# Appendix A: Sheet Maps



































































# Appendix B: Standard DPC Best Management Practices

## Manual for Transmission Lines and Substation Construction and Maintenance Activities

Volume I – Best Management Practices Volume II –Permits

# **Prepared** for



A Transformer Energy' Compensative K

## **Prepared by**

HDR Engineering, Inc 701 Xenia Avenue South, Suite 600 Minneapolis, Minnesota 55416

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#### **INTRODUCTION**

Dairyland Power Cooperative (Dairyland) is a generation and transmission cooperative based in La Crosse, Wisconsin that provides wholesale electrical energy to 25 member cooperatives and 20 municipalities who deliver the energy needs to over 500,000 people.<sup>1</sup> Dairyland's service area comprises 62 counties in Illinois, Iowa, Minnesota, and Wisconsin (Figure 1). Dairyland owns and operates over 3,000 miles of transmission line, over 200 distribution and transmission substations, numerous communication sites, and generation and utility properties.

Dairyland is committed to the preservation and protection of precious natural resources. This best management practice (BMP) manual and field guide were created in acknowledgement of that commitment. This manual will provide Dairyland staff, consultants, and contractors with a comprehensive source for BMPs related to earth disturbing activities during construction, repair, and maintenance work associated with transmission lines, substations, and other cooperative projects. The associated field guide is a water-proofed version of this manual, which summarizes key erosion and sediment control points for use by field crews. Federal and state environmental permit information was also included in this document for reference. These practices and procedures, when properly implemented, will minimize or prevent erosion and sediment pollution from adversely affecting sensitive resources, such as, streams, ponds, lakes, wetlands, and natural vegetative.

Erosion and sediment control measures are generally recognized as a necessary component of large construction projects. It is equally important to note that those same measures apply to all earthmoving activity, regardless of size or scope. The smallest transmission line repair activity

could change water temperature in nearby trout streams or transport noxious weeds across property lines if crucial BMPs are not applied where required. BMPs are, in fact, required in some form for all activities to preserve sensitive resources, regardless of the project size.

Erosion and sediment control measures apply to all earth moving activities – small or large

This BMP manual provides a comprehensive reference source for BMPs for construction activities and environmental compliance/permit policies and procedures. This manual must be periodically updated to reflect changes in BMPs in regulatory policy and in enforcement trends affecting and/or influencing the activities of Dairyland.

<sup>&</sup>lt;sup>1</sup> McWilliams, John M, MBA, PE. *Dairyland Power Cooperatives' Methane Digester Project, AgSTAR National Conference*. Madison, Wisconsin, 2006.





All individuals working on construction projects are responsible for complying with permit requirements and the associated BMPs as designed and detailed in this manual and further specified by the Project Manager within site plans. If questions arise concerning environmental requirements, the Project Manager should interpret compliance requirements. If the Project Manager is not available or able to resolve an issue, Dairyland's Manager, Siting and Regulatory Affairs should be notified. Some construction projects may require additional local environmental permits that could contain additional requirements that may be more restrictive than those identified in this manual. Compliance with local permit requirements is mandatory.

This manual is presented in two volumes. Volume I contains BMPs necessary to protect sensitive resources from erosion and sediment transport in stormwater runoff when constructing transmission lines, access roads, substations, other utility-related improvements, or when conducting maintenance operations in or around sensitive resources. Volume II contains a comprehensive list of federal and state permits required for construction and maintenance activities.



### **VOLUME I**

#### **1.0 BEST MANAGEMENT PRACTICE**

Best management practices (BMPs) are structural, nonstructural, and managerial techniques recognized as the most effective and practical means to control non-point source pollutants, yet are compatible with the productive use of the resource to which they are applied<sup>2</sup>. For the purpose of this manual, BMPs presented here are specific to controlling erosion and preventing the transport of sediment-laden stormwater off construction and maintenance sites.

This volume contains the following sections:

- Planning
- Construction Activities
- Erosion Control
- Sediment Control
- Vegetative Stabilization
- Stormwater Treatment
- General Operations
  - 1. Residential Areas
  - 2. Highway and Road Crossings
  - 3. Wetland Crossings
  - 4. Stream Crossings
- Pollution Prevention Management Measures
- General Provisions

Best Management Practices are actions taken to prevent or reduce detrimental impacts to the environment while maintaining the natural characteristics of the environment.

<sup>&</sup>lt;sup>2</sup> National Safety Council. *Environmental Health Center Glossary*. 2005. <u>www.nsc.org/ehc/glossary.htm</u>. Retrieved July 7, 2006.

Anticipating problems will allow you to plan for these

factors and make them easier to deal with.



#### 1.1 PLANNING

Planning for the cooperative's construction and maintenance-related activities is a crucial part of the successful execution of projects. This step forces the Project Manager to think through factors linked to protecting sensitive resources, such as BMPs, scheduling, right-of-way (ROW) plan and profile, cultural resources, site preparation, and project-related permits. The significance of scheduling, development of site plan and profile, identification of cultural resources, and site preparation are discussed in detail below. BMPs and project-related permits will be addressed in later sections of this manual.

#### 1.1.1 Scheduling

The purpose of a schedule of construction or maintenance activities is to reduce potential impacts to sensitive resources. The schedule serves as a means to incorporate all activities related to a

given project. The following steps are useful when completing a construction schedule<sup>3</sup>:

- 1. Outline all land disturbing activities.
- 2. List BMPs needed to contain sediment and reduce erosion.
- 3. List required permits, agency review period, and requirements.
- 4. Combine the outline and lists in a logical order to set up an effective schedule.

The appropriate scheduling and sequencing of construction activities is a cost-effective way to help accomplish the goal of protecting sensitive resources by reducing the amount of land cleared, providing needed controls and restoring vegetation in an efficient and effective manner.

#### **1.1.2 Plan and Profile**

A plan and profile is a valuable visual aid tool for negotiators, appraisers, and attorneys involved in acquisition transactions. It also helps property owners understand why and how their properties are being affected. The preparation of the ROW plan and profile should begin following completion of the preliminary survey.

The plan and profile should include the owner's names, tract numbers, legal descriptions, land lines and property lines, section corners and ties to the corners, stations, and offsets at each property line and turn point, project centerline from which can be derived new ROW and easements, area of the tract to be purchased less that portion previously designated as public

<sup>&</sup>lt;sup>3</sup> James Worth Bagley College of Engineering Mississippi State University. *Chapter 4 – Best Management Practice Standards*. 2006. <u>http://www.abe.msstate.edu/Tools/csd/p-dm/all-chapter4/chapter4/chapter4/conseq.pdf</u> Retrieved July 13, 2006.



ROW, limits of construction, width of new roadway, grade changes, and any other design or construction details as warranted. The plan and profile also notes topographical items that affect the project, such as buildings, underground cisterns/septic tanks, permanent yard and farm appliances, sidewalks, paved or unpaved driveways, trees/hedges/shelterbelts, waterlines/steams/lakes, fences, or above and below ground utilities.

#### 1.1.3 Cultural Resources

The cultural resource management (CRM) process is designed to provide federal and state agencies the information necessary to determine whether a project has the potential to affect significant archaeological sites, buildings, structures, places, or objects. The federal rules identify significant properties as those that are eligible for listing on the National Register of Historic Places (NRHP) and that are governed by Section 106 of the National Historic Preservation Act (NHPA).

At a local level, the CRM process provides similar information that addresses state historic preservation laws and local ordinances. Cultural resource surveys done early in the project planning process provide an opportunity to anticipate future cultural resource obligations and remain in compliance with federal and state laws that govern the treatment of these properties. Areas of high potential for cultural resources and potentially significant historic properties can be avoided or minimized through early identification.

#### **1.1.4** Site Preparation

The preparation of a site is a step-by-step process that includes analysis of drainage, soils, vegetative cover, and most importantly, potential environmental concerns. Steps may vary depending on the region, state, or town, but those are universal site preparation issues that must always be considered.

#### Site Particulars

- Disturb and then restore more small areas, rather than few large areas
- Leave as much undisturbed vegetation as possible
- Minimize the time of disturbance
- Break up slope lengths and flow concentrations, and minimize slope exposure time





#### **1.2 CONSTRUCTION ACTIVITIES**

Construction activities consist of projects that involve the disturbance or movement of earthen material. These projects include, but are not limited to, building and maintaining access roads, constructing substations, erecting transmission towers or poles, and constructing other cooperative improvements.

All activities must be scheduled and executed to minimize the exposure of soil to erosion and provide ways to prevent sediment from leaving the project site. Installation of temporary control measures that will contribute to the control of erosion and sediment must be carried out prior to and concurrent with construction activities. This document provides erosion and sediment control BMPs necessary to assist with that requirement.

#### 1.2.1 Access Roads

Access roads are temporary or permanent travel ways to provide safe, fixed routes of travel for moving equipment and supplies.<sup>4</sup> Grading of these roads represents one of the largest land disturbing activities associated with construction and maintenance of transmission lines.

BMPs are described and drawings are provided in Section 1.3: Erosion Control and Section 1.4: Sediment Control.



Photo 1.0: Access Road

Detail Sheet 1 shows typical sections of access road design associated with the transmission line projects.

<sup>&</sup>lt;sup>4</sup> USDA NRCS. Conservation Security Program – Glossary. 2006. <u>http://csp.sc.egov.usda.gov/GlossaryText.aspx</u> Retrieved July 17, 2006.





Photo 1.0: Substation

#### 1.2.2 Substation

Substations are an assemblage of equipment within a fenced area that switch, change, or regulate voltage in electric transmission and distribution systems used to transform voltages for delivery of electricity to homes and businesses.<sup>5</sup> Substation construction requires stripping of topsoil, excavation of additional material, and placement of impervious surfaces which all aid in the transport of sediment-laden stormwater. Stormwater treatment systems, such as detention ponds or infiltration basins, are required on

sites 1 acre or greater as part of National Pollutant Discharge Elimination System (NPDES) permit Stormwater Pollution Prevention Plan (SWPPP). In addition to the NPDES requirements, presented in detail in Volume II, most substations are also obligated to have an Environmental Protection Agency (EPA) required spill prevention control and countermeasure (SPCC) plan. SPCC plans ensure that facilities put in place containment and other countermeasures that would prevent hazardous spills that could reach navigable waters.<sup>6</sup> This manual includes a pollution prevention management measures section (Section 1.8), which does not take the place of an SPCC plan, but provides information on how to report, contain, and clean up small spills.

#### 1.2.3 Maintenance

Maintenance is an important part of the operation and management of transmission lines and substations. Maintenance may include clearing of vegetation for access roads, removal of silt/sediment for stormwater treatment facilities and/or replacement of the poles and towers of transmission lines.

Future sections include BMPs designed to assist in curtailing erosion and controlling on-site sediment release during these maintenance activities. These BMPs should be used where applicable on all Dairyland projects.



<sup>&</sup>lt;sup>5</sup> Alameda Power & Telecom. *Power Industry Glossary*. 2006. <u>www.alamedapt.com/electricity/glossary.html</u> Retrieved July 17, 2006.

<sup>&</sup>lt;sup>6</sup> U.S. EPA. *Oil Program: Spill Prevention, Control and Countermeasures.* 2006. http://www.epa.gov/oilspill/spcc.htm Retrieved July 17, 2006.







#### **1.3 EROSION CONTROL**

Erosion control is any action taken or item used as part of a project or as a separate action to minimize the destructive effects of wind and water on surface soil.<sup>7</sup> Importantly, erosion is a naturally occurring phenomenon.<sup>8</sup> Accelerated erosion as a result of construction-related

activities is a widespread problem affecting the environment. The problem is two-fold. First, erosion transports the most fertile part of the soil horizon. This in turn reduces the ability to vegetate areas without the aid of fertilizers. Second, the soil material that is transported ends up in sensitive resource areas, such as lakes, streams, and wetlands. Transported soil has the potential to change the entire ecology of the system. Material deposited into a stream that supports salmon has the potential to clog interstitial spaces between streambed gravel, causing juvenile salmonids to lose



**Photo 1.0: Construction Erosion** 

their source of cover and food.<sup>9</sup> The NPDES permit program and local permitting agencies mandate that erosion be controlled, and sediment contained, on all project sites greater than 1 acre.



**Photo 1.0: Natural Erosion** 

BMPs are a useful tool designed to assist in controlling construction and maintenance-related soil erosion. Use of the following BMPs will control erosion:

- Preservation of Existing Vegetation
- Topsoil Segregation
- Mulch, Blankets, and Mats
- Slope Breakers
- Directional Tracking and Tillage
- > Soil Binders
- Streambank Stabilization

Fact sheets developed by the California Stormwater Quality Association and the Minnesota Metropolitan Council are

 <sup>&</sup>lt;sup>7</sup> New York State DOT. *Design Definitions – E.* 2004. <u>www.dot.state.ny.us/design/dictionary/dictionare.html</u> Retrieved July 18, 2006.

<sup>&</sup>lt;sup>8</sup> Peter Donovan. *Photo* <u>http://managingwholes.com/photos/erosion/pictures/slide07.htm</u> Retrieved July 18, 2006.

<sup>&</sup>lt;sup>9</sup> Kris Background. *Stream Conditions: Sediment and Salmonid Habitat.* <u>http://www.krisweb.com/stream/sediment.htm</u> Retrieved July 18, 2006.



provided for each BMP at the end of this volume. Some installation details have also been included.

#### **1.3.1 Preservation of Existing Vegetation**

Preserving natural vegetation provides buffer zones and stabilized areas, which help control erosion, protect water quality, and enhance aesthetic benefits.<sup>10</sup> This BMP minimizes the amount of bare soil exposed to erosive forces.

Preserving vegetation is beneficial in the following areas: floodplains, buffers, wetlands, streambanks, steep slopes, and other sensitive resource areas where it might be difficult to establish, install, or maintain erosion control devices.

Identify vegetation to be preserved during the planning process. Vegetation to be preserved should then be delineated, in the field and on design drawings, with orange temporary construction fencing (Detail Sheet 2 and Fact Sheet 1).



Photo 1.0: Minimal Footprint

<sup>&</sup>lt;sup>10</sup> Idaho Department of Environmental Quality. Catalog of Stormwater BMPs for Cities and Counties. 2006. <u>http://www.deq.state.id.us/water/data\_reports/storm\_water/catalog/old\_version/stormwater\_catalog\_bmp3.pdf</u> Retrieved July 13, 2006.







#### 1.3.2 Topsoil Segregation

Topsoil segregation is the act or process of separating or setting apart the topsoil from the subsoil during construction.<sup>11</sup> Topsoil is that part of the soil profile, typically the A1 horizon, containing material, which is usually more fertile, better structured than underlying layers, and is the most important part of the soil with respect to growth of crops and pastures and its loss or degradation represents the most serious aspect of soil erosion.<sup>12</sup>

Remove topsoil from the land in a separate layer and replace on the backfill area or, if not utilized immediately, segregate in a separate pile from other soil. If topsoil will not be placed on the backfill areas in a short time period, maintain a successful cover of auick growing plant to avoid deterioration (Section 1.5). Other means may be used so that the topsoil is preserved from wind and water erosion, remains free of any contamination by other acid or toxic material, and is in a usable condition for sustaining vegetation.



Photo 1.0: Fertile Topsoil

#### 1.3.3 Mulch, Blankets, and Mats



**Photo 1.0: Mulch Application** 

Mulch, blankets, and mats are usually organic materials, which provide a protective cover over exposed soil and, if seeded, assist with the establishment of new vegetation. Use these measures when disturbed soils may be difficult to stabilize, including the following situations<sup>13</sup>:

- Bare or exposed soil
- Steep slopes, generally steeper than 1:3 (vertical:horizontal)
- > Slopes where the erosion potential is high
- Disturbed areas where plants are slow to develop
- <sup>11</sup> Plant Moron. *Photo*. <u>http://planetmoron.typepad.com/planet\_moron/2006/05/spring\_planting.html</u> Retrieved July 26, 2006.

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<sup>&</sup>lt;sup>12</sup> Northern Rivers Private Forestry Development Committee. *Glossary*. 2006. <u>http://www.privateforestry.org.au/glos\_o-z.htm</u> Retrieved July 26, 2006.

<sup>&</sup>lt;sup>13</sup> California Department of Transportation. Geotextiles, Mats, Plastic Cover and Erosion Control Blankets: Caltrans Stormwater Quality Handbook – Construction Site Best Management Practices Manual. 2003. http://www.dot.ca.gov/hq/construc/stormwater/SS-07.pdf Retrieved July 5, 2006.


- > Channels with flows exceeding 1 meter/second (3.3 feet/second)
- Channels to be vegetated
- > Stockpiles
- > Slopes adjacent to water bodies and other sensitive resources

Mulch is any material, such as straw, sawdust, leaves, plastic film, or pine bark, that is spread on the surface of the soil to protect the soil and plant roots from the effects of raindrops, soil crusting, freezing, and evaporation.<sup>14</sup> Refer to Fact Sheet 2 for more information on different types of mulches, tackifiers, and installation methods.

Erosion blankets, fabrics, or mats are similar to mulches in that their primary goal is to protect the soil from erosive forces.<sup>15</sup> However, these materials are better equipped to handle exposed soils on steeper slopes.

Table 1 provides information on different service applications as per the Minnesota DOT for erosion control blankets or fabrics. The recommendations prescribed in Table 1 are also applicable in Illinois, Iowa, and Wisconsin. Refer to Fact Sheet 2, which incorporates installation details.

Where applicable, per the necessary service application and the intended use, incorporate mulch, blankets, and mats in all projects to protect bare soil.



Photo 1.0: Erosion Control Blanket Application

<sup>&</sup>lt;sup>14</sup> Trinity Trudy's Stormwater World. *Stormwater Vocabulary Words*. 2006. <u>http://www.trinity-trudy.org/coolstuff/vocab.htm</u> Retrieved July 26, 2006.

<sup>&</sup>lt;sup>15</sup> Soil Erosion Online. *Photo*. <u>http://www.soilerosiononline.com/html/0105/pageFeature02010205.html</u> Retrieved July 11, 2006.



Table 1			
Erosion Fabric Categories <sup>16</sup>			

Category	Service Application	Use	Acceptable Types
1	Very Temporary	<ul> <li>Flat areas</li> <li>Around drain outlets</li> <li>Along roadway shoulders, lawns, and mowed areas</li> </ul>	Straw or wood fiber with rapidly degradable netting on one side
2	One Season	<ul> <li>Slopes 1V:3H and steeper that are less than 50 feet long</li> <li>Ditches with gradients 2 percent or less</li> <li>Flow velocities less than 5 feet/second</li> </ul>	Straw or wood fiber with netting on one side
3	One Season	<ul> <li>Slopes 1V:3H and steeper that are more than 50 feet long</li> <li>Ditches with gradients 3 percent or less</li> <li>Flow velocities less than 6.5 feet/second</li> </ul>	Straw or wood fiber with netting on two sides
4	<ul> <li>Ditches with gradients 4 percent or less</li> <li>Semi-Permanent</li> <li>Flow velocities less than 8 feet/second</li> <li>Flow depth 6 inches or less</li> </ul>		Straw, coconut, and wood fiber with netting on two sides
5	Semi-Permanent	<ul> <li>Ditches with gradients 8 percent or less</li> <li>Flow velocities less than 15 feet/second</li> <li>Flow depth 8 inches or less</li> </ul>	Coconut fiber with netting on two sides

<sup>&</sup>lt;sup>16</sup> Minnesota Pollution Control Agency. Protecting water Quality in Urban areas: Best Management Practices for Dealing with Stormwater Runoff from Urban, Suburban and developing Areas of Minnesota. Minneapolis, Minnesota, 2000.



# 1.3.4 Slope Breakers<sup>17</sup>

Slope breakers, also known as "thank you Ma'am," are constructed of materials, such as soil, silt fence, staked hay or straw bales, or sand bags, are berms along slopes which are intended to reduce runoff velocity and divert water off the construction ROW. Slope breakers must be installed on slopes greater than 5 percent where the base of the slope is less than 50 feet from waterbodies, wetlands, and road crossings at the spacing specified in Table and Figure 2. If necessary, closer spacing should be used.

Direct outfall of each slope breaker to a stable, well-vegetated area and position to prevent sediment discharge into wetlands, waterbodies, or other sensitive resources.

Percent Slope	Spacing (feet)
5-15	300
> 15-30	200
> 30	100

Table 2Slope Breaker Spacing

 <sup>&</sup>lt;sup>17</sup> Federal Energy Regulatory Commission. Upland Erosion Control, Revegetation, and Maintenance Plan. July 2006. <u>http://www.ferc.gov/industries/gas/enviro/uplndctl.pdf</u> Retrieved July 11, 2006.



Figure 2 Slope Breaker Diagram



**BMP Manual** 





# **1.3.5 Directional Tracking and Tillage**

Directional tracking involves driving a tracked vehicle up and down a slope, creating horizontal grooves and ridges, which slows sheet runoff and helps to prevent rills from forming.<sup>18</sup> This process, although it seems nominal, assists in preventing erosion along slopes.

Use directional tracking on all applicable projects.



**Photo 1.0: Vehicle Tracking** 

#### 1.3.6 Soil Binders

Soil binding is a process applying and maintaining polymeric lignin sulfonate soil stabilizers or emulsions materials to the soil surface to temporarily prevent water-induced erosion of exposed soils on construction sites. Soil binders typically provide dust, wind, and soil stabilization (erosion control) benefits in conditions where the Contractor cannot contain or curtail wind erosion (Fact Sheet 3).

Use soil binders on all applicable projects where the use of conventional dust control methods prove unsuccessful.

# 1.3.7 Streambank Stabilization

Streambank stabilization is a vegetative or mechanical method of preventing erosion or deterioration of the banks of waterways<sup>19</sup>. Stream stability is an active process, and while



Photo 1.0: Riprap Armor

streambank erosion is a natural part of this process, we have often accelerated this erosion by altering the stream system.<sup>20</sup>

Refer to BMPs previously discussed for ways to address erosion control and sediment control as most if not all are applicable. In addition, review Fact Sheet 4 for more information or ideas. Practices that stand out are as follows:

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<sup>&</sup>lt;sup>18</sup> Wisconsin Department of Natural Resources. *Temporary Grading Practice for Erosion Control*. July 2006. <u>http://dnr.wi.gov/org/water/wm/nps/pdf/stormwater/techstds/erosion/Temporary%20Grading%20Practices%20Fo</u> <u>r%20Erosion%20Control%20\_1067.pdf</u> Retrieved July 13, 2006.

<sup>&</sup>lt;sup>19</sup> Retrieved October 13, 2006 from <u>http://www.ci.tuscaloosa.al.us/index.asp?NID=588</u>

<sup>&</sup>lt;sup>20</sup> NC State University, Department of Biological and Agricultural Engineering. *Stream Notes: Volume I Number 2*. <u>http://www.bae.ncsu.edu/programs/extension/wqg/sri/erosion5.PDF</u> Retrieved October 13, 2006.



- Preservation of existing vegetation
- > Mulch, blankets, and mats
- Riprap armoring
- Biologs and tree revetment
- > Hydroseeding

Advantages of installing streambank stabilization practices are as follows<sup>21</sup>:

- > Stabilizes eroding banks and reduces downstream sedimentation.
- > Low cost, in terms of materials, installation, and maintenance.
- Can be installed at any time when water levels are low enough to allow construction (willow posts are installed when they are dormant).
- Enhances self-establishment of native vegetation in a very short time after construction. Vegetation can be added at the next planting season using willow posts, grasses, or other suitable vegetation.
- > Will enhance or improve aquatic habitat by increasing diversity.
- > Provides for minimal disturbance of existing vegetation on the streambank.



Photo 1.0: Biologs and Tree Revetment

<sup>&</sup>lt;sup>21</sup> University of Illinois at Urbana Champaign. *Streambank Stabilization in Illinois*. <u>http://www.wq.uiuc.edu/Pubs/Streambank.pdf</u> Retrieved October 13, 2006.



# **1.4 SEDIMENT CONTROL**

#### 1.4.1 Silt Fence

Silt fence consists of geotextile fabric attached to support posts that are entrenched into the ground and are designed to serve as a temporary barrier to retain sediment on construction sites.

Place silt fence around staging areas, stockpiles, and trees to protect from damage. In addition, place silt fence at the downstream side of access roads to protect streams and ditches. Silt fence shall be either machine-sliced or hand-installed into the soil (Detail Sheet 3). Hand-installed silt fence shall have edges buried or weighted down by sand bags (Fact Sheet 5).



Photo 1.0: Silt Fence

# 1.4.2 Silt Curtains

Silt curtains, similar to silt fence, are a temporary barrier of geotextile material used to contain



Photo 1.0: Silt Curtain

sediments within a defined zone in the aquatic environment.<sup>22</sup> Silt curtains are used when construction occurs in a water body, along a stream bank, or shoreline to prevent sediment stirred up during construction from migrating out of the work area and into the rest of the water body.<sup>23</sup>

Place silt curtains at the perimeter of a project site in a river or pond to localize sediment release. In rivers and streams, silt curtains must be placed parallel to the flow direction in rivers or streams (Detail Sheet ).

 <sup>&</sup>lt;sup>22</sup> Cornell University. *EIS*. July 2006. <u>www.utilities.cornell.edu/EIS/Glossary.htm</u> Retrieved July 12, 2006.
 <sup>23</sup> University of Iowa. *Runoff Documents*. July 2006.

http://dhn.iihr.uiowa.edu/runoff/documents/Flotation%20Silt%20Curtain.htm Retrieved July 10, 2006.







# 1.4.3 Sediment Barriers<sup>24</sup>



A sediment barrier is a series of straw bales, silt fence, or sand bags placed on a level contour to intercept sheet flows and slow sheet flow runoff. Sediment barriers reduce erosion by reducing the tendency of sheet flows to concentrate into rivulets, which erode rills, and ultimately gullies, into disturbed, sloped soils.<sup>25</sup> When working adjacent to a wetland, straw bales are effective along approach slopes.

Construct sediment barriers, as needed, for the transmission maintenance and projects (Fact Sheet 7).

Photo 1.0: Sand Bag Barrier

# 1.4.4 Sediment Traps<sup>26</sup>

A sediment trap is a small temporary ponding area, usually with a gravel outlet, which collects and stores sediment from sites cleared or graded during construction. Sediment traps are formed by excavation or by construction of an earthen embankment. Sediment traps are a temporary

measure with a design life of approximately 6 months to 1 year and are maintained until the site area is permanently protected against erosion by vegetation and/or structures.

Control of surface water and groundwater may be important on some projects. When necessary, divert surface water around or through the construction site



Photo 1.0: Sediment Trap

by pumps. Water collected in excavations will need removal. Direct discharge from these dewatering operations to a temporary sediment trap constructed with a spillway that consists of

<sup>&</sup>lt;sup>24</sup> California DOT. *Photo: Sand Bag Barrier*. http://www.dot.ca.gov/hq/env/stormwater/publicat/const/Nov 2001.pdf Retrieved August 1, 2006.

<sup>&</sup>lt;sup>25</sup> California Stormwater Quality Association. *California Stormwater Best Management Practices, Construction*. July 2006. <u>http://www.cabmphandbooks.com/Documents/Construction/SE-9.pdf</u> Retrieved July 17, 2006.

<sup>&</sup>lt;sup>26</sup> British Columbia Ministry of Agriculture, Food and Fisheries. *Photo*. <u>http://www.agf.gov.bc.ca/resmgmt/publist/600Series/641310-1.pdf</u> Retrieved August 1, 2006.



geotextile fabric and crushed rocks. Construct sediment traps, as needed, at transmission pole sites and substation/maintenance facilities for dewatering activities (Fact Sheet 8).

# **1.4.5** Fiber Rolls<sup>27</sup>

A fiber roll consists of wood excelsior, rice, wheat straw, or coconut fibers that are rolled or bound into a tight tubular roll and placed on the toe and face of slopes to intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff.<sup>28</sup> The rolls also help to dissipate wave energy and trap eroded sediments, thereby providing a protected zone (for aquatic emergent vegetation) along the shoreline.

Fiber rolls are biodegradable, breaking down in 5 to 7 years. In that time, introduced native vegetation shall become established and provide long-term slope, shoreline, and bluff stabilization.<sup>29</sup>



Photo 1.0: Fiber Log

Fiber rolls will be used in conjunction with or instead of silt fence,

bale checks, or sand bags on all slopes or in areas identified by the Project Manager (Fact Sheet 9 and Detail Sheet ).

# 1.4.6 Check Dams

Check dams are made of rocks, straw, logs, lumber, or interlocking pre-cast concrete blocks within a ditch, drainage, swale, or channel to reduce the gradient of a ditch, thus slowing the water, lowering its ability to cause erosion, and allowing sediment to settle out.<sup>30</sup>

Use check dams on construction sites in areas identified above when specified by the Project Manager or as warranted in the field (Fact Sheet 10).

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<sup>&</sup>lt;sup>27</sup> Water Online. *Photo*. <u>http://www.wateronline.com/Content/ProductShowcase/product.asp?DocID=%7B1B44ACDD-5C37-4E56-B5A1-36A7291B5482%7D&VNETCOOKIE=NO Retrieved August 1, 2006.</u>

<sup>&</sup>lt;sup>28</sup> California Department of Transportation. Caltrans Storm Water Quality Handbooks Construction Site Best Management Practices Manual Section 4. July 2006. <u>http://www.dot.ca.gov/hq/construc/stormwater/SC-05.pdf</u> Retrieved July 11, 2006.

<sup>&</sup>lt;sup>29</sup> Illinois EPA. July 2006. <u>http://www.epa.state.il.us/water/conservation-2000/lake-notes/shoreline-stabilization/fiber-rolls.html</u> Retrieved July 19, 2006.

<sup>&</sup>lt;sup>30</sup> British Columbia. Erosion Stormwater Pollution, Check Dam. July 2006. <u>http://www.em.gov.bc.ca/Mining/MiningStats/Aggregate%20BMP%20Handbook/BMPs/Check%20Dam.pdf</u> Retrieved July 10, 2006.







# 1.4.7 Inlet Protection

Inlet protection consist of a sediment filter or an impounding area around or upstream of inlets, which temporarily stops pond runoff before it enters the inlet. This mechanism allows sediment to settle out of the storm water runoff (Detail Sheet ).

Drop inlet sediment barriers allow for early, safe use of the storm drainage system.

Inlet protection will be used in areas identified by the Project Manager and/or when an inlet is discovered in the field.

# 1.4.8 Street Cleaning

Cleaning tracked sediments and debris for paved streets prevents unwanted material from washing into surface waters and improves the appearance of public roadways (Fact Sheet 10).

Paved roadways adjacent to construction or maintenance sites will be inspected at the end of each day and tracked soil shall be promptly removed.

# 1.4.9 Vegetative Buffer



Photo 1.0: Vegetative Buffer

A vegetative buffer strip, commonly referred to as filter strip, is a gently sloping area of vegetative cover that runoff water flows through before entering a stream, storm sewer, or other conveyance, which acts as living sediment filters that intercept and detain stormwater runoff. They reduce flow and velocity of surface runoff, promote infiltration, and reduce pollutant discharge by capturing and holding sediments and other pollutants carried in the runoff water.<sup>31</sup>

Existing vegetation will be preserved as discussed in Section 1.3.1 and used as buffer strips where specified by the Project Manager or deemed appropriate in the field.

Vegetative buffer zones can play a key role in limiting negative water quality impacts from developed shoreland property.

<sup>&</sup>lt;sup>31</sup> Idaho Department of Environmental Quality. Catalog of Stormwater BMPs for Cities and Counties. July 2006. <u>http://www.deq.state.id.us/water/data\_reports/storm\_water/datalog/old\_version/stormwater\_catalog\_bmp26.pdf</u> Retrieved July 10, 2006.

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# 1.4.10 Construction Entrance and Exit

A stabilized construction access is defined by a point of entrance or exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.

Construct entrances and exits by overlaying a 12-ounce geotextile fabric with a 6-inch layer of 1-to-3 inch diameter washed aggregate or woodchips. Vegetation and topsoil should be removed from the shoulder zones to construct the entrances, however, tall vegetation may be mowed. If the entrance/exit begins to rut, stabilize by placing a geogrid and additional washed aggregate or woodchips in the roadway. Remove the entrance/exit restore the area to the geometry of the intersection at the end of each project. Areas outside of the permanent roadway shoulder may require re-grading. Compacted soils shall be loosened by ripping or disking, then seeded and mulched (Fact Sheet 11).

Use construction entrance and exit on all construction or maintenance projects involving land disturbing activities adjacent to paved roadways.

# 1.4.11 Dust Control

Wind erosion or dust control consists of applying water or other dust palliatives as necessary to prevent or alleviate dust nuisance generated by construction activities.

Use water when dust proves to be a nuisance on project sites. If water proves ineffective, use soil binders (Section 1.3.6) (Fact Sheet 12).





# **1.5 VEGETATIVE STABILIZATION**

Vegetation stabilization is a combination of preserving existing vegetation, discussed previously in Section 1.3.1, and the establishment of new vegetation or turf. Vegetative stabilization can prevent erosion by wind and water and improve wildlife habitat and aesthetics.<sup>32</sup> In addition, vegetation reduces velocity and volume of stormwater runoff and protects exposed soil from the erosion forces of raindrops.

Most, if not all, construction projects contain some measure of clearing vegetation. Traditionally, sites are cleared of vegetation in preparation for construction activities. More vegetation is often removed than is necessary, which leads to a greater amount of exposed soil that is prone to erosion. To prevent or minimize the exposure of soil to erosion, it is important to protect and preserve existing vegetation and put a plan in place to establish temporary and permanent vegetation.

Temporary seeding is a means of growing a short-term (less than 5 years) vegetative cover to temporarily stabilize denuded areas that may be in danger of erosion.<sup>33</sup> Temporary seeding

The best and cheapest way to control erosion is to establish vegetative cover. Vegetation can reduce erosion by more than 90

controls runoff and erosion, provides residue for soil protection and seedbed preparation, and reduces problems of mud and dust production from bare soil surfaces during construction on areas that will not be brought to final grade for a period of more than 14 working days. These plantings consist of rapidly growing annual grasses, small grains, or legumes.<sup>34</sup> Temporary seeding is applicable to areas, which require temporary stabilization for a period of 1 to 5 years.

Permanent seeding is a means of establishing permanent, perennial vegetative cover on disturbed areas to prevent erosion, remove sediment from runoff, reduce the volume of runoff, and improve water quality.<sup>35</sup> Permanent seeding is well-suited in areas where permanent, long-lived vegetative cover is the most practical or most effective method of stabilizing the soil.<sup>36</sup>

<u>http://dhn.iihr.uiowa.edu/runoff/documents/Temporary%20Seeding.htm</u> Retrieved July 27, 2006.
 <sup>34</sup> Mississippi State University. *Water and Seeding*. 2006.

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<sup>&</sup>lt;sup>32</sup> Dauphin County Conservation District. *BMPs Fact Sheet, Vegetative Stabilization.* 2006.

http://www.dauphincd.org/main/Vegetative%20Stabilization%20fact%20sheet.pdf Retrieved August 1, 2006. <sup>33</sup> University of Iowa. *Runoff Documents*. 2006.

http://www.abe.msstate.edu/Tools/csd/NRCSBMPs/pdf/water/construction/tempseeding.pdf Retrieved July 10, 2006.

 <sup>&</sup>lt;sup>35</sup> University of Iowa. *Runoff Documents*. July 2006.
 <u>http://dhn.iihr.uiowa.edu/runoff/documents/Permanent%20Seeding.htm</u> Retrieved July 27, 2006.
 <sup>36</sup> Stormwater Authority. *Permanent Seeding*. July 2006.

http://www.stormwaterauthority.org/assets/Permanent%20Seeding.pdf Retrieved July 27, 2006.



All construction sites shall be brought to permanent stabilization with the use of permanent seeding provided herein or with sod. No site shall be left physically disturbed at the completion of construction or maintenance projects.

In this section, information specific to states that Dairyland services have been provided. The information includes the following: soil characteristics, temporary and permanent seeding recommendations, sodding, and required vegetative maintenance and local seed vendors (Fact Sheet 1).

Seeding recommendations provided herein for Illinois and Minnesota were taken from the DOT in those respective states. The information for Iowa and Wisconsin was taken from their respective Department of Natural Resources (DNR).

# 1.5.1 Illinois

# **1.5.1.1** SOIL CHARACTERISTICS

Dairyland's entire service area in Illinois, as shown on Figure 3, consists of highly erodible soil. Projects undertaken in these areas will require substantial amounts of time dedicated to two essential components of project planning: scheduling and site preparation. If at all possible, projects in these areas should be undertaken during winter months when the ground is frozen or at times during the year when precipitation events are low, for instance, fall months.

# **1.5.1.2 TEMPORARY SEEDING**

# 1. SEEDING MIXTURE

Class 7 or temporary turf cover mixture is recommended for temporary turf establishment.<sup>37</sup>

Class 7 temporary turf cover mixture consists of:

- > Perennial Ryegrass 50 lbs per acre
- > Oats, Spring 64 lbs per acre

Class 7 mixture can be applied at any time prior to applying any seeding class or added to them and applied at the same time. Other seeds may be used if approved by the Project Manager.

# 2. SEEDBED PREPARATION

Seedbed preparation is not required if the soil is in loose condition.<sup>38</sup> However, if the soil is hard or caked, light disking is required.

<sup>&</sup>lt;sup>37</sup> Illinois Seeding Manual. *Landscaping. Section 250. Seeding [Electronic version]. Article 250.07.* <u>http://www.dot.state.il.us/desenv/pdfspec2002/sec200.pdf</u> Retrieved August 1, 2006.

<sup>&</sup>lt;sup>38</sup> Illinois Seeding Manual. *Article* 250.05, *Page* 99. 2006.



#### 3. SEEDING METHOD

Sow seedings with a hydraulic seeder or rangeland type grass drill.<sup>39</sup> Broadcasting or hydraulic seeding is allowed on steep slopes (over 1:3 [V:H]) or inaccessible areas where use of the equipment specified is physically impossible. Hand broadcasting or other approved methods are permitted in the instance when Class 7 is used as an erosion control measure to establish temporary cover. Sufficient water is required to wash seeds down to the soil.

<sup>&</sup>lt;sup>39</sup> Illinois Seeding Manual. Article 250.06, Page 99. 2006.



