |                          |                       |                         |                  | _                      |                                   |                  |                 |  |
| 2.                             |                          |                       |                         |                  |                        | Donne to make the stand           | D/4              | NI-NI           |  |
| 3.                             |                          |                       |                         |                  |                        | Prevalence Index =                |                  | NaN             |  |
| 4.                             |                          |                       |                         |                  |                        | Hydrophytic Vegetati              |                  |                 |  |
| 5.                             |                          |                       |                         |                  | _                      | Dominance Test  X Prevalence Inde |                  |                 |  |
| 6.<br>7.                       |                          |                       |                         |                  | _                      | Morphological A                   |                  | rovido          |  |
| 8                              |                          |                       |                         |                  | _                      | · -                               | narks or on a se |                 |  |
| o                              |                          |                       |                         | = Total Cover    | _                      | Problematic Hyd                   |                  |                 |  |
| Woody Vine Strat               | um (Plot sizo: )         |                       |                         | - Total Cover    |                        | Froblematic Hyd                   | Topriyuc vegeta  | ation (Explain) |  |
| 1.                             | <u>.um</u> (Fiot size. ) |                       |                         |                  |                        | Indicators of hydric soi          | l and wetland h  | ydrology        |  |
| 2.                             |                          |                       |                         |                  | _                      | must be present, unles            |                  |                 |  |
|                                |                          |                       |                         | = Total Cover    | _                      | Hydrophytic                       | a diamined of h  | nobiciliatic.   |  |
| % Bare Ground in Herb Stratum  |                          |                       | % Cover of Biotic Crust |                  |                        |                                   |                  |                 |  |
|                                |                          |                       | _ /0 COV                | or or piono oraș |                        | NoXNoX                            |                  |                 |  |
| Damari                         |                          |                       |                         |                  |                        | i iosont:                         |                  |                 |  |
| Remarks:                       | •                        |                       |                         |                  |                        |                                   |                  |                 |  |
| vegetation is 100              | % soy bean due           | to agricultural activ | rities.                 |                  |                        |                                   |                  |                 |  |