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#### **1.5.1.3 PERMANENT SEEDING**

#### 1. SEEDING MIXTURE

# Table 3 Illinois Permanent Seeding Mixture<sup>40</sup>

Class –Type	Seeds	Kg/Hectare (Ibs/acre)
Low Mixture <sup>7</sup>	Ky Bluegrass Perennial Ryegrass Creeping Red Fescue	110 (100) 70 (60) 50 (40)
Salt Tolerant Lawn Mixture <sup>7</sup>	Bluegrass Perennial Ryegrass Dawsons Red Fescue Scaldis Hard Fescue Fults Salt Grass	70 (60) 20 (20) 20 (20) 20 (20) 70 (60)
Low Maintenance Lawn Mixture	Fine Leaf Turf – Type Fescue <sup>3</sup> Perennial Ryegrass Red Top Creeping Red Fescue	170 (150) 20 (20) 10 (10) 25 (20)
Roadside Mixture7	Alta Fescue or Ky 31 Perennial Ryegrass Creeping Red Fescue Fults Salt Grass <sup>1</sup>	110 (100) 55 (50) 50 (40) 10 (10)
Salt Tolerant Roadside Mixture <sup>7</sup>	Alta Fescue or Ky 31 Perennial Ryegrass Dawsons Red Fescue Scaldis Hard Fescue Fults Salt Grass <sup>1</sup>	45 (40) 25 (20) 5 (5) 20 (30) 70 (60)
Slope Mixture <sup>7</sup>	Alta Fescue of Ky 31 Perennial Ryegrass Alsike Clover <sup>2</sup> Birdsfoot Trefoil <sup>2</sup> Little Bluestem Side-Oats Grama Oats, Spring	45 (40) 25 (20) 5 (5) 10 (10) 5 (5) 10 (10) 55 (50)
Native Grass <sup>4,6</sup>	Big Bluestem Little Blue Stem Side-Oats Grama Wild Rye Switch Grass Indian Grass Annual Ryegrass Oats, Spring Perennial Ryegrass	4 (4) 5 (5) 5 (5) 1 (1) 1 (1) 2 (2) 30 (25) 30 (25) 15 (15)

<sup>&</sup>lt;sup>40</sup> Illinois Department of Transportation. *Standard Specification for Road and Bridge Construction*. Adopted January 1, 2002.



Class –Type	Seeds	Kg/Hectare (lbs/acre)
Low Profile Native Grass <sup>6,8</sup>	Little Blue Stem Side-Oats Grama Wild Rye Prairie Dropseed Annual Ryegrass Oats, Spring Perennial Ryegrass	5 (5) 5 (5) 1 (1) 0.5 (0.5) 30 (25) 30 (25) 15 (15)
Wetland Grass and Sedge Mixture <sup>6, 8</sup>	Annual Ryegrass Oats, Spring Wetland Grasses <sup>41</sup>	30 (25) 30 (25) 6 (6)
Forb With Annuals Mixture	Annuals Mixture <sup>37, 6, 8</sup> Forb Mixture <sup>37, 6, 8</sup>	1 (1) 10 (10)
Large Flower Native Forb Mixture <sup>6,8</sup>	Forb Mixture 6, 8	5 (5)
Wetland Forb	Forb Mixture <sup>37,6,8</sup>	2 (2)
Conservation Mixture	Smooth Brome Grass Vernal Affairs <sup>2</sup> Oats, Spring	45 (40) 15 (15) 55 (48)
Salt Tolerant Conservation Mixture	Smooth Brome Grass Vernal Alfalfa <sup>2</sup> Oats, Spring Fults Salt Grass <sup>7</sup>	45 (40) 15 (15) 55 (48) 25 (20)

<sup>1</sup>Fults pucinnellia distans

<sup>2</sup>Legumes – inoculation required

<sup>3</sup>Specific variety as shown in the plans or approved by the Project Manager

<sup>4</sup>Other seeds may be used if approved by the Project Manager

<sup>5</sup>*PLS* = *Pure Live Seed to be used* 

<sup>6</sup>*Fertilizer not required* 

<sup>7</sup>*Planting times April 1<sup>st</sup> to June 1<sup>st</sup> and August 15<sup>th</sup> to September 30<sup>th</sup>* <sup>8</sup>*Planting times May 15<sup>th</sup> to June 30<sup>th</sup> and October 15<sup>th</sup> to December 1<sup>st</sup>* 

#### 2. SEEDBED PREPARATION

For bare-earth seeding, do not start seedbed preparation until all stones, boulders, debris, and similar material larger than 75 mm (3 inches) in diameter have been removed. Work the area to be seeded to a minimum depth of 75 mm (3 inches) with a disk tiller or other equipment (approved by the Project Manager) reducing all soil particles to a size not larger than 50 mm (2 inches) in the largest dimension. The prepared surface shall be relatively free from weeds, clods, stones, roots, sticks, rivulets, gullies, crusting, and caking. No seeds shall be sown until the Project Manager has approved the seedbed.

<sup>&</sup>lt;sup>41</sup> Illinois Seeding Manual. Article 250.07, Page 99. 2006.



#### 3. SEEDING METHOD

#### **Bare Earth Seeding**

Bare earth seeding shall be done using the following methods unless otherwise specified or directed by the Project Manager:

- 1. Sow seed Classes 1, 2, and 6 with a machine that mechanically places the seed in direct contact with the soil, packs, and covers the seed in one continuous operation.
- 2. Sow seed Class 3 with a hydraulic seeder.
- 3. Sow seed Class 4 with a rangeland type grass drill.
- 4. Sow seed Class 5 with a hydraulic seeder or rangeland type grass drill. Broadcasting or hydraulic seeding will be allowed as approved by the Project Manager on steep slopes (over 1:3 [V:H]) or in inaccessible areas where use of the equipment specified is physically impossible.

#### **Interseeding**

Interseeding is the seeding of areas of existing turf. Prior to interseeding, all areas of existing turf to be interseeded, except as listed below, shall be mowed one or more times to a height of not more than 75 mm (3 inches). The equipment used shall be capable of completely severing all growth at the cutting height and distributing it evenly over the mowed area.

The cut material shall not be windrowed or left in a lumpy or bunched condition. Additional mowing may be required, as directed by the Project Manager, on certain areas in order to disperse the mowed material and allow penetration of the seed. The Contractor will not be required to mow within 300 mm (1 foot) of the ROW fence, continuously wet ditches and drainage ways, slopes 1:3 (V:H) and greater, or areas which may be designated as not mowable by the Project Manager. Debris encountered during the mowing and interseeding operations, which hamper the operation or are visible from the roadway shall be removed and disposed of according to the seedbed preparation portion of Section 1.5.1.3. Damage to the ROW fence and turf, such as ruts or wheel tracks more than 50 mm (2 inches) in depth, shall be repaired to the satisfaction of the Project Manager prior to the time of interseeding. All seeding classes shall be interseeded using a rangeland type grass drill with an interseeding attachment, except:

- 1. When specified in the plans or directed by the Project Manager, a slit seeder shall be used to interseed Class 1 or Class 2 seed.
- 2. Broadcasting or hydraulic seeding will be allowed, as approved by the Project Manager, on steep slopes (1:3 [V:H] or steeper) or in inaccessible areas where use of the equipment specified is physically impossible. Apply sufficient water to these areas to wash the seed down to the soil.



## 1.5.2 Iowa

#### **1.5.2.1** SOIL CHARACTERISTICS

A large portion of Dairyland service area within Iowa does not have available data. Available erodible soils data for Dairyland's service area in Iowa only cover approximately 40 percent of the total area as shown on Figure 4. Of the available data, the area consists predominantly of potentially highly erodible soils which are located in the eastern part of the service area. In the central part of the service area, the soils contain a low erodibility factor. Given the potential for these soils to become highly erodible, projects undertaken in these areas will require considerable amount of time dedicated to two essential components of project planning: scheduling and site preparation.

#### **1.5.2.2 TEMPORARY SEEDING**

#### 1. SEED MIXTURE

Table 4
Iowa Temporary Seed Mixture

Common Name	Application Rate (Ibs/acre)	Planting Season	Seeding Method
Perennial Ryegrass	40 (1lb/1,000 sq. feet)	40 (1lb/1,000 sq. feet) All	
Oats	48 (1.2 lbs/1,000 sq ft.)	Plant March 1 – May 20	Hand broadcasting or
Sundangrass	Sundangrass 35 (0.8 lbs/1,000 sq ft.)		hydroseeding
Winter Rye	64 (1.6 lbs/100 sq ft.)	Plant Aug. 15 – Sept. 30	

#### 2. SEEDBED PREPARATION

Prepare seedbed to a depth of 3 inches. Before final preparation, apply 400 lbs of 13-13-13 (nitrogen-phosphorous-potassium [NPK]) fertilizer per acre (10 lbs/1,000 sq ft) and incorporate it into the seedbed. Roll the area to be seeded with an approved cultipacker.

**Note:** Phosphorus-free Fertilizer may be required in some areas.





# **1.5.2.3 PERMANENT SEEDING**

## 1. SEED MIXTURE

Iowa Permanent Seed Mixture						
Туре	Percent	Seeding Method	Maintenance and Inspection			
Lawn Grass Mix (2 lbs/1,0	•					
Bluegrass	60					
Perennial Ryegrass	20		Inspect once monthly, noting			
Creeping Red Fescue	15	<ul> <li>Hand broadcasting or hydroseeding</li> <li>Apply mulch uniformly –</li> </ul>	<ul><li>stand of grass</li><li>Look for rills formed by</li></ul>			
White Dutch Clover	>5		stormwater runoff or where lack of moisture caused seedlings to			
Tall Grass Mixt (1 lb/1,00		<ul> <li>1.5 tons/ac (70 lbs/1,000 sq. ft)</li> <li>Till all mulched</li> </ul>	die <ul> <li>All areas should be corrected</li> </ul>			
Ky 31 Fescus	50		It may be necessary to re-prepare			
Switchgrass	10		the seedbed and re-mulch			
Orchardgrass	20					
Bromegrass	15					

Table 5Iowa Permanent Seed Mixture

# 2. SEEDBED PREPARATION

Prepare seedbed to a depth of 75 mm (3 inches). Before final preparation, apply 700 lbs of 13-13-13 NPK fertilizer per acre (12 lbs/1,000 sq ft) and incorporate it into the seedbed. Roll the area to be seeded with an approved cultipacker.

*Note:* phosphorus free fertilizers may be required in some areas.

5

# 1.5.3 Minnesota

Alsike Clover

# **1.5.3.1** SOIL CHARACTERISTICS

A sizable portion of Dairyland service area within Minnesota does not have available data. Available erodible soils data for Dairyland's service area in Minnesota covers approximately 65 percent of total area as shown on Figure 5. Of the available data, the area consists predominantly of highly erodible soils in the eastern and central part of the service area and soils with low erodibility factor located in the western part of the service area. Projects undertaken in areas



with highly erodible soils will require substantial amounts of time dedicated to two essential components of project planning: scheduling and site preparation. If at all possible, projects in these areas should be undertaken during winter months when the ground is frozen or times during the year when precipitation events are low, for instance, fall months.



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#### **1.5.3.2 TEMPORARY SEEDING**

#### 1. SEED MIXTURE

Table 642Minnesota Temporary Seed Mixture

Purpose	Mixture	Application Rate (lbs/ac)
Fall Cover	100B	100
Spring/Summer Cover	110B	100
1 to 2 years of Cover*	150	40
2 to 5 years of Cover	190	60

\* Specified for this region per Minnesota DOT Technical Memo dated November 2005.

Common Name	Bulk Rate (Ibs/ac-kg/ha)	Percent of Mix Component
Rye-grass, perennial	15 -16.8	37.5
Wheat-grass, slender	5 - 5.6	12.5
Red clover	10 -11.2	25.0
Alfalfa, vernal	10 -11.2	25.0
Grand Total	40 -44.8	100

Table 7Minnesota Mixture 150

## 2. SEEDBED PREPARATION

Seedbed preparations and fertilizer recommendation are covered in the next section: Seeding Methods.

Lime should be specified for all projects with a subsoil pH of 6.2 and/or less, at a rate of 2 tons per acre.

<sup>&</sup>lt;sup>42</sup> Minnesota Department of Transportation. *Memo from Lori Belz, Natural Resource Program Manager to Greg Paulson, Office of Environmental Services, District 6 ADE, Program Delivery.* November 2005.



#### 3. SEEDING METHODS

# Method 1 – Drop Seeding

Drop seeding on tilled sites is the standard method for seeding on prepared construction projects.

- 1. <u>Site Preparation</u> Prepare the site by loosening topsoil to a minimum depth of 75 mm (3 inches).
- 2. <u>Fertilizer</u> Either use a fertilizer analysis based on a soil test or a general recommendation of a 24-12-24 NPK commercial grade analysis at 300 lbs per acre.
- 3. <u>Seed Application</u> Apply seed with a drop seeder that will accurately meter the types of seed to be planted, keep all seeds uniformly mixed during the seeding, and contain drop seed tubes for seed placement (Brillion-type). The drop seeder should be equipped with a cultipacker assembly to ensure seed-to-soil contact.
- 4. <u>Seeding Rates</u> Rates are specified in the mixture tabulation for the specified mix.
- 5. <u>Packing</u> If the drop seeder is not equipped with a cultipacker, the site should be cultipacked following the seeding to ensure seed-to-soil contact.
- 6. <u>Mulch</u> Mulched and disc-anchor the site following cultipacking. The standard mulch is Minnesota DOT Type 1 at a rate of 2 tons per acre.

# Method 2 – Hydroseeding

Hydroseeding is an acceptable method for establishing the general mixtures when done correctly. However, it is imperative that the site is prepared and finished properly. Minnesota DOT generally uses hydroseeding on steep slopes or other areas inaccessible to a drop seeder, such as wetland edges and ponds. Hydroseeding is not recommended if the extended weather patterns are hot and dry and the soil surface is dry and dusty. The seed-water slurry should be applied within 1 hour after the seed is added to the hydroseeder tank.

- 1. <u>Site Preparation</u> Prepare the site by loosening topsoil to a minimum depth of 3 inches. It is critical that the seedbed be loosened to a point that there are a lot of spaces for seed to filter into cracks and crevices, otherwise, it may end up on the surface and wash away with the first heavy rain.
- 2. <u>Fertilizer</u> Either use a fertilizer analysis based on a soil test or a general recommendation of a 24-12-24 NPK commercial grade analysis at 300 lbs per acre.
- 3. <u>Seed Application</u> Apply seed by hydroseeding it evenly over the entire site. A fan-type nozzle should be used with approximately 500 gallons of water per acre. It is recommended to add approximately 75 lbs of hydromulch per 500 gallons of water for a visual tracer to ensure uniform coverage.
- 4. <u>Seeding Rates</u> Rates are specified in the mixture tabulation for the specified mix.



- 5. <u>Harrowing</u> The site should be harrowed, cultipacked, or raked following seeding.
- 6. <u>Mulch</u> Mulch the site following harrowing using one of the following methods (as per plans):
  - Minnesota DOT Type 1 mulch at a rate of 2 tons per acre with disc anchoring
  - Minnesota DOT Hydraulic Soil Stabilizer or Bonded Fiber Matrix (BFM) on inaccessible sites

*Note:* When seeding in conjunction with a hydraulic soil stabilizer (*BFM*'s), hydro-mulches, etc., it is recommended that a two-step operation be used. Seed should be placed first and the hydraulic soil stabilizer be applied afterwards. This is to ensure that seed comes into direct contact with the soil.

# Method 3 – Broadcast Seeding

Broadcast seeding is performed either with mechanical "cyclone" seeders, by hand seeding, or by any other method that scatters seed over the soil surface. It is essential that steps be taken to ensure good seed-to-soil contact when broadcast seeding is used.

- 1. <u>Site Preparation</u> Prepare the site by loosening topsoil to a minimum depth of 3 inches. It is critical that the seedbed be loosened to a point that there are spaces for seed to filter into cracks and crevices, otherwise, it may end up on the surface and wash away with the first heavy rain.
- 2. <u>Fertilizer</u> Either use a fertilizer analysis based on a soil test or a general recommendation of a 24-12-24 NPK commercial grade analysis at 300 lbs per acre.
- 3. <u>Seed Application</u> Apply seed by broadcasting it evenly over the entire site. Several types and sizes of broadcast seeders are available for use, ranging from fertilizer-type spreaders to power spreaders mounted on all terrain vehicles. Seed should be mixed thoroughly prior to seeding and should be mixed occasionally in the spreader to prevent separation and settling.
- 4. <u>Seeding Rates</u> Rates are specified in the mixture tabulation for the specified mix.
- 5. <u>Harrowing</u> The site should be harrowed or raked following seeding.
- 6. <u>Packing</u> The site should be cultipacked following harrowing.
- 7. <u>Mulch</u> Mulch the site following packing using one of the following types of mulch (as per plans or special provisions):
  - Minnesota DOT Type 1 mulch at a rate of 2 tons per acre followed by disc anchoring
  - Minnesota DOT Hydraulic Soil Stabilizer or BFM on inaccessible sites



#### Method 4 – Interseeding

Interseeding into existing vegetation or mulch is generally used for sites that did not establish well or if a temporary mulch was applied to the site. An interseeder drill can be used to plant the seed without removing or tilling the existing vegetation or mulch.

1. <u>Site Preparation for Existing Vegetation</u> – Prepare the site by mowing existing vegetation to a height of 4 to 6 inches. The area can then be directly planted using an interseeding drill.

**NOTE:** Sites that contain significant weed infestations may require weed control measures before planting. After mowing, a herbicide application with glyphosate should be used. Addition of a surfactant and/or addition of two, 4-D to the mix often results in a more complete kill, especially with unwanted broad-leaved species. Recommended herbicide rates are 2 quarts per acre of glyphosate and 1 to 2 quarts per acre 2, 4-D. Seeding can be performed 7 to 10 days after herbicide application. Other broadleaf herbicides can also be used, such as Trimec, Transline, Stinger, etc. Follow the label directions.

- 2. <u>Fertilizer</u> Either use a fertilizer analysis based on a soil test or a general recommendation of a 24-12-24 NPK commercial grade analysis at 300 lbs per acre.
- 3. <u>Seed Application</u> Apply the seed mixture with a seed drill that will accurately meter the seed to be planted and keep all seeds uniformly mixed during the drilling. The drill should contain a legume box for small seeds, and it should be equipped with disc furrow openers and packer assembly to compact the soil directly over the drill rows. Maximum row spacing should be 8 inches. The inter-seeder drill must be out-fitted with trash rippers that will slice through the vegetative mat and make a furrow into the underlying soil approximately 1 inch wide by 0.5 to 1 inches deep. These furrows shall be directly in line with the drill seed disc openers. Fine seed should be drop-seeded onto the ground surface from the fine seed box. Drill seeding should be done whenever possible at a right angle to surface drainage.
- 4. <u>Seeding Rates</u> Rates are specified in the mixture tabulation for the specified mix.
- 5. <u>Harrowing</u> Harrowing is not required when using this seeding method.
- 6. <u>Packing</u> Cultipacking the site is recommended to ensure seed-to-soil contact.
- 7. <u>Mulch</u> Mulch is not required when using this seeding method unless a 90 percent soil coverage rate is not maintained.



## 1.5.3.3 PERMANENT SEEDING

#### 1. SEED MIXTURE

Туре	Purpose	Mixture	Seeding Rate (Ibs/ac)	Maintenance
General	Sandy Roadside	240	75	Mow up to 3 times per year
	General Roadside	250	70	Mow up to 3 times per year
	Commercial Turf	260	100	Mow a minimum of once per 2 weeks
	Residential Turf	270	120	Mow a minimum of once per 2 weeks
	Agricultural Area Roadside	280	50	Mow up to 3 times per year
Native	Ponds and Wet Area – Tall Grasses	310	82	
	Sandy/dry Areas – Short Grasses	330	84.5	To reduce weed establishment,
	Sandy/dry Areas Mid-Height Grasses	340	84.5	mow 2 to 3 times (30 days apart) during the first year with the mower
	General Roadside	350	84.5	deck about 6 to 8 inches off the ground. Mow one time during the
	Woodland Edges	5B	30	second year before weeds set their
	Western Prairie – Tall Grasses	10B	30	seeds. Burn or mow once every 3 to 5 years following the initial 2 years of maintenance to remove
	Sandy Prairie – Tall Grasses	20B	30	dead plant material and stimulate new seed.
	Sedge Meadow	25B	30	
	Floodplain	26B	30	

Table 843Minnesota Permanent Seed Mixture

#### 2. SEEDBED PREPARATION

Fertilizer is best determined by a soil fertility test. If no soil fertility tests are taken, these general fertilizer recommendations may be followed:

<sup>&</sup>lt;sup>43</sup> Minnesota DOT. 2003 Seeding Manual: Office of Environmental Services Erosion Control Unit. 2003.



Whinesota General Fertilizer Accommendations			
Seed Mixture	Fertilizer	Application Rate	
Native Seed	17-10-30	350 lbs/ac or 392 kg/ha	
Turf Seed	22-5-10	300 lbs/ac or 336 kg/ha	
Sod		150 lbs/ac or 118 kg/ha	

 Table 9

 Minnesota General Fertilizer Recommendations

#### 3. SEEDING METHODS

Please refer to seeding methods in Section 0 of this manual.

## 1.5.4 Wisconsin

## **1.5.4.1** SOIL CHARACTERISTICS

A substantial portion of Dairyland service area within Wisconsin does not have available data. Available erodible soils data for Dairyland's service area in Wisconsin covers approximately 50 percent of total area as shown on Figure 6. Of the available data, the area consists of highly erodible soils in the western and central part of the service area, soils with low erodibility factor located in the eastern and central part of the service area and potentially highly erodible soils throughout areas with available data. Projects undertaken in areas with highly erodible soils and soils which are potentially highly erodible will require substantial amounts of time dedicated to two essential components of project planning: scheduling and site preparation. If at all possible, projects in these areas should be undertaken during winter months when the ground is frozen or at times during the year when precipitation events are low, for instance, fall months.





#### **1.5.4.2 TEMPORARY SEEDING**

#### 1. SEED MIXTURE

Species	Lbs per Acre	Percent Purity
Oats	131 <sup>1</sup>	98
Cereal Rye	131 <sup>2</sup>	97
Winter Wheat	131 <sup>2</sup>	95
Annual Ryegrass	80 <sup>2</sup>	97

# Table 1044Wisconsin Temporary Seeding Mixture

<sup>1</sup> Spring and Summer Seeding

<sup>2</sup> Fall Seeding

#### 2. SEEDBED PREPARATION

Temporary seeding requires a seedbed of loose soil to a minimum depth of 2 inches.

Fertilizer application is not generally required for temporary seeding. However, any application of fertilizer or lime shall be based on soil testing results.

The soil shall have a pH range of 5.5 to 8.0.

#### 3. SEEDING METHOD

All seeding methods including, but not limited to, broadcasting, drilled, or hydroseeding is acceptable, as appropriate for the site.

<sup>&</sup>lt;sup>44</sup> Wisconsin DNR. Seeding For Construction Site Erosion Control. November 2003. <u>http://dnr.wi.gov/org/water/wm/nps/pdf/stormwater/techstds/erosion/Seeding%20For%20Construction%20Site%</u> <u>20Erosion%20Control%20\_1059.pdf</u> Retrieved July 27, 2006.


#### **1.5.4.3 PERMANENT SEEDING**

#### 1. SEED MIXTURE

Purpose	Mixture	Seeding Rate	Maintenance
Use in areas with average loam, heavy clay, and moist soils predominate	10	1-1/2/1 lbs/1,000 sq ft	Protect seeded areas from traffic or other uses by warning signs. Repair surface gullies or other damage by re-grading and re-seeding. Mow and water as directed by seeding vendor.
Use in areas where light, dry, well-drained sandy or gravelly soils predominate. Use for all high cut and fill slopes exceeding 6 to 8 feet	20	3 lbs/1,000 sq ft	
Salt – Tolerant areas – use in medians and on slopes or in ditches within 15 feet of the shoulder.	30	2 lbs/1,000 sq ft	
Use in urban areas	40	2 lbs/1,000 sq ft	
Use on very steep slopes where sterile soil and erosive conditions exist	50	1/2 lbs/1,000 sq ft	
Use for cover in newly graded wet areas <i>(not wetlands)</i>	60	1-1/2/1 lbs/1,000 sq ft (equivalent)	
Use on slopes or upland area with well drained soils	70	3 lbs/1,000 sq ft (equivalent)	

Table 11Wisconsin Permanent Seed Mixture



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#### 2. SEEDBED PREPARATION

Permanent seeding requires a seedbed of loose topsoil to a minimum depth of 100 mm (4 inches) with the ability to support a dense vegetative cover. Be sure to incorporate topsoil, which should have been segregated at the start of the project. Application rates of fertilizer or lime shall be based on soil testing results. Prepare a tilled, fine, but firm seedbed. Remove rocks, twigs, foreign material, and clods over 2 inches that cannot be broken down. The soil shall have a pH range of 5.5 to 8.0.

A fertilizer program should begin with a soil test. Soil tests provide specific fertilizer recommendations for the site and can help to avoid over-application.

#### 3. SEEDING METHOD

Seeding methods including, but not limited to, broadcasting, drilled, or hydroseeding, are acceptable, as appropriate for the site.

#### 1.5.5 Sodding

Sod is a grass turf and the part of the soil beneath it held together by roots or a piece of other material. Sod is used in areas where vegetation is required to prevent erosion and is deemed necessary by the Project Manager. Sod is often used as an alternate to permanent seeding for instant aesthetic value. It is important to note that in order for sod to survive, proper conditions must be present on the site, such as adequate watering.

#### 1.5.6 Local Seed Vendors

<u>Iowa</u> Ion Exchange, Inc 1878 Old Mission Drive Harpers Ferry, IA (563) 535-7231

Minnesota Brock White 6784 10<sup>th</sup> Avenue Southwest Rochester, MN 55902 (507) 282-2421 or (800) 279-9034

Shooting Star Native Seeds (Seed Only) 20740 County Road 33 Spring Grove, MN 55974 (507) 498-3944



Sodko, Inc. (Sod Only) 20740 County Road 33 Spring Grove, MN 55974 (507) 498-3943

Ramy Turf Products 842 Vandalia Street St. Paul, MN 55114 (651) 917-0939 or (800) 658-7269

<u>Wisconsin</u> La Crosse Forage and Turf Seed Corporate 2541 Commerce Street La Crosse, WI 54603 (608) 783-9560 or (800) 328-1909



#### **1.6 STORMWATER TREATMENT**

Stormwater treatment BMPs consist of infiltration systems, constructed wetlands, and retention and detention ponds. The following treatments should all be evaluated for pollution prevention and water quality benefits when building substations.

#### **1.6.1** Infiltration Systems

Infiltration systems are stormwater runoff impoundments designed to capture stormwater runoff, hold the designed volume, and infiltrate it into the ground over the designed period. These systems include, but are not limited to, infiltration basins, rain gardens, and underground infiltration tank.

#### 1.6.2 Constructed Wetland

A constructed wetland is an artificial marsh or swamp created for human use, such as habitat to attract wildlife, or for removing sediments and pollutants, such as heavy metals, from the water.<sup>45</sup>

Constructed wetlands simulate natural wastewater treatment systems, using flow beds to support water-loving plants.

#### **1.6.3** Retention and Detention Pond Systems

A retention pond is designed to hold a specific amount of water indefinitely. Usually the pond is designed to have drainage leading to another location when the water level gets above the pond capacity, but still maintains a certain capacity.<sup>46</sup>

A detention pond is a low-lying area that is designed to temporarily hold a set amount of water while slowly draining to another location. They are more or less around for flood control when large amounts of rain could cause flash flooding if not dealt with properly.

Infiltration basins, constructed wetlands, and detention or retention ponds must be evaluated and selected based on water quality needs at the site.

<sup>&</sup>lt;sup>45</sup> Wikipedia Online Encyclopedia. *Constructed Wetlands*. 2006. <u>wikipedia.org/wiki/Constructed\_wetland</u> Retrieved August 2, 2006.

<sup>&</sup>lt;sup>46</sup> U.S. Department of Energy. *Environmental Earth Science Archive*. July 2006. <u>http://www.newton.dep.anl.gov/askasci/eng99/eng99219.htm</u> Retrieved August 2, 2006.



#### **1.7 GENERAL OPERATIONS**

#### 1.7.1 Residential Areas

Construction near residential areas requires special precautions to minimize disturbance to residences and maximize safety considerations. Impacts to residences near construction will be minimized by implementing the following applicable mitigation measures:

- > Strip and store, or replace topsoil with imported topsoil after construction.
- > Install orange safety fence between the construction area and residences.
- > Avoid removal of trees and landscape whenever possible or specified in an agreement.
- > Maintain access to residences at all times during construction.
- Notify residences within 48 hours of start of construction and construction during nighttime hours. Review permits for additional requirements for nighttime construction.

Restoration of residential areas must be initiated within 24 hours of completion of construction. All disturbed areas must be graded to pre-construction contours. Topsoil (either segregated and replaced, or newly imported) must be placed and raked smooth. The disturbed areas must be reseeded or resodded according to landowner requests. All ornamental shrubs and other landscaping must be restored in accordance with the landowner's request, or compensate the

<u>Don't forget!</u> Erosion control is generally more cost-effective than sediment control and requires less maintenance and repair. landowner in an agreed amount or replace damaged landscaping. Restoration work should be performed by a contractor or Dairyland personnel familiar with local horticultural and turf establishment practices.

Refer to BMPs previously discussed for erosion control and sediment control, as they are applicable in residential environments.

#### 1.7.2 Highway and Road Crossings

Roadway crossing and ROW access points must be identified before the start of construction to maintain safe and accessible conditions throughout construction.

Refer to BMPs previously discussed for erosion control and sediment control as most if not all are applicable. A few that stand out are as follows:

- Preservation of existing vegetation
- Mulch, blankets, and mats
- > Silt fence along perimeter of project area adjacent to roadway
- Construction entrance and exits
- Street cleaning



#### **1.7.2.1 MAINTENANCE**

Roadway crossings should be maintained in a condition which will prevent tracking of sediment onto the roadway. Mud tracked onto paved roadways must be shoveled or swept off the road daily.

#### 1.7.3 Wetland Crossings

A wetland is a land inclusion that has a predominance of hydric soils that are saturated or flooded for long parts of the growing season<sup>47</sup> and that supports a hydrophytic vegetation under the above conditions.

Permits are required to construct or work in wetlands. Refer to Volume II for more information.

Wetlands are essential breeding, rearing, and feeding grounds for many species of fish and wildlife. They also perform important flood protection and pollution control functions.

Every effort should be made to avoid crossing wetlands, however, in some instances, it is not possible. In those instances, minimize construction to preserve wetland characteristics. Clearing and grading within wetlands must be limited to topsoil segregation and enhancing natural revegetation. To preserve wetland hydrology, minimize construction activities in wetlands or use special construction techniques to reduce soil compaction.

The procedures in this section require that judgment be applied in the field and must be implemented under the supervision of the Contractor. Non-compliance with these procedures must be reported for corrective action.

#### **1.7.3.1 TIME WINDOWS FOR CONSTRUCTION**

Transmission line and substation construction or maintenance activities cannot occur in wetland areas when restricted by appropriate federal or state permits due to wildlife mating or breeding seasons.

#### **1.7.3.2** WETLAND ACCESS

The only access roads other than the construction ROW which can be used in wetlands are those existing roads that can be used with no modification and no impact on the wetland. Construction equipment operating in wetland areas should be limited to that needed for the installation or maintenance of transmission lines. All other construction equipment should use access roads

 <sup>&</sup>lt;sup>47</sup> Illinois Wetlands. *Kildeer Countryside Virtual Wetlands Preserve*. July 2006.
 <u>www.twingroves.district96.k12.il.us/Wetlands/General/Terms.html</u> Retrieved July 31, 2006.



located in upland areas to the maximum extent possible. In situations where upland access roads do not provide sufficient access, construction equipment may pass through the wetland.

#### **1.7.3.3** HAZARDOUS MATERIAL

Dairyland or its contractors should not store hazardous materials, chemicals, fuels, lubricating oils, or perform concrete coating activities within 100 feet of streams or within municipal watershed areas (except at locations within these areas that are designated for these purposes by an appropriate governmental authority).

#### 1.7.3.4 **REFUELING**

Refuel construction equipment at least 100 feet from streams. Where conditions require construction equipment (e.g., barge-mounted backhoes, trench dewatering pumps) be refueled within 100 feet of streams, the Contractor must take appropriate spill prevention precaution procedures.

#### **1.7.3.5 D**EWATERING

Dewatering may be required during construction- or maintenance-related activities. Water should be emptied in a sediment trap before discharging to the wetland so that silt-laden water does not enter wetlands.

#### **1.7.3.6 Revegetation**

#### 1. FERTILIZER AND LIME REQUIREMENTS

The establishment of vegetation may be required in wetland areas. Do not apply fertilizer or lime, unless required in writing by the appropriate state permitting agency.

#### 2. MULCHING

State approval is necessary for mulching in wetlands. Straw or hay can be used as mulch but must be free of noxious weed contaminants. Mulching is more successful if the material is free of noxious grasses and weeds, is applied in "air dried" condition, and is anchored by disking.

#### 3. TEMPORARY VEGETATION

Temporarily vegetate disturbed areas with the appropriate seed specified in Section 1.5, unless standing water is prevalent or permanent planting or seeding with native wetland vegetation is established.

#### 4. PERMANENT REVEGETATION

Consult with a wetland scientist for a vegetation plan.



#### **1.7.3.7 TEMPORARY WETLAND CROSSING**

Temporary wetland crossing options include wood mats, wood panels, wood pallets, bridge decking, expanded metal grating, polyvinyl chloride (PVC) and high density polyethylene (HDPE) pipe mats or plastic road, tire mats, corduroy, pole rails, wood aggregate, and low ground pressure equipment.<sup>48</sup> Temporary wetland crossings should be avoided unless absolutely necessary. Successful crossings are enhanced with a root or slash mat to provide additional support for



Photo 1.0: Wood Mat

equipment and geotextile to segregate the crossing from underlying soil and provide floatation. Temporary wetland crossing options will be discussed in further detail below.

#### 1. WOOD MATS

Wood mats are individual cants, sawdense hardwood (oak), or round logs cabled together to make a single-layer crossing.

Wood mats provide a surface that protects wetlands during hauling or equipment-moving operations. A 3-m (10-foot) long, 10 cm by 10 cm (4 inch by 4 inch) center log is the recommended minimum size. If the surface of the crossing becomes slippery, add expanded metal grating to provide traction.

#### 2. WOOD PANELS

Nail two-layer wood panels parallel to the perpendicular wood planks where tires will cross. Interconnecting adjacent panels in a crossing will help minimize the rocking that occurs when vehicles drive over the panels. In addition, it will improve the overall flotation provided by the crossing. If panels are not interconnected, approximately 150 mm (6 inches) should be left between the individual panels to facilitate installation and removal.

#### 3. WOOD PALLETS

Wood pallets are constructed with three layers of pallets similar to those used for shipping and storage but specifically designed to support traffic. Wood pallets are commercially available and are constructed to be interconnected and are reversible.

#### 4. BRIDGE DECKING

Decking of a timber bridge can be used to cross a small wetland area. Individual panels should be placed across the area with soft soil and approach ramps to the decking built.

 <sup>&</sup>lt;sup>48</sup> U.S. Department of Agriculture. *Temporary Stream and Wetland Crossing Options for Forest Management*.
 1998.





#### 5. EXPANDED METAL GRATING

Commercial available metal grating can support machine weight by distributing it over a broader area. Expanded metal and deck span are two commercially-tested types of grating for wetland crossings. The expanded metal is recommended due to the regular non-galvanized steel that comes in various thicknesses and different opening sizes.

#### 6. CORDUROY

Corduroy is a crossing made of brush, small logs cut from low-value and noncommercial trees on-site, or mill slabs that are laid perpendicular (most often) or parallel to the direction of travel. The greater the surface area of the corduroy the greater the floatation capability of the crossing. Placing geotextile provides additional support and segregation of brush, logs, or mill slabs from underlying soil.



Photo 1.0: Corduroy

#### 7. PVC AND HDPE PIPE MATS OR PLASTIC ROAD

A portable, reusable, lightweight corduroy-type crossing can be created with PVC or HDPE pipe mats. <sup>48</sup> Pipe mats work as a conduit and allow water to move through the crossing without further wetting the area.

#### 8. POLE RAILS

One or more straight hardwood poles cut from on-site trees can be laid parallel to the direction of travel below each wheel. The diameter of the poles should not exceed the 10-inch diameter on the large end so they are able to penetrate the wet area to a sufficient depth that the tires come in contact with the soil. This method will not work with machinery that is equipped with conventional width tires because they are too narrow and are operated at too high a pressure to stay on top of the poles.



#### 9. WOOD AGGREGATE

Use wood particles, varying in size, to fill soft soil areas. This is a popular method because the wood is relatively light in weight, which gives it better natural flotation than gravel. Wood, being a naturally biodegradable material, will allow water to flow freely through, causing no change to the natural hydrologic flows.

#### 10. Low Ground Pressure Equipment

Low pressure equipment exerts ground pressure of less than 5 or 6 psi. Low ground pressure equipment reduces this pressure by reducing overall machine weight, or by



Photo 1.0: Wood Aggregate

increasing the contact area between the equipment and soil, spreading the weight over a larger surface area. By reducing ground pressure at each contact point, equipment flotation is enhanced, traction is usually improved, and road maintenance requirements, such as grading, can be reduced. Low ground pressure equipment can also reduce rut depth and compaction, and can result in reduced fuel consumption.<sup>49</sup>

#### 1.7.4 Stream and River Crossings

Pre-construction planning is an essential part of accommodating safe movement of equipment across streams. Crossing requirements, including construction methods, timing, erosion control, and restoration, are described in this section and in the stream crossing permits issued by state agencies. If site conditions or engineering constraints make any of these requirements infeasible, Dairyland may propose alternative provisions at equal or greater level of protection to the environment than the original requirements. Modification of terms of any permit will also require regulatory agency approval prior to construction. The Contractor must receive Dairyland's approval prior to implementing the alternatives.

Use the procedures in this section when crossing streams, rivers, and other permanent waterbodies, such as ponds and lakes. These procedures require that judgment be applied in the field and must be implemented under the supervision of the Contractor. Report non-compliance with these procedures to the Contractor for remedial action. Alternative procedures outlined in any project-specific plan or permit will supersede the requirements of this section.

<sup>&</sup>lt;sup>49</sup> U. S. Department of Agriculture, Forest Service. *Temporary Stream and Wetland Crossing Options for Forest Management*. St. Paul, Minnesota, 1998.



#### **1.7.4.1 TIME WINDOW FOR CONSTRUCTION**

Stream crossings will be constructed during the following time windows unless directed differently in writing by the appropriate state agency on a site-specific basis.

- Cold water fisheries June 1 through September 30
- Warm water fisheries June 1 through November 30

#### 1.7.4.2 HAZARDOUS MATERIALS

Dairyland or its contractors should not store hazardous materials, chemicals, fuels, lubricating oils, or perform concrete coating activities within 100 feet of streams or within municipal watershed areas (except at locations within these areas that are designated for these purposes by an appropriate governmental authority).

#### 1.7.4.3 **Refueling**

Refuel construction equipment at least 100 feet from streams. Where conditions require construction equipment (e.g., bargemounted backhoes, trench dewatering pumps) be refueled within 100 feet of streams, the Contractor must take appropriate spill prevention precaution procedures.

<u>Try This</u> If you notice an area of unprotected soil, go ahead and throw some seed or mulch on it regularly. You'd be surprised what a difference you can make.

#### 1.7.4.4 ALIGNMENT OF CROSSING

Construct stream crossings as close to perpendicular to the axis of the stream channel as engineering and routing constraints allow.



#### 1.7.4.5 TEMPORARY EQUIPMENT CROSSINGS

Temporary stream crossing is required to provide safe, erosion-free access across a stream for construction equipment. Temporary stream crossings are fords, culverts, PVC and HDPE pipe bundles, and portable or on-site constructed bridges. Unless it is absolutely necessary, stream crossing should be avoided. Use existing stream crossing locations if crossing is unavoidable and the existing crossing can withstand the weight. Properly designed, installed, and maintained

temporary stream crossings can greatly reduce costs and help meet concerns of regulating agencies.<sup>48</sup>



If a stream crossing is needed it should be limited to as few as possible and should be as short as possible. To correctly cross a stream, the crossing should be located on a straight segment of the stream channel that has low banks (except for bridge crossings where higher banks are preferred to support the abutments). Contact a local engineer or hydrologist to determine permitting needs for the stream crossings, if needed. Temporary stream crossing options will be discussed in further detail below.

#### 1. Fords

A ford utilizing the streambed is used when flows are consistently less than 600 mm (2 feet) deep, as part of the road or access trail, and is best for short-term, limited traffic. Fords should not be constructed or used during periods of fish spawning and migration. If the crossing location has a mucky or weak streambed a base must be constructed. A permanent constructed ford consists of gravel or rock or a temporary ford consists of mats made of wood, expanded metal, logs or poles, or a floating rubber mat.

#### Permanently Constructed Fords

To properly construct a permanent ford, the muck or weak streambed material should be excavated prior to the minimum of 6–inch installation of fill. Installing a geotextile prior to gravel or rock fill is recommended to provide extra support and separate material from weak native soil.

#### **Temporarily Constructed Fords**

Mats made of wood using expanded metal grading, logs, or floating rubber mats provide a firm base for a temporary ford. If the streambed or bank is too weak for geotextile and mats or expanded metal, supplemental corduroy, gravel, or rock fill may be needed to support the weakest portions of the crossing. For crossings only used a few times, a log or pole ford may be best. The stream channel is filled with logs laid parallel to the flow of the stream.

### 2. CULVERTS

A culvert is a structure that conveys water under a road or access trail.<sup>50</sup> Culverts are the most

common methods of crossing intermittent and perennial streams. There are manufactured culverts that come in various shapes, lengths, and diameters. Manufactured culverts are made of corrugated steel, concrete, or polyethylene. Proper sizing with a minimum of a 375-mm (15-inch) diameter and installation of culverts is crucial for a successful crossing. Other materials, such as steel piling, wooden box culverts, and hollow logs can be used as culverts as well.



Photo 1.0: Culvert



#### 3. PVC AND HDPE PIPE BUNDLES

A pipe bundle crossing is constructed using a 4-inch diameter schedule 40 PVC or Standard Dimension Ratio (SDR) 11 HDPE pipes that are cabled together forming loose mates that can be formed into bundles. The bundles allow water to pass through and provide mechanical support for vehicle traffic. The pipe bundle crossing is constructed by initially placing a geotextile fabric then a layer of connected pipes is placed parallel to stream flow.



Photo 1.0: PVC and HDPE Pipe Bundles

#### 4. BRIDGES

Bridges keep fill and equipment out of the water better than any other stream crossing option. Temporary bridges can be constructed from ice, timber, steel, or pre-stressed concrete. A licensed engineer must review the design of any bridge that is fabricated from locally available materials, otherwise, manufactured bridges are made for various span lengths and load capacities.

#### Ice Bridges

Ice bridges are most common stream crossing methods during winter months with night temperatures below 0 degrees Fahrenheit (°F) with several days to build up thick enough ice. An estimated formula was developed to estimate minimum ice thickness to support a given load.



Photo 1.0: Ice Bridge

Where:

ice thickness in inches the load or gross weight of the vehicle plus its contents, in tons



#### **Timber Bridges**

Two common designs for timber bridges are the log stinger bridges and solid sawn stringer

bridges with or without a plank deck. Log stringer bridges are built by cabling logs together from trees felled in the area of construction. Solid sawn stringer bridges are built with new lumber, railroad ties, or demolition materials.

#### **Steel Bridges**

Steel-hinged bridge and modular bridges are two types of steel bridges. Steel-hinged bridges fold up for transport, and modular steel bridges are designed with individual panels that interlock forming a bridge of variable length.



**Photo 1.0: Timber Bridge** 

#### Pre-stressed Concrete Bridges

Fabricated pre-cast, pre-stressed concrete panels are placed side-by-side to form a bridge. The bridge panels must be designed to accommodate the load capacity needed for the crossing.

#### 1.7.5 Trout Stream

Trout require cool, clear streams. Trout and aquatic insects they feed on are especially sensitive to increased sedimentation. It is therefore important to take special precautions to minimize sedimentation and maintain a shade cover to prevent excessive warming of the water. Previously mentioned practices and temporary crossings are applicable in addition to the following:

- Drain water from roads and skid roads onto ridges and side slopes. Drainage structures should not divert water directly into streams.
- Re-vegetate exposed soils following road construction as soon as possible to take advantage of the loose soil conditions for seeding.
- Use mulch, gravel, and/or rock to help stabilize fills where roads and skid roads cross streams.



#### **1.8 POLLUTION PREVENTION MANAGEMENT MEASURES**

#### 1.8.1 Spill Cleanup

Spill prevention and planning is the framework under which an outline of how a facility will prevent hazardous spills, as well as how it plans to control and contain spills from reaching surface water. This section provides Dairyland's policy and procedures for spill prevention, control, cleanup, and training.

<u>FYI</u> Spills can be cleaned up by using absorbent material, which can then be scooped up and properly disposed.

#### **1.8.1.1** SPILL PREVENTION

- 1. Develop procedures to prevent/mitigate spills to storm drain systems.
  - Standardize reporting procedures, containment, storage and disposal activities, documentation, and follow-up procedures.
- 2. Post "No Dumping" signs in appropriate substation locations with a phone number for reporting illegal dumping and disposal.
- 3. Conduct routine cleaning, inspections, and maintenance.
  - Sweep and clean storage areas. Do not hose down areas to storm drains or other inlets.
  - Place drip pans or absorbent materials beneath all mounted taps and at all potential drip and spill locations during filling and unloading of tanks. Reuse, recycle, or properly dispose of any collected liquids or soiled absorbent materials.
  - Check tanks (and any containment sumps) frequently for leaks and spills. Replace tanks that are leaking, corroded, or otherwise deteriorating with tanks in good condition. Collect all spilled liquids and properly dispose of them.
  - Check for external corrosion of material containers, structural failures, spills and overfills due to operator error, failure of piping system, etc.
  - Inspect tank foundations, connections, coatings, tank walls, and piping system.
- 4. Properly store and handle chemical materials.
  - Designate a secure material storage area that is paved with concrete, free of cracks and gaps, and impervious to contain leaks and spills.
  - Do not store chemicals, drums, or bagged materials directly on the ground. Place these items in secondary containers.



- Keep chemicals in their original containers, if feasible.
- Keep containers well labeled according to their contents (e.g., solvent, gasoline).
- Label hazardous substances regarding the potential hazard (corrosive, radioactive, flammable, explosive, and poisonous).
- Prominently display required labels on transported hazardous and toxic materials (per U.S. DOT regulations).
- 5. Utilize secondary containment systems for liquid materials.
  - Surround storage tanks with a berm or other secondary containment system.
  - If berm is used for secondary containment, slope the area inside the berm to a drain.
  - Drain liquids to the sanitary sewer, if available. Do not discharge wash water to sanitary sewer until contacting the local sewer authority to find out if pretreatment is required.
  - Pass accumulated stormwater in petroleum storage areas through an oil/water separator.
  - Use catch basin filtration inserts.
- 6. Protect materials stored outside from stormwater. Construct a berm around the perimeter of the material storage area to prevent run-on of uncontaminated stormwater from adjacent areas as well as runoff of stormwater from the material.

Did You Know?

Most people think of pollutants as chemicals like ammonia, oil, and pesticides, however, soap, cleaners, caffeine, and food can also negatively impact the environment when carried into surface waters.

7. Secure drums stored in an area where unauthorized persons may gain access to prevent accidental spillage, pilferage, or any unauthorized use.

#### **1.8.1.2** SPILL CONTROL AND CLEANUP ACTIVITIES

- 1. Identify key spill response personnel.
- 2. Clean up leaks and spills immediately.
  - Place a stockpile of spill cleanup materials where they will be readily accessible (e.g. near storage and maintenance areas).
  - Utilize dry cleaning methods to clean up spills to minimize the use of water. Use a rag for small spills, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then used cleanup materials are also hazardous and must be sent to a certified laundry or disposed of as hazardous waste.



Physical methods for the cleanup of dry chemicals include the use brooms, shovels, sweepers, or plows.

- Never hose down or bury dry material spills. Sweep up the material and dispose of properly.
- Clean up chemical materials with absorbents, gels, and foams. Use adsorbent materials on small spills rather than hosing down the spill. Remove the adsorbent materials promptly and dispose of properly.
- For larger spills, a private spill cleanup company or hazardous material team may be necessary.

#### 1.8.1.3 **REPORTING**

- 1. Report spills that pose an immediate threat to human health or the environment to local agencies.
  - Illinois Illinois Emergency Management Agency (217) 782-7860 or (800) 728-7860
  - Iowa Iowa DNR (515) 281-8694
  - Minnesota Minnesota Pollution Control Agency (State Duty Office) (651) 649-5451 or (800) 422-0798
  - Wisconsin Wisconsin DNR (800) 943-0003
- 2. Establish a system for tracking incidents. The system should be designed to identify the following:
  - Types and quantities (in some cases) of wastes
  - Patterns in time of occurrence (time of day/night, month, or year)
  - Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
  - Responsible parties
- 3. Federal regulations require that any oil spilled into a water body or onto an adjoining shoreline must be reported to the National Response Center (NRC) at (800) 424-8802 (24-hour).



#### **1.8.1.4 TRAINING**

- 1. Educate employees about spill prevention, cleanup, and reporting.
  - Establish training that provides employees with the proper tools and knowledge to immediately begin cleaning up spills.
  - Educate employees on aboveground storage tank requirements.
  - Train all employees upon hiring and conduct annual refresher training.
- 2. Train employees responsible for aboveground storage tanks and liquid transfers on the SPCC plan.

#### **1.8.2** Trash and Debris

Contractors shall keep the work site clean. Trash and debris shall not be buried within fill or backfill. Collect construction, demolition, clearing, grubbing debris, and other trash weekly for disposal off–site. No on-site burning is permitted. Contractors shall comply with federal, state, and local requirements for the disposal of solid waste.

#### **1.8.3 Hazardous Material**

Oils, fuels, and hazardous substances must be properly stored, including secondary containment for tanks larger than 50 gallons, to prevent spills. Restricted access to storage areas must be provided to prevent vandalism. Storage and disposal of hazardous materials must be in compliance with federal, state, and local regulations.



#### 1.9 **GENERAL PROVISIONS**

#### 1.9.1 Maintenance

#### 1. **DURING CONSTRUCTION**

It is the Contractor's responsibility to maintain silt fence and other temporary erosion and sediment controls in working order throughout the project. Maintenance shall include the following:

- > Sediment trap shall be at 50 percent capacity.
- Excess sediment behind silt fences and biorolls shall be removed and properly disposed when sediments reach one-third the height of the structure.
- > Tracked sediments will be removed from paved surfaces at the end of each day.
- > Construction entrances/exits shall be maintained daily.

Remove all remaining temporary BMPs and accumulated silt fences 30 days after site has undergone final stabilization.

#### 2. **AFTER CONSTRUCTION**

After Construction BMP Maintenance Activity and Schedule						
BMP	Activity	Schedule				
Retention	<ul> <li>Cleaning and removal of debris after major storm events</li> <li>Harvest excess vegetation</li> <li>Repair of embankment and side slopes</li> </ul>	Annual or as needed				
Pond/Wetland <sup>1</sup>	Removal of accumulated sediment from forebays or sediment storage areas	5-year cycle, or as needed				
	<ul> <li>Removal of accumulated sediment from main cells of pond once the original volume has been significantly reduced</li> </ul>	5- to 10-year cycle				
Detention Basin	<ul> <li>Removal of accumulated sediment</li> <li>Repair of control structure</li> <li>Repair of embankment and side slopes</li> </ul>	Annual or as needed				
Infiltration Trench <sup>1</sup>	<ul> <li>Cleaning and removal of debris after major storm events</li> <li>Mowing<sup>4</sup> and maintenance of upland vegetated areas</li> </ul>	Annual or as needed				
Infiltration Basin <sup>2</sup>	<ul> <li>Cleaning and removal of debris after major storm events</li> <li>Mowing<sup>4</sup> and maintenance of upland vegetated areas</li> </ul>	Annual or as needed				
Dasiir	Removal of accumulated sediment from forebays or sediment storage areas	3- to 5-year cycle				

# Table 12



BMP	Activity	Schedule
Sand Filters <sup>3</sup>	<ul> <li>Removal of trash and debris from control openings</li> <li>Repair of leaks from the sedimentation chamber or deterioration of structural components</li> <li>Removal of the top few inches of sand and cultivation of the surface when filter bed is clogged (only works for a few cycles)</li> <li>Clean-out of accumulated sediment from filter bed chamber</li> <li>Clean out of accumulated sediment from sedimentation chamber</li> </ul>	Annual or as needed
Bioretention <sup>5</sup>	<ul> <li>Repair of eroded areas</li> <li>Mulching of void areas</li> <li>Removal and replacement of all dead and diseased vegetation</li> <li>Watering of plant material</li> <li>Removal of mulch and application of a new layer</li> </ul>	Bi-annual or as needed Annual
Grass Swale <sup>1</sup>	<ul> <li>Mowing<sup>4</sup> and litter and debris removal</li> <li>Stabilization of eroded side slopes and bottom</li> <li>Nutrient and pesticide use management</li> <li>De-thatching swale bottom and removal of thatching</li> <li>Disking or aeration of swale bottom</li> </ul>	Annual or as needed
	<ul> <li>Scraping swale bottom and removal of sediment to restore original cross section and infiltration rate</li> <li>Seeding or sodding to restore ground cover (use proper erosion and sediment control)</li> </ul>	5-year cycle
Filter Strip <sup>3</sup>	<ul> <li>Mowing<sup>4</sup> and litter and debris removal</li> <li>Nutrient and pesticide use management</li> <li>Aeration of soil in the filter strip</li> <li>Repair of eroded or sparse grass areas</li> </ul>	Annual or as needed

<sup>1</sup>Modified from Livingston et al (1997)

<sup>2</sup>Modified from Livingston et al (1997), based on grass swale recommendations

<sup>3</sup>Modified from Claytor and Schueler (1996)

<sup>4</sup>Mowing may be required several times a year, depending on local conditions <sup>5</sup>Modified from Prince George's County (1993)



#### **1.9.2** Inspections

#### 1. DURING CONSTRUCTION

Inspections are required for all temporary erosion and sediment controls at least once every 7 days, within 24 hours of rainfall events that produce more than 0.5 inches of rain in a 24-hour period or greater, or a snowmelt event that cause surface erosion. Conduct inspections at least once per month where runoff is unlikely (due to winter conditions). Keep records for each inspection and maintenance activity and contain the following information:

- > Date and time of inspection
- Name of person(s) conducting inspection
- > Findings of inspections, including recommendations for corrective action
- Corrective actions taken, including dates, time, and party completing maintenance activities
- Date and amount of all rainfall events that produce more than 0.5 inches of rain in a 24-hour period or greater

#### 2. AFTER CONSTRUCTION

Inspect permanent BMPs annually for the first 3 years and every 3 to 5 years thereafter.

### 1.9.3 Record Keeping and Reporting

Recordkeeping is a simple, easily implemented, and cost-effective management tool. Recordkeeping manages the life cycle<sup>51</sup> of the record by assessing the records values and setting the standards by which records are retained and disposed of. There are three distinct phases in a record's life cycle:

- > Phase 1 the time at which a record is created or received and is of immediate value
- Phase 2 the point at which records have ongoing value and use but are no longer referred to on a regular basis
- Phase 3 the point at which records have no further operational use and are disposed of either by destroying them or transferring them to the archive location where they are preserved

Complete, well-organized records help ensure proper maintenance of facilities and equipment and can assist in determining the causes of erosion, sedimentation, spills, and leaks, thus recordkeeping can protect water quality by helping to prevent future problems.

<sup>&</sup>lt;sup>51</sup> Emporia State University. *Practicum in the Park, Glossary*. <u>http://slim.emporia.edu/park/glossary.htm</u> Retrieved September 21, 2006.



Records shall be maintained for at least 5 years from the date of sample observation, measurement, or spill report. The key to maintaining records is continual updating. New information, must be added to existing inspection records or spill reports as it becomes available. In addition, update records if there are changes to the number and location of discharge points, principal products, or raw material storage procedures.

Some simple techniques used to accurately document and report results include:

- Field notebooks
- > Timed and dated photographs
- > Videotapes
- > Drawings and maps
- > Computer spreadsheets and database programs

As appropriate, Dairyland should maintain records demonstrating successful implementation of BMPs. Recordkeeping may include training, site inspection and maintenance, and, if relevant, monitoring.

#### **1.9.3.1** TRAINING AND WORKSHOPS

Records of all training sessions provided to staff should be maintained to allow for:

- > Determining which staff requires which training
- > Determining when training sessions must be conducted
- > Documenting training activities for enforcement and compliance purposes

#### **1.9.3.2** SITE INSPECTION AND BMP MAINTENANCE

Inspection reports should be kept to track frequency and results of inspections, condition of BMPs inspected, and follow-up actions taken. It is also important to keep a record of maintenance activities or any other BMPs that are of an "action" nature. It is easy to demonstrate that a BMP that involves a physical change, such as berming or covering, has been accomplished. However, actions that relate to good environmental judgment can only be demonstrated by recordkeeping. Besides demonstrating compliance, records can assist in BMP management. Keeping a record of detention pond cleaning, for example, also provides insight into how long it takes for the pond to refill.



#### **1.9.3.3 TRAINING**

Education and training is the key to the success of BMP implementation. Dairyland shall adopt a training program which will address the following subjects:

- Maintenance Procedure Implementation and Inspection In this training effort, proper procedures for performing activities that may adversely affect stormwater quality are addressed. Maintenance procedures cover a wide range of activities and the training may address either all maintenance procedures applicable to Dairyland or a specific procedure (e.g. detention pond cleaning, fertilizer, and pesticide use). This training can be conducted in either a formal or a tailgate-style format.
- Pollution Prevention/Spill Awareness This training addresses the general techniques Dairyland's staff may implement to prevent pollution, as well as to respond to spills once they have occurred. Training can be tailored to management and staff who oversee pollution prevention measures, to field staff conducting activities that may result in spills, or to field staff who may encounter spills or illicit discharges.

# Appendix C: Lublin Area Study, Dairyland Power Cooperative



Lublin Area Study

Prepared by Steve Porter, EIT Power Delivery Planning and Operations System Operations Department Dairyland Power Cooperative August 2006

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# 1.0 Executive Summary

The Lublin Area Study examines long term transmission requirements in the Lublin area. This area consists of lines with high exposure miles and many of the lines are reaching the end of their useful life due to increased maintenance costs and line overloads. The study area is bounded by Independence to the south, XCEL Seven Mile to the west, Holcombe to the north and T-Corners to the east. The DPC lines in this area are Independence-Lublin (N-3), Holcombe-Lublin (N-1), and T-Corners-Willard (N-17, N-45 and N-66). In recent summers, the first section of the N-3 out of Independence has frequently overloaded on summer peak days. To relieve this problem the 12NB3 breaker at Lublin has been opened which results in decreased system reliability. A total of 11 alternatives were studied to replace transmission lines in the Lublin area. Each alternative was studied and ranked based on transmission exposure, cost and load serving ability.

The recommended plan, alternative 2, lasts long into the future and has the lowest costs per MW of load growth. Alternative 2, which can be seen in Figure 1, rebuilds the N-3 from Independence to N3Y18RC. At that point, a new 69 kV transmission station is built which ties into XCEL's Seven Mile-Cotton School 69 kV line with an existing tap line and the normally open switch, N3Y22, would be normally closed. The Bridge Creek station is planned for three 69 kV breakers, one breaker would look towards Independence, one towards Lublin and one towards XCEL Seven Mile-Cotton School, which would be operated three terminal. The proposed location for the Bridge Creek transmission station is around switch N3Y18RC. The land owned by DPC at the Fairchild capacitor a half mile away is also a possibility for expansion into a 69 kV transmission station.

The proposed Bridge Creek transmission station greatly reduces exposure miles for the majority of the load on the N-3, which is in on the southern part of the line. Bridge Creek also solves low voltage and line overload problems. Rebuilding and not retiring the 17 mile section from Bridge Creek to Willard tap allows for DPC to avoid extra load in the NSP pricing zone, provides future flexibility to accommodate new loads in the area, and enhances operational flexibility for maintenance outages. Load flows for Alternative 2 can be seen in Appendix D.

DPC's Holcombe-Lublin 69 kV line will be replaced by continuing the existing double circuit with Holcombe-Flambeau for one mile north and then continuing east on new Right of Way (ROW) to DPC's Hannibal substation. This plan will utilize an existing 4/0 ACSR 212° design tap line which was the 10.4 mile tap line to Hannibal and feed Hannibal on a much shorter tap line. The N-1 rebuild will continue from the new Gilman tap towards Lublin. Going into Lublin from the west there are approximately two miles where the N-1 and N-3 run parallel. These two sections of line will get consolidated into a double circuit line.

In the Lublin-T-Corners-XCEL Spokesville section, DPC's Lublin-Bridge Creek breaker station will be rebuilt with 477 ACSR as well as four miles of the N-17 line, Willard to the N-3. The rest of the N-17, Willard-DPC Loyal and N-45, DPC Loyal-Spencer tap line rebuild will be deferred until around 2015. In 2015, the 4/0 ACSR lines will be close to contingent overloads and will be at the end of its estimated remaining life, the line will need to be rebuilt at that time.

Construction for the Bridge Creek transmission station could begin as early as 2009. The rebuild of the N-3 could begin in 2010 or 2011 based on current DPC construction plans. Construction

of the Bridge Creek transmission station will need to be coordinated with XCEL. Appendix B shows details on the construction sequence.





Alternative 2 Facilities						
Facilities	Conductor Size	Unit Qty or Miles	Year Installed	PW Cost in 2006 Dollars		
Independence-Bridge Creek Tran. 69 kV Rebuild	477 ACSR	36.65	2011	\$7,376,291		
1/0 Section of DPC Loyal-DPC Spencer 69 kV Rebuild	477 ACSR	2.83	2015	\$471,341		
Bridge Creek TranLublin 69 kV Rebuild	477 ACSR	44.90	2011	\$9,036,711		
4/0 Sections DPC Loyal-T-Corners 69 kV Rebuild	477 ACSR	8.50	2017	\$1,282,223		
69 kV Switching Station - Bridge Creek Tran. Station	N/A	1	2011	\$595,285		
69 kV Breakers at Bridge Creek	N/A	3	2011	\$1,075,765		
N-3T to Fairchild capacitor and XCEL line 69 kV Rebuild	477 ACSR	0.5	2011	\$100,632		
Holcombe-Hannibal new ROW 69 kV	477 ACSR	14.30	2015	\$3,253,857		
N-1 - String dbl Ckt., add arms with N-307	477 ACSR	1.01	2015	\$50,939		
Gilman Tap-Lublin 69 kV Rebuild sections on existing ROW	477 ACSR	8.92	2015	\$1,485,641		
N-1/N-3 Dbl. Ckt. into Lublin 69	477 ACSR	2.00	2011	\$595,285		
Retire part of Holcombe-Gilman 69 kV	4/0 ACSR	16.20	2015	\$152,008		
Willard-DPC Loyal & DPC 4/0 section DPC Loyal-Spencer	477 ACSR	18.34	2015	\$3,053,725		
Rebuild new Gilman tap line 69 kV	4/0 ACSR	2.82	2015	\$413,447		
Total				\$28,943,149		

Listed below are the required facilities and costs for Alternative 2 in 2006 dollars.

#### Table 1 - Summary of Recommended Plan

Table 2 below lists terminal equipment limiters that should be upgraded as needed to utilize the full capacity of the new conductor. All of the "A" and "C" disconnect switches are rated at 600 Amperes. The buswork at Independence is 4/0 Copper, Lublin is 636 ACSR and Holcombe is 477 ACSR.

Terminal Limits Below 86 MVA						
Transmission Station-Breaker	Equipment	Existing Limit (MVA)				
Independence	Bus Work	57				
	Relay Load Limit	48				
Independence-8NB3	Current Transformer	72				
	A & C Disconnect Switches	72				
Lublin-12NB3	Relay Load Limit	47				
	A & C Disconnect Switches	72				
Lublin-12NB2	A & C Disconnect Switches	72				
Holcombe - 23NB1	Relay Load Limit	42.3				
	A & C Disconnect Switches	72				

 Table 2 - Terminal Equipment Limiters

## 2.0 Introduction

## 2.1 Purpose

The purpose of this study is to identify transmission issues in the Lublin area and to examine alternative plans that will address the problems. Existing issues in the system include real time heavy loading on peak summer days of the Independence-Elk Creek section of the N-3. Many substations in this area also experience above average exposure miles. The area examined in this study is shown in Figure 2. The study area boundaries are Independence to the south, XCEL Seven Mile to the west, Holcombe to the north and XCEL T-Corners to the east.



Figure 2 - Lublin Study Area

## 2.2 <u>Scope</u>

This study used the 2005 summer, winter, and summer off peak with high transfers cases of the 2005 MAPP Series Models to determine load serving issues in the Lublin area. ACCC analysis was run to determine critical contingencies affecting the area. Each alternative was reviewed based on cost, contingent performance, longevity, and transmission exposure. The longevity of

each alternative was determined by scaling up the area load and simulating the critical contingencies. Each alternative was then ranked based on cost per MW of load growth.

# 3.0 Model Development and Assumptions

The 2005 summer, summer off peak with high transfers and winter peak cases were used for this study. Updates and changes to these cases are listed below:

- Generation at Flambeau changed from 24 MW to 12.5 MW, 50% output
- Adjusted summer off-peak hydro generation in northern WI to 50%
- Change rating of N-66, T Corners-Spencer to 25 MVA
- Change rating of Bugle Lake-Whitehall on N-21 to 25 MVA
- Replaced 47 MVA transformer at XCEL T-Corners with 112 MVA and moved 47 MVA transformer to Osprey 115 bus
- Adjusted taps on T-Corners 62.5 MVA transformer
- Changed control mode of Fairchild and Loyal Capacitors from fixed to discrete
- Added DPC Medford 6 MVAR capacitor
- Change XCEL Strum Cap from 7.2 MVAR to 5.4 MVAR
- Upgraded N-7, rebuild will be apart of Utica Area Study
- Added DPC load at Osseo, 725 kW (XCEL Sumner load already in model)

## 4.0 Existing System Analysis

### 4.1 Existing Line Performance

Table 3 shows the present condition and design of the DPC lines in the Lublin Area Study. The study area has approximately 197.4 MW of load in the summer 2005 peak case. The area consists of DPC and XCEL load. The main two lines in the study area are Independence-Lublin and Holcombe-Lublin.

Existing Line Data							
Line Segment	Line	Installed Date	Condition	Structure Type	Shield Wire		
Independence-Lublin	N-3	1950	Poor	Montana	Yes		
Holcombe-Lublin	N-1	1948	Poor/Fair	Montana/Top Post/Wishbone	Yes		
DPC Loyal-N-3	N-17	1950/55	Poor/Fair	Montana	Yes		
DPC Loyal-DPC Spencer	N-45	1960	Good	Wishbone	Yes		
DPC Spencer-T-Corners	N-66	1972	Good	Wishbone	Yes		
Lublin-N-58	N-56	1963	Good	Wishbone	Yes		
Strum tap-N-3	N-32	1972	Good	Wishbone	Yes		
Longwood tap-N-3	N-130	1975	Good	Wishbone	Yes		

 Table 3 - Lublin Area Existing Line Data

Independence-Lublin has a total of 92.3 miles of line exposure; which includes 3.98 miles of the N-17. The N-3 serves six DPC and two XCEL distribution substations. The existing N-3 line

has an auto sectionalizer with remote control at the Fairchild tap. This motor operated switch breaks the line into sections of 42.45 miles and 49.86 miles in the case of a fault. There are also remote controlled switches at DPC Strum tap which help to expedite load restoration. The N-3 is rated in poor condition and has an estimated 5 years of remaining life until the lines will need to be replaced simply based on maintenance cost and reliability. Two other lines are in poor to fair condition; the N-1 and N-17. These lines have an estimated 5-10 years of remaining life.

The 2005 summer peak case caused the most stress to the system. In the base case the Independence-Elk Creek line was loaded at 96% without contingency. Table 4 shows contingencies of the existing system.

Existing System Contingency Problems (2005 summer peak)						
Facility	Contingency	Percent of Rating or Nominal Voltage				
Independence-Elk Creek	Base Case	96				
Independence-Elk Creek	T-Corner 115/69 62.5MVA,TCN-Hydrolane 115	106				
Independence-Elk Creek		118				
Elk Creek-Pleasantville	T-Corners 115/69 112 MVA, TCN-Wien 115	109				
Pleasantville-Strum T		103				
Independence-Elk Creek	Holcombe-Cornell 115	113				
Elk Creek-Pleasantville		104				
Spencer Tap-Loyal	Spokesville-XCEL Loyal 69	109				
Elk Creek 69		0.9004				
Pleasantville 69	Independence-Elk Creek 69	0.9016				
DPC Strum 69		0.9030				

#### Table 4 - Existing System Contingencies

The Independence-Elk Creek section of the N-3 can become overloaded under contingency. To resolve this problem, the Lublin breaker on the N-3 can be opened; however, this decreases system reliability and is not a long term solution to the problem. An example of decreased system reliability occurred on July 17, 2006. After opening the Lublin breaker to relieve the line loading problem, real-time security analysis predicted about 89% voltage at Irving for loss of the Tremval 161/69 kV transformer.

Another existing problem is the overload of Spencer tap-DPC Loyal tap for loss of XCEL Spokesville-XCEL Loyal. Although there is a normally open switch connecting Willard to the N-3 source, under a worst case scenario this wasn't considered a viable option, especially in a peak load case. The DPC Spencer tap-DPC Loyal tap section of the N-45 has 1/0 conductor rated at 17 MVA and can overload when it is trying to feed DPC Loyal, Grassland, Willard and XCEL Loyal radially from the T-Corners source. If this contingency did occur, the area could be reconfigured to relieve this problem. Closing the emergency tie at Willard, N17Y6 and opening on the N-3 at N3Y19 would create a Lublin-T-Corners loop and loading on the 1/0 ACSR section between Spencer and DPC Loyal would be reduced to 91%, 15.7 MVA.

## 4.2 Existing System Reliability

Table 5 shows line performance in the Lublin Area over the past 5 years. In general, DPC lines in the Lublin Area have an above average number of operations each year, however, when taking into account the age and exposure miles of the DPC lines in this area the lines perform reasonably well. The two worst performing lines in the area are XCEL's Seven Mile-Cotton School 69 line and DPC's T-Corners-Lublin-Medford 69 line. Both of these lines are at or above the average number of operations each year and operations per mile over the past 5 years.

Circuit Breaker Operations						5 Year	
Line Segment	2001	2002	2003	2004	2005	Ave.	Ave./Mile
Independence-Lublin	4	12	1	3	4	4.80	0.06
T-Corners-Loyal-Spokesville	1	7	1	0	13	4.40	0.09
XCEL Seven Mile-Cotton School	5	11	5	7	5	6.60	0.21
Holcombe-Lublin	1	6	2	2	0	2.20	0.05
TCorners-Lublin-Medford	6	9	6	1	4	5.20	0.13
DPC System Average	4.29	5.16	2.91	2.51	2.98	3.57	0.13

Table 5 - Lublin Area Line Performance

# 5.0 Analysis of Alternatives

## 5.1 Description

Originally the Lublin Area Study focused on the N-3 line and surrounding areas. The study area was eventually expanded to include the Holcombe-Lublin 69 kV line (N-1) as well. This section will analyze 2 areas: the Holcombe-Lublin area and the Independence-Lublin-T-Corners area. All of the alternatives were analyzed on a basis of permanent and temporary fault exposure miles, total cost and cost per megawatt of load growth.

The MVA rating of the new facilities was compared with the existing terminal equipment ratings, in order to determine what existing equipment should be uprated at Independence, Lublin or Holcombe. DPC standard is to use 477 ACSR conductor for looped lines and 1200 Amp switches. 477 ACSR conductor has a summer rating of 86 MVA or 720 Amperes. Terminal equipment could limit the use of the higher capacity rebuilt line. Table 6 below lists terminal equipment below 86 MVA. Buswork at Independence is 4/0 copper, Lublin is 636 ACSR and Holcombe is 477 ACSR. All of the "A" and "C" breaker disconnect switches are rated at 600 Amperes, 72 MVA. The terminal limiters should be upgraded as needed so that the full capability of the rebuilt line can be utilized.

Terminal Limiters Below 86 MVA					
Transmission Station-Breaker	Equipment	Existing Limit (MVA)			
Independence	Buswork	57			
	Relay Load Limit	48			
Independence-8NB3	Current Transformer	72			
	A & C Disconnect Switches	72			
Lublin-12NB3	Relay Load Limit	47			
	A & C Disconnect Switches	72			
Lublin-12NB2	A & C Disconnect Switches	72			
Holcombe - 23NB1	Relay Load Limit	42.3			
	A & C Disconnect Switches	72			

**Table 6 - Terminal Limiters** 

## 5.1.1 Holcombe-Lublin (N-1) Alternatives

Two options were considered for replacing Holcombe-Lublin. The N-1 can be seen in Figure 3. The first 4.1 miles of the N-1 heading east from Holcombe is a 477 ACSR double circuit with the Holcombe-Flambeau line. The remaining part of the N-1 is 4/0 ACSR conductor which has become one of the oldest lines on the DPC system and is rated as being in-between poor and fair condition as of January 2006. The N-1 can overload for loss of the double circuit out of T-Corners towards Medford. In time, maintenance costs will continue to increase and the line will need to be replaced due to its aged condition.

One option is to rebuild the entire line on existing ROW. This consisted of 29.9 miles of rebuild. The second option was to utilize the already designed and poled double circuit with the N-307, Holcombe-Flambeau, where the line turns from heading east and starts heading north for approximately 1 mile. This 1 mile of the north-south section of Holcombe-Flambeau has already been designed for a double circuit. The arms will need to be added and then string the 477 ACSR conductor. From there the line will continue east on new ROW to the DPC Hannibal sub. The existing Hannibal sub is on a 4/0 ACSR 10.4 mile tap line from the N-1. This new option would utilize the existing 4/0 ACSR Hannibal tap rated at 47 MVA and would continue rebuilding the N-1 on existing ROW from the Gilman tap into Lublin. The old line from Gilman towards Holcombe would be retired. The second option is in red on Figure 3.



Figure 3 - Lublin-Holcombe Alternatives

Table 7 shows a cost comparison of these two alternatives. The estimated in service date based on age and condition is 2015. The cost of Option 1 (N-1 rebuild) is \$5.26M and the cost of Option 2 (new ROW to Hannibal) is \$5.95M.

Holcombe-Lublin Alternative Costs				
Alternative	Cumulative Present Worth 2006 Dollars			
Option 1	\$5,259,065			
Option 2	\$5,951,177			

Table 7 - Holcombe-Lublin Alternative Costs

Two indices called the Permanent Fault Exposure Measurement (PFEM) and the Temporary Fault Exposure Measurement (TFEM) are used to measure the relative exposure of DPC's customers to permanent or temporary faults on the transmission system. These indices provide a standard for measuring the quality of service to DPC's customers. The quality of service is based on the likelihood of a transmission line being interrupted. The TFEM and PFEM are calculated based on the affected load, transmission line miles and time required to restore load following clearing due to a fault.
Table 8 shows the average exposure measurement for the Hannibal and Gilman substations and then compares those numbers with the existing system's exposure measurements. While the rebuild on existing ROW has no change, the second option is able to greatly reduce the average permanent fault exposure and also slightly reduce the average temporary fault exposure for these two substations. This is mainly attributed to eliminating the existing 10.4 mile tap line Hannibal is fed from.

Transmission Exposure for Hannibal & Gilman						
ALTERNATIVE	<b>PFEM</b> (1)	<b>TFEM (2)</b>	% PFEM	% TFEM		
	Average	Average	Decrease	Decrease		
DPC average	123.8	79.8				
Original N-1	226.2	80.6				
N-1 Rebuild	226.2	80.6	0.0	0.0		
New ROW to Hannibal	100.8	78.3	54.4	2.9		

1 – PFEM = Permanent Fault Exposure Measurement

2 – TFEM = Temporary Fault Exposure Measurement

#### Table 8 - Holcombe-Lublin Alternative Line Exposure Miles

Due to these results, the new ROW option to Hannibal was selected and used in all of the alternatives for the Lublin area. This option for replacing the N-1 costs about 13% more than the total rebuild, but is able to utilize an additional 1 mile of double circuit with Holcombe-Flambeau and serve Hannibal from an approximate 0.4 mile tap instead of 10.4 mile tap line.

The chosen alternative will retire a 16.4 mile section of the N-1 from Gilman heading north. The Chippewa Valley and Jump River long range plans were reviewed to ensure transmission line wasn't retired in an area that needed a new distribution substation. Both long range plans are for the years 2005-2014 and neither called for a new substation in the area.

### 5.1.2 Independence-Lublin Area Alternatives

In Appendix A there are 11 alternatives for replacing DPC lines in the Lublin area. Each alternative shows the 2011 rebuilds or additions in red. Each alternative also shows the future rebuilds in blue with the installation year. All of the alternatives are a combination of 69 kV rebuilds, new 69 kV line construction, and transmission station additions.

All deferred line rebuilds were tested to ensure their ability to handle the worst contingency with the load escalated at 2% a year up until the year they are to be replaced. Although these lines are reaching the end of their useful life, deferred line rebuilds are needed due to the high number of line rebuild miles in the study and resulting high cost.

### 5.2 Load Flow Analysis

Table 9 shows the longevity of all eleven alternatives. The Lublin area load has a 197.4 MW summer peak load level in 2005. Loads were scaled up for each alternative and contingencies were run to determine the maximum local load each alternative can support. The longevity test

focused on the ability of DPC's newly upgraded system to handle the worst contingency. Contingent issues like low voltages in the DPC Fly Creek area for loss of the XCEL Tremval transformer were ignored as a part of this test in order to test the longevity of the actual upgrades to the system.

Longevity of Alternatives				
Alternatives	Study Area Load Level (MW)	Contingency	Problem	
1	274	Independence-Elk Creek	Low voltage at Strum	
2	376	T-Corners-DPC Spencer Tap	Low Voltage at DPC Spencer	
3	338	Grassland-Loyal tap	Low Voltage at Grassland	
4	276	Independence-Elk Creek	Low voltage at Strum	
5	338	Grassland-Loyal tap	Low Voltage at Grassland	
6	245	Independence-Elk Creek	Low voltage at Strum	
7	376	T-Corners-DPC Spencer Tap	Low Voltage at DPC Spencer	
8	299	Independence-Elk Creek	Low voltage at Strum	
9	231	Independence-Elk Creek	Low voltage at Strum	
10	268	Independence-Elk Creek	Low voltage at Strum	
11	338	Grassland-Loyal tap	Low Voltage at Grassland	

Table 9 – Longevity of Lublin Area Alternatives

Alternatives 9 and 6 had the lowest amount of load growth, approximately 8-11 years at 2% load growth. They both experienced low voltage at DPC Strum for loss of Independence-Elk Creek. These options did not add a new breaker station that would provide a new source for the Independence-Elk Creek contingency. This resulted in low voltages due to the inability to feed the long radial out of Lublin. In some cases, placing a 6.0 MVAR capacitor bank at Willard to help voltage levels in the area under contingency did not work due to a greater than 5% voltage change under contingency.

Alternatives 2 and 7 lasted the longest into the future. These alternatives ran out of gas when the study area load level reached 376 MW. At 2% load growth in the Lublin area, 376 MW of area load is approximately equal to the year 2037. Both of these alternatives provide a new source to the N-3 by tying into XCEL's Seven Mile-Cotton School source. Alternative 2 uses a new breaker station where the two lines meet, while alternative 7 runs on new ROW to the Cotton School transmission station.

All of the longevity tests used the configuration of the system to transfer load if necessary. Many alternatives keep the normally open point around Willard or Grassland. The ability to switch these loads to either the Independence or T-Corners source depending on the contingency was able to increase the longevity of many alternatives.

## 5.3 Reliability Analysis

PFEM and TFEM were explained in the section reviewing the exposure miles for the N-1 options. Exposure miles are another useful tool to examine the impacts alternatives have on the system. Substations affected by the new alternatives with above average PFEM or TFEM were used in finding the average change of PFEM and TFEM. Seven of the distribution substations in

the Lublin area were monitored to see the effects of each alternative on the substation's exposure miles. Table 10 shows PFEM and TFEM averages for the existing study area and each alternative. Each alternative is ranked based on decrease in exposure miles.

Transmission Exposure						
ALTERNATIVE	PFEM (1) TFEM (2) PFEM Decrease TFEM Decr					rease
	Average	Average	Rank	%	Rank	%
DPC average	123.8	79.8				
Existing study area (3)	190.3	192.1				
Alternative 1	190.3	192.1	9	0	11	0
Alternative 2	191.1	128.3	10	0	6	33
Alternative 3	173.0	110.2	3	9	2	43
Alternative 4	186.6	180.8	8	2	10	6
Alternative 5	182.6	126.6	5	4	5	34
Alternative 6	191.1	128.3	10	0	6	33
Alternative 7	186.2	130.2	6	2	8	32
Alternative 8	186.3	139.2	7	2	9	28
Alternative 9	149.9	87.1	1	21	1	55
Alternative 10	159.5	112.4	2	16	3	41
Alternative 11	177.1	114.3	4	7	4	41

1 – PFEM = Permanent Fault Exposure Measurement

2 – TFEM = Temporary Fault Exposure Measurement

3 -Included DPC substations: Strum, Longwood, Spencer, Elk Creek, Willard, Loyal, Augusta

#### Table 10 - Lublin Area Transmission Exposure Miles

The alternative with the greatest reduction in PFEM and TFEM was alternative 9. This alternative reduced exposure on the N-3 the most by placing a single breaker at Fairchild, feeding Longwood radially from Lublin and DPC Loyal radially from T-Corners. In this alternative, Independence-XCEL Spokesville is looped. Alternatives 3, 10 and 11 were close behind alternative 9 with smaller reductions in PFEM but 41-43% reductions in TFEM for the sampled DPC substations.

### 5.4 Economic Comparison

Table 11 summarizes the present value of revenue requirements for each alternative in 2006 dollars. The assumed in-service date for each facility is 2011 or later. All of the alternative costs include the previously mentioned and chosen new ROW to Hannibal alternative for replacing the N-1. The present worth (PW) calculations use the following assumptions:

<b>Discount Rate:</b>	6.50%
<b>Inflation Rate:</b>	2.50%
LARR Rate:	12.54%

The revenue requirements for each option are based on a 35 year life cycle of each facility. The least cost plan is Alternative 3 with a present worth of \$25,552,825. The most expensive plan is Alternative 7 with a cost of \$30,516,365.

Lublin Area, Alternative Costs				
Alternatives	Cumulative Present Worth 2006 Dollars			
1	\$27,372,988			
2	\$28,943,149			
3	\$25,552,825			
4	\$29,370,139			
5	\$25,988,332			
6	\$27,062,773			
7	\$30,516,365			
8	\$28,998,639			
9	\$27,478,028			
10	\$27,970,089			
11	\$26,332,713			

Table 11 - Lu	ıblin Area	Alternative	Costs
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Using data acquired from the longevity of each alternative, a cost per MW of growth can be used to evaluate the alternatives. The growth of each alternative was found by subtracting the existing load in 2009 from the maximum load found from each alternative's longevity. By dividing the cost of each alternative with their respective load growth, a measure of cost versus load growth can be found. This provides another measurement for choosing a preferred alternative. Table 12 shows the cost per MW of load growth for each alternative.

	Cost versus Load Growth					
Alternatives	Cost	Max Load	Load Increase	Years from 2005 at 2% Load Growth	Cost per MW of Load Growth	
1	\$27,372,988	274.0	77.3	16.7	\$354,113	
2	\$28,943,149	376.0	179.3	32.7	\$161,423	
3	\$25,552,825	338.0	141.3	27.3	\$180,840	
4	\$29,370,139	276.0	79.3	17.1	\$370,367	
5	\$25,988,332	338.0	141.3	27.3	\$183,923	
6	\$27,062,773	245.0	48.3	11.1	\$560,306	
7	\$30,516,365	376.0	179.3	32.7	\$170,197	
8	\$28,998,639	298.9	102.2	21.1	\$283,744	
9	\$27,478,028	231.1	34.4	8.1	\$798,780	
10	\$27,970,089	268.0	71.3	15.6	\$392,287	
11	\$26,332,713	338.0	141.3	27.3	\$186,360	

Table 12 - 0	Cost per MW	of load growth
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The alternative with the lowest cost per MW is alternative 2 with a cost per MW of \$161,423. Ultimately, not retiring Bridge Creek-Willard and the ability to feed the Willard and Grassland loads from either the Lublin or T-Corners side due to contingency proved to be the best option to serve the area load long into the future.

## 5.5 <u>Sensitivity to the DPC/XCEL Network Settlement</u>

As of May 1, 2006, DPC and XCEL reached in principle a new network service agreement after the old agreement had expired. The new network service agreement defines a methodology for determining DPC load in the NSP pricing zone subject to a MISO tariff.

Alternatives 3, 5, and 11 remove a 17 mile section of the N-3 between the Fairchild capacitor and Willard tap. By removing this section, DPC subs in the Holcombe/T-Corners area would be under the MISO tariff. Table 13 shows these substations.

DPC Subs subject to MISO Tariff		
Longwood	Lublin Dist.	
Willard	Lakehead Pumping	
Loyal	Little Black	
Spencer	Stetsonville	
Gilman	Colby	
Hannibal	Flambeau Dist	
Conrath	Holcombe	

Table 13 - Possible DPC subs subject to a MISO tariff

The added yearly cost to DPC of adding the above loads that are subject to the tariff is in Table 14 below. Although Table 14 only goes out 10 years, the actual costs would continue into the future. The yearly costs begin in 2011, approximately when the recommended plan would be done. The load growth used in this analysis is 2% a year.

Year	Added Load (MW)	Cost (\$/year)
2011	36.1	\$739,364
2012	37.0	\$757,016
2013	37.9	\$775,022
2014	38.8	\$793,387
2015	39.7	\$812,119
2016	40.6	\$831,226
2017	41.6	\$850,716
2018	42.5	\$870,595
2019	43.5	\$890,872
2020	44.5	\$911,554

Table 14 - Yearly Cost Associated with Additional Load Under MISO Tariff

The yearly cost associated with adding load under the DPC/XCEL Network Settlement Agreement greatly increases the overall cost of implementing alternatives 3, 5, or 11. For this reason alternative 3, 5 and 11 are not feasible alternatives.

## 6.0 Conclusion

Transmission lines in the Lublin area are reaching the end of their useful life with increased maintenance costs, high exposure miles, line overloads and low voltages. 11 possible alternatives were examined for replacing DPC's transmission lines in the area. Each alternative was evaluated based on cost, exposure miles, future load serving ability and cost per MW of load growth.

Alternative 2 was able to last long into the future and solve existing overload and low voltage problems. Alternative 2 is also the least cost option in terms of cost per MW of load growth. The new Bridge Creek transmission station will be able to serve load on the N-3 for loss of Independence-Elk Creek and decrease exposure miles for load on the N-3. Furthermore, the Bridge Creek breaker station is on the southern section of the N-3 which has a majority of the load tapped from the Independence-Lublin line. Tying XCEL's Seven Mile-Cotton school line with the existing N-3 at the Bridge Creek transmission station provides additional system flexibility. This alternative also preserves the XCEL T-Corners-XCEL Spokesville loop. Longwood and Willard will be fed from the new Bridge Creek-Lublin line section with the option to feed these two substations from T-Corners-Spokesville in the case of an emergency.

The selected option for replacing the Holcombe-Lublin line will greatly improve permanent fault exposure for the Hannibal substation and replace a line with increasing maintenance costs due to age. The chosen plan will continue the existing double circuit with Holcombe-Flambeau for one mile heading north. Continuing on new ROW, the line will head east to the Hannibal substation. The N-1 will use the existing 4/0 ACSR 212° design tap line from Hannibal to the N-1. From there the N-1 will be rebuilt to Lublin with 477 ACSR conductor. Coming into the Lublin station the N-1 and N-3 will be consolidated into a single double circuit.

As a part of this project, terminal equipment will also need to be upgraded to prevent terminal limiters and take advantage of the full capacity of the line. Terminal equipment less than 86 MVA at Independence, Lublin and Holcombe are listed in Appendix C. Appendix B shows a recommended plan for the construction of the Independence-Lublin facilities pertaining to Alternative 2. Construction sequences for the N-1 and Willard-T-Corners area can be done closer to the construction dates. Construction of the new Bridge Creek 69 kV breaker station could begin as early as 2009. The rebuild of N-3 is estimated to begin in either 2010 or 2011 based on current construction plans. The entire present worth of this project in 2006 dollars is \$28,943,149.

# Appendix A – Alternatives



Alternative 1 Facilities					
Facilities	Conductor Size	Unit Qty or Miles	Year Installed		
Independence-Lublin 69 kV Rebuild	477 ACSR	75.61	2011		
N-3T XCEL line-Fairchild-Bridge Creek 69 kV Rebuild	477 ACSR	0.50	2011		
Holcombe-Hannibal new ROW 69 kV	477 ACSR	14.30	2015		
N-1 - String dbl Ckt., add arms with N-307	477 ACSR	1.01	2015		
Gilman Tap-Lublin 69 kV Rebuild sections on existing ROW	477 ACSR	8.92	2015		
N-1/N-3 Dbl. Ckt into Lublin 69 kV	477 ACSR	2.00	2011		
Rebuild 1/0 ACSR section of DPC Spencer tap-Loyal tap	477 ACSR	5.30	2011		
4/0 sec. DPC Spencer tap-DPC Loyal	477 ACSR	5.57	2015		
T-Corners-DPC Spencer tap	477 ACSR	8.50	2011		
Rebuild Willard tap-DPC Loyal Tap	477 ACSR	15.32	2015		
Rebuild new Gilman tap line 69 kV	4/0 ACSR	2.82	2015		



Alternative 2 Facilities				
Facilities	Conductor Size	Unit Qty or Miles	Year Installed	
Independence-Bridge Creek Tran. 69 kV Rebuild	477 ACSR	36.65	2011	
1/0 Section of DPC Loyal-DPC Spencer 69 kV Rebuild	477 ACSR	2.83	2015	
Bridge Creek TranLublin 69 kV Rebuild	477 ACSR	44.90	2011	
4/0 Sections DPC Loyal-T-Corners 69 kV Rebuild	477 ACSR	8.50	2017	
69 kV Switching Station Bridge Creek Tran. Station	N/A	1	2011	
69 kV Breakers at Bridge Creek	N/A	3	2011	
N-3T XCEL line-Fairchild-Bridge Creek 69 kV Rebuild	477 ACSR	0.50	2011	
Holcombe-Hannibal new ROW 69 kV	477 ACSR	14	2015	
N-1 - String dbl Ckt., add arms with N-307	477 ACSR	1.01	2015	
Gilman Tap-Lublin 69 kV Rebuild sections on existing ROW	477 ACSR	8.92	2015	
N-1/N-3 Dbl. Ckt into Lublin 69 kV	477 ACSR	2.00	2011	
Retire part of Holcombe-Gilman 69 kV	4/0 ACSR	16.20	2015	
Willard-DPC Loyal & DPC 4/0 section DPC Loyal-Spencer	477 ACSR	18.34	2015	
Rebuild new Gilman tap line 69 kV	4/0 ACSR	2.82	2015	



Alternative 3 Facilities				
Facilities	Conductor Size	Unit Qty or Miles	Year Installed	
Holcombe-Hannibal new ROW 69 kV	477 ACSR	14.30	2015	
N-1 - String dbl ckt., add arms with N-307	477 ACSR	1.01	2015	
Gilman Tap-Lublin 69 kV Rebuild sections on existing ROW	477 ACSR	8.92	2015	
N-1/N-3 Dbl. Ckt into Lublin 69 kV	477 ACSR	2.00	2011	
Retire part of Holcombe-Gilman 69 kV	4/0 ACSR	16.20	2015	
69 kV Switching Station Bridge Creek Tran. Station	N/A	1	2011	
69 kV Breakers at Bridge Creek Tran. Station	N/A	2	2011	
N-3 tap to Fairchild and XCEL line 69 kV Rebuild	477 ACSR	0.5	2011	
Retire Fairchild-Willard Tap 69 kV	N/A	16.80	2011	
Independence-Bridge Creek 69 kV Rebuild	477 ACSR	36.65	2011	
1/0 Section Willard tap-DPC Spencer & Lublin-Willard tap (N3) Rebuild	477 ACSR	43.22	2011	
4/0 Section DPC Spencer tap-DPC Loyal	477 ACSR	5.57	2015	
DPC Spencer Tap-T-Corners 69 kV Rebuild	477 ACSR	8.50	2027	
6.0 MVAR Cap bank at Willard	N/A	1	2011	
Rebuild new Gilman tap line 69 kV	4/0 ACSR	2.82	2015	



Alternative 4 Facilities			
Facilities	Conduct or Size	Unit Qty or Miles	Year Installed
Independence-Withee 69 kV Rebuild	477 ACSR	70.27	2011
69 kV Breaker at Withee	477 ACSR	3.00	2011
N-3T XCEL line-Fairchild-Bridge Creek 69 kV Rebuild	477 ACSR	0.50	2011
Withee Sub Expansion	N/A	1	2011
Withee-Lublin 69 kV Rebuild	477 ACSR	6	2011
Rebuild 1/0 section of DPC Spencer-Loyal tap and TCN-DPC Spencer tap	477 ACSR	13.80	2011
Rebuild 1/0 ACSR Willard Tap-Loyal tap 4/0 Section DPC Loyal-Spencer	477 ACSR	20.89	2015
Holcombe-Hannibal new ROW 69 kV	477 ACSR	14.30	2015
N-1 - String dbl Ckt., add arms with N-307	477 ACSR	1.01	2015
Gilman Tap-Lublin 69 kV Rebuild sections on existing ROW	477 ACSR	8.92	2015
N-1/N-3 Dbl. Ckt into Lublin 69 kV	477 ACSR	2.00	2011
Retire part of Holcombe-Gilman 69 kV	4/0 ACSR	16.20	2015
Rebuild new Gilman tap line 69 kV	4/0 ACSR	2.82	2015



Alternative 5 Facilities			
Facilities	Conductor Size	Unit Qty or Miles	Year Installed
Independence-Fairchild Tap 69 kV Rebuild	477 ACSR	36.69	2011
Fairchild-Cotton School 69 kV on new ROW	477 ACSR	7.20	2011
69 kV Breaker at Cotton School	N/A	1	2011
Retire Fairchild-Willard Tap 69 kV	N/A	16.80	2011
DPC Spencer tap-XCEL Loyal Tap 69 kV Rebuild	477 ACSR	10.87	2011
T-Corners-DPC Spencer 69 kV Rebuild	477 ACSR	8.50	2020
Rebuild Willard tap-Loyal tap	477 ACSR	15.32	2015
Rebuild Lublin-Longwood tap-Willard tap	477 ACSR	22.60	2011
Holcombe-Hannibal new ROW 69 kV	477 ACSR	14.30	2015
N-1 - String dbl ckt., add arms with N-307	477 ACSR	1.01	2015
Gilman Tap-Lublin 69 kV Rebuild sections on existing ROW	477 ACSR	8.92	2015
N-1/N-3 Dbl. Ckt into Lublin 69 kV	477 ACSR	2.00	2011
Retire part of Holcombe-Gilman 69 kV	4/0 ACSR	16.20	2015
Rebuild new Gilman tap line 69 kV	4/0 ACSR	2.82	2015



Alternative 6 Facilities			
Facilities	Conductor Size	Unit Qty or Miles	Year Installed
Independence-Lublin 69 kV Rebuild	477 ACSR	75.61	2011
69 kV Breaker at Fairchild	N/A	1	2011
Dbl. Ckt. Into Fairchild to Fairchild Breaker 69 kV Rebuild	477 ACSR	0.46	2011
Rebuild 1/0 Sections of Willard tap-DPC Spencer tap	477 ACSR	20.615	2015
Rebuild 4/0 Sections TCN-DPC Spencer tap, DPC Loyal-DPC Spencer tap	477 ACSR	14.07	2017
Holcombe-Hannibal new ROW 69 kV	477 ACSR	14.30	2015
N-1 - String dbl ckt., add arms with N-307	477 ACSR	1.01	2015
Gilman Tap-Lublin 69 kV Rebuild sections on existing ROW	477 ACSR	8.92	2015
N-1/N-3 Dbl. Ckt into Lublin 69 kV	477 ACSR	2.00	2011
Retire part of Holcombe-Gilman 69 kV	4/0 ACSR	16.20	2015
Rebuild new Gilman tap line 69 kV	4/0 ACSR	2.82	2015



Alternative 7 Facilities				
Facilities	Conductor Size	Unit Qty or Miles	Year Installed	
Independence-Fairchild 69 kV Rebuild	477 ACSR	36.69	2011	
Fairchild-Cotton School New ROW 69 kV	477 ACSR	7.20	2011	
Retire Fairchild-Willard tap 69 kV	4/0 ACSR	16.82	2011	
Willard Tap-Lublin 69kV Rebuild & Willard tap-Willard	477 ACSR	27.62	2011	
69 kV Breakers at Cotton School	N/A	2	2011	
Cotton School-Willard Tap new ROW 69 kV	477 ACSR	14.60	2011	
Rebuild 1/0 Sections of Willard -DPC Spencer tap	477 ACSR	15.60	2015	
Rebuild 4/0 Sections TCN-DPC Spencer tap, DPC Loyal-DPC Spencer tap	477 ACSR	14.07	2017	
Holcombe-Hannibal new ROW 69 kV	477 ACSR	14.30	2015	
N-1 - String dbl Ckt., add arms with N-307	477 ACSR	1.01	2015	
Gilman Tap-Lublin 69 kV Rebuild sections on existing ROW	477 ACSR	8.92	2015	
N-1/N-3 Dbl. Ckt into Lublin 69 kV	477 ACSR	2.00	2011	
Retire part of Holcombe-Gilman 69 kV	4/0 ACSR	16.20	2015	
Rebuild new Gilman tap line 69 kV	4/0 ACSR	2.82	2015	



Alternative 8 Facilities				
Facilities	Conductor Size	Unit Qty or Miles	Year Installed	
Independence-Foster 69 kV Rebuild	477 ACSR	53.47	2011	
Foster 69 kV Switching Station	N/A	1	2011	
69 kV Breakers at Foster SS	N/A	3	2011	
N-3T XCEL line-Fairchild-Bridge Creek 69 kV Rebuild	477 ACSR	0.50	2011	
1/0 Sections T-Corners-Foster 69 kV Rebuild	477 ACSR	21	2011	
4/0 Sections T-Corners-Foster 69 kV Rebuild	477 ACSR	14.07	2020	
Rebuild Foster-Lublin	477 ACSR	22.6	2011	
Holcombe-Hannibal new ROW 69 kV	477 ACSR	14.3	2015	
N-1 - String dbl Ckt., add arms with N-307	477 ACSR	1.01	2015	
Gilman Tap-Lublin 69 kV Rebuild sections on existing ROW	477 ACSR	8.92	2015	
N-1/N-3 Dbl. Ckt into Lublin 69 kV	477 ACSR	2.00	2011	
Retire part of Holcombe-Gilman 69 kV	4/0 ACSR	16.20	2015	
Rebuild new Gilman tap line 69 kV	4/0 ACSR	2.82	2015	



Alternative 9 Facilities			
Facilities	Conductor Size	Unit Qty or Miles	Year Installed
Independence-Fairchild 69 kV Rebuild	477 ACSR	36.19	2011
Fairchild-T-Corners N-3 & 1/0 Sections 69 kV Rebuild	477 ACSR	37.90	2011
69 kV Breaker at Fairchild	N/A	1.00	2011
4/0 Sections DPC Loyal-T-Corners 69 kV Rebuild	477 ACSR	14	2020
Rebuild Lublin-Longwood tap	477 ACSR	7.80	2011
Rebuild N.O. section Longwood tap-Willard tap	477 ACSR	14.80	2015
6.0 MVAR Cap bank at Willard	N/A	1	2011
Holcombe-Hannibal new ROW 69 kV	477 ACSR	14	2015
N-1 - String dbl Ckt., add arms with N-307	477 ACSR	1.01	2015
Gilman Tap-Lublin 69 kV Rebuild sections on existing ROW	477 ACSR	8.92	2015
N-1/N-3 Dbl. Ckt into Lublin 69 kV	477 ACSR	2.00	2011
Retire part of Holcombe-Gilman 69 kV	4/0 ACSR	16.20	2015
Rebuild new Gilman tap line 69 kV	4/0 ACSR	2.82	2015
Dbl. Ckt. Into Fairchild to Fairchild Breaker 69 kV Rebuild	477 ACSR	0.46	2011



Alternative 10 Facilities			
	Conductor	Unit Qty or	Year
Facilities	Size	Miles	Installed
Independence-Foster 69 kV Rebuild	477 ACSR	53.47	2011
69 kV Breaker Station at Foster	N/A	1	2011
69 kV Breakers at Foster	N/A	2	2011
Rebuild Foster-Lublin	477 ACSR	22.6	2011
N-3T XCEL line-Fairchild-Bridge Creek 69 kV Rebuild	477 ACSR	0.50	2011
Rebuild 1/0 sections Loyal tap-DPC Spencer tap	477 ACSR	9.3	2020
Rebuild 4/0 Sections TCN-DPC Spencer tap, DPC Loyal-DPC Spencer tap	477 ACSR	14.07	2020
Rebuild Foster-Grassland, N-17	477 ACSR	11.32	2011
Holcombe-Hannibal new ROW 69 kV	477 ACSR	14.30	2015
N-1 - String dbl Ckt., add arms with N-307	477 ACSR	1.01	2015
Gilman Tap-Lublin 69 kV Rebuild sections on existing ROW	477 ACSR	8.92	2015
N-1/N-3 Dbl. Ckt into Lublin 69 kV	477 ACSR	2.00	2011
Retire part of Holcombe-Gilman 69 kV	4/0 ACSR	16.20	2015
Rebuild new Gilman tap line 69 kV	4/0 ACSR	2.82	2015



Alternative 11 Facilities			
Facilities	Conductor Size	Unit Qty or Miles	Year Installed
69 kV Switching Station Bridge Creek Tran. Station	N/A	1	2011
69 kV Breakers at Bridge Creek Tran. Station	N/A	2	2011
N-3 tap to Fairchild and XCEL line 69 kV Rebuild	477 ACSR	0.5	2011
Retire Fairchild-Willard Tap 69 kV	N/A	16.8	2011
Independence-Bridge Creek 69 kV Rebuild	477 ACSR	36.65	2011
1/0 Section Loyal tap-DPC Spencer 69 kV Rebuild	477 ACSR	5.57	2011
4/0 Section T-Corners-DPC loyal & Willard tap-Loyal tap	477 ACSR	28.35	2015
Willard Tap-Lublin 69kV Rebuild	477 ACSR	27.62	2011
Holcombe-Hannibal new ROW 69 kV	477 ACSR	14.30	2015
N-1 - String dbl ckt., add arms with N-307	477 ACSR	1.01	2015
Gilman Tap-Lublin 69 kV Rebuild sections on existing ROW	477 ACSR	8.92	2015
N-1/N-3 Dbl. Ckt into Lublin 69 kV	477 ACSR	2.00	2011
Retire part of Holcombe-Gilman 69 kV	4/0 ACSR	16.20	2015
Rebuild new Gilman tap line 69 kV	4/0 ACSR	2.82	2015

<u>Appendix B – Construction Issues</u>

## Construction Issues

Recommended Sequence of N3 rebuild:

- 1. 2008/2009: Bridge Creek 69 kV switching Station. Until rebuild of N-3 begins, operate N3Y15RC N.O. at Strum to split up exposure and to address the IND-Elk Creek 69 kV overload.
- 2. 2008/2009: N-3T, XCEL line-Bridge Creek
- 3. 2010: Independence-Strum DPC Tap
- 4. 2011: Strum DPC Tap-Bridge Creek
- 5. 2011: Lublin-Longwood Tap 69 kV
- 6. 2012: Bridge Creek-Longwood Tap 69 kV

If the above sequence is followed, there are no seasonal limitations

Appendix C – Terminal Limit Upgrades

## **Terminal Limiters**

The rating of 477 ACSR is 86 MVA. Substation terminal limits should be upgraded before the line rebuild is complete so that the full rating of the line can be utilized. The DPC transmission substations affected by the Lublin area study are Lublin, Holcombe and Independence. Terminal limiters are listed below. These limiters are for all alternatives.

Terminal Limits Below 86 MVA				
Transmission Station-Breaker	Equipment	Existing Limit (MVA)		
Independence	Buswork	57		
	Relay Load Limit	48		
Independence-8NB3	Current Transformer	72		
	A & C Disconnect Switches	72		
Lublin-12NB3	Relay Load Limit	47		
	A & C Disconnect Switches	72		
Lublin-12NB2	A & C Disconnect Switches	72		
Holcombe - 23NB1	Relay Load Limit	42.3		
	A & C Disconnect Switches	72		

Note:

- Buswork:
  - Independence is 4/0 Copper
  - Lublin is 636 ACSR
  - Holcombe is 477 ACSR
- All "a" and "C" disconnects switches are 600 Amps
- The middle section of the new N-1 configuration will be rated at 47 MVA
- Terminal upgrades for the N-1 delayed rebuild, 23NB1 & 12NB2, should be done before the estimated construction date of 2015

## Appendix D - PSS/E Power Flow Output

# Appendix D: Preliminary Wetland Delineation Report for Phase I (Strum Tap to Willard Tap)

## WETLAND DELINEATION REPORT STRUM - LUBLIN 69kV (N-3) TRANSMISSION LINE REBUILD PROJECT PHASE I: STRUM TAP TO WILLARD TAP CLARK, EAU CLAIRE, JACKSON AND TREMPEALEAU COUNTIES, WISCONSIN



**Prepared for:** 



Dairyland Power Cooperative 3200 East Avenue South La Crosse, Wisconsin 54602

**Prepared by:** 


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# ACRONYMS AND ABBREVIATIONS

CWA	Clean Water Act
DNR	Department of Natural Resources
DPC	Dairyland Power Cooperative
EPA	Environmental Protection Agency
GP	general permit
kV	kilovolt
MLRA	major land resource area
NHD	National Hydrography Dataset
NRCS	Natural Resource Conservation Service
NRPW	non-relatively permanent water
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
ROW	right-of-way
RPW	relatively permanent water
SSURGO	Soil Survey Geographic (database)
TNW	traditional navigable water
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WOUS	waters of the United States
WWI	Wisconsin Wetland Inventory

# **1.0 INTRODUCTION**

Tetra Tech, Inc. (Tetra Tech) conducted wetland delineations for Phase I of the proposed Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project (Project). The Strum Tap to Willard Tap (Phase I) portion of the proposed Project is located in Clark, Eau Claire, Jackson and Trempealeau counties of Wisconsin. This Wetland Delineation Report includes a description of the Project Area, methods used to delineate wetlands, delineation results, and references used to support the conclusions. Appendices include figures illustrating the Project and survey results, field data forms, and site photographs.

#### 1.1 **Project Location and Description**

The proposed Project consists of rebuilding approximately 58 miles of DPC's existing 76-mile 69kV N-3 transmission line within an 80-foot right-of-way (ROW). The 58 miles that make up the proposed Project are part of the central and northern segments of DPC's N-3 transmission line between Strum Tap in Trempealeau County and Lublin Substation in Clark County. The proposed Project also crosses Jackson and Eau Claire counties. Construction of the Project is scheduled to take place in two phases. Phase I, proposed to begin construction in summer 2013, includes approximately 34 miles of transmission line between Strum Tap and Willard Tap (Project Area), and Phase II, proposed to begin construction in summer 2014, includes approximately 24 miles of transmission line between Willard Tap and Lublin Substation. Only the Strum Tap to Willard Tap (Phase I) portion of the project within the 80-foot ROW (Project Area) is considered in this report. The Project Area is shown on Figure 1. The Project Area generally consists of agricultural pasture and crop lands and forest. The Project Area is located within portions of the sections of land listed in Table 1.

County	Township	Range	Section(s)
Jackson	24N	6W	5, 7, 8
Trempealeau	24N	7W	12-17
Eau Claire	25N	5W	3-10, 18-19
Eau Claire	25N	6W	24-32
Clark	26N	4W	10-13, 15-17, 19-20
Eau Claire	26N	5W	22-24, 27, 34

Table 1: Project Location – Phase I

DPC is proposing to replace the existing single-pole wood transmission structures with new single-pole wood structures that would be approximately 60-80 feet tall with a span between structures of approximately 300-400 feet. Approximately 580 single-pole transmission structures would be constructed as part of Phase I.

#### 1.2 Area of Analysis

In August 2012 Tetra Tech conducted a wetland evaluation survey of the entire (Phase I and Phase II) Project ROW (Tetra Tech 2012). The evaluation survey identified 104 potential wetlands within the Project ROW. Of these 104 potential wetlands, Tetra Tech and DPC identified 55 within the Phase I portion of the Project where proposed structures were located within the potential wetland boundary. These 55 potential wetlands that may be permanently impacted by the Project were designated by DPC to be formally delineated. Wetlands listed in Table 2 were delineated within the 80-foot wide ROW.

Wetland Evaluation Feature ID	Impacting Structure(s)	Wetland Evaluation Feature ID	Impacting Structure(s)	Wetland Evaluation Feature ID	Impacting Structure(s)
001	314	051	570-574	082	95-101
006	356	053	576-577	084	130-132
009	362-364	056	581-583	087	139-143
011	368	058	4-12	089	151-154
012	380-382	059	18-21	092a	161-162
015	378-379	060	23-25	093	168
017	391	061	26	095	176
018	394-395	063	28-29	102	219
022	429	065	31-32	105	222
023	430	067	38-40	108	232
024	436	068	41	110	240-242
025	438	070	46-48	114	257-258
031	452-453	072	51-55	116	261
032	464-465	074	59-61	118	267-268
038	493	076	62-64	119	270
039	527	077	69-71	120	272-273
041	528-530	078	80-86	123	290-296
047	559	080	90		
048	560	081	92		

 Table 2: Potential Wetlands Identified for Delineation

#### 1.3 Physical Setting and Hydrology

The southern portion of the Project Area is located in the Natural Resource Conservation Service (NRCS) Northern Mississippi Valley Loess Hills Major Land Resource Area (MLRA) (M 105), which encompasses southwestern Wisconsin, southeastern Minnesota and northeastern Iowa. This region is a part of the "Driftless Area" of Wisconsin characterized by gently sloping to rolling hills that are relatively unaffected by glaciation. The majority of land in this region has been converted to agriculture, primarily for row-crops as well as pasture to a lesser extent. Areas with greater slopes not suitable to cultivation are often wooded. Uplands in this region generally support native hardwoods (oak, hickory and sugar maple) as well as big and little bluestem. Lowlands support mixed hardwoods (elm, cottonwood, river birch, ash, silver maple and willow) as well as sedge and grass meadows (USDA NRCS 2006).

The northern portion of the Project Area is located in the NRCS Wisconsin Central Sands MLRA (K 89), which is a relatively small region in central Wisconsin. This region is also a part of the "Driftless Area" of Wisconsin and is characterized by isolated buttes and mesas, valley trains, floodplains and extensive wetlands. The northern and western parts of the region, where the Project Area is located, consist primarily of low hills and piedmonts. This region lies within the southern part of the conifer-hardwood forest, which includes xeric pine savannas and oak barrens. Dominant tree species include jack pine, northern pine, black oak and white oak. The extensive wetlands support red maple, aspen, paper birch and

speckled alder. The majority of this region is forested, with some areas used for agriculture (row crops, cranberry production and pasture) (USDA NRCS 2006).

The climate within the Project Area is continental with warm summers and cold winters. Spring and fall are typically short with periods of sharp temperature transitions (USDA 1922, USDA 1968, USDA 1974, USDA 1994). Precipitation in the Project Area averages between 30 inches and 38 inches, most of which falls as rain during the growing season of approximately May through September (USDA NRCS 2006).

The Project Area is located in the Upper Mississippi-Black-Root and the Chippewa watershed subregions. The extreme southwestern portion of the Project Area is located in the Upper Mississippi-Black-Root subregion and is drained by King Creek, North Fork Buffalo River, South Fork Buffalo River and their tributaries, which flow generally west and southwest to the Buffalo River and, ultimately, the Mississippi River. The northwestern portion of the Project Area is located in the Chippewa subregion and is drained by Black Creek, Hay Creek, Horse Creek, Iron Run and their tributaries, which flow generally north and northwest to the Eau Claire River and, ultimately, the Chippewa River (USGS 2012).

#### 1.4 Regulatory Framework

The U.S. Army Corps of Engineers (USACE) has regulatory authority over navigable waters as defined by Section 10 of the Rivers and Harbors Act, and the USACE and the Environmental Protection Agency (EPA) have regulatory authority over waters of the U.S. (WOUS) as defined by Section 404 of the Clean Water Act (CWA). The Project is located within the USACE - St. Paul District. Several classes of water bodies are subject to federal jurisdiction under the CWA, including: traditional navigable waters (TNWs); non-navigable tributaries of TNWs that are relatively permanent (RPWs); and wetlands that directly abut RPWs (EPA and USACE 2008)<sup>1</sup>.

The EPA and the USACE are required to assert jurisdiction over other certain types of waters based on a fact-specific analysis as to whether they have a significant nexus with a TNW (USACE 2007). These types of waters include:

- Non-navigable tributaries that are relatively non-permanent (NRPW);
- Wetlands adjacent to NRPWs; and,
- Wetlands adjacent to, but not directly abutting, an RPW.

The regulations define adjacent as "bordering, contiguous, or neighboring," and state that wetlands separated from other WOUS by barriers such as natural river berms, man-made dikes and beach dunes may be considered adjacent wetlands. The ruling also requires that agencies not generally assert jurisdiction over the following features:

- Swales or erosional features (e.g. gullies, small washes characterized by low volume, infrequent or short duration of flow); and,
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

Guidance issued jointly by the EPA and USACE states that agencies will apply the significant nexus standards as follows:

<sup>&</sup>lt;sup>1</sup> Draft revised guidance regarding jurisdiction of waters under the CWA was issued by the EPA and USACE (76 *Fed. Reg.* 128 [5 July 2011]). The draft guidance provides clarification on waters not regulated by the CWA.

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream traditional navigable waters; and,
- Significant nexus includes consideration of hydrologic and ecological factors.

The regulations specify that tributaries to WOUS should be considered WOUS. In the absence of adjacent wetlands, lateral jurisdiction over non-tidal waters extends to the ordinary high water mark (OHWM). The definition of the OHWM is "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 *CFR* 328.3(e) [2012]).

Only the USACE can make a final determination on the jurisdiction of a wetland at a site; therefore, jurisdictional determinations provided in this report are preliminary and are based on application of the above guidance following desk top review of relevant information and field inspection. If development is to occur, the USACE also determines the type of permit, if any, that may be required under the CWA.

Certain developments in WOUS may be permitted by the USACE under a Nationwide Permit or regional General Permit (GP). The proposed Project may be authorized under GP-002-WI. To qualify for GP authorization, the prospective permittee must comply with the general conditions identified within the relevant section(s) of the GP (USACE 2011a). Section 2a(9) of GP-002-WI discusses authorization of utility line discharges resulting from activities required for the construction, maintenance, repair and removal of utility lines and associated facilities (i.e., utility lines, utility line substations, and foundations for overhead utility line towers, poles and anchors) in WOUS, provided the activity does not result in the loss of greater than 10,000 square-feet of WOUS for each single and complete project<sup>2</sup>. Utility line activities are authorized under a reporting GP and a joint state-federal application must be submitted to the USACE and Wisconsin Department of Natural Resources (DNR) prior to construction.

The Wisconsin DNR also has regulatory authority over wetlands and waterways within the state. A permit is required from the DNR for any excavation or placement of material within a wetland or other water of the state in accordance with sections 30 and 281.36 of Wisconsin Statues, and NR 299 and NR 103 of the Wisconsin Administrative Code. Waters of the state include those portions of Lake Michigan and Lake Superior within the boundaries of Wisconsin, and all lakes, bays, rivers, streams, springs, ponds, wells, impounding reservoirs, marshes, watercourses, drainage systems and other surface or ground water, natural or artificial, public or private, within the state or its jurisdiction (NR 103.02 [4]).

A single wetland or waterway may be regulated by the USACE and Wisconsin DNR. A joint application and review process has been established between the USACE and Wisconsin DNR for activities requiring a permit from both agencies.

 $<sup>^{2}</sup>$  A "single and complete" project is defined as the total project proposed by the proponent. For any development or linear project that affects several different areas of WOUS, the cumulative total of all filled areas is the basis for deciding the project's total wetland/water impact. For phased development, each phase may constitute a single and complete project if it has independent utility and would accomplish its intended purpose whether or not other phases were constructed (USACE 2011a).

# 2.0 METHODS

#### 2.1 Desktop Data Review

Prior to and during the wetland delineation survey, available information was reviewed to assist and support wetland delineation activities. Data sources reviewed include recent aerial photographs, the U.S. Geological Survey (USGS) National Hydrography Dataset (NHD), Wisconsin Wetland Inventory (WWI), and the Soil Survey Geographic (SSURGO) database.

#### 2.2 Wetland Delineations

Wetland delineations were conducted in accordance with the three-parameter approach outlined in the USACE 1987 Manual (Environmental Laboratory 1987), and the Midwest Regional Supplement (USACE 2010) or Northcentral and Northeast Regional Supplement (USACE 2011b), as appropriate.

For each delineated wetland, a transect was established perpendicular to the potential wetland being investigated nearest the location of potential impacts that would result from development of the Project, often along the centerline of the Project ROW. Sample plots were then placed along the transect. These plots were the points in the field at which wetland characteristics were studied in accordance with the 1987 Manual and Regional Supplement. Sample plots were established within the feature being investigated at the location determined to have the highest potential to exhibit wetland characteristics. This determination was based on local topography and the presence of wetland hydrology and/or wetland vegetation. Sample plots were established near proposed transmission structure locations when feasible.

If positive indicators of wetland vegetation, hydrology, and hydric soils were present at a sample plot, data was collected from additional sample plots placed to delineate the transition from wetland to upland. The boundary of each wetland delineated is determined as the location where at least one of the above three parameters failed to meet wetland criteria. If no sample plot within the potential wetland meets all three parameters, no wetland is delineated and the area is determined to be non-wetland.

Vegetation within each sample plot was characterized to determine dominance of either hydrophytic or non-hydrophytic vegetation. Dominance is estimated based on the percent coverage within sample plots with a 5-foot radius for herbaceous vegetation, a 15-foot radius for samplings and shrubs, and a 30-foot radius for trees and woody vines. Wetland indicator status for all plant species followed the USACE National Wetland Plant List (USACE 2012) Soils at each sample plot were evaluated and determined to be hydric or not hydric according to the guidelines put forth in the U.S. Department of Agriculture (USDA) NRCS *Field Indicators of Hydric Soils in the U.S.* (USDA NRCS 2010) and the Regional Supplement (USACE 2010, USACE 2011b). Hydrology was assessed by evaluating each sample plot for field indicators of wetland hydrology such as inundation, soil saturation, water marks, drainage patterns, and topographic position as described in the Regional Supplement (USACE 2011b).

#### 2.2.1 Digital Capture of Data

A geodatabase was specifically designed for the Project that was used to collect wetland feature location data in the field using Trimble GPS technology, as well as to manage and display features for quality control and electronic deliverables. The geodatabase contains three types of feature classes for data capture: wetland points, wetland lines, and wetland polygons. Additional attribute data collected in the field at the time the feature was collected included:

- Date feature was collected;
- Feature type: seasonally flooded basin, shallow marsh, shrub swamp, or wooded swamp;
- Notes if the feature extends beyond what was collected, in what direction and approximately how far;
- Other feature issues (i.e. impacts by landowner, road crossing, or other noted disturbances);

The geodatabase was loaded on a Trimble GeoXT handheld GPS unit, which has an accuracy of one meter or less, and ran both ESRI's ArcPad 7 and Trimble GPS Correct Software Packages.

After the field data were post-processed, the biologist who collected the field data conducted a quality control review of the geodatabase to ensure the features collected corresponded with field observations.

# 3.0 **RESULTS**

#### 3.1 Desktop Data Review

The following sections describe the data sources reviewed prior to, and utilized as part of, the wetland delineation survey. These data sources include recent aerial photographs, the USGS NHD, WWI, and SSURGO Soils.

#### **3.1.1** Aerial Photographs

Recent aerial photography for the Project Area was obtained from Digital Globe (2010). The reviewed 2010 aerial photography showed the Project Area to be a mix of agricultural crop and pasture lands, and forest lands. The southern end of the Project Area appeared to be largely agricultural with the northern portion consisting of mixed hardwood and coniferous forest. The region appears to have a well-established drainage system with numerous streams and intermittent drainages, and relatively few apparent isolated wetlands. Reviewed aerial photography is presented on Figure 2 (provided as appendix A of the Environmental Assessment).

#### 3.1.2 National Hydrography Dataset

The NHD was downloaded from the USGS NHD website (USGS 2012). The Project Area is located in four HUC4 watersheds. The south end of the Project Area originates in the Harvey Creek-Buffalo River watershed and transects the Eau Claire River watershed and Hay Creek-Eau Clair River watershed before terminating at the north end in the South Fork Eau Claire River watershed. The Project Area crosses many intermittent and perennial streams. Named streams crossed by the Project Area include Black Creek, Bridge Creek, Diamond Valley Creek, Hay Creek (2), Horse Creek, Iron Run, King Creek, North Fork Buffalo River, Pea Creek, South Fork Buffalo River, Surveyor Creek, Thompson Valley Creek, and Travis Creek. It appears that all NHD stream features depicted in the Project Area are hydrologically connected to a TNW. Waterways in the Harvey Creek-Buffalo River watershed in the southern portion of the Project Area drain to the Mississippi River, and streams in the northern portion of the Project Area drain to the Chippewa River. The NHD data are presented on Figure 2 (provided as appendix A of the Environmental Assessment).

#### 3.1.3 Wisconsin Wetlands Inventory

The WWI data for the Project Area was obtained from the Wisconsin DNR. Digital WWI data was provided for Trempealeau and Clark counties. Digital data was not available for Eau Claire or Jackson counties. WWI data for these counties was provided on paper maps that were scanned, geo-referenced, and digitized in GIS for review and inclusion on field maps. The WWI data indicated the presence of 99 wetlands in the Project Area. The presence of many of these wetlands was confirmed during the Wetlands and Waters Evaluation survey (Tetra Tech 2012), however, numerous potential wetlands not depicted within the WWI data were identified during this survey suggesting that the WWI generally underestimates wetlands in this region. The WWI data are presented on Figure 2 (provided as appendix A of the Environmental Assessment).

#### 3.1.4 Soil Survey

Soils data for the Project Area were obtained from the NRCS Soil Survey Geographic (SSURGO) Database. This information was used to study the distribution of hydric soils within the Project Area. According to reviewed data, there are 68 soil series represented within the Project Area. Soil, as it relates to wetland delineations, must be classified as a hydric soil for the area to qualify as a wetland in accordance with the 1987 Manual (Environmental Laboratory 1987) and the Regional Supplement (USACE 2010, USACE 2011b). Hydric soils are defined as soils that are formed under conditions of saturation, flooding, or ponding that occurs long enough during the growing season to develop anaerobic conditions. In the SSURGO database, soils may be classified as not hydric (all series components rated as not hydric), partially hydric (at least one component rated as hydric and at least one component rated as not hydric) or all hydric (all series components rated as hydric). In the Project Area, approximately 74 percent of the land area consists of soils that are classified as not hydric, 12 percent are classified as partially hydric and 14 percent are classified as all hydric. Table 3 summarizes the type and extent of soils found in the Project Area. The distribution of hydric soils within the Project area is depicted on Figure 3.

Symbol	Soil Series	Hydric Class	Area (acres)
FmA, FmB	Fairchild and Merrillan soils	Partially hydric	24.10
ScA	Simescreek sand	Not hydric	21.63
LuB, LuC	Ludington and Humbird soils	Not hydric	20.29
MdA, MdB, MdC2	Meridian loam	Not hydric	18.54
SeB, SeC2, SeD2, SmB	Seaton silt loam	Not hydric	17.15
Ео	Elm Lake loamy sand	All hydric	13.42
GoA, GoB, GoC, GoC2, GoD2	Gotham loamy fine sand	Not hydric	12.84
296B, LuB, LuC	Ludington sand	Not hydric	11.11
GaB, GaC2, GaD2	Gale silt loam	Not hydric	11.04
224B, 224C2	Elevasil sandy loam	Not hydric	9.95
BIB, BIC2, BID2	Billett fine sandy loam	Not hydric	9.57
MdB	Menahga sand	Not hydric	9.45
BoB, BoC, BoE	Boone-Plainbo complex	Not hydric	8.29
EmC2, EmD2, EmE	Elkmound loam	Not hydric	8.22
LxB	Ludington-Fairchild sands	Not hydric	7.97
FeA	Fairchild-Elm Lake complex	Partially hydric	7.67
LfB2, LfC2	La Farge silt loam	Not hydric	6.48
RkA	Rockdam sand	Not hydric	6.21
FrA	Friendship loamy sand	Not hydric	6.02
ElB, ElC2, ElD2	Eleva sandy loam	Not hydric	5.84
AtB, AtC2	Arland sandy loam	Not hydric	5.34
Af	Alluvial land	All Hydric	5.19
Ve	Vesper loam	All hydric	5.09
KeA	Kert loam	Partially hydric	5.06
Ma	Markey muck	All hydric	4.66
Vd	Veedum silt loam	All hydric	4.28
HnB, HnB2, HnC2, HnD2	Hixton loam	Not hydric	4.20

Table 3: Soil Series in the Project	t Area
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Symbol	Soil Series	Hydric Class	Area (acres)
Or	Otter silt loam	All hydric	4.05
NtC2, NtE2	Northfield silt loam	Not hydric	3.98
EaB	Eauclaire loamy sand	Not hydric	3.83
PdC2	Plainbo loamy sand	Not hydric	3.60
213C2	Hixton silt loam	Not hydric	3.30
1234B	Bilson-Silverhill sandy loams	Not hydric	3.02
PoB	Pillot silt loam	Not hydric	2.86
Pv	Ponycreek-Dawsil complex	All hydric	2.66
Na	Newson loamy sand	All hydric	2.55
SpB	Sparta loamy sand	Not hydric	2.54
PeA	Pelkie-Winterfield loamy fine sands	Not hydric	2.37
HeC2	Hiles silt loam	Not hydric	2.24
233C	Boone sand	Not hydric	2.16
551A	Impact sand	Not hydric	1.98
Но	Houghton muck	All hydric	1.70
MgB	Menahga loamy sand	Not hydric	1.32
434B	Bilson sandy loam	Not hydric	1.29
SrA	Sparta loamy fine sand	Not hydric	1.26
HkB	Hiles and Kert soils	Partially hydric	1.24
DkB	Dickinson fine sandy loam	Not hydric	1.18
561B	Tarr sand	Not hydric	1.16
PfB	Plainfield loamy sand	Not hydric	1.10
Ра	Palms muck	All hydric	1.02
EnF	Eleva-Boone complex	Not hydric	1.00
569A	Newlang muck	Partially hydric	0.99
30A	Adder muck	All Hydric	0.98
566A	Tint sand	Not hydric	0.92
TrB	Trempe loamy sand	Not hydric	0.85
Lv	Loamy alluvial land	Not hydric	0.82
Ka	Kato loam	All hydric	0.81
288A	Merrillan fine sandy loam	Partially hydric	0.79
1234C2	Bilson-Elevasil sandy loams	Not hydric	0.64
IxA	Ironrun-Ponycreek complex	Partially hydric	0.59
ArA	Arenzville silt loam	Partially hydric	0.57
Da	Dawsil mucky peat	All hydric	0.53
Sa	Sandy alluvial land	Not hydric	0.50
WoA	Worthen silt loam	Not hydric	0.26
GP	Gravel pit	Partially hydric	0.23
NoC2	Norden loam	Not hydric	0.14
1224F	Boone-Elevasil complex	Not hydric	0.02
679A	Ettrick silt loam	Partially hydric	< 0.01

#### **3.2 Wetland Delineation Survey**

Wetland delineations were conducted from September 18, 2012 through September 27, 2012. Vegetation, soils and hydrology information collected during the wetland evaluation survey for delineated wetlands is summarized below. Field data forms and photographic documentation are included as Appendix B and are organized by feature ID. Figure 2 (provided as appendix A of the Environmental Assessment). depicts the wetlands delineated during the survey as well as the location of proposed transmission structures, NHD data, and WWI data. A summary of wetland delineation results is presented in Table 5.

#### 3.2.1 Vegetation Evaluation

The vegetation within the Project Area was generally segregated into two distinct zones correlating with the USACE Midwest Region and the USACE Northcentral and Northeast Region (USACE 2010, USACE 2011b). The southern portion of the Project Area, primarily in Trempealeau and Jackson counties, in the USACE Midwest Region was located within an area used primarily for agriculture (cultivated crops and pasture). Relatively few trees and shrubs were observed in this area and most that were observed occurred in riparian areas. Reed canary grass (*Phalaris arundinacea*) was observed to be pervasive throughout this area and was documented at most wetlands.

The most common wetland plant community observed in the southern portion of the Project Area was the seasonally flooded basin community. Reed canary grass (*Phalaris arundinacea*) and late goldenrod (*Solidago gigantea*) were the most commonly observed species in this community. Other dominant species observed included: arrow-leaf tearthumb (*Persicaria sagittata*) and black elder (*Sambucus nigra*). Other wetland plant communities observed in the southern portion of the Project Area included the wet meadow and shallow marsh communities. The most common species associated with the wet meadow community was the uptight sedge (*Carex stricta*), and the most common species associated with the shallow marsh community was narrow-leaf cat-tail (*Typha angustifolia*).

The northern portion of the Project Area, primarily in Eau Claire and Clark counties, in the USACE Northcentral and Northeast Region was located within an area dominated by forest lands. However, the existing N-3 transmission line ROW is largely kept clear of trees and other woody vegetation. In many cases, delineation sample plots in this area included only grasses, sedges, forbs and small saplings or shrubs while just outside of the ROW larger trees and shrubs dominated. Wetland plant communities in this area were commonly classified as seasonally flooded basins, wet meadows or shallow marshes due to the systematic removal of the tree and shrub species that might otherwise be present. The most common species observed in these areas were: upright sedge (*Carex stricta*), rattlesnake manna grass (*Glyceria canadensis*), bristly dewberry (*Rubus hispidus*), bluejoint (*Calamagrostis canadensis*), dark-green bulrush (*Scirpus atrovirens*) and cottongrass bulrush (*Scirpus cyperinus*). Shrub swamp wetland vegetation communities were observed in some parts of the Project Area where woody wetland vegetation had not been cleared or had regrown. Speckled alder (*Alnus incana*) and willows (*Salix spp.*) were the most common woody species occurring in this community.

Detailed vegetation observations for each wetland are documented on the wetland determination data forms in Appendix B.

#### 3.2.2 Soils Evaluation

Soils within the Project Area were typically sandy (especially in the north part) and ranged from sand, to sandy loam, to silt loam. Soils mapped at wetland sample plots in the NRCS SSURGO database are listed in Table 4.

Symbol	Soil Series	Hydric Class
30A	Adder muck	All Hydric
Af	Alluvial land	All Hydric
BlC2	Billett fine sandy loam	Not hydric
224B	Elevasil sandy loam	Not hydric
Eo	Elm Lake loamy sand	All hydric
FmA, FmB	Fairchild and Merrillan soils	Partially hydric
213C2	Hixton silt loam	Not hydric
Но	Houghton muck	All hydric
Ka	Kato loam	All hydric
KeA	Kert loam	Partially hydric
Lv	Loamy alluvial land	Not hydric
LuB, LuC	LuB, LuC Ludington and Humbird soils	
LuC	Ludington sand	Not hydric
LxB	Ludington-Fairchild sands	Not hydric
Na	Newson loamy sand	All hydric
Or	Otter silt loam	All hydric
Pa	Palms muck	All hydric
PeA	PeA Pelkie-Winterfield loamy fine sands	
Sa	Sa Sandy alluvial land	
566A	Tint sand	Not hydric
Vd	Veedum silt loam	All hydric
Ve	Vesper loam	All hydric

#### **Table 4: Soil Series at Wetland Sampling Points**

Observed soils were generally consistent with soil series descriptions for the soil series mapped at the location, except in some cases when the observed soils may be more closely matched to an associated series or an adjacent mapped soil series. Some typically not hydric soils were observed to be similar to the mapped soil series description for the location but with more hydric characteristics such as redox concentrations, depleted matrix or gleyed matrix. The redox depressions hydric soil indicator was the most often documented indicator at wetland sample plots with loamy gleyed matrix, loamy mucky mineral and sandy redox also commonly observed.

Detailed soils observations for each wetland are documented on the wetland determination data forms in Appendix B. See Figure 3 for a map of soil units present in the Project vicinity based on SSURGO data.

#### 3.2.3 Hydrologic Evaluation

Wetland delineations were conducted at the end of the growing season when water levels are typically lower. Additionally, this region had experienced much lower than average precipitation over the past three months (4.84 inches less than the normal 11.42 inches) (NOAA 2012). As a result, primary indicators of wetland hydrology were not observed at many wetlands that appeared to have been saturated or inundated earlier in the season but that were dry at the time of the wetland delineation. The most

commonly documented primary wetland hydrology indicator was saturation and the most commonly documented secondary wetland hydrology indicators were geomorphic position and the FAC-neutral test.

Detailed hydrology observations for each wetland are documented on the wetland determination data forms in Appendix B.

#### 3.2.4 Wetlands

Of the 55 potential wetlands identified for delineation by Tetra Tech and DPC (Table 2), 10 did not meet wetland delineation criteria as defined by the USACE and were determined to be upland. The remaining 45 potential wetlands did meet USACE wetland delineation criteria and their boundaries were delineated in accordance with the 1987 Manual and Regional Supplements (Environmental Laboratory 1987, USACE 2010, USACE 2011b). In some cases a potential wetland feature was delineated into two or more distinct wetlands separated by non-wetland areas. A total of 52 wetlands were delineated. Wetlands were classified using the wetland plant community types described in *Wetland Plants and Plant Communities of Minnesota and Wisconsin* (Eggers and Reed 2011); 34 were classified as seasonally flooded basins, 6 as fresh wet meadows, 8 as shallow marshes and 4 as shrub swamps. Wetland boundaries were marked in the field by placement of pin flags at approximately 15-foot intervals.

In addition to the 55 potential wetlands that were identified for delineation as part of this survey (Section 1.2, Table 2), there are six potential seasonally flooded basins identified during the August 2012 wetland evaluation survey (Tetra Tech 2012) that are located within 10 feet of proposed structure locations. These six potential wetlands were not identified for delineation by DPC and were not delineated as part of this survey; however, for the purposes of planning, the wetland boundaries established during the August 2012 wetland evaluation survey (Tetra Tech 2012) are considered to be a worst case scenario in these cases and potential impacts were estimated accordingly. In general, a conservative approach was taken in establishing the wetland boundaries during the evaluation survey such that it is more likely that the defined wetlands contain non-wetland areas as opposed to wetland areas being excluded, which was generally confirmed during the September 2012 wetland delineation survey.

The results of the wetland delineation survey are summarized in Table 5 and are shown on Figure 2 (provided as appendix A of the Environmental Assessment).

Wetland Evaluation Feature ID	Delineation Results	Wetland Delineation Feature ID	Wetland Classification	Number of Proposed Structures in Wetland <sup>3</sup>
001	One wetland delineated	001D	Seasonally Flooded Basin	0
006	One wetland delineated	006D	Seasonally Flooded Basin	1
009	One wetland delineated	009D	Seasonally Flooded Basin	2
011	One wetland delineated	011D	Seasonally Flooded Basin	1
012		012D1	Seasonally Flooded Basin	1
012	Two wetlands delineated	012D2	Seasonally Flooded Basin	0
015	One wetland delineated	015D	Seasonally Flooded Basin	0
017	One wetland delineated	017D	Seasonally Flooded Basin	0
018	One wetland delineated	018D	Seasonally Flooded Basin	2
022		0225		0
023	One wetland delineated	022D	Seasonally Flooded Basin	0
024	One wetland delineated	024D	Seasonally Flooded Basin	0
025	One wetland delineated	025D	Shallow Marsh	0
028	Not delineated	-	Seasonally Flooded Basin	2
030	Not delineated	-	Seasonally Flooded Basin	1
031	One wetland delineated	031D	Fresh Wet Meadow	1
032	One wetland delineated	032D	Shallow Marsh	2
035	Not delineated	-	Seasonally Flooded Basin	1
038	One wetland delineated	038D	Fresh Wet Meadow	1
039	One wetland delineated	039D	Shallow Marsh	0
041	One wetland delineated	041D	Seasonally Flooded Basin	2
043	Not delineated	-	Seasonally Flooded Basin	1
047	No wetland present	n/a	n/a	n/a
048	No wetland present	n/a	n/a	n/a
051	One wetland delineated	051D	Fresh Wet Meadow	4
053	One wetland delineated	053D	Seasonally Flooded Basin	1
056	One wetland delineated	056D	Fresh Wet Meadow	2
		058D1	Seasonally Flooded Basin	1
059		058D2	Seasonally Flooded Basin	0
058	Four wetlands delineated	058D3	Seasonally Flooded Basin	1
		058D4	Seasonally Flooded Basin	0
050	Two wetlends del'acted	059D1	Seasonally Flooded Basin	0
059	Two wetlands delineated	059D2	Shallow Marsh	0
060	One wetland delineated	060D	Seasonally Flooded Basin	2
061	No wetland present	n/a	n/a	n/a

#### **Table 5: Wetland Delineation Results**

<sup>&</sup>lt;sup>3</sup> Includes structures within 10 feet of the wetland boundary.

TETRA TECH

Wetland Evaluation Feature ID	Delineation Results	Wetland Delineation Feature ID	Wetland Classification	Number of Proposed Structures in Wetland <sup>3</sup>
063	One wetland delineated	063D	Seasonally Flooded Basin	0
0.65	The second second second	065D1	Seasonally Flooded Basin	1
065	Two wetlands delineated	065D2	Seasonally Flooded Basin	0
067	One wetland delineated	067D	Shallow Marsh	2
068	No wetland present	n/a	n/a	n/a
070	No wetland present	n/a	n/a	n/a
072	The second second second	072D1	Seasonally Flooded Basin	1
072	Two wetlands delineated	072D2	Shallow Marsh	3
074	One wetland delineated	074D	Seasonally Flooded Basin	1
076	No wetland present	n/a	n/a	n/a
077	One wetland delineated	077D	Shrub Swamp	1
079	The second second second	078D1	Shallow Marsh	1
078	Two wetlands delineated	078D2	Shrub Swamp	2
080	One wetland delineated	080D	Seasonally Flooded Basin	0
081	One wetland delineated	081D	Seasonally Flooded Basin	1
082	One wetland delineated	082D	Shrub Swamp	2
084	One wetland delineated	084D	Seasonally Flooded Basin	2
087	One wetland delineated	087D	Shrub Swamp	5
089	One wetland delineated	089D	Fresh Wet Meadow	4
092a	One wetland delineated	092D	Seasonally Flooded Basin	1
093	No wetland present	n/a	n/a	n/a
095	One wetland delineated	095D	Seasonally Flooded Basin	1
101	Not delineated	-	Seasonally Flooded Basin	1
102	One wetland delineated	102D	Seasonally Flooded Basin	1
105	No wetland present	n/a	n/a	n/a
108	No wetland present	n/a	n/a	n/a
110	No wetland delineated <sup>4</sup>	n/a	n/a	n/a
114	One wetland delineated	114D	Seasonally Flooded Basin	1
115	Not delineated	-	Seasonally Flooded Basin	1
116	One wetland delineated	116D	Shallow Marsh	1
118	One wetland delineated	118D	Seasonally Flooded Basin	1
119	One wetland delineated	119D	Seasonally Flooded Basin	1
120	One wetland delineated	120D	Seasonally Flooded Basin	0
123	One wetland delineated	123D	Fresh Wet Meadow	6

<sup>&</sup>lt;sup>4</sup> Due to thick brush, much of potential wetland feature 110 on the east side of Hay Creek was inaccessible during the delineation survey and one proposed structure location (#242) was not observed.

# 4.0 CONCLUSIONS

The results of this investigation found 42 wetlands that may be impacted by construction of the proposed transmission structures in the Strum Tap to Willard Tap (Phase I) portion of the Strum-Lublin 69kV Transmission Line Rebuild Project. These wetlands are identified in Table 5 and depicted on Figure 2 (provided as appendix A of the Environmental Assessment).. A total of 70 transmission structures are currently proposed in wetlands. Affected wetlands may have between one and six proposed structures in them, although most have only one or two.

DPC is currently working to redesign the Project to reduce the number of proposed structures located in wetlands; however, it will not be possible to eliminate all wetland impacts. Wetlands impacted by the Project may be permitted under WDNR-GP1-2012 by the Wisconsin DNR with notification to the USACE.

# 5.0 **REFERENCES**

Code of Federal Regulations Title 33, Pt. 328.3(e), 2012 ed. "Definition of Waters of the United States."

- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. Available online at http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf
- EPA and USACE. 2008. "Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States." December 2. Available online at http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/cwa\_guide/cwa\_juris\_2dec08.pd f
- Eggers, Steve D. and Donald M. Reed. 2011. Wetland plants and Plant Communities of Minnesota and Wisconsin, Third Edition. U.S. Army Corps of Engineers, St. Paul District.
- *Federal Register* 76:128 (5 July 2011) pp. 39101-39102. "EPA and Army Corps of Engineers Guidance Regarding Identification of Waters Protected by the Clean Water Act."
- Reed, Porter B. Jr. 1988. *National List of Plant Species That Occur in Wetlands: National Summary*. U.S. Fish and Wildlife Service Biological Report 88(24). 244 pp.
- National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS). 2012. Monthly Weather Summary. Eau Claire, Wisconsin. September. Online Resource: http://www.nws.noaa.gov/climate/index.php?wfo=mpx.
- Tetra Tech. 2012. Technical Memorandum Wetlands and Waters Evaluation. Strum to Lublin 69kV Project (N-3). October 19
- USACE. 2007. RGL 07-01 "Practices for Documenting Jurisdiction under Section 9 & 10 of the Rivers & Harbors Act (RHA) of 1899 and Section 404 of the Clean Water Act (CWA)." June 5. Available online at http://www.usace.army.mil/cecw/pages/rglsindx.aspx
- USACE. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- USACE. 2011a. "Issuance of Regional General Permit GP-002-WI in the State of Wisconsin Except Within the Exterior Boundary of Indian Reservations." June 1. Available online at: http://www.mvp.usace.army.mil/docs/regulatory/special%20notices/2010004712PN.pdf
- USACE. 2011b. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- USACE. 2012. *The National Wetland Plant List.* ERDC/CRREL TR-12-11, U.S. Army Engineer Research and Development Center, Vicksburg, MS.

USDA. Bureau of Soils. 1922. Soil Survey of Jackson County, Wisconsin.

USDA. NRCS. 1994. Soil Survey of Clark County, Wisconsin.

- USDA NRCS. 2006. "Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin." USDA Handbook 296. Available online through the USDA NRCS MLRA Explorer at http://soils.usda.gov/survey/geography/mlra/index.html.
- USDA NRCS, 2010. *Field Indicators of Hydric Soils in the United States*. Version 7.0. L.M. Vasilas, G.W. Hurt, and C.V. Noble (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.
- USDA. Soil Conservation Service. 1968. Soil Survey of Trempealeau County, Wisconsin.
- USDA. Soil Conservation Service. 1974. Soil Survey of Eau Claire County, Wisconsin.
- USGS. NHD. Data downloaded from http://nhd.usgs.gov/data.html August 2012. High Resolution dataset for the Chippewa Subbasin (0705) High Resolution dataset for the Upper Mississippi-Black-Root Subbasin (0704)

#### **APPENDIX A – FIGURES**



Figure 1: Project Area

Figure 2: Sheetmaps Provided as Appendix A of Environmental Assessment



Figure 3: Hydric Soils

# APPENDIX B – SUPPORTING FIELD DOCUMENTATION

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# **001D**

# WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Stum Lublin		City/County	: Trem	<u>Dealeau Co.</u> Sampling Date: <u>9/18/12</u>				
Applicant/Owner: <u>DPC</u>				State: <u>WI</u> Sampling Point: <u>OOLD</u>				
Investigator(s): KB + AJ		Section, To	wnship, Ra	Inge: SIT TQUN RTW				
Landform (hillslope, terrace, etc.):		*****	Local relief	(concave, convex, none):				
Slope (%): 190 Lat: 44 33 40.93	<u>.</u>	Long: <u>- </u> ]	15	39.78 Datum: MD 83				
Soil Map Unit Name: <u>Loamy allovial la</u>	ind			NWI classification:				
Are climatic / hydrologic conditions on the site typical for th	is time of yea	ar? Yes	X No	(If no, explain in Remarks.)				
Are Vegetation $N$ , Soil $N$ , or Hydrology $N$	significantly of	disturbed?	Are	"Normal Circumstances" present? Yes No				
Are Vegetation, Soil, or Hydrology	naturally pro	blematic?		eeded, explain any answers in Remarks.)				
SUMMARY OF FINDINGS – Attach site map				-				
Hydrophytic Vegetation Present? Yes 📐 N	۰							
Hydric Soil Present? Yes K								
Wetland Hydrology Present? Yes X N Remarks:			in a Wetla	nd? Yes <u>K</u> No				
VEGETATION – Use scientific names of plants	, 	)5						
	Absolute	Dominant	Indicator	Dominance Test worksheet:				
<u>Tree Stratum</u> (Plot size:) 1)	% Cover			Number of Dominant Species (A)				
2								
3				Total Number of Dominant       Species Across All Strata:				
4.				Percent of Deminent Creation				
5				That Are OBL, FACW, or FAC: 75% (A/B)				
Sapling/Shrub Stratum (Plot size:)	÷	= Total Cov	rer	Prevalence Index worksheet:				
1. hubus idaeus	5%	Y	FACU	Total % Cover of: Multiply by:				
2. Rhamnus lanceslata	2%	N	FALL	OBL species x 1 =				
3. Alnus sectulata	5.0%	Y	OBL	FACW species x 2 =				
4.				FAC species x 3 =				
5				FACU species x 4 =				
Herb Stratum (Plot size:)	<u> </u>	= Tolal Cov	er	UPL species x 5 =				
1. Phalacis arundinger	25%	<u> </u>	FALH	Column Totals: (A) (B)				
2. Colidado ajgastes	15%	V	FALL	Prevalence Index = B/A =				
3. Solidado canadensis	390	Ω,	FACU	Hydrophytic Vegetation indicators:				
4. Symphyotrich um lanceolatum		N	FAC	1 - Rapid Test for Hydrophytic Vegetation				
5. Polygoona aritalium	12	$\mathcal{N}$	OBL	∠ 2 - Dominance Test is >50%				
6				3 - Prevalence Index is ≤3.0 <sup>1</sup>				
7				4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)				
8		•		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
9								
10	45	= Total Cov	er	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
1)								
2.				Hydrophytic Vegetation				
	57.	= Total Cov	er	Present? Yes <u>No</u>				
Remarks: (Include photo numbers here or on a separate			-					

US Army Corps of Engineers

Midwest Region - Version 2.0

#### SOIL

## Sampling Point: 00101

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)											
Depth	Matrix		Redox Features								
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc <sup>2</sup>	Texture	Remarks			
0-10	104R 3/2	8073	104R 5/4	20%	<u> </u>	<u>_M</u> _	Sand				
10-16	109R 2/1	9.7%	104B 3/6	370	<u> </u>	M	Sand				
16-20	104R 3/1	9550	104R 314	5%	C	PL	Sand				
L <u>2</u>								***************************************			
	******	***						****			
						+					
<sup>1</sup> Type: C=C	oncentration, D=Dep	pletion, RM	Reduced Matrix, M	S=Masked	Sand Gr	ains.	<sup>2</sup> Location; Pl	L=Pore Lining, M=Matrix.			
Hydric Soil			······································					Problematic Hydric Soils <sup>3</sup> :			
Histosol	(A1)		Sandy	Gleyed Mat	nx (S4)		Coast Prai	rie Redox (A16)			
	pipedon (A2)		🔀 Sandy	Redox (S5)			Dark Surfa				
1	istic (A3)			d Matrix (St	•			anese Masses (F12)			
	en Sulfide (A4)			Mucky Mine	-			ow Dark Surface (TF12)			
:	d Layers (A5)			Gleyed Ma			Other (Exp	blain in Remarks)			
	uck (A10) d Bolow Dask Surfac			ed Matrix (F							
1	d Below Dark Surfac ark Surface (A12)	æ (A11)		Dark Surface ed Dark Sur	• •	N	<sup>3</sup> Indicators of 1	hydrophytic vegetation and			
	Aucky Mineral (S1)			Depression		)		drology must be present,			
1	ucky Peat or Peat (S	3)		00010001011	0 (1 0)			turbed or problematic.			
	Layer (if observed)										
Type:											
Depth (in							Hydric Soil Pre	sent? Yes <u> </u>			
Remarks:	unico).						L				
romana,											
HYDROLO	GY										
	drology Indicators	•									
	cators (minimum of		red check all that a	nnly)			Secondary	ndicators (minimum of two required)			
					- (DO)						
1	Water (A1)			ained Leave	•••			Soil Cracks (B6)			
	ater Table (A2)			auna (B13)			Drainage Patterns (B10)				
Saturati				atic Plants (	-			ason Water Table (C2)			
	larks (B1)		Hydrogen			D		n Burrows (C8)			
1	nt Deposits (B2)			Rhizospher				on Visible on Aerial Imagery (C9)			
	posits (B3)			of Reduced	•	,		or Stressed Plants (D1)			
	at or Crust (B4)			on Reductio		a sous (Ce	· ·	rphic Position (D2)			
Iron De			Thin Muc	-			EAC-NE	eutral Test (D5)			
1	ion Visible on Aerial		-		•						
	y Vegetated Concav	/e Surface (	B8) Other (Ex	plain in Rei	marks)	·····					
Field Obser											
Surface Wat			No Depth (ii								
Water Table			No Depth (ii		, 11						
1	Saturation Present? Yes X No Depth (inches): 16" Wetland Hydrology Present? Yes K No							resent? Yes No			
	pillary fringe) corded Data (strear	n naune m	nitoring well seriel		vioue in						
	Concer Data (oncer	n gauge, m	Shitting wen, achai	i priotos, pre	¥1043 II I	аресиона),	il available.				
Demarke			4					รปประการระการประกาศสารประวาณสารประกาศสารประกาศสารประกาศสารประกาศสารประกาศสารประกาศสารประกาศสารประกาศสารประกาศสา			
Remarks:											
L											

US Army Corps of Engineers

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Strum Lublin	<u> </u>		City/County:	Trenn	Deuleuri Co.	Sampling Date: 91	18/12	
Applicant/Owner: DPC				. *		Sampling Point:		
Investigator(s): <u>KB+A5</u>			Section, Tov	vnship, Ra	nge: <u>517 T24</u> N	R7W		
Landform (hillslope, terrace, etc.):	addain		L	ocal relief	(concave, convex, none):	concare		
Slope (%): Lat:44/_ 2	33 40.4	83	Long:	1 15	5 40.91	Datum: NAD	83	
Soil Map Unit Name: <u>Loamy</u> al								
Are climatic / hydrologic conditions on the								
Are Vegetation <u>./</u> , Soil <u>./</u> , or H					Normal Circumstances"		No	
Are Vegetation, Soil, or H					eded, explain any answe	- 1		
SUMMARY OF FINDINGS - Att							ires etc.	
Hydrophytic Vegetation Present?	Yes X					· · · · · · · · · · · · · · · · · · ·		
Hydric Soil Present?	Yes		is the Sampled Area					
Wetland Hydrology Present?	Yes	No	withi	n a Wetlan	id? Yes	No		
Remarks: Photo # 001								
-1-1- @ str		2 171						
	*****	and the second				****		
VEGETATION – Use scientific na	imes of plant		Deminant	for all and a second				
Tree Stratum (Plot size:	)	Absolute <u>% Cover</u>	Dominant Species?		Dominance Test work			
1					Number of Dominant S That Are OBL, FACW,		(A)	
2					Total Number of Domin			
3					Species Across All Stra		(B)	
4					Percent of Dominant S	pecies		
5					That Are OBL, FACW,		(A/B)	
Sapling/Shrub Stratum (Plot size:	)		= Total Cove	ər	Prevalence Index wor	ksheet:	·····	
1. Rubus idaeus			$\mathcal{O}$	FALU		Multiply by		
2. Sambucas nigra				FACW	OBL species			
3			mutanatituttebutteting .		FACW species	x 2 =		
4					FAC species	x 3 =		
5					FACU species	x 4 =		
Harb Stratum (Plot size)	<b>`</b>	_4	= Total Cove	er		x 5 =		
Herb Stratum (Plot size:	,	753	Ψ 1	Acres	Column Totals:	(A)	(B)	
2. Solibar canadens	t.	5%		FACTA	Prevalence Index	# B/A #		
3. Sovielago digantea		5.5%	- Alas	FACW	Hydrophytic Vegetatio			
4. Symphystrickium lar	replation			FAC	🔀 1 - Rapid Test for I		ו ח	
E 1 1 1				- Lutani - Sinana	2 - Dominance Tes	st is >50%		
6					3 - Prevalence Inde	ex is ≤3.0 <sup>1</sup>		
7					4 - Morphological /	Adaptations <sup>1</sup> (Provide s	supporting	
8						s or on a separate she		
9					Problematic Hydro	pnytic Vegetation' (Ex	plain)	
10			······································		<sup>1</sup> Indicators of hydric soi	i and wetland budroles	nu muset	
Woody Vine Stratum (Plot size:	١	87	= Total Cove	er	be present, unless dist	urbed or problematic.	iy musi	
1					فالبريا محمد المربية م	<u>*************************************</u>		
2.					Hydrophytic Vegetation			
		91	= Total Cove	ər		s 🔀 🛛 No		
Remarks: (Include photo numbers here	or on a separate				L			

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#### SOIL

Depth	Depth Matrix Redox Features									
inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
2-8	104R3/1	100				The second s	lang Sand			
5-18	104R 4/3	100		-			Sand			
				• • • • • • • • • • • • • • • • • • •	*****					
	Concentration, D=De	pletion, RM	Reduced Matrix, M	S=Masked	Sand Gra	ains.		L=Pore Lining, M=Matrix.		
•	I Indicators:		O I					Problematic Hydric Soils <sup>1</sup> :		
Histoso	DI (A1) Epipedon (A2)			Gleyed Mat Redox (S5)				rie Redox (A16) ace (S7)		
	Histic (A3)		and and a second s	d Matrix (St			Dark Surface (S7) Iron-Manganese Masses (F12)			
	jen Sulfide (A4)		Loamy Mucky Mineral (F1)					ow Dark Surface (TF12)		
	ed Layers (A5)		Loamy Gleyed Matrix (F2) Other (Explain in Re							
2 cm M	luck (A10)			d Matrix (F						
Deplet	ed Below Dark Surfa	ce (A11)	Redox	Dark Surfac	ce (F6)					
	Dark Surface (A12)		descention of the second se	ed Dark Sur		1		hydrophytic vegetation and		
	Mucky Mineral (S1)		Redox	Depression	s (F8)			drology must be present,		
	lucky Peat or Peat (S						unless dist	turbed or problematic.		
Restrictive	Layer (if observed	):								
Type:		-					Hydric Soil Pre	esent? Yes No 🗡		
Depth (i	nches):						Thyanc our ric			
Remarks;										
YDROL	DGY									
Vetland H	ydrology Indicators									
rimary Inc	ticators (minimum of	one is requ	red: check all that a	pply)			Secondary I	ndicators (minimum of two require		
Surfac	e Water (A1)			ained Leave	• /			Soil Cracks (B6)		
High V	Vater Table (A2)		Aquatic F	auna (B13)			Drainag	je Patterns (B10)		
Satura	tion (A3)			atic Plants (				ason Water Table (C2)		
Water	Marks (B1)		Hydrogen	Sutfide Od	lor (C1)		Crayfisl	h Burrows (C8)		
<b>O</b>			<b>•</b> • • • •				(CO)	the Alfabeta in Alastat Incanana (OO)		

 Ģr	aynsn	Burro	ws	(C8	)		
-							

- \_\_\_\_ Oxidized Rhizospheres on Living Roots (C3) \_\_\_\_ Saturation Visible on Aerial Imagery (C9)
  - Stunted or Stressed Plants (D1)

Algal Mat or Crust (B4)     Iron Deposits (B5)     Inundation Visible on Aet     Sparsely Vegetated Conc	,	Recent Iron Reduction in Tilled Se     Thin Muck Surface (C7)     Gauge or Well Data (D9)     Other (Explain in Remarks)	oils (C6) X Geomorphic Position (D2) FAC-Neutral Test (D5)	
Field Observations:	······································			
Surface Water Present?	Yes No _	Depth (inches):		2
Water Table Present?	Yes No _	/ Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes No _	Depth (inches):	Wetland Hydrology Present? Yes	No
Describe Recorded Data (stre	eam gauge, monito	ring well, aerial photos, previous inspec	tions), if available:	
Remarks:				*****

\_\_\_\_ Presence of Reduced Iron (C4)

\_ Sediment Deposits (B2)

\_ Drift Deposits (B3)

# Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap



# **006D**

#### WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Stun Lublin	·	City/County: Trem	Dealean Co.	Sampling Date: 9/18/12
Applicant/Owner:		· ·	State: W1	Sampling Point: 006 D1
Investigator(s): KB+AU				
Landform (hillslope, terrace, etc.): Flood place				
Slope (%): <u>120</u> Lat: <u>443339</u>				
		× /	NWI classific	
Are climatic / hydrologic conditions on the site typical for thi	is time of ye	ar? Yes <u>X</u> No _	(If no, explain in R	emarks.)
Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hydrology $\underline{W}$	significantly	disturbed? Are	"Normal Circumstances" p	resent? Yes 🙏 No
Are Vegetation $N_{}$ , Soil $N_{}$ , or Hydrology $N_{}$ .	naturally pro	blematic? (If n	eeded, explain any answei	s in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	sampling point l	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes X	10		***************************************	*******
Hydric Soil Present? Yes Xes		is the Sampled		
Wetland Hydrology Present? Yes 🔀 N	No	within a Wetla	nd? Yes X	No
Remarks: Photo # 0006,0009	er 			
VEGETATION – Use scientific names of plants		-		
Tree Stratum (Plot size: )	Absolute % Cover	Dominant Indicator Species? Status	Dominance Test work	
1			Number of Dominant Sp That Are OBL, FACW, c	
2				
3			Total Number of Domina Species Across All Strat	
4				
5			Percent of Dominant Sp That Are OBL, FACW, c	
		= Total Cover		
Sapling/Shrub Stratum (Plot size:)			Prevalence Index work	
1				Multiply by:
2				x1=
3.				x 2 =
4				× 3 =
5		= Total Cover		x 4 = x 5 =
Herb Stratum (Plot size:)				(A) (B)
1. Pholaris aringdinacea	<u> </u>	Y FACW		
2.			Prevalence Index	= B/A =
3	*** *******		Hydrophytic Vegetatio	
4			X 1 - Rapid Test for H	
5			2 - Dominance Test	
6			3 - Prevalence Inde	
7			4 - Morphological A	daplations <sup>1</sup> (Provide supporting or on a separate sheet)
8				hytic Vegetation <sup>1</sup> (Explain)
9				and a segmentation (Explain)
10			<sup>1</sup> Indicators of hydric soil	and wetland hydrology must
Woody Vine Stratum (Plot size:)	100	= Total Cover	be present, unless distu	rbed or problematic.
1/			Hudrophulle	<u></u>
2			Hydrophytic Vegetation	
		= Total Cover	Present? Yes	: <u> </u>
Remarks: (Include photo numbers here or on a separate		***************************************		
	·····			

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Depth	conption: (Describ Matrix	-	th needed to docu Rede	ment the in ox Features		or contin	n the absence	of indicators.)		
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks		
0-2								Conise nauch		
2 - 8	2.544/1	93%	10 YR 3/6	72	C	PL	Silt			
8-20	2.54 3/1		10 4R 316	790	C	PL	Siltion	••••••••••••••••••••••••••••••••••••••		
	-torulucturing and a set		2.595/1	320	$\overline{\mathcal{Q}}^{\circ}$	M	······································			
	·									
	•					******		******		
		epletion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ains.		: PL=Pore Lining, M=Matrix.		
Hydric Soil								Indicators for Problematic Hydric Soils <sup>3</sup> :		
Histosol				Gleyed Mat	-		Coast Prairie Redox (A16)			
	pipedon (A2) istic (A3)		-	Redox (S5) d Matrix (S			Dark Surface (S7) Iron-Manganese Masses (F12)			
	en Sulfide (A4)			Mucky Min			Very Shallow Dark Surface (TF12)			
	d Layers (A5)			-			Other (Explain in Remarks)			
	uck (A10)		Loamy Gleyed Matrix (F2) X Depleted Matrix (F3)							
	d Below Dark Surfa	ace (A11)	· · · ·	Dark Surfa						
	ark Surface (A12)		,	ed Dark Su	-	ł	<sup>3</sup> Indicators	s of hydrophytic vegetation and		
Sandy M	Mucky Mineral (S1)	ł	Redox	Depression	ns (F8)		wetland hydrology must be present,			
5 cm M	ucky Peat or Peat (	(S3)					unless disturbed or problematic.			
Restrictive	Layer (if observed	d):								
Туре:			ultributerie							
Depth (in	ches):						Hydric Soil	Present? Yes No		
Remarks:				****						
IYDROLC	GY									
Netland Hy	drology Indicator	'S!				*****				

Primary Indicators (minimum of one is required:	check all that apply)	Secondary Indicators (minimum of two required)
<ul> <li>Surface Water (A1)</li> <li>High Water Table (A2)</li> <li>Saturation (A3)</li> <li>Water Marks (B1)</li> <li>Sediment Deposits (B2)</li> <li>Drift Deposits (B3)</li> <li>Algal Mat or Crust (B4)</li> <li>Iron Deposits (B5)</li> <li>Inundation Visible on Aerial Imagery (B7)</li> <li>Sparsely Vegetated Concave Surface (B8)</li> </ul>	Surface Soil Cracks (B6)     Drainage Patterns (B10)     Dry-Season Water Table (C2)     Crayfish Burrows (C8)     Saturation Visible on Aerial Imagery (C9)     Stunted or Stressed Plants (D1)     Geomorphic Position (D2)     FAC-Neutral Test (D5)	
Water Table Present?     Yes No _       Saturation Present?     Yes No _       (includes capillary fringe)     Yes No _	X         Depth (inches):	Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream gauge, monito	aring well, aerial photos, previous inspect	ions), if available:
Remarks:		·

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Midwest Region - Version 2.0

#### WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Strum Lublin		Citv/Countv	Trem	Dealeas Cn.	Sampling Date 9/	18/12	
Applicant/Owner:		$\underbrace{ \begin{array}{c} \text{State:} \\ \mathcal{U} \end{array} \begin{array}{c} \mathcal{U} \end{array} \begin{array}{c} \mathcal{U} \\ \mathcal{U} $					
				nge: 514 T2401			
Landform (hillslope, terrace, etc.):tc.ffice							
Slope (%): 2% Lat: 44 33 39						ζ	
Soil Map Unit Name: La Farae Silt 1044				NWI classific			
Are climatic / hydrologic conditions on the site typical for t							
Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hydrology $\underline{N}$	significantly	disturbed?	Are '	"Normal Circumstances" n		lo	
Are Vegetation, Soil, or Hydrology	_ significantly	blematic?	/if ne	eded, explain any answe		•••	
SUMMARY OF FINDINGS – Attach site ma		samplin	g point l	ocations, transects	, important feature	es, etc.	
Hydrophytic Vegetation Present? Yes X	No	le th	e Sampled	l Aron			
Hydric Soil Present?     Yes       Wetland Hydrology Present?     Yes			in a Wetla		Nº. <u>×</u>		
Pemarke <sup>,</sup>				idi 163			
VEGETATION – Use scientific names of plant	te.						
	Absolute	Dominant	Indicator	Dominance Test work	sheet.		
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant S	pecies		
1				That Are OBL, FACW, o	or FAC:	(A)	
2				Total Number of Domin		(D)	
4				Species Across All Stra	ta:	_ (B)	
5				Percent of Dominant Sp That Are OBL, FACW, of			
		= Total Cov	/er			)	
Sapling/Shrub Stratum (Plot size:)			CALL	Prevalence Index work			
1. Rubus idaeus		$\underline{\mathcal{N}}$	FACU		Multiply by:		
2. Samburus randensis			FACW	OBL species FACW species			
3				FAC species			
5				FACU species			
	490	= Total Cov		UPL species			
Herb Stratum (Plot size:)				Column Totals:			
1. Phalaris arundinacea	8575		FACH				
2. Solidago gigantes 3. Symphyotrichum lanceolatum	_ <u>5%</u>	<u>_N</u>	FACH	-	= B/A =		
			FAC	Hydrophytic Vegetation			
4				2 - Dominance Tes			
5				3 - Prevalence Inde			
6					daptations <sup>1</sup> (Provide su	nortina	
78					or on a separate sheet		
8 9				Problematic Hydrop	phytic Vegetation <sup>1</sup> (Expla	ain)	
10		******					
		= Total Cov	ver	<sup>1</sup> Indicators of hydric soil be present, unless distu	and wetland hydrology	must	
Woody Vine Stratum (Plot size:)					inced or problematic.		
1				Hydrophytic			
2				Vegetation Present? Yes	s No		
		= Total Cov	/or		many interesting and the second secon		

#### SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth	Matrix			<u> Features</u>			_	- ·	
(inches)	Color (moist)		Color (moist)	%	Type <sup>1</sup>	_Loc*	Texture	Remarks	
0-11	104R 3/2	1087.					Sand	<u>`</u>	
11-20	104× 4/3	1007.					Sand		
11			····						
							. <u></u>		
		. <u></u> .		<u> </u>					
				<u></u>					
	s								
	oncentration, D=Dep	oletion RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL	=Pore Lining, M=Matrix.	
Hydric Soil								Problematic Hydric Soils <sup>3</sup> :	
Histoso			Sandy (	Sleyed Mat	trix (S4)		Coast Prair	rie Redox (A16)	
	pipedon (A2)			Redox (S5)			Dark Surfa	ce (S7)	
	listic (A3)		Stripped	l Matrix (S	6)			anese Masses (F12)	
Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1)						Very Shallow Dark Surface (TF12)			
Stratified Layers (A5) Loamy Gleyed Matrix (F2)						Other (Explain in Remarks)			
	uck (A10)			d Matrix (F					
	d Below Dark Surfac	ce (A11)		Dark Surfa			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
	ark Surface (A12)			d Dark Sui Depressior					
	Mucky Mineral (S1) lucky Peat or Peat (S	:3)	Redux I	Jepression	15 (FU)				
	Layer (if observed)								
Type:								× /	
	nches):						Hydric Soil Present? Yes No		
Remarks:									
<u> </u>									
HYDROLO	DGY								
Wetland Hy	ydrology Indicators	• '#							
Primary Ind	icators (minimum of	one is requi	red: check all that a	ylqc			Secondary I	ndicators (minimum of two required)	
Surface	e Water (A1)		Water-Sta	ined Leave	es (B9)		Surface	Soil Cracks (B6)	
High Water Table (A2) Aquatic Fauna (B13)							Drainag	e Patterns (B10)	
Saturation (A3) True Aquatic Plants (B14)							Dry-Sea	ison Water Table (C2)	
Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)								Burrows (C8)	
0	not Deposite (P?)	: (C3) Saturati	on Visible on Aerial Imagery (C9)						

Wetland Hydrology Indicat	ors:			
Primary Indicators (minimum	of one is re	Secondary Indicators (minimum of two required)		
Surface Water (A1)		-	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
High Water Table (A2)		-	Aquatic Fauna (B13)	Drainage Patterns (B10)
Saturation (A3)		-	True Aquatic Plants (B14)	Dry-Season Water Table (C2)
Water Marks (B1)			Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)
Sediment Deposits (B2)			Oxidized Rhizospheres on Livir	ng Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)			Presence of Reduced Iron (C4)	) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4)			Recent Iron Reduction in Tilled	I Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5)			Thin Muck Surface (C7)	FAC-Neutral Test (D5)
Inundation Visible on Ae	nal Imager	<b>y (B</b> 7)	Gauge or Well Data (D9)	
Sparsely Vegetated Cor	icave Surfa	ce (B8)	Other (Explain in Remarks)	
Field Observations:				
Surface Water Present?	Yes	No	Depth (inches):	_
Water Table Present?	Yes	No	Depth (inches):	-
Saturation Present? (includes capillary fringe)	Yes	No	Depth (inches):	Wetland Hydrology Present? Yes No
Describe Recorded Data (st	eam gauge	e, monitori	ng well, aerial photos, previous insp	pections), if available:
Remarks:				

# Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap DIRECTION FEATURE ID 006D DATE 9/18/2012 Northeast PHOTOGRAPHER Kathy Bellrichard and Apryl Jennrich COMMENTS Wetland is located adjacent to an unnamed tributary of the South Fork Buffalo River.
# **009D**

#### .....

v	IEILAND DETE	:RMINAT	ION DAT	AFORM	– Midwest Region				
Project/Site: Strum Lubin			City/County: Trempealean Co. Sampling Date: 9/18/12						
Applicant/Owner: DPC				1	State:				
Investigator(s): KBEAD									
Landform (hillslope, terrace, etc.): <u>De pressed a</u>									
Slope (%): Lat: <u>443389,53</u> Lon							3		
Soil Map Unit Name: Billett Si									
Are climatic / hydrologic conditions on t	ŧ			,					
Are Vegetation, Soil, or					Normal Circumstances" p		No		
Are Vegetation, Soil, or	1				eded, explain any answe				
SUMMARY OF FINDINGS - A	ttach site map	showing	samplir	ng point l	ocations, transects	, important featu	res, etc		
Hydrophytic Vegetation Present?		lo	1- 4	he Comulad					
Hydric Soil Present?	Yes <u>X</u> N		1	he Sampled		No			
Wetland Hydrology Present?		lo	witt	hin a Wetlar	nd? Yes $\underline{\land}$	No			
Remarks: Point at Pole 3	107	<u> </u>	~ ~ ~ ~						
		9hoto	0009						
VEGETATION - Use scientific	names of plants	•							
			Dominan	t Indicator	Dominance Test work	sheet:			
Tree Stratum (Plot size:	)				Number of Dominant S				
1					That Are OBL, FACW,		(A)		
2					Total Number of Domin	ant			
3					Species Across All Stra		(B)		
4					Percent of Dominant Sp	pecies			
5					That Are OBL, FACW,		(A/B)		
Sapling/Shrub Stratum (Plot size:	)		= Total Co	over	Prevalence Index wor	ksheet:			
1					Total % Cover of:	Multiply by:			
2					OBL species				
3.					FACW species	x 2 =			
4					FAC species	x 3 =			
5					FACU species	x 4 =	<u> </u>		
			= Total Co	over	UPL species	× 5 =			
Herb Stratum (Plot size:		15%	C1	A.73.1	Column Totais:	(A)	(B)		
1. <u>Persicaria sagittat</u> 2. <u>Phalaris arundi</u>	<u>a</u>	<u>- 15 /2</u> _ 79%		OBL	Provalence Index	= B/A =			
3. Urtica di Di ca	nauca	390	- <u>-</u>	FACW	Hydrophytic Vegetatio				
		375	-10-	FACU	X 1 - Rapid Test for H				
4. <u>Cirsium arvense</u> 5.				FALU	2 - Dominance Tes				
5 6.					3 - Prevalence Inde				
7.					4 - Morphological A	Adaptations <sup>1</sup> (Provide s s or on a separate she			
8				·····		phytic Vegetation <sup>1</sup> (Ex	-		

100% = Total Cover

= Total Cover

\_\_\_\_\_

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9.\_\_\_\_\_ 10.

1.\_\_\_\_\_\_

2.

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

Woody Vine Stratum (Plot size: \_\_\_\_\_)

Yes No

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation

Present?

Profile Desc	cription: (Describe	to the depth	needed to docu	ment the ir	ndicator	or confir	rm the absence of indicators.)
Depth	Matrix			x Features	i1		
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup> _	Texture Remarks
0-2	104R312	100%				<u></u>	Sand
2-11	2.544/3	100%					Sand
11-18	2,54412	953	104R 314	390		PL	Lainy Sund
			2,59 3/1	270	D	M	
	**************************************		<u></u>				· ·
	**************************************					<u></u>	
'Type: C=C Hydric Soil	oncentration, D=De	pletion, RM=F	Reduced Matrix, M	S=Masked	Sand Gr	ains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils <sup>3</sup> :
			Sandy	Gleyed Ma	triv (SA)		Coast Prairie Redox (A16)
Histoso Histic E	pipedon (A2)		🔄 Sandy 🔀 Sandy	-			Dark Surface (S7)
	listic (A3)			d Matrix (S			Iron-Manganese Masses (F12)
	en Sulfide (A4)			Mucky Min			Very Shallow Dark Surface (TF12)
Stratifie	d Layers (A5)			Gleyed Ma			Other (Explain in Remarks)
·	uck (A10)			ed Matrix (F	•		
	ed Below Dark Surfa	ce (A11)		Dark Surfa		۱	<sup>3</sup> Indicators of hydrophytic vegetation and
	Park Surface (A12) Mucky Mineral (S1)			ed Dark Su Depressior		)	wetland hydrology must be present,
	ucky Peat or Peat (S	53)		200100300	(1 9)		unless disturbed or problematic.
	Layer (if observed						· · · · · · · · · · · · · · · · · · ·
Type:		- 					
Depth (ir	nches):						Hydric Soil Present? Yes <u>No</u> No
Remarks:				<u></u>			
HYDROLO							
1	ydrology Indicators			nnku)			Secondary Indicators (minimum of two required)
	icators (minimum of	orie is require			(DO)		Surface Soil Cracks (B6)
	e Water (A1)			ained Leav			Drainage Patterns (B10)
	/ater Table (A2) tion (A3)			auna (B13) atic Plants	•		Drainage Fatterns (B10) Dry-Season Water Table (C2)
	Marks (B1)		Hydroger				Crayfish Burrows (C8)
	ent Deposits (B2)		Oxidized			ving Root	
1	eposits (B3)		Presence				Stunted or Stressed Plants (D1)
1	fat or Crust (B4)		Recent Ir				
	eposits (B5)		Thin Muc				X FAC-Neutral Test (D5)
	tion Visible on Aeria				· ·		
Sparse	ly Vegetated Conca	ve Surface (E	18) Other (Ex	kplain in Re	emarks)		
Field Obse	ervations:						
	ater Present?		lo 🔀 Depth (i				
Water Tabl			lo <u>×</u> Depth (i				
Saturation (includes ca	apillary fringe)		ło <u>≺</u> Depth (i				etland Hydrology Present? Yes X No
Describe R	ecorded Data (strea	m gauge, mo	moning well, aefla	i priotos, pr	evious If	spections	שאַ אָר אַיאַנוומעוב.
Demostrat							
Remarks:							

Project/Site: Stun Lublin	City/County: Trempealeauco Sampling Date: 9/18/12
Applicant/Owner: DPC	State: Sampling Point:
Investigator(s): KB3 AJ	Section, Township, Range: <u>SI4 T240 R7W</u>
Landform (hillslope, terrace, etc.):hillslope	
Slope (%): <u>39-</u> Lat: <u>44 33 39.75</u>	Long: -91 11 52.04 Datum: NAD 83
Soil Map Unit Name: Billett Sine sundy loam	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of y	
Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hydrology $\underline{N}$ significantly	y disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally p	oblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	
Hydric Soil Present? Yes No	Is the Sampled Area
Wetland Hydrology Present? Yes No	within a Wetland? Yes No
Remarks: Photo # 0010,0011	
VEGETATION – Use scientific names of plants.	
Absolute	
Tree Stratum         (Plot size:)         % Cove           1.	r <u>Species?</u> <u>Status</u> Number of Dominant Species That Are OBL, FACW, or FAC: (A)

1				That Are OBL, FACW, or FAC: (A)
2			-	Total Number of Dominant
3			-	Species Across All Strata: (B)
4				
5			-	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
		= Total Co	over	
Sapling/Shrub Stratum (Plot size:)	0	.1		Prevalence Index worksheet:
1. Pinus resinosa	-	- <u> </u>	FACU	Total % Cover of: Multiply by:
2. Rubus idaeus		$-\mathcal{N}$	FACU	OBL species $26$ x1 = $6$
3.				FACW species $10 \times 2 = 20$
4	<u></u>	. <u></u>	<del>.</del>	FAC species $12 \times 3 = 36$
5				FACU species $70 \times 4 = 280$
	_5_	_ ≃ Total Co	over	UPL species $\bigcirc$ x 5 = $\bigcirc$
Herb Stratum (Plot size:)	1/2		TAUN	Column Totals: <u>92</u> (A) <u>336</u> (B)
1. Suliduno giganten	10	· <u> </u>	TACW	Prevalence Index = B/A = $3.65$
2. Symphyotrichum lanceolatum	10	- <u> </u>	FAC	Hydrophytic Vegetation Indicators:
3. Potentilla Simplex	<u> </u>	- <u> </u>	FACU	1 - Rapid Test for Hydrophytic Vegetation
4. <u>Circium arvense</u>	2	- <u> </u>	FACU	1 - Rapid Test for Hydrophyde Vegetation 2 - Dominance Test is >50%
5. Brownis incrimits	- 20	<u> </u>	FACU	
6. Toxicodendron vadicans		- <u>N</u>	<u>tAC</u>	3 - Prevalence Index is ≤3.0 <sup>1</sup>
7. Poa compressa	40	<u> </u>	TACU	4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
8				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
9.				
10				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
	87	_ = Total Co	over	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)				
1				Hydrophytic Vegetation
2				Present? Yes No X
Remarks: (Include photo numbers here or on a separate s	hoot )	_ = Total Co	over	
Remarks. (include proto numbers here of off a separate s	neet.)			

Profile Desc	ription: (Describ	e to the depth	needed to docur	nent the i	ndicator	or confirm	n the absence of in	dicators.)
Depth	Matrix			x Features		<u>_</u>		
(inches)	Color (moist)	%	Color (moist)	%	Type'	_Loc <sup>2</sup>		Remarks
0-16	2.54 5/2	100%					Silt loan	
				-	7			
				• ••••••				
		<u></u>						******
<sup>1</sup> Type: C=Co	oncentration, D=De		educed Matrix M	S=Masked	Sand Gra	ains	<sup>2</sup> Location: PL	Pore Lining, M=Matrix.
Hydric Soil						<u>anto.</u>		roblematic Hydric Soils <sup>3</sup> :
Histosol			Sandy (	Gleyed Ma	trix (S4)			e Redox (A16)
	pipedon (A2)			Redox (S5			Dark Surfac	
Black Hi	,			Matrix (S				nese Masses (F12)
Hydroge	n Sulfide (A4)		Loamy	Mucky Min	ieral (F1)			w Dark Surface (TF12)
Stratified	i Layers (A5)		Loamy	Gleyed Ma	atrix (F2)		Other (Expla	ain in Remarks)
	ıck (A10)		·	d Matrix (F	,			
	Below Dark Surfa	ace (A11)		Dark Surfa	• •		3	
	ark Surface (A12)			d Dark Su				drophytic vegetation and
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3)		Redox l	Depression	ns (F8)		•	rology must be present,	
	Layer (if observed				*****			rbed or problematic.
Type:							Hydric Soil Pres	ent? Yes No
· · · · · · · · · · · · · · · · · · ·	ches):							
Remarks:								
HYDROLO	GY							
Wetland Hyd	drology Indicator	5:						
Primary Indic	ators (minimum of	one is require	d: check all that an	oply)			Secondary Inc	dicators (minimum of two required)
Surface	Water (A1)		Water-Sta	ined Leave	es (B9)		Surface S	Soil Cracks (B6)
	ter Table (A2)		Aquatic Fa	auna (B13)	)		Drainage	Patterns (B10)
Saturatio	on (A3)		True Aqua	tic Plants	(B14)		Dry-Seas	on Water Table (C2)
Water M	arks (B1)		Hydrogen	Sulfide Oc	lor (C1)		Crayfish	Burrows (C8)
Sedimer	nt Deposits (B2)		Oxidized F	Rhizosphe	res on Liv	ing Roots	(C3) Saturatio	n Visible on Aerial Imagery (C9)
·	oosits (B3)		Presence	of Reduce	d Iron (C4	4)	Stunted of	or Stressed Plants (D1)
Algal Ma	at or Crust (B4)		Recent Irc	n Reductio	on in Tille	d Soils (C	5) <u> </u>	hic Position (D2)
Iron Dep	osits (B5)		Thin Muck	Surface (	C7)		FAC-Neu	tral Test (D5)
Inundatio	on Visible on Aeria	i Imagery (B7)	Gauge or	Well Data	(D9)			
Sparsely	/Vegetated Conca	ive Surface (B8	3) Other (Exp	olain in Re	marks)			
Field Obser	vations:							
Surface Wate	er Present?	Yes No	$\sim$ _X_ Depth (in	ches):				
Water Table	Present?	Yes No	o Depth (in	ches):				$\sim$

(includes capillary fringe) \_\_\_\_\_\_ Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Yes \_\_\_\_\_ No \_\_\_\_ Depth (inches): \_\_\_\_\_

Remarks:

Saturation Present?

No

Wetland Hydrology Present? Yes \_\_\_\_

DIRECTION FEATURE ID 009D	DATE
Northwest PHOTOGRAPHER Kathy Bellrichard and Apryl Jennrich	9/18/2012

Γ

# 011D

	ien Britter eran manoernogien			
Project/Site: Stum Lublin	City/County: Trempealean CO. Sampling Date: 9/18/12			
Applicant/Owner:VV C	State: <u> </u>			
Investigator(s): <u>KBi, AT</u>	Section, Township, Range: SI4 T24N R7W			
Landform (hillslope, terrace, etc.):	Local relief (concave, convex, none): No ne			
Slope (%): 15 Lat: 44 33 39,59	Long: - 91 11 20,65 Datum: NAD 83			
Soil Map Unit Name: Sandy alluvial land	NWI classification:			
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.) Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)				
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.				
Hydrophytic Vegetation Present? Yes Y No	Is the Sampled Area			

Hydric Soil Present? Wetland Hydrology Present?	Yes <u> </u>	Is the Sampled Area within a Wetland?	Yes No	
Remarks: Photo H	0012			

# **VEGETATION –** Use scientific names of plants.

	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover Species? Status	Number of Dominant Species
1		That Are OBL, FACW, or FAC: (A)
2		Total Number of Dominant
3		Species Across All Strata: (B)
4		Percent of Dominant Species
5		That Are OBL, FACW, or FAC: (A/B)
	= Total Cover	
Sapling/Shrub Stratum (Plot size:)		Prevalence Index worksheet:
1		Total % Cover of: Multiply by:
2		OBL species x 1 =
3		FACW species x 2 =
4		FAC species x 3 =
5		FACU species x 4 =
	= Total Cover	UPL species x 5 ≖
Herb Stratum (Plot size:)	- Li Chail	Column Totals: (A) (B)
1. Solidago gigantea		
2. Potentilla simpley	10% N FACY	Prevalence Index = B/A =
3. Phalacis arundinacea	30% Y FACW	Hydrophytic Vegetation Indicators:
4. Asclepias suriaca	190 N FACU	X 1 - Rapid Test for Hydrophytic Vegetation
5		2 - Dominance Test is >50%
6		3 - Prevalence Index is ≤3.0 <sup>1</sup>
7		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
8		data in Remarks or on a separate sheet)
9		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
10.		
	91 = Total Cover	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size:		be present, unless disturbed or problematic.
1		Hydrophytic
2.		Vegetation V
	= Total Cover	Present? Yes No
Remarks: (Include photo numbers here or on a separate		
· · · ·		

Profile Desc	cription: (Describe	to the dept	h needed to docu	ment the ir	ndicator	or confin	m the absence of ir	ndicators.)
Depth	Matrix			x Features			·	<b>–</b> (
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks
0-3	104R 3/1	100%					Sand	
3-11	2.54 5/3	10030		-		<u></u>	Sand_	
11-13	2.54 7/1	93%	2,545/4	7%		M	Sand	
13-16	2.54 2.5/1	100%				*****	lonny Sand	
10-18	2.54 5/2	85%	104R 3/6	15%	_ <u>_</u>		Sand	
<sup>1</sup> Type: C=C	oncentration, D=Dep	 pletion. RM=	Reduced Matrix. M	S=Masked	Sand Gr	ains.	<sup>2</sup> Location: PL	_=Pore Lining, M=Matrix.
Hydric Soil								Problematic Hydric Soils <sup>3</sup> :
Histoso			Sandy	Gleyed Ma	trix (S4)		Coast Prai	rie Redox (A16)
-	pipedon (A2)			Redox (S5)			Dark Surfa	ce (S7)
	listic (A3)		7	d Matrix (S			Iron-Manga	anese Masses (F12)
	erı Sulfide (A4)		Loamy	Mucky Min	eral (F1)		Very Shall	ow Dark Surface (TF12)
	d Layers (A5)		Loamy	Gleyed Ma	atrix (F2)		Other (Exp	olain in Remarks)
2 cm M	uck (A10)			ed Matrix (F				
Deplete	d Below Dark Surface	ce (A11)		Dark Surfa				
Thick D	Thick Dark Surface (A12) Depleted Dark Surface (F7)					nydrophytic vegetation and		
Sandy Mucky Mineral (S1) Redox Depressions (F8)				wetland hydrology must be present, unless disturbed or problematic.				
	ucky Peat or Peat (S						unless dist	urbed or problematic.
Restrictive	Layer (if observed)	):						
Type:							Hydric Soil Pre	sent? Yes <u> </u>
Depth (ir	nches):							
Remarks:								
HYDROLO	DGY							
Wetland Hy	ydrology Indicators	;					```	
Primary Ind	icators (minimum of	one is requi	red: check all that a	ipply)			Secondary I	ndicators (minimum of two required)
Surface	e Water (A1)		Water-St	ained Leav	es (B9)		Surface	soil Cracks (B6)
High W	/ater Table (A2)		Aquatic F	auna (B13	)		Drainag	je Patterns (B10)
Satural	tion (A3)		True Aqu	atic Plants	(B14)		Dry-Sea	ason Water Table (C2)
	Marks (B1)		Hydroger	n Sulfide O	dor (C1)		Crayfist	n Burrows (C8)
Sedime	ent Deposits (B2)		Oxidized	Rhizosphe	res on Liv	ing Root	s (C3) Saturat	ion Visible on Aerial Imagery (C9)
	eposits (B3)		Presence	of Reduce	ed Iron (C	4)	Stunted	l or Stressed Plants (D1)
	fat or Crust (B4)		Recent li	on Reducti	ion in Tille	d Soils (	C6) 🔀 Geomo	rphic Position (D2)
	eposits (B5)		Thin Muc	k Surface (	(C7)		🖌 FAC-Ne	eutral Test (D5)
	tion Visible on Aeria	I Imagery (B		r Well Data		*	/`	
1	ly Vegetated Conca		,	xplain in Re				
Field Obse			· · · · ·	-		<u> </u>		

Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks)						
Field Observations:						
Surface Water Present?		(inches):				
Water Table Present?	Yes NoX_ Depth			$\mathbf{v}$		
Saturation Present? (includes capillary fringe)	Yes X No Depth	(inches): <u>16</u>	Wetland Hydrology Present?	Yes No		
Describe Recorded Data (stre	am gauge, monitoring well, aeri	al photos, previous inspec	tions), if available:			
Remarks:						

Project/Site: Stium Lublin	City/County: Trempealeau Co. Sampling Date: 1/18/12				
Applicant/Owner:	State: $\underline{\mathcal{W}}$ Sampling Point: $\underline{\mathcal{O}}$				
Investigator(s): KB AJ	Section, Township, Range: SIH TQHN R7W				
Landform (hillslope, terrace, etc.): <u>terrace</u>	Local relief (concave, convex, none);				
Slope (%): 2% Lat: 44 33 39.00	Long: <u>-9  1  22.87</u> Datum: <u>NAD 83</u>				
Soil Map Unit Name: Sparta Loamy Sand	NWI classification:				
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)					
Are Vegetation, Soil, or Hydrology significantly					
Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hydrology $\underline{N}$ naturally provide the second	oblematic? (If needed, explain any answers in Remarks.)				
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.					

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No _X Yes No _X Yes No _X	ls the Sampled Area within a Wetland?	Yes No <u>×</u>
Remarks: Photo # 0013	, DO14		

# **VEGETATION** - Use scientific names of plants.

	Absolute		Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)		Species?		Number of Dominant Species
1. Avericas Alba			FACU	That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3	-			Species Across All Strata: (B)
4				
5			<u></u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
	5	= Total Co	ver	
Sapling/Shrub Stratum (Plot size:)				Prevalence Index worksheet:
1. Khampus lanceolata	500	<u> </u>	FACW	Total % Cover of:Multiply by:
2				OBL species x 1 =
3				FACW species x 2 = L
4				FAC species $50 \times 3 = 150$
5.				FACU species $47$ x4 = $188$
	5	= Total Co	ver	UPL species 🔿 x 5 = 📿
Herb Stratum (Plot size:)	*************			Column Totals: 164 (A) 352 (B)
1. Rubus Flagellaris	10%	$\mathcal{N}$	FACU	
2. Juncus tenuis	50%	Y	FAC	Prevalence Index = $B/A = 3.38$
3. Solidana Canadensis	73	N	FACU	Hydrophytic Vegetation Indicators:
4. Poa COMINSCO	2597,	Y	FACU	1 - Rapid Test for Hydrophytic Vegetation
5. Sourting sectivata	2%	$\overline{\mathcal{N}}$	FACW	2 - Dominance Test is >50%
6				3 - Prevalence Index is ≤3.0 <sup>1</sup>
7				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
8				data in Remarks or on a separate sheet)
9				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
10				
	94	= Total Co	ver	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)				be present, unless disturbed of problematic.
1				Hydrophytic
2				Vegetation
		= Total Co	ver	Present? Yes No X
Remarks: (Include photo numbers here or on a separate	sheet.)			

US Army Corps of Engineers

SOIL	S	OI	L
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Profile Desc	ription: (Describe	to the dept				or confirm	n the absence of indicators.)			
Depth	Matrix Redox Features						<b>-</b>	-1		
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Remarks	<u> </u>		
0-18	104R.4/3	100					Send			
			*************							
******										
							2			
	oncentration, D=De	pletion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL=Pore Lining, M=N Indicators for Problematic Hydri			
Hydric Soil							•	C Solis :		
Histosol (A1)		Sandy Gleyed Matrix (S4) Sandy Redox (S5)				Coast Prairie Redox (A16)				
Histic Epipedon (A2)							Dark Surface (S7)			
	istic (A3)			d Matrix (S			Iron-Manganese Masses (F12)			
	en Sulfide (A4)			Mucky Mir			Very Shallow Dark Surface (TF12)			
	d Layers (A5)			Gleyed Ma			Other (Explain in Remarks)			
2 cm M	uck (A10)			Depleted Matrix (F3)						
Deplete	d Below Dark Surfa	ce (A11)	Redox Dark Surface (F6)							
Thick D	ark Surface (A12)		Depleted Dark Surface (F7)			l	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present,			
Sandy I	Mucky Mineral (S1)		Redox Depressions (F8)							
5 cm M	ucky Peat or Peat (S	53)					unless disturbed or problematic.			
Restrictive	Layer (if observed	):								
Type:							Hydric Soil Present? Yes	NoX		
Depth (ir	iches):									
Remarks:										
HYDROLO	JGY									
Wetland Hy	drology Indicators	3:								

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)						
	Surface Soil Cracks (B6)          Drainage Patterns (B10)          Dry-Season Water Table (C2)          Crayfish Burrows (C8)         pots (C3)          Saturation Visible on Aerial Imagery (C9)          Stunted or Stressed Plants (D1)         s (C6)          FAC-Neutral Test (D5)						
Field Observations:							
Surface Water Present?       Yes No Depth (inches);         Water Table Present?       Yes No Depth (inches);	<i>,</i>						
	Netland Hydrology Present? Yes No 🔀						
(includes capillary minge) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:							
Remarks:							

Midwest Region - Version 2.0

# Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap



# 012D1 012D2

Project/Site: Strum Lublig	C	;ity/County:	Trend	ealery CD. Sampling Date: 9/19/12
Applicant/Owner: DPC				
Investigator(s): KR & A)				
Landform (hillslope, terrace, etc.):			-	
Slope (%): 170 Lat: 44 33 52				
				NWI classification: PFOI /EMC
Are climatic / hydrologic conditions on the site typical for this		× 1	4	
Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hydrology $\underline{N}$ si				'Normal Circumstances" present? Yes X No
Are Vegetation, soli, or Hydrology na				eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map s				
	o	Is the	e Sampled	
Wetland Hydrology Present? Yes <u>X</u> No	0 0	withi	in a Wetlar	nd? Yes No
	Phit:			
Orarden Pristos 0020 DOZI, 00		223,	00 24	
<b>VEGETATION</b> – Use scientific names of plants.			)	
		Dominant		Dominance Test worksheet:
1				Number of Dominant Species           That Are OBL, FACW, or FAC:
2				Total Number of Dominant
3				Species Across All Strata: (B)
4 5				Percent of Dominant Species
	=	 = Total Cov		That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size:)				Prevalence Index worksheet:
1				Total % Cover of:Multiply by:
2				OBL species x 1 =
3				FACW species x 2 =
4				FAC species x 3 =
5				FACU species         x 4 =           UPL species         x 5 =
Herb Stratum (Plot size:)		= Total Cov		
1. Polygonum saittatun	50%	<u> </u>	<u>061</u>	Column Totals: (A) (B)
2. Molica dioca	552	<u></u>	FACW	Prevalence Index = B/A =
3. Solidaga gigentea		N	FAW	Hydrophytic Vegetation Indicators:
4. Phalaris arundina cea	5%	<u> </u>	FALLS	L 1 - Rapid Test for Hydrophytic Vegetation
5				2 - Dominance Test is >50%
6				3 - Prevalence Index is ≤3.0 <sup>1</sup>
7				4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
8				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
9				
10 Woody Vine Stratum (Plot size:)	707.	= Total Cov	rer	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<u> </u>				Hydrophytic
2				Vegetation
		= Total Cov	er	Present? Yes No
Remarks: (Include photo numbers here or on a separate s	heet.)			
1/7 <sup>24</sup> <b>8</b> 5-				With the content inco

SOIL	
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Depth	Matrix			x Feature	s		n the absence of indic			
inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks		
- 10_	104R2/1	150%			-		Silt loam			
10-20	104R211	995	7.54 314	190	<u> </u>	<u> </u>	Silt loann			
					_					
And an other states and the states of the st	oncentration, D=Dep	pletion, RM	=Reduced Matrix, M	S=Maske	d Sand Gr	ains.		ore Lining, M=Matrix. blematic Hydric Soils <sup>3</sup> :		
- Histosol	(A1)		Sandy	Gleyed M	atrix (S4)		Coast Prairie I	Redox (A16)		
	pipedon (A2)			Redox (S	•		Dark Surface (S7)			
_ Black Hi	istic (A3)			Stripped Matrix (S6)				Iron-Manganese Masses (F12)		
	en Sulfide (A4)		Loamy Mucky Mineral (F1)				Very Shallow Dark Surface (TF12)			
	d Layers (A5)		Loamy Gleyed Matrix (F2)				Other (Explain in Remarks)			
	uck (A10)			ed Matrix (						
	d Below Dark Surfac	ce (A11)		Dark Surf	• •		3			
-	ark Surface (A12)				urface (F7	)	•	rophytic vegetation and		
	Aucky Mineral (S1)		Redox	Depressio	ons (F8)		•	logy must be present, ed or problematic.		
	ucky Peat or Peat (S Layer (if observed)									
Туре:							Hydric Soil Preser	nt? Yes 📈 No		
•	ches):							<i>c</i> >		
emarks:										
YDROLO	)GY									
	drology Indicators	•								
	antoro (minimum of		and, shock oil that a	nnly)			Secondary Indi	eators (minimum of two requ		

Primary Indicators (minimum	of one is required: c	heck all that apply)	Secondary Indicators (minimum of two required)
Surface Water (A1)		Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
High Water Table (A2)		Aquatic Fauna (B13)	Drainage Patterns (B10)
Saturation (A3)		Dry-Season Water Table (C2)	
Water Marks (B1)		Crayfish Burrows (C8)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living	g Roots (C3) Saturation Visible on Aerial Imagery (C9)
X Drift Deposits (B3)		Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4)		Recent Iron Reduction in Tilled S	
Iron Deposits (B5)		FAC-Neutral Test (D5)	
Inundation Visible on Aer	• • •		
Sparsely Vegetated Cond	cave Surface (B8)	Other (Explain in Remarks)	
Field Observations:		······································	
Surface Water Present?		✓ Depth (inches):	
Water Table Present?	Yes No	✓ Depth (inches): Depth (inches):4	
Saturation Present? (includes capillary fringe)	Yes No	Depth (inches):4	Wetland Hydrology Present? Yes No
Describe Recorded Data (stre	eam gauge, monitori	ing well, aerial photos, previous inspe	ections), if available:
	g	······································	
Remarks:			
I Normal No.			
	and weather the second s		12 19 19 10 -
	annandor a digi.		

Project/Site: Stinn Lybly	City/County: Trensferilen Co Sampling Date: 9/19/12							
Applicant/Owner: DPC	State: $\omega$ Sampling Point: $\omega$ Sampling Point: $\omega$							
Investigator(s): <u>WBAAJ</u>	Section, Township, Range: 513 T24N R7W							
Landform (hillslope, terrace, etc.): hillslope	Local relief (concave, convex, none): <u>Slope</u>							
Slope (%): Lat: <u>44-33-51.38</u>	Long: <u>91-10-27,70</u> Datum: <u>UADS</u>							
Soil Map Unit Name: Billett Sne Sanay loam NWI classification: PFOI/EMC								
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)								
Are Vegetation, Soil, or Hydrology M significantly	y disturbed? Are "Normal Circumstances" present? Yes K. No							
Are Vegetation $\underline{\mathcal{M}}$ , Soil $\underline{\mathcal{M}}$ , or Hydrology $\underline{\mathcal{M}}$ naturally pr								
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.							
Hydrophytic Vegetation Present? Yes No								
Hydric Soil Present? Yes No	Is the Sampled Area							
Wetland Hydrology Present? Yes No	within a Wetland? Yes No							
Remarks:								
Photo DOI7								

### **VEGETATION** – Use scientific names of plants.

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:)		Species?		Number of Dominant Species
1. Quercus Veluting	2	<u> </u>	UPL	That Are OBL, FACW, or FAC:(A)
2				Total Number of Dominant
3				Species Across All Strata:
4		<u></u>		Percent of Dominant Species
5	-			That Are OBL, FACW, or FAC: 50 (A/B)
		= Total Cov	ver	
Sapling/Shrub Stratum (Plot size:)		. 1		Prevalence Index worksheet:
1. Bhaman Cathartica	40			Total % Cover of: Multiply by:
2. Rubins idaeus		$\underline{\mathcal{N}}$	FACU-	OBL species x 1 =
3				FACW species x 2 =
4				FAC species $40$ x 3 = $120$
5.				FACU species x4 = <u>28</u>
	45	= Total Cov	ver	UPL species <u>5</u> x 5 = <u>25</u>
Herb Stratum (Plot size:)				Column Totals: 52 (A) 173 (B)
1. Solidago canadensis		$\mathcal{N}$	FACU	
2				Prevalence Index = $B/A = 3/32$
3				Hydrophytic Vegetation Indicators:
4				1 - Rapid Test for Hydrophytic Vegetation
5				2 - Dominance Test is >50%
6				3 - Prevalence Index is ≤3.0 <sup>1</sup>
7				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
				data in Remarks or on a separate sheet)
8				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
9				
10		= Total Co		<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size:)		- Total Co		be present, unless disturbed or problematic.
1			)	Hydrophytic
2				Vegetation
		= Total Co	ver	Present? Yes No X
Remarks: (Include photo numbers here or on a separate	sheet.)			L
sparsely vegetated ground under	trees	>		
torial real of the	; •	-		

Profile Desc	Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth	Matrix		Redo	Features						
(inches)	Color (moist)	%	Color (moist)		Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks		
<u>D-8</u>	1042,412	100					Sandy low my			
8-18	10464/3	100-								
<u>,</u>	<u></u>									
	******					<u></u>				
	<u></u>									
4										
	•			******				*****		
	****	epletion, RM=F	Reduced Matrix, MS	S=Masked	Sand Gra	ains.		=Pore Lining, M=Matrix		
Hydric Soil I	Indicators: 🔬							Problematic Hydric So	ils':	
Histosol	•			Sleyed Mat				rie Redox (A16)		
· ·	pipedon (A2)			Redox (S5)			Dark Surfa			
	stic (A3)			Matrix (Se				anese Masses (F12)		
	en Sulfide (A4)		•	Mucky Min				ow Dark Surface (TF12)		
	d Layers (A5) Jok (A10)			Gleyed Ma d Matrix (F				olain in Remarks)		
	d Below Dark Surfa	ace (A11)		Dark Surfac						
	ark Surface (A12)			d Dark Sur	• •		<sup>3</sup> Indicators of hydrophytic vegetation and			
	lucky Mineral (S1)		·	Depression	- ,			drology must be present		
	icky Peat or Peat (		<u></u>		- ()		unless disturbed or problematic.			
	Layer (if observed									
Type:										
Depth (in	ches):						Hydric Soil Pre	esent? Yes	No	
Remarks:										
HYDROLO	GY									
	drology Indicator	····								
-			d; check all that an	vla			Secondary I	ndicators (minimum of th	vo required)	
	Water (A1)		Water-Sta		es (B9)			Soil Cracks (B6)		
	ater Table (A2)		Aquatic Fa		• •			e Patterns (B10)		
Saturati				tic Plants (				ason Water Table (C2)		
1	larks (B1)		Hydrogen					n Burrows (C8)		
	. ,					ina Roots		ion Visible on Aerial Ima	gery (C9)	
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots Drift Deposits (B3) Presence of Reduced Iron (C4)						-		or Stressed Plants (D1)	)	
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C							rphic Position (D2)			
Algal Mat or Clust (B4)     Recent non Reduction in Alled Solis (1)       Iron Deposits (B5)     Thin Muck Surface (C7)							/	eutral Test (D5)		
· · ·	ion Visible on Aeria	al Imagery (B7						. ,		
	y Vegetated Conca									
Field Obser			,			1				
Surface Wat		Yes N	o Depth (in	ches):						
Water Table			lo Depth (in			1				
Saturation P			lo Depth (in			1	tiand Hydrology P	resent? Yes		
(includes ca	pillary fringe)									
Describe Re	ecorded Data (strea	am gauge, moi	nitoring well, aerial	photos, pre	evious ins	spections)	, if available:			

Remarks:



# Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap



# 015D

Applicant/Owner: DPC				State: <u>しし</u> Sampling Point <u>015</u> nge: <u>513 T24 N R7W<sup>®</sup></u>
				concave, convex, none): <u>Concaule</u>
				<u>31.11</u> Datum: <u>A1A 0 8</u>
				<b>4</b>
	(		S /	NWI classification: <u>PFOI /EM</u>
Are climatic / hydrologic conditions on				
				Normal Circumstances" present? Yes N
Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , o	r Hydrology <u>N</u> natur	ally problematic	? (If ne	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - A	Attach site map sho	owing samp	ling point lo	ocations, transects, important feature
Hydrophytic Vegetation Present?	Yes No			-
Hydric Soil Present?	Yes No		the Sampted	
Wetland Hydrology Present?	Yes No	14	rithin a Wetlan	d? Yes <u>No</u>
Remarks: Photo # C	1019			
VEGETATION – Use scientific	names of plants.			
Tree Stratum (Plot size:	Ab	solute Domina	ant Indicator	Dominance Test worksheet:
1	· · · · · · · · · · · · · · · · · · ·			Number of Dominant Species That Are OBL, FACW, or FAC:
2				
3				Total Number of Dominant Species Across All Strata:
4.				
5				Percent of Dominant Species That Are OBL, FACW, or FAC:
-		= Total	Cover	
Sapling/Shrub Stratum (Plot size:	)			Prevalence Index worksheet:
1				Total % Cover of: Multiply by:
2				OBL species x 1 =
3				FACW species x 2 =
4				FAC species x 3 =
5				FACU species x 4 =
Herb Stratum (Plot size:	, —	= Total		UPL species x 5 =
1. Phalalis arunding	ner li	UJ2 4	FACN	Column Totals: (A)
2				Prevalence index = B/A =
3				Hydrophytic Vegetation Indicators:
4				1 - Rapid Test for Hydrophytic Vegetation
5				2 - Dominance Test is >50%
6				3 - Prevalence Index is ≤3.0 <sup>1</sup>
7				4 - Morphological Adaptations <sup>1</sup> (Provide su
8				data in Remarks or on a separate sheet
9.				Problematic Hydrophytic Vegetation <sup>1</sup> (Expla
10				
		100 = Total	Cover	<sup>1</sup> Indicators of hydric soil and wetland hydrology be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:				
				Hydrophytic
1				Vegetation
1.           2.	······································			Present? Yes No

Profile Desc	ription: (Describe	to the dept	h needed to docu	ment the i	ndicator	or confirm	n the absence of indi	icators.)
Depth	Matrix			x Features	<u>s</u>		<b>-</b> .	<b>0</b>
(inches)	Color (moist)		Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks
0 - 10	Gby 2.5/N	100					Siltlonn	
10-12	2:54 2.5/1	100					Silt loan	
12-20	2,54 4/1	100					Sand	
<u></u>								
	**************************************							
	<u></u>	-			<del></del>	<u></u>		
		<u> </u>						
<sup>1</sup> Type: C=C	oncentration, D=Dep	letion. RM=	Reduced Matrix. M	S=Masked	Sand Gr	ains.	<sup>2</sup> Location: PL=F	Pore Lining, M=Matrix.
Hydric Soil								oblematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Sandy	Gleyed Ma	ıtrix (S4)		Coast Prairie	Redox (A16)
	pipedon (A2)		Sandy	- Redox (S5	)		Dark Surface	(S7)
	istic (A3)		Strippe	d Matrix (S	56)		Iron-Mangan	ese Masses (F12)
	en Sulfide (A4)		Loamy	Mucky Mir	neral (F1)		Very Shallow	Dark Surface (TF12)
Stratifie	d Layers (A5)		Loamy	Gleyed Ma	atrix (F2)		Other (Explai	n in Remarks)
	uck (A10)		Deplete	ed Matrix (I	F3)			
	d Below Dark Surfac	e (A11)	Redox	Dark Surfa	ace (F6)			
	ark Surface (A12)		Deplete	ed Dark Su	Inface (F7	)	<sup>3</sup> Indicators of hyd	Irophytic vegetation and
	Mucky Mineral (S1)		Redox	Depressio	ns (F8)		wetland hydro	blogy must be present,
	ucky Peat or Peat (S	3)					unless distur	bed or problematic.
Restrictive	Layer (if observed)							
Type:							Hydric Soil Prese	nt? Yes 🗡 No
Depth (in	iches):							
Remarks:								
L								
HYDROLC	)GY							
Wetland Hy	drology Indicators:							
<b>_</b>				makel			Consider lad	instars (minimum of two required)

Primary Indicators (minimum of one is required:	Secondary Indicators (minimum of two required)						
Surface Water (A1)	Surface Soil Cracks (B6)						
High Water Table (A2)	Aquatic Fauna (B13)	Drainage Patterns (B10)					
Saturation (A3)	True Aquatic Plants (B14)	Dry-Season Water Table (C2)					
Water Marks (B1)	Crayfish Burrows (C8)						
Sediment Deposits (B2)	Oxidized Rhizospheres on Living	Roots (C3) Saturation Visible on Aerial Imagery (C9)					
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)					
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled So						
Iron Deposits (B5)	Thin Muck Surface (C7)	✓ FAC-Neutral Test (D5)					
Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)							
Sparsely Vegetated Concave Surface (B8)	Other (Explain in Remarks)						
Field Observations:							
Surface Water Present? Yes No	Depth (inches):						
Water Table Present? Yes No	Depth (inches):						
Saturation Present? Yes X No	Depth (inches): <i>\_</i> /	Wetland Hydrology Present? Yes 🖄 No					
(includes capillary fringe)		tions) if ovailable:					
Describe Recorded Data (stream gauge, monite	onng weil, aenal photos, previous inspec	uuis), ii avaiiaule.					
Remarks:							

Project/Site: Stun Lublin		(	City/County:	contenten	y Co	Sampling Date: _	9/19/12
Applicant/Owner: DPC				St	ate: $\mathcal{D}$	Sampling Point: _	01502
Investigator(s): KB - A-J			Section, Townshi	p, Range: <u>5</u> 1	3 T241	JRTW	
Landform (hillslope, terrace, etc.):	115lope		Local	relief (concave,	, convex, none	): None	
Slope (%): 375 Lat: 44	33 48.4	161	_ong: <u>&lt; 91</u>	10 3	2.80	_ Datum:AT	083
Soil Map Unit Name: 66thaum	loamy (	fine su	nd		NWI classif	fication:	·····
Are climatic / hydrologic conditions on the	site typical for t	his time of yea	ar?Yes	No (If	no, explain in	Remarks.)	
Are Vegetation $\underline{Y}$ , Soil $\underline{N}$ , or H	ydrology N	_significantly of	listurbed?	Are "Normal C	ircumstances"	' present? Yes $\geq$	No
Are Vegetation $\underline{N}_{}$ , Soil $\underline{N}_{}$ , or H	ydrology <u>M</u>	naturally prol	plematic?	(If needed, exp	plain any answ	vers in Remarks.)	
SUMMARY OF FINDINGS - Att	ach site maj	p showing	sampling po	int location	s, transect	s, important fe	atures, etc.
Hydrophytic Vegetation Present?		No					
Hydric Soil Present?	Construction of the second sec	No <u>×</u>	1	npled Area			
Wetland Hydrology Present?		No <u>×</u>	within a V	Vetland?	Yes	No_ <u>×</u>	-
Remarks: Recently move	o por	ntat	378	Pho	to 001	&	

# **VEGETATION** – Use scientific names of plants.

	Absolute			Dominance Test worksheet:	
Tree Stratum (Plot size:)	<u>% Cover</u>	Species?	Status	Number of Dominant Species	
1				That Are OBL, FACW, or FAC:	(A)
2				Total Number of Dominant	
3				Species Across All Strata:	(B)
4					
5				Percent of Dominant Species That Are OBL, FACW, or FAC:	(A/R)
		= Total Cov			(~0)
Sapling/Shrub Stratum (Plot size:)				Prevalence Index worksheet:	
1. Rubis idaeus			FACU	Total % Cover of: Multiply by:	-
2				OBL species x 1 =	-
3				FACW species x 2 =	-
4				FAC species x 3 =	_
5				FACU species x 4 =	-
		= Total Co		UPL species x 5 =	
Herb Stratum (Plot size:)				Column Totals: (A)	
1. <u>Solidago gigantae</u>			FACH		
2				Prevalence Index = B/A =	
3				Hydrophytic Vegetation Indicators:	
4				1 - Rapid Test for Hydrophytic Vegetation	
5				2 - Dominance Test is >50%	
6				3 - Prevalence Index is ≤3.0 <sup>1</sup>	
7				4 - Morphological Adaptations <sup>1</sup> (Provide supp	orting
8				data in Remarks or on a separate sheet)	
9				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain	1)
10					
		= Total Co		<sup>1</sup> Indicators of hydric soil and wetland hydrology m	ust
Woody Vine Stratum (Plot size:)		- 1000100	401	be present, unless disturbed or problematic.	
1				Hydrophytic	
2				Vegetation	
	<u></u>	= Total Co		Present? Yes No	
Remarks: (Include photo numbers here or on a separate	sheet.)				
L					

.

Profile Desc	ription: (Describe	to the dept	th needed to docum	nent the	indicator	or confirm	n the absence of indic	cators.)	
Depth	Matrix			x Feature					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks	
0-15	104R 3/1	100					Sitlan		
15-18	104R4/3	100					Silt loan		
<del></del>	<u></u>								
			*****						
<sup>1</sup> Type: C=C	oncentration, D=Dep	pletion, RM=	Reduced Matrix, MS	S=Maske	d Sand Gr	ains.	<sup>2</sup> Location: PL=P	ore Lining, M=Matrix.	
Hydric Soil							Indicators for Pro	blematic Hydric Soils <sup>3</sup> :	
Histosol	(A1)		Sandy (	Gleyed M	atrix (S4)		Coast Prairie F	Redox (A16)	
Histic E	pipedon (A2)		Sandy F	Redox (S	5)		Dark Surface (	(S7)	
Black H	istic (A3)		Stripped Matrix (S6)				Iron-Manganese Masses (F12)		
Hydroge	en Sulfide (A4)		Loamy Mucky Mineral (F1)				Very Shallow Dark Surface (TF12)		
Stratifie	d Layers (A5)		Loamy Gleyed Matrix (F2)				Other (Explain	ı in Remarks)	
2 cm Mi	uck (A10)		Deplete	d Matrix (	(F3)				
Deplete	d Below Dark Surfac	ce (A11)	Redox I	Dark Surf	ace (F6)				
Thick D	ark Surface (A12)		Deplete	d Dark S	urface (F7	)	<sup>3</sup> Indicators of hydr	rophytic vegetation and	
Sandy M	Mucky Mineral (S1)		Redox I	Depressio	ons (F8)		wetland hydrol	logy must be present,	
5 cm Mi	ucky Peat or Peat (S	53)					unless disturb	ed or problematic.	
Restrictive	Layer (if observed)	):	*****						
Type:								nt? Yes No 🗡	
Depth (in	iches):						Hydric Soil Preser	nt? Yes No	
Remarks:								***************************************	

### HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
Surface Water (A1) Water-Stained Leaves (B	9) Surface Soil Cracks (B6)
High Water Table (A2) Aquatic Fauna (B13)	Drainage Patterns (B10)
Saturation (A3) True Aquatic Plants (B14	) Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (C	C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospheres o	n Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced Iro	n (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction in	Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7)	FAC-Neutral Test (D5)
Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)	
Sparsely Vegetated Concave Surface (B8) Other (Explain in Remark	(3)
Field Observations:	
Surface Water Present? Yes No 🔀 Depth (inches):	
Water Table Present? Yes No X Depth (inches):	
Saturation Present? Yes No Depth (inches):	
Describe Recorded Data (stream gauge, monitoring well, aenal photos, previou	us inspections), if available:
Remarks:	

# Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap



# **017D**

Project/Site: Stum Lublin	City/County: Jackson Co. Sampling Date: 1/19/12
Applicant/Owner:	State: Water Sampling Point: OTID
Investigator(s): KB+AJ	Section, Township, Range: <u>57 T24N RGW</u>
Landform (hillslope, terrace, etc.):	
Slope (%): O Lat: <u>44 34 5, 37</u>	Long: -9 9 45.29 Datum: NAD83
Soil Map Unit Name: Elevasil Jundy Low	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of y Are Vegetation $\underbrace{N}_{}$ , Soil $\underbrace{N}_{}$ , or Hydrology $\underbrace{N}_{}$ significantly Are Vegetation $\underbrace{N}_{}$ , Soil $\underbrace{N}_{}$ , or Hydrology $\underbrace{N}_{}$ naturally pr SUMMARY OF FINDINGS – Attach site map showing	y disturbed? Are "Normal Circumstances" present? Yes No
Hydrophytic Vegetation Present?         Yes         No           Hydric Soil Present?         Yes         Xo           Wetland Hydrology Present?         Yes         Xo	Is the Sampled Area within a Wetland? Yes No
Remarks: Phot #0026+0027	

### VEGETATION - Use scientific names of plants.

	Absolute	Dominant	Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size:)	<u>% Cover</u>	Species?	Status	Number of Dominant Species	
1	. <u></u>	<u></u> .		That Are OBL, FACW, or FAC:	(A)
2				Total Number of Dominant	
3					(B)
4					. /
5				Percent of Dominant Species	
		= Total Cove		That Are OBL, FACW, or FAC:	(A/B)
Sapling/Shrub Stratum (Plot size:)		- Total Cove	51	Prevalence Index worksheet:	
1				Total % Cover of: Multiply by:	_
2				OBL species x 1 =	
				FACW species x 2 =	
3				FAC species x 3 =	
4				FACU species x 4 =	
5				UPL species x 5 =	
Herb Stratum (Plot size:)		= Total Cove	31		
1. Phalacis a rundingeres	959	. Y	FACH	Column Totals: (A)	. (0)
2. Thissle	590	<u></u>	<u></u>	Prevalence Index = B/A =	
3.				Hydrophytic Vegetation Indicators:	
				X 1 - Rapid Test for Hydrophytic Vegetation	
4				2 - Dominance Test is >50%	
5				3 - Prevalence Index is ≤3.0 <sup>1</sup>	
6				4 - Morphological Adaptations <sup>1</sup> (Provide supp	orting
7				data in Remarks or on a separate sheet)	Johang
8				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain	אר
9					·
10				<sup>1</sup> Indicators of hydric soil and wetland hydrology m	uet
	100	= Total Cov	er	be present, unless disturbed or problematic.	usi
Woody Vine Stratum (Plot size:)					
1				Hydrophytic	
2	. <u></u>			Vegetation Present? Yes No	
		= Total Cov	er		
Remarks: (Include photo numbers here or on a separate	sheet.)				

Depth Matrix		ent the indicato Features			·
inches) Color (moist) %	Color (moist)	<u>%</u> Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
1-10 1140.3/2.95	10 4R316	5 C	PL	Silt loan	
10-20 10YR 3/2 95	104R310	5 C	PL	SiltyClayle	"AM
20-22 WYR 311 94	104R316	6 (	DI	Silty Clay	
				<u></u>	
Type: C=Concentration, D=Depletion, RM=	Reduced Matrix, MS=	Masked Sand G	rains.		PL=Pore Lining, M=Matrix. for Problematic Hydric Soils <sup>3</sup> :
•	Condu Cl	and Materia (CA)			-
Histosol (A1) Histic Epipedon (A2)	Sandy Ge	eyed Matrix (S4) idox (S5)			Prairie Redox (A16) urface (S7)
Black Histic (A3)		Matrix (S6)			anganese Masses (F12)
Hydrogen Sulfide (A4)		ucky Mineral (F1	)		hallow Dark Surface (TF12)
Stratified Layers (A5)		eyed Matrix (F2			Explain in Remarks)
<ul> <li>2 cm Muck (A10)</li> <li>Depleted Below Dark Surface (A11)</li> <li>Thick Dark Surface (A12)</li> <li>Sandy Mucky Mineral (S1)</li> <li>5 cm Mucky Peat or Peat (S3)</li> </ul>	Redox Da Depleted	Matrix (F3) ark Surface (F6) Dark Surface (F epressions (F8)	7)	wetland	of hydrophytic vegetation and I hydrology must be present, disturbed or problematic.
Restrictive Layer (if observed):					
Type:				Hydric Soil	Present? Yes <u><math>\times</math></u> No
Depth (inches):					
Remarks:					
•					
YDROLOGY					
Netland Hydrology Indicators:	ed: check all that app	ly)		Seconda	ry Indicators (minimum of two required
Netland Hydrology Indicators:		ly) ed Leaves (B9)			ry Indicators (minimum of two required ace Soil Cracks (B6)
Netland Hydrology Indicators: Primary Indicators (minimum of one is requir Surface Water (A1) High Water Table (A2)	Water-Stain Aquatic Fau	ed Leaves (B9) па (B13)		Surf Drai	nage Patterns (B10)
Netland Hydrology Indicators: Primary Indicators (minimum of one is requir Surface Water (A1)	Water-Stain Aquatic Fau	ed Leaves (B9)		Surf Drai Dry-	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2)
Vetland Hydrology Indicators: Primary Indicators (minimum of one is requir Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	Water-Stain Aquatic Fau True Aquati Hydrogen S	ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1)		Surf Drai Dry- Cray	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8)
Vetland Hydrology Indicators:         Primary Indicators (minimum of one is required)	Water-Stain Aquatic Fau True Aquati Hydrogen S Oxidized Rh	ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L	-	Surf Drai Dry- Cray ; (C3) Satu	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) /fish Burrows (C8) ıration Visible on Aerial Imagery (C9)
Vetland Hydrology Indicators: Primary Indicators (minimum of one is requir Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	Water-Stain Aquatic Fau True Aquati Hydrogen S Oxidized Rh Presence of	ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L i Reduced Iron (i	24)	Surf Drai Dry- Cray ; (C3) Satu Stur	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8) iration Visible on Aerial Imagery (C9) ited or Stressed Plants (D1)
Vetland Hydrology Indicators: Primary Indicators (minimum of one is requir Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	Water-Stain     Aquatic Fau     True Aquati     Hydrogen S     Oxidized Rh     Presence of     Recent Iron	ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) izospheres on L Reduced Iron ( Reduction in Til	24)	Surf Drai Dry- Cray Cray Satu Stur 6) <u> </u>	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8) Iration Visible on Aerial Imagery (C9) Ited or Stressed Plants (D1) morphic Position (D2)
Vetland Hydrology Indicators:         Primary Indicators (minimum of one is required)	Water-Stain     Aquatic Fau     True Aquati     Hydrogen S     Oxidized Rh     Presence of     Recent Iron     Thin Muck S	ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L Reduced Iron ( Reduction in Til Surface (C7)	24)	Surf Drai Dry- Cray Cray Satu Stur 6) <u> </u>	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8) iration Visible on Aerial Imagery (C9) ited or Stressed Plants (D1)
Vetland Hydrology Indicators:         Primary Indicators (minimum of one is required)	Water-Stain     Aquatic Fau     True Aquati     Hydrogen S     Oxidized Rh     Presence of     Recent Iron     Thin Muck S     Gauge or W	ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L r Reduced Iron ( Reduction in Til Surface (C7) /ell Data (D9)	24)	Surf Drai Dry- Cray Cray Satu Stur 6) <u> </u>	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8) Iration Visible on Aerial Imagery (C9) Ited or Stressed Plants (D1) morphic Position (D2)
Vetland Hydrology Indicators:         Primary Indicators (minimum of one is requir	Water-Stain     Aquatic Fau     True Aquati     Hydrogen S     Oxidized Rh     Presence of     Recent Iron     Thin Muck S     Gauge or W	ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L Reduced Iron ( Reduction in Til Surface (C7)	24)	Surf Drai Dry- Cray Cray Satu Stur 6) <u> </u>	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8) Iration Visible on Aerial Imagery (C9) Ited or Stressed Plants (D1) morphic Position (D2)
High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B3) Sparsely Vegetated Concave Surface (I Field Observations:	Water-Stain     Aquatic Fau     True Aquati     Hydrogen S     Oxidized Rh     Presence of     Recent Iron     Thin Muck S     Gauge or W     38) Other (Explane	ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L Reduced Iron ( Reduction in Til Surface (C7) /ell Data (D9) ain in Remarks)	C4) ed Soils (C	Surf Drai Dry- Cray Cray Satu Stur 6) <u> </u>	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8) Iration Visible on Aerial Imagery (C9) Ited or Stressed Plants (D1) morphic Position (D2)
Wetland Hydrology Indicators:         Primary Indicators (minimum of one is requir	Water-Stain     Aquatic Fau     Aquatic Fau     True Aquati     Hydrogen S     Oxidized Rh     Presence of     Recent Iron     Thin Muck S     Gauge or W     38) Other (Expla  No Depth (incl	ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) izospheres on L Reduced Iron ( Reduction in Til Surface (C7) /ell Data (D9) ain in Remarks)	C4) led Soils (C	Surf Drai Dry- Cray Cray Satu Stur 6) <u> </u>	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8) Iration Visible on Aerial Imagery (C9) Ited or Stressed Plants (D1) morphic Position (D2)
Wetland Hydrology Indicators:         Primary Indicators (minimum of one is required in the second	Water-Stain     Aquatic Fau     True Aquati     Hydrogen S     Oxidized Rh     Presence of     Recent Iron     Thin Muck S     Gauge or W     Other (Expla No	ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L Reduced Iron ( Reduction in Til Surface (C7) /ell Data (D9) ain in Remarks)	C4) led Soils (C	Surf Drai Dry- Cray Cray Satu Stur 6) ∑ Geo FAC	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8) Iration Visible on Aerial Imagery (C9) Ited or Stressed Plants (D1) morphic Position (D2)

Remarks:

Project/Site: Strum Lublin		City/County: Jack	son co.	Sampling Date:			
Applicant/Owner: DPC		-		Sampling Point: 61702			
Investigator(s): $\underline{KB + AJ}$		Section, Township, Rang	ge: <u>57 T24</u>	NRGW			
Landform (hillslope, terrace, etc.):	slope	Local relief (c	concave, convex, non	e): Nore			
Slope (%): Lat:							
Soil Map Unit Name: Elevasil Sa	undy loam		NWI class	ification:			
Are climatic / hydrologic conditions on the			(If no, explain ir	n Remarks.)			
Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hy	drology significantly	y disturbed? Are "N	lormal Circumstances	s" present? Yes No			
Are Vegetation, Soil, or Hy	/drology naturally pi		ded, explain any ans				
SUMMARY OF FINDINGS - Atta	ach site map showin	g sampling point lo	cations, transec	ts, important features, etc.			
Hydrophytic Vegetation Present?	Yes No		-				
Hydric Soil Present?	Yes No		Area	No			
Wetland Hydrology Present?	Yes No	within a Wetland	17 Yes	No			
Remarks: Structure 391	Photo # 0	025					
VEGETATION – Use scientific names of plants.							
	Absolute	Dominant Indicator	Dominance Test wo	orksheet:			

	Absolute			Dominance rest worksheet.	
Tree Stratum (Plot size:)		Species?		Number of Dominant Species	
1				That Are OBL, FACW, or FAC:	(A)
2				Total Number of Dominant	
3				Species Across All Strata:	(B)
4				Percent of Dominant Species	
5				That Are OBL, FACW, or FAC:	(A/B)
		= Total Co	ver	Prevalence Index worksheet:	
Sapling/Shrub Stratum (Plot size:)				Total % Cover of: Mult	ioly by:
1					
2				OBL species x 1 =	
3				FACW species x 2 =	
4				FAC species X 3 =	
5				FACU species x 4 =	
Herb Stratum (Plot size:)		= Total Co	ver	UPL species x 5 =	
1. Phalaus arundinaces	48%	Ч	FACW	Column Totals: (A)	(B)
2. Solidano ajaantea			FACW	Prevalence index = B/A =	
3. Asclepins surinca	420	- i	FACU	Hydrophytic Vegetation Indicators:	
				X 1 - Rapid Test for Hydrophytic Veg	etation
4				2 - Dominance Test is >50%	
5				3 - Prevalence Index is ≤3.0 <sup>1</sup>	
6				4 - Morphological Adaptations <sup>1</sup> (Pr	ovide supporting
7				data in Remarks or on a separa	
8				Problematic Hydrophytic Vegetatic	on <sup>1</sup> (Explain)
9					
10				<sup>1</sup> Indicators of hydric soil and wetland h	
Woody Vine Stratum (Plot size:)	10000	= Total Co	ver	be present, unless disturbed or probler	matic.
1				Hydrophytic	
2.				Vegetation V	
		= Total Co		Present? Yes No	
Remarks: (Include photo numbers here or on a separate	sheet.)				
· · · · · · · · · · · · · · · · · · ·					

1 1

Profile Desc	Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth Matrix Redox Features									
(inches)	Color (moist)	%	Color (moist)	%		_Loc <sup>2</sup>		Remarks	
0-110	104R3/2	100				2's 	Siltloan_		
110-20	1048 4/4	100					Silf Joam_		
							r		
	·····								
<u></u>									
	oncentration, D=De	pletion, RM=I	Reduced Matrix, MS	S=Masked	Sand Gr	ains.		PL=Pore Lining, M=Matrix.	
Hydric Soil								r Problematic Hydric Solls <sup>3</sup> :	
Histosol	· ·			Sleyed Ma				airie Redox (A16)	
	pipedon (A2)			Redox (S5			Dark Surf	ace (S7) ganese Masses (F12)	
	istic (A3)			l Matrix (S Mucky Mir	•			llow Dark Surface (TF12)	
	en Sulfide (A4) d Layers (A5)			Gleyed Ma				plain in Remarks)	
	uck (A10)			d Matrix (					
	d Below Dark Surfa	ce (A11)		Dark Surfa					
Thick D	ark Surface (A12)			d Dark Su		)		hydrophytic vegetation and	
	Aucky Mineral (S1)		Redox I	Depressio	ns (F8)		wetland hydrology must be present,		
	ucky Peat or Peat (S						unless dis	sturbed or problematic.	
	Layer (if observed								
							Hydric Soil Pr	esent? Yes No	
	ches):								
Remarks:									
HYDROLC									
-	drology Indicators		-di shaali alf that a	nahu)			Secondary	Indicators (minimum of two required)	
	cators (minimum of	one is require			·····			e Soil Cracks (B6)	
	Water (A1)		Water-Sta Aquatic Fa					ge Patterns (B10)	
	ater Table (A2)		True Aquatic Fa	•	·			eason Water Table (C2)	
	ion (A3) Aaska (B1)		Hydrogen					sh Burrows (C8)	
	Marks (B1) ent Deposits (B2)		Oxidized I			ving Roots		tion Visible on Aerial Imagery (C9)	
1	eposits (B3)		Presence					d or Stressed Plants (D1)	
	at or Crust (B4)		Recent Irc		•	•		orphic Position (D2)	
1	posits (B5)		Thin Much				,	leutral Test (D5)	
	tion Visible on Aeria	I Imagery (B7							
	iy Vegetated Conca				• •				
Field Obse			-,		,	1			
1		Yes I	No Depth (ir	ches):					
Water Table			No Depth (ir						
Saturation			No Depth (ir				tiand Hydrology F	Present? Yes No X	
(includes ca	apillary fringe)								
Describe R	ecorded Data (strea	m gauge, mo	nitoring well, aerial	photos, p	revious in	spections	), if available:		

Remarks:

	kV (N-3) Transmission Line Reb se I: Strum Tap to Willard Tap	ouild Project	

Γ

# **018D**

Project/Site: Strum Lublia	City/County: Jackson Co. Sampling Date: 9/19/12						
Applicant/Owner: <u>DPC</u>	State: <u></u> State: <u>Sampling</u> Point: <u>Signal</u>						
Investigator(s): <u>FB+AJ</u>	Section, Township, Range: 57 T24N R.C.W						
Landform (hillslope, terrace, etc.):	Local relief (concave, convex, none):						
Slope (%): 19 Lat: 44 34 5.41	Long: -91 9 35.24 Datum: NAD 83						
Soil Map Unit Name: Elevasil Sandy Loam	NWI classification:						
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.) Are Vegetation V, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No							
Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hydrology $\underline{N}$ significantly Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hydrology $\underline{N}$ naturally pr	roblematic? (If needed, explain any answers in Remarks.)						
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.						
Hydrophytic Vegetation Present?       Yes X       No         Hydric Soil Present?       Yes X       No         Wetland Hydrology Present?       Yes X       No	is the Sampled Area within a Wetland? Yes No						
Remarks: Photo #0028 Structure #3994							

# **VEGETATION** – Use scientific names of plants.

	Absolute			Dominance Test workshee	ət:	
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Specie	95	
1	<u></u>		<u> </u>	That Are OBL, FACW, or FA	NC:	(A)
2	<u> </u>			Total Number of Dominant		
3				Species Across All Strata:		(B)
4						
5				Percent of Dominant Specie That Are OBL, FACW, or FA		
		= Total Co	/er			(~0)
Sapling/Shrub Stratum (Plot size:)				Prevalence Index workshe	et:	
1				Total % Cover of:	Multiply by:	-
2				OBL species	x1=	.
3				FACW species	_ x 2 =	.
4				FAC species		
5				FACU species		
•		= Total Co		UPL species		
Herb Stratum (Plot size:)		Total 00		Column Totals:		
1. Phalaris arundinacea	lbo	4	FACW			. (=)
2				Prevalence Index = B	/A =	_
3				Hydrophytic Vegetation in	dicators:	
4				🛛 🔀 1 - Rapid Test for Hydro	ophytic Vegetation	
5				2 - Dominance Test is >		
6				3 - Prevalence Index is	≤3.0 <sup>1</sup>	
7.				4 - Morphological Adap		orting
				data in Remarks or o	on a separate sheet)	
8				Problematic Hydrophyti	ic Vegetation <sup>1</sup> (Explair	1)
9						
10				<sup>1</sup> Indicators of hydric soil and		ust
Woody Vine Stratum (Plot size:)	100	= Total Co	ver	be present, unless disturbed	d or problematic.	
1/				Hydrophytic		
2				Vegetation	/	
۵. <u></u>		= Total Co		Present? Yes	<u> </u>	
Remarks: (Include photo numbers here or on a separate	sheet.)				**********	

Profile Desc	cription: (Describe to	the depth				or confirm	n the absence of i	ndicators.)	
Depth (inchas)	Matrix		Redo Color (moist)	x Features %	s Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
(inches)	$\frac{\text{Color (moist)}}{10002}$	9952	04R 3/4	13		PL		Remarks	
<u>p-4</u>		and a second					Siltlann_		
4-6	104R 6/2 4		<u> </u>			PL	Silty Challown		
6-18	2.54 3/1	90	104R 316			PL	silt loam	Sand lenses	
				· .					
1 Tuno: C=C		ion PM-P	aduced Metrix M	 S=Mackod	Sand Gr		<sup>2</sup> Location: Pl		
Hydric Soil	oncentration, D=Deplet Indicators:		educeu Matrix, Mi	0-Maskeu	I Salid Gi	ams.		Problematic Hydric Soils <sup>3</sup> :	
Histoso			Sandy	Gleyed Ma	itrix (S4)			rie Redox (A16)	
	pipedon (A2)			Redox (S5			Dark Surfa	• •	
	istic (A3)			d Matrix (S				anese Masses (F12)	
	en Sulfide (A4)			Mucky Mir				ow Dark Surface (TF12)	
	d Layers (A5)			Gleyed Ma				plain in Remarks)	
	uck (A10)		Deplete	ed Matrix (I	F3)				
Deplete	d Below Dark Surface (	A11)	Redox	Dark Surfa	ice (F6)				
Thick D	ark Surface (A12)		Deplete	ed Dark Su	Inface (F7	)	<sup>3</sup> Indicators of hydrophytic vegetation and		
Sandy M	Mucky Mineral (S1)		🔀 Redox	Depressio	ns (F8)		wetland hydrology must be present,		
5 cm M	ucky Peat or Peat (S3)						unless disturbed or problematic.		
Restrictive	Layer (if observed):								
Туре:							Hydric Soil Pre	sent? Yes X No	
Depth (in	iches):						Hydric 301 Fie		
Remarks:									
HYDROLC									
	/drology Indicators:								
	icators (minimum of one	ie require	t check all that a	nniv)			Secondary I	ndicators (minimum of two required	
	e Water (A1)	s is require		ained Leav	es (89)			Soil Cracks (B6)	
	ater Table (A2)			auna (B13				je Patterns (B10)	
								ason Water Table (C2)	
	ion (A3)			atic Plants				• •	
	Marks (B1)			Sulfide O				1 Burrows (C8)	
	ent Deposits (B2)			Rhizosphe				ion Visible on Aerial Imagery (C9)	
	eposits (B3)			of Reduce			-	or Stressed Plants (D1)	
	lat or Crust (B4)			on Reducti		ed Soils (C	·	rphic Position (D2)	
Iron De	posits (B5)		Thin Muc	k Surface	(C7)			eutral Test (D5)	
Inundat	tion Visible on Aerial Im	agery (B7)	Gauge or	Well Data	(D9)				
Sparse	ly Vegetated Concave	Surface (B8	) Other (Ex	plain in Re	emarks)				

Field Observations:

Remarks:

 
 Yes \_\_\_\_\_
 No \_\_\_\_\_
 Depth (inches): \_\_\_\_\_

 Yes \_\_\_\_\_
 No \_\_\_\_\_
 Depth (inches): \_\_\_\_\_
 Surface Water Present? Water Table Present? Yes \_\_\_\_\_ No \_\_\_\_ Depth (inches): \_\_\_\_\_ Wetland Hydrology Present? Yes Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

WETLAND DETERMINATION DATA FORM – Midwest Region								
Project/Site: Strum Lublin	City/County: JackSon Co. Sampling Date: 9/19/12							
Applicant/Owner: DPC	State: (1) Sampling Point () 10 D 2							
Investigator(s): KB + AT								
Landform (hillslope, terrace, etc.):h.ikide	Local relief (concave, convex, none): Convex							
Slope (%): 373 Lat: 44 34 5.40	Long: <u>91 9 36.16</u> Datum: <u>NAD 83</u>							
Soil Map Unit Name: Elevasil sandy loam	NWI classification:							
Are climatic / hydrologic conditions on the site typical for this time of ye								
Are Vegetation, Soil, or Hydrology significantly	disturbed? Are "Normal Circumstances" present? Yes X No							
Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hydrology $\underline{N}$ naturally pr	oblematic? (If needed, explain any answers in Remarks.)							
SUMMARY OF FINDINGS - Attach site map showing	sampling point locations, transects, important features, etc.							
Hydrophytic Vegetation Present?       Yes       No         Hydric Soil Present?       Yes       No         Wetland Hydrology Present?       Yes       No	Is the Sampled Area within a Wetland? Yes No							
Remarks: Photo #0029,0030								
VEGETATION – Use scientific names of plants.								
Absolute	Species? Status							
1	Humber of Dominant Species							
2	Total Number of Dominant							
3								
4 5	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)							

١		TATION	Lleo	scientific	namos	of planta	
N	/EGEI	IATION	– Use	scientific	names	of plants	è.

	Absolute			Dominance rest workane	GL.	
Tree Stratum (Plot size:)	% Cover			Number of Dominant Speci		
1				That Are OBL, FACW, or F.	AC:	(A)
2				Total Number of Dominant		
3				Species Across All Strata:		(B)
4				Percent of Dominant Speci	es	
5			*****	That Are OBL, FACW, or F		(A/B)
		= Total Co	ver	Prevalence Index worksh		
Sapling/Shrub Stratum (Plot size:)						
1				Total % Cover of:		
2				OBL species		1
3				FACW species		
4		*****		FAC species	x 3 =	
5				FACU species	_ x4=	
		= Tolal Co	ver	UPL species	x5≍	
Herb Stratum (Plot size:)	104	N	CALL	Column Totals:	(A)	(B)
1. Phalasis asundinaccea	60/6		FACW			
2. Soliduga gigantea	<u>U070</u>		FACW	Prevalence Index = E		
3				Hydrophytic Vegetation I		
4				X 1 - Rapid Test for Hydr		
5				2 - Dominance Test is		
6				3 - Prevalence Index is		
7				4 - Morphological Adap	ptations <sup>1</sup> (Provide sup	oporting
8					on a separate sheet	
9				Problematic Hydrophy	tic Vegelation' (Expla	ain)
10						
		= Total Co	ver	Indicators of hydric soil an		must
Woody Vine Stratum (Plot size:)	latinities			be present, unless disturbe	d or problematic.	
1				Hydrophytic		
2				Vegetation		
	= Total Cover		Present? Yes	X No		
Remarks: (Include photo numbers here or on a separate	sheet.)					

Profile Desc	Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix			x Features					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks	
0-11	104R 3/2	100		-			Silloam_		
11-18	104R5/4	100					Silt lon-		
	· ,								
		··· ·····							
						A			
			<u> </u>						
						<u></u>			
	oncentration, D=Dep		Peduced Matrix M	S=Masked 9	Sand Gra		<sup>2</sup> Location: PL=	Pore Lining, M=Matrix.	
Hydric Soil			Treduced Induity, IN	U-Masked C		an 19.		oblematic Hydric Soils <sup>3</sup> :	
Histoso			Sandy	Gleyed Matr	ix (S4)		Coast Prairie	Redox (A16)	
	pipedon (A2)		Sandy Redox (S5)				Dark Surface (S7)		
1	istic (A3)		Stripped Matrix (S6)				Iron-Manganese Masses (F12)		
	en Sulfide (A4)		Loamy Mucky Mineral (F1)				Very Shallow Dark Surface (TF12)		
	d Layers (A5)		Loamy Gleyed Matrix (F2) Other (Explain in Remarks)					in in Remarks)	
	uck (A10)		Depleted Matrix (F3)						
	d Below Dark Surfac	ce (A11)		Dark Surfac	•				
· ·	ark Surface (A12)	,		ed Dark Surf	• •	)	<sup>3</sup> Indicators of hyd	drophytic vegetation and	
	Mucky Mineral (S1)		*******	Depressions	• •		wetland hvdr	ology must be present,	
· · ·	ucky Peat or Peat (S	3)			- ()		•	bed or problematic.	
	Layer (if observed)						1		
Type:									
Depth (ir	1ches):						Hydric Soil Prese	ent? Yes No <u>×</u>	
Remarks:								<u></u>	
HYDROLO	DGY								
	drology Indicators	•							
1	icators (minimum of		red: check all that a	pply)			Secondary Ind	licators (minimum of two requi	ired)
	an manager at the second state. The				·				

Phmary Indicators (minimum	or one is require	a, cnec			Secondary indicators (minimum or two regared)
Surface Water (A1)			Water-Stained Leaves (B9)		Surface Soil Cracks (B6)
High Water Table (A2)			Aquatic Fauna (B13)		Drainage Patterns (B10)
Saturation (A3)			True Aquatic Plants (B14)		Dry-Season Water Table (C2)
Water Marks (B1)			Hydrogen Sulfide Odor (C1)		Crayfish Burrows (C8)
Sediment Deposits (B2)			Oxidized Rhizospheres on Living	Roots (C3)	Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)		<u></u>	Presence of Reduced Iron (C4)		Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4)			Recent Iron Reduction in Tilled So	oils (C6)	Geomorphic Position (D2)
Iron Deposits (B5)			Thin Muck Surface (C7)		FAC-Neutral Test (D5)
Inundation Visible on Aer	ial Imagery (B7	)	Gauge or Well Data (D9)		
Sparsely Vegetated Con-	cave Surface (E	8)	Other (Explain in Remarks)		
Field Observations:					
Surface Water Present?	Yes N	lo	_ Depth (inches):		
Water Table Present?	Yes N	lo	Depth (inches):		
Saturation Present?	Yes N	lo	Depth (inches): Wetland		Hydrology Present? Yes No X
(includes capillary fringe)					
Describe Recorded Data (stro	eam gauge, mo	nitoring	well, aerial photos, previous inspec	tions), if ava	aliadie:
Remarks:					
## Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap

DIRECTION	FEATURE ID	018D	DATE
Northeast	PHOTOGRAPHER	Kathy Bellrichard and Apryl Jennrich	9/19/201

# 022D

#### Mid ....

VVI	EILAND DEIE		UNDAT	AFORM	- mawest Region	/ 1
Project/Site: Stum Lubl	: 2	(	City/County:	Jack	KEDA CO Sami	bling Date: <u>7/19/12</u>
Applicant/Owner:						
Investigator(s): KB 1 AJ						
Landform (hillslope, terrace, etc.):	loodplain			_ocal relief	(concave, convex, none):	ione
Slope (%): <u>173</u> Lat: <u>44</u> 3						
Soil Map Unit Name: <u>Addex</u> N						
Are climatic / hydrologic conditions on th						
Are Vegetation $N$ , Soil $N$ , or H					'Normal Circumstances" present	
Are Vegetation, Soil, or H	. [				eeded, explain any answers in R	
SUMMARY OF FINDINGS - AI				•		•
			Satuping	g point is	ocauons, nanseois, mp	onant leatures, etc.
Hydrophytic Vegetation Present?		No	ls th	e Sampled	Aroa	
Hydric Soil Present? Wetland Hydrology Present?	1.	No		in a Wetlar		No
Remarks:	''	No				
Photo #0032	-, 003	3				
· • · · · ·	,					
VEGETATION - Use scientific r	names of plants	ş.				
		Absolute	Dominant		Dominance Test worksheet	:
Tree Stratum (Plot size:			Species?	<u>Status</u>	Number of Dominant Species	
1					That Are OBL, FACW, or FAC	C: (A)
2					Total Number of Dominant	
3					Species Across All Strata:	(B)
4				<u></u>	Percent of Dominant Species	
5	<u></u>				That Are OBL, FACW, or FAC	C: (A/B)
Sapling/Shrub Stratum (Plot size:			= Total Cov	/er	Prevalence Index workshee	t:
1. Rubuss 1 Daeus		10%	<u>_N</u>	FACU	Total % Cover of:	Multiply by:
2. Alnus inana		1090	<u> </u>	FACW	OBL species	x 1 =
3					FACW species	
4					FAC species	x 3 =
5		<u> </u>			FACU species	
Line Chatter (Distaine)			= Total Cov	/er	UPL species	
Herb Stratum (Plot size: 1. Phalans arun	,	70%	с Ч	FACW	Column Totals:	(A) (B)
2. Sulidage gige		270	-7-	FACW	Prevalence Index = B/A	\ =
3. Symphyotrichum 10	inceolatow		N	FACW	Hydrophytic Vegetation Ind	icators:
4					X 1 - Rapid Test for Hydrop	hytic Vegetation
5					2 - Dominance Test is >5	i <b>0%</b>
6					3 - Prevalence Index is ≤	3.0 <sup>1</sup>
7					4 - Morphological Adapta	itions <sup>1</sup> (Provide supporting
8					data in Remarks or or	
9			(44449-1446-1446-1446-1446-1446-1466-1466		Problematic Hydrophytic	Vegetation (Explain)
10					<sup>1</sup> Indicators of buddle coll and a	untional burdening must
			= Total Cov	ver	<sup>1</sup> Indicators of hydric soil and v be present, unless disturbed	
Woody Vine Stratum (Plot size:	,				· · · · · · · · · · · · · · · · · · ·	
-					Hydrophytic	
1						*
1.       2.			= Total Cov		Vegetation Present? Yes	^ No

Profile Desc	ription: (Describe	to the dep				or confirm	n the absence of ind	licators.)	
Depth	Matrix			x Features	<u>s</u> 1	Loc <sup>2</sup>	Texture	Remarks	
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type <sup>1</sup>	LOC		Reindiks	
0-3	2.54 2.5/	<u>    10D     </u>					Loany Sand		
3-10	2.54 312	95	104R 3/4	5	<u> </u>	M	Sand		
6-10	2.54 3/1	100					Sand		
	1-46/11		104R 5/8						
10 - 18	25174	50	104R º/8	<u> </u>	$\underline{\frown}$	_ <u></u>	Sand		
		•				4			
<sup>1</sup> Type: C=C	oncentration. D=Dep		1=Reduced Matrix, M	S=Maskec	Sand Gr	ains.	<sup>2</sup> Location: PL=	Pore Lining, M=Matrix.	
Hydric Soil							Indicators for Pr	roblematic Hydric Soils <sup>3</sup> :	
- Histoso			Sandy	Gleyed Ma	atrix (S4)		Coast Prairie	e Redox (A16)	
	pipedon (A2)		X Sandy	Redox (S5	i)		Dark Surface (S7)		
	istic (A3)		<del>.</del> .	d Matrix (S	•		Iron-Manganese Masses (F12)		
	en Sulfide (A4)		Loamy	Mucky Mir	neral (F1)		Very Shallow Dark Surface (TF12) Other (Explain in Remarks)		
Stratifie	d Layers (A5)		Loamy	Gleyed Ma	atrix (F2)				
2 cm M	uck (A10)		Deplete	ed Matrix (	F3)				
Deplete	d Below Dark Surfac	æ (A11)	Redox	Dark Surfa	ace (F6)				
Thick D	ark Surface (A12)		Depleted Dark Surface (F7)					drophytic vegetation and	
Sandy I	Mucky Mineral (S1)		Redox Depressions (F8)				wetland hydrology must be present,		
5 cm M	ucky Peat or Peat (S	:3)					unless distur	rbed or problematic.	
Restrictive	Layer (if observed)	:							
Type:							Hydric Soil Pres	ent? Yes X No	
Depth (ir	iches):						nyunc son ries		
Remarks:									
HYDROLO									
Wetland Hy	drology Indicators	;							

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<ul> <li>Surface Water (A1)</li> <li>Water-Stained Leaves (B9)</li> <li>High Water Table (A2)</li> <li>Aquatic Fauna (B13)</li> <li>Saturation (A3)</li> <li>True Aquatic Plants (B14)</li> <li>Water Marks (B1)</li> <li>Hydrogen Sulfide Odor (C1)</li> <li>Sediment Deposits (B2)</li> <li>Oxidized Rhizospheres on Living F</li> <li>Drift Deposits (B3)</li> <li>Presence of Reduced Iron (C4)</li> <li>Algal Mat or Crust (B4)</li> <li>Iron Deposits (B5)</li> <li>Inundation Visible on Aerial Imagery (B7)</li> <li>Sparsely Vegetated Concave Surface (B8)</li> <li>Other (Explain in Remarks)</li> </ul>	<ul> <li>Surface Soil Cracks (B6)</li> <li>Drainage Patterns (B10)</li> <li>Dry-Season Water Table (C2)</li> <li>Crayfish Burrows (C8)</li> <li>Roots (C3)</li> <li>Saturation Visible on Aerial Imagery (C9)</li> <li>Stunted or Stressed Plants (D1)</li> </ul>
Field Observations:         Surface Water Present?       Yes No Depth (inches):         Water Table Present?       Yes No Depth (inches):         Saturation Present?       Yes No Depth (inches):         (includes capillary fringe)       Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect         Remarks:	Wetland Hydrology Present? Yes <u></u> No tions), if available:

#### WETLAND DETERMINATION DATA FORM - Midwest Region Project/Site: Strum Lublin City/County: Jackson Co Sampling Date: 9/191 State: WE Sampling Point: 022 DQ Applicant/Owner: DPC Section, Township, Range: <u>55</u> T24W RGW Investigator(s): KB + AJ Local relief (concave, convex, none): None Landform (hillslope, terrace, etc.): terrace Slope (%): 172 Lat: 44 35 16,40 Long: -91 8 41.63 Datum: NAD83 NWI classification: Soil Map Unit Name: Ackder Muck Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.) Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X\_\_\_\_\_ No \_\_\_\_\_ Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Yes No X Hydrophytic Vegetation Present? is the Sampled Area Hydric Soil Present? Yes No 🗡 within a Wetland? Yes Wetland Hydrology Present? Yes \_\_\_\_\_ No \_\_ Remarks: at structure #429 Phito # 0031 VEGETATION - Use scientific names of plants. Absolute Dominant Indicator Dominance Test worksheet: Tree Stratum (Plot size: \_\_\_\_\_) % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: (A) 1. 2 Total Number of Dominant Species Across All Strata: (B) Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B) = Total Cover Sapling/Shrub Stratum (Plot size: \_\_\_\_\_) Prevalence Index worksheet: Total % Cover of: 1. Bubis alleghennensis Multiply by: \_ x1= 📿 hubus hisoidus 25% OBL species FALLI 2 1.7. Ð FACW species \_\_\_\_ Prunus serotina FACU x2= 100 3 N Quercus rubra 120 CACU FAC species 190 N FACU species 208 Populas tremuloides FAC 5. 33 = Total Cover x 5 = UPL species Herb Stratum (Plot size: \_ (A) Column Totals: (B)10% Duncus tenuis FA( 1. Prevalence Index = B/A = 3.0 l 45% POA LOMDNESSA FALU 2. \_\_\_\_\_ Phalaris arundinardea 15% N CACLI Hydrophytic Vegetation Indicators: 4. Solidano ajamten 10% \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation CARLI 2 - Dominance Test is >50% 5. 3 - Prevalence Index is ≤3.0<sup>1</sup> 6. \_\_\_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting 7.\_\_\_\_\_ \_\_\_\_ data in Remarks or on a separate sheet) 8 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 9 10. <sup>1</sup>Indicators of hydric soil and wetland hydrology must %0 = Total Cover be present, unless disturbed or problematic. Woody Vine Stratum (Plot size: \_\_\_\_\_) 1. Hydrophytic

= Total Cover

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

2.

Yes No  $\times$ 

Vegetation

Present?

Profile Desc	ription: (Describe	to the dept	h needed to docum	nent the i	indicator	or confirm	n the absence of indi	cators.)	
Depth	Matrix			C Feature					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks	
0-14	104R312	100					Lonny Sand		
					·		·		
		letion, RM=	Reduced Matrix, MS	S=Maskec	I Sand Gra	ains.		ore Lining, M=Matri	
Hydric Soil								blematic Hydric S	oils":
Histosol			Sandy Gleyed Matrix (S4)				Coast Prairie Redox (A16)		
	pipedon (A2)		Sandy Redox (S5)				Dark Surface (S7)		
	stic (A3) In Sulfide (A4)		Stripped Matrix (S6) Loamy Mucky Mineral (F1)				Iron-Manganese Masses (F12)		
	1 Layers (A5)			Gleyed Ma			Very Shallow Dark Surface (TF12) Other (Explain in Remarks)		
	ick (A10)			d Matrix (	• •			i ili Remarks)	
	Below Dark Surfac	α (Δ11)		•	•				
	ark Surface (A12)	~ ((()))	Redox Dark Surface (F6) Depleted Dark Surface (F7)				<sup>3</sup> Indicators of hydrophytic vegetation and		
	lucky Mineral (S1)		Redox Depressions (F8)				wetland hydrology must be present,		
	icky Peat or Peat (S	3)					,	ed or problematic.	,
	Layer (if observed)						<u> </u>		
Туре:									X
Depth (inches):							Hydric Soil Preser	nt? Yes	No <u></u>
Remarks:						******			

#### HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
Surface Water (A1) Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
High Water Table (A2) Aquatic Fauna (B13)	Drainage Patterns (B10)
Saturation (A3) True Aquatic Plants (B14)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospheres on Livir	ng Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled	Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7)	FAC-Neutral Test (D5)
Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)	
Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks)	
Field Observations:	
Surface Water Present? Yes No Depth (inches):	_
Water Table Present? Yes No Depth (inches):	-
Saturation Present? Yes No _X_ Depth (inches):	_ Wetland Hydrology Present? Yes No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous insp	ections), if available:
Remarks:	

WETLAND DETE	RMINAT		A FORM	- Midwest Region
Project/Site: Strum Lublin		City/Count	1: Jack	500 CP. Sampling Date: 9/19/12
Applicant/Owner: DP C		,,	·	State:Sampling PointSD1
Investigator(s): KB + AT				
Landform (hillslope, terrace, etc.): Fdow) blank				
Slope (%): 17. Lat: 44 35 19.47				
Soil Map Unit Name: Tint Sand				NWI classification:
Are climatic / hydrologic conditions on the site typical for this	s time of ye	ar? Yes_	X No_	(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology s				Normal Circumstances" present? Yes $X$ No
Are Vegetation, Soil, or Hydrology n				eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	samplir	ng point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X			he Sampled	A.c.,
Hydric Soil Present? Yes N	o	1	ne Sampleo hin a Wetlar	$\vee$
Wetland Hydrology Present? Yes <u>Yes</u> N	0			
Photo # 0035				
VEGETATION – Use scientific names of plants.		an Calley Minister and Calley Street and Calley Constraints of Minister and Calley And Calley		
	Absolute		t Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover			Number of Dominant Species That Are OBL, FACW, or FAC: (A)
1 2				
3.				Total Number of Dominant Species Across All Strata: (B)
4				
5				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
		= Total Co	ver	Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size:) 1. Sambucus niara	73	4	FACW.	Total % Cover of:Multiply by:
2				OBL species         x 1 =
3.				FACW species x 2 =
4				FAC species x 3 =
5				FACU species x 4 =
	_7_	= Total Co	over	UPL species x 5 ≃
Herb Stratum (Plot size:) 1. Phalaris arundinacea			FACU	Column Totals: (A) (B)
2				Prevalence Index = B/A =
3				Hydrophytic Vegetation Indicators:
4				X 1 - Rapid Test for Hydrophytic Vegetation
5				2 - Dominance Test is >50%
6			-	3 - Prevalence Index is <3.0 <sup>1</sup>
7				4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
8				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
9 10.				
10.		= Total Co		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)				be present, unless disturbed of problematic.
1			_	Hydrophytic Vegetation
2				Vegetation Present? Yes No
Remarks: (Include photo numbers here or on a separate		= Total Co		<u> </u>
	· · · /			

SOIL								Sampling Point: 02301	
Profile Desc	ription: (Describe	to the dep	th needed to docum	ent the ir	ndicator	or confir	m the absence of indi	cators.)	
Depth	Matrix			Features					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>		Remarks	
0-10	104R3/2	100					Silt loam_		
10-15	104R311	957,	104R 3/3	22	<u> </u>	PL	Siltloam		
	.a		2.54 2.5/1	370	D	M			
15-18	N12.5	100					Sondylown lo	ots of organic	
					······				
<sup>1</sup> Type: C=Ce	oncentration, D=Dep	oletion, RM=	Reduced Matrix, MS	=Masked	Sand Gr	ains.		Pore Lining, M=Matrix.	
Hydric Soil	Indicators:						Indicators for Pro	oblematic Hydric Soils <sup>3</sup> :	
Histosol	(A1)		Sandy G	leyed Ma	trix (S4)		Coast Prairie Redox (A16)		
	pipedon (A2)		Sandy Redox (S5)				Dark Surface (S7)		
	istic (A3)			Stripped Matrix (S6)			Iron-Manganese Masses (F12)		
	en Sulfide (A4)			Loamy Mucky Mineral (F1)			Very Shallow Dark Surface (TF12)		
7	d Layers (A5)			ileyed Ma			Other (Explain in Remarks)		
	uck (A10)		Depleted Matrix (F3)						
	d Below Dark Surfac	æ (A11)	Redox Dark Surface (F6)				3		
	ark Surface (A12)			Dark Su	•	}	<sup>3</sup> Indicators of hydrophytic vegetation and		
	Aucky Mineral (S1)	<b>.</b>	Redox Depressions (F8)				wetland hydrology must be present, unless disturbed or problematic.		
	ucky Peat or Peat (S							ed or problematic.	
	Layer (if observed)								
Type:							Hydric Soil Prese	nt? Yes <u>X</u> No	
Remarks:	ches):			<u></u>				1. 	
Remarks.									
HYDROLO	GY						*******		
Wetland Hy	drology Indicators:	:	1,110,1,,100,1,					929.9.11.11.11.11.11.11.1.1.11.11.11.11.11	
Primary Indi	cators (minimum of o	one is requi	red: check all that ap	ply)			Secondary Indi	cators (minimum of two required)	

Primary Indicators (minimum of one is required; of	Secondary Indicators (minimum of two required)			
Surface Water (A1)	Water-Stained Leaves (B9)		Surface Soil Cracks (B6)	
High Water Table (A2)	Aquatic Fauna (B13)		Drainage Patterns (B10)	
Saturation (A3)	True Aquatic Plants (B14)		$\underline{ imes}$ Dry-Season Water Table (C2)	
Water Marks (B1)		Crayfish Burrows (C8)		
Sediment Deposits (B2)	Roots (C3)	Saturation Visible on Aerial Imagery (C9)		
Drift Deposits (B3)		$\underline{X}$ Stunted or Stressed Plants (D1) $\underline{X}$ Geomorphic Position (D2)		
Algal Mat or Crust (B4)	Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6)			
Iron Deposits (B5)	Iron Deposits (B5) Thin Muck Surface (C7)			
Inundation Visible on Aerial Imagery (B7)	Gauge or Well Data (D9)			
Sparsely Vegetated Concave Surface (B8)	Other (Explain in Remarks)			
Field Observations:				
Surface Water Present? Yes No	Depth (inches):			
Water Table Present? Yes X No	Depth (inches):15		V	
Saturation Present? Yes <u>x</u> No _	Depth (inches):5	Wetland H	lydrology Present? Yes No	
(includes capillary fringe)				
Describe Recorded Data (stream gauge, monito	ring well, aerial photos, previous inspec	uons), ir ava	liadie.	
Remarks:				

	CTEOMINATION		Miduast Desise	
WEILAND DI Project/Site: <u>Stum Lublin</u>		ι.	- Midwest Region	9/19/10
	City/		· · · · ·	
Applicant/Owner: DPC				Sampling Point: <u>023D2</u>
Investigator(s): $\underline{KB + AJ}$				
Landform (hillslope, terrace, etc.): terrace				
Slope (%): <u>190</u> Lat: <u>44 35 19</u> .	SO Long	r <u>-918</u>	41.68	Datum: <u>NAD 83</u>
Soil Map Unit Name: <u>Tint Scund</u>			NWI classific	
Are climatic / hydrologic conditions on the site typical fo	or this time of year?	Yes <u>X</u> No _	(If no, explain in R	emarks.)
Are Vegetation $N$ , Soil $N$ , or Hydrology $N$	J significantly distu	rbed? Are '	Normal Circumstances" p	present? Yes <u>V</u> No
Are Vegetation, Soil, or Hydrology	│ naturally problem	natic? (If ne	eded, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS - Attach site m	nap showing sar	npling point l	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes	· · · ·	Is the Sampled		、 、
Wetland Hydrology Present? Yes	No <u></u>	within a Wetla	nd? Yes	No
Stincture # 430 P VEGETATION - Use scientific names of pla		34		
<u>Tree Stratum</u> (Plot size:) 1	% Cover Sp	minant Indicator ecies? Status	Dominance Test work Number of Dominant S That Are OBL, FACW,	pecies
2 3			Total Number of Domin Species Across All Stra	iant O
4 5	= Tc		Percent of Dominant S That Are OBL, FACW,	
<u>Sapling/Shrub Stratum</u> (Plot size: 1			Prevalence Index wor <u>Total % Cover of</u> :	Multiply by:
2			OBL species	
3				$\frac{0}{2} \times 2 = \frac{140}{0}$
4			FAC species	
5			FACU species UPL species	$3 \times 4 = (00)$ $3 \times 5 = 0$
Herb Stratum (Plot size:)	= 10	otal Cover	Column Totals: 9	
1. Phalans arondoncea		Y FACW		
2. Elymus repens	25	Y FACU	Prevalence Index	с= В/А = <u>2.52</u>
3			Hydrophytic Vegetati	
4				Hydrophytic Vegetation
5			2 - Dominance Tes	
6			X 3 - Prevalence Ind	
7			data in Remark	Adaptations <sup>1</sup> (Provide supporting s or on a separate sheet)
			I Problematic Hydro	nhytic Vegetation <sup>1</sup> (Explain)

95 = Total Cover

= Total Cover

1.\_\_\_\_\_

9.\_\_\_\_\_

10. \_\_\_\_\_

Woody Vine Stratum (Plot size: \_\_\_\_\_)

2.

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

\_\_\_\_ No \_\_\_\_\_

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?

.

### Sampling Point: 02302

Profile Desc	ription: (Describe	to the dept	n needed to document the indicator or co	onfirm the absence	of indicators.)
Depth	Matrix		Redox Features		Remetic
(inches)	Color (moist)	%	Color (moist) % Type <sup>1</sup> Lo		Remarks
0-4	104R 3/2			Sand	
4-12	104R 4/2	100		Sand	
12-18	10 YR 5/3	100		<u>San</u>	
······					
<del></del>	*****				
		·····			
		pletion, RM=I	Reduced Matrix, MS=Masked Sand Grains.	Location	n: PL=Pore Lining, M=Matrix. a for Problematic Hydric Soils <sup>3</sup> :
Hydric Soil I			Sandy Classed Matrix (CA)		-
Histosol	(A1) bipedon (A2)		Sandy Gleyed Matrix (S4) Sandy Redox (S5)		Prairie Redox (A16) Surface (S7)
Histic Ep			Stripped Matrix (S6)		langanese Masses (F12)
	en Sulfide (A4)		Loamy Mucky Mineral (F1)		Shallow Dark Surface (TF12)
	Layers (A5)		Loamy Gleyed Matrix (F2)	-	(Explain in Remarks)
	ick (A10)		Depleted Matrix (F3)		
	d Below Dark Surfa	ce (A11)	Redox Dark Surface (F6)		
	ark Surface (A12)		Depleted Dark Surface (F7)	<sup>3</sup> Indicators	s of hydrophytic vegetation and
	lucky Mineral (S1)		Redox Depressions (F8)		id hydrology must be present,
	icky Peat or Peat (S	S3)			s disturbed or problematic.
	Layer (if observed				
Type:				Lindein Call	l Present? Yes No
Depth (ind	ches):			Hydric Soi	
Remarks:					
HYDROLO	GY				
Wetland Hy	drology Indicators	5:			
Primary India	cators (minimum of	one is require	ed; check all that apply)	Second	ary Indicators (minimum of two required)
	Water (A1)		Water-Stained Leaves (B9)	Su	rface Soil Cracks (B6)
1	ater Table (A2)		Aquatic Fauna (B13)	Dra	ainage Patterns (B10)
Saturatio			True Aquatic Plants (B14)	Dry	-Season Water Table (C2)
	larks (B1)		Hydrogen Sulfide Odor (C1)	Cra	ayfish Burrows (C8)
	nt Deposits (B2)		Oxidized Rhizospheres on Living F		turation Visible on Aerial Imagery (C9)
	posits (B3)		Presence of Reduced Iron (C4)		inted or Stressed Plants (D1)
	at or Crust (B4)		Recent Iron Reduction in Tilled So		omorphic Position (D2)
Iron Dep			Thin Muck Surface (C7)		C-Neutral Test (D5)
· — ·	ion Visible on Aeria	l Imagery (B7			
			(20) Other (Explain in Remarks)		
Field Obser		(-			
Surface Wat		Yes N	lo _ — > Depth (inches):		
Water Table			No Depth (inches):		
Saturation P			lo _ <u>X</u> Depth (inches):	Wetland Hydrolog	gy Present? Yes No
(includes ca	pillary fringe)				
Describe Re	ecorded Data (strea	m gauge, mo	nitoring well, aerial photos, previous inspect	ions), if available:	
Remarks:				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
L					

## Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap



# 024D

### WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Strum Lublin	City/County: Unctain Co. Sampling Date: 9/19/12					
Applicant/Owner: DPC	State: <u>W</u> Sampling Point: <u>C</u> 24D					
Investigator(s): <u>FB + AJ</u>	Section, Township, Range: S5 T24N $R_{6}W$					
Landform (hillslope, terrace, etc.): $hillside$ Slope (%): $35$ Lat: $443540.05$	Long: _91 & 41.70 Datum: DAD 83					
Soil Map Unit Name: Hixton Silt locum	NWI classification:					
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.) Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are Vegetation N, Soil N, or Hydrology N naturally problematic? SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features						
Hydrophytic Vegetation Present?     Yes X     No       Hydric Soil Present?     Yes X     No       Wetland Hydrology Present?     Yes X     No	Is the Sampled Area within a Wetland? Yes No					
Remarks: Photo #2036, 0037						

#### **VEGETATION** – Use scientific names of plants.

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4				
5				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
		= Total Cov	ver	
Sapling/Shrub Stratum (Plot size:)				Prevalence Index worksheet:
1				Total % Cover of:Multiply by:
2				OBL species x 1 =
3				FACW species x 2 =
4				FAC species x 3 =
5				FACU species x 4 =
		= Total Cov	ver	UPL species x 5 =
Herb Stratum (Plot size:)		V	-	Column Totals: (A) (B)
1. Phalaris arundinacea	- <u>15</u>		FACH	
2. Solidado digenten		<u> </u>	FACW	Prevalence Index = B/A =
3. Urtica dioica		N	EACW	Hydrophytic Vegetation Indicators:
4. Impations capensis		