SOIL Sampling Point: WDP3U

| Profile Desc                                   | ription: (Describe to            | the depth need                         | ed to document the                  | indicator o | or confirm    | the abse                                  | nce of indicators.)  |                |          |   |  |
|--|----------------------------------|--|-------------------------------------|-------------|---------------|---|--|----------------|----------|---|--|
| Depth Matrix                                   |                                  | Red                                    | ox Feature                          | s:          |               |   |  |                |          |   |  |
| (inches)                                       | Color (moist)                    | %                                      | Color (moist)                       | %           | Туре          | Loc                                       | Texture  | Rema           | arks     |   |  |
| 0-5  | 10YR 3/2                         | 100                                    |                                     |             |               |   | Sandy Loam   |                |          |   |  |
| 5-12   | 10YR 3/2                         | 90                                     | 7.5R 4/6                            | 10          |               |   | Sandy Loam   |                |          |   |  |
|  |                                  |  |                                     |             |               |   |  |                |          |   |  |
|  |                                  |  |                                     |             |               |   |  |                |          |   |  |
|  |                                  |  |                                     |             |               |   |  |                |          |   |  |
|  |                                  |  |                                     |             |               |   |  |                |          |   |  |
|  |                                  |  |                                     |             |               |   |  |                |          |   |  |
|  |                                  |  |                                     |             |               |   |  |                |          |   |  |
| Type: C= Ce                                    | oncentration, D= Deple           | tion PM-Poduc                          | and Matrix CS-Cover                 | od or Coot  | od Sand Cr    |   |  | PL=Pore Lining | M-Motriy | , |  |
|  | ndicators: (Applicab             |  |                                     |             | eu Sanu Gi    |   | Indicators for Problema  |                |          |   |  |
| _  |                                  | ie to all LRRS,                        |                                     |             |               |   |  | •              | 115.     |   |  |
|  | sol (A1)                         | _                                      | Sandy Redox (Stripped Matrix (      | ,           |               |   | 1 cm Muck (A9) (LRR C)   |                |          |   |  |
|  | Epipedon (A2)                    | -                                      | Loamy Mucky Mi                      | ,           |               |   | 2 cm Muck (A10) ( <b>LRR B</b> ) Reduced Vertic (F18)            |                |          |   |  |
|  | Histic (A3)<br>ogen Sulfide (A4) | -                                      | Loamy Gleyed M                      |             |               |   | Red Parent Material (TF2)  |                |          |   |  |
|  | ied Layers (A5) ( <b>LRR</b> (   | <u>-</u>                               | Depleted Matrix (                   | ` ,         |               |   | Other (Explain in Remarks)                                       |                |          |   |  |
|  | Muck (A9) ( <b>LRR D</b> )       | _                                      | Redox Dark Surf                     |             |               |   | — Other (Explain iii   | ixemarks)      |          |   |  |
|  | ted Below Dark Surfac            | - (Δ11)                                | Depleted Dark Sun                   | ` '         | ١             |   |  |                |          |   |  |
|  | Dark Surface (A12)               | _                                      | Redox Depression                    | , ,         | ,             |   | Indicators of hydrophytic vegetation and                         |                |          |   |  |
|  | Mucky Mineral (S1)               | _                                      | Vermal Pools (F9                    |             |               |   | wetland hydrology must be present,                               |                |          |   |  |
|  | y Gleyed Matrix (S4)             | _                                      |                                     | 3)          |               |   | unless disturbed or problematic.                                 |                |          |   |  |
|  | Layer (if present):              |  |                                     |             |               | T   | аосо а.о.а.оса о. р  |                |          |   |  |
|  |                                  |  |                                     |             |               |   |  |                |          |   |  |
| Type:  | i (inches):                      |  |                                     |             |               |   | Hydric Soil Present?   | Yes            | No       | ~ |  |
| Бериі  |                                  |  |                                     |             |               |   | nyunc son Present?   |                |          | X |  |
| Remarks:                                       |                                  |  |                                     |             |               |   |  |                |          |   |  |
| Although red                                   | ox concentrations are p          | oresent within th                      | ne soil profile, high cho           | oma values  | disqualify    | the soils f                               | from meeting hydric criter                                       | ia.            |          |   |  |
|  |                                  |  |                                     |             |               |   |  |                |          |   |  |
| HYDROLO  | ngy                              |  |                                     |             |               |   |  |                |          |   |  |
|  | ydrology Indicators:             |  |                                     |             |               |   |  |                |          |   |  |
|  |                                  | no roquirod: obc                       | ook all that apply)                 |             |               |   | Coondary Indicators  | ar mara ragu   | irod)    |   |  |
|  | dicators (minimum of o           | ne required, che                       |                                     |             |               |   | Secondary Indicators (2 or more required)                        |                |          |   |  |
| Surface Water (A1)                             |                                  |  | Salt Crust (B11)                    | 1)          |               |   | Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine)    |                |          |   |  |
| High Water Tables (A2)                         |                                  |  | Biotic Crust (B12 Aquatic Invertebr | •           |               |   |  |                |          |   |  |
| Saturation (A3) Water Marks (B1) (Nonriverine) |                                  |  | <del></del> '                       | , ,         |               |   | Drift Deposits (B3) ( <b>Riverine</b> ) Drainage Patterns (B10)  |                |          |   |  |
|  | nent Deposits (B2) ( <b>No</b>   | — Hydrogen Sulfide<br>Oxidized Rhizosp |                                     |             | ooto (C2)     |   |  |                |          |   |  |
|  | ce Soil Cracks (B6)              | Recent Iron Red                        |                                     |             | ` '           | Saturation Visible on Aeriel Imagery (C9) |  |                |          |   |  |
| Inundation Visible of Aeriel Imagery (B7)      |                                  |  | Thin Muck Surface                   |             | iled Solis (C | 50)                                       | Saturation visible on Aeriel Imagery (C9)  Shallow Aquitard (D3) |                |          |   |  |
| Water-Stained Leaves (B9)                      |                                  |  | Other (Explain in                   | , ,         |               |   | FAC-Neutral Test (D5)  |                |          |   |  |
|  | . ,                              | <del></del>                            | Other (Explain in                   | Tterriarks) |               | _   |  | (D3)           |          |   |  |
| Field Obse                                     |                                  | NI.                                    | Danilla (in alara)                  |             |               |   |  |                |          |   |  |
|  | ater Present? Yes e Present? Yes | No                                     | Depth (inches):                     |             |               |   |  |                |          |   |  |
| Water Tabl                                     |                                  | Depth (inches):                        |                                     |             |               | ad Hydrology Present? Ves No V            |  |                |          |   |  |
| Saturation                                     |                                  | Depth (inches): Wetland                |                                     |             |               | d Hydrology Present? Yes No X             |  |                |          |   |  |
| `  | apillary fringe)                 |  |                                     |             |               |   |  |                |          |   |  |
| Describe Rec                                   | corded Date (stream ga           | ague, monitorino                       | g well, aerial photos, p            | revious ins | spections), i | if available                              | e:   |                |          |   |  |
|  |                                  |  |                                     |             |               |   |  |                |          |   |  |
| Remarks:                                       |                                  |  |                                     |             |               |   |  |                |          |   |  |
| Indicators of                                  | wetland hydrology are            | present.                               |                                     |             |               |   |  |                |          |   |  |
|  |                                  |  |                                     |             |               |   |  |                |          |   |  |
|  |                                  |  |                                     |             |               |   |  |                |          |   |  |

Sampling Site: WDP3U



Photo Name: Photo\_180622085859.jpg

Direction:

Caption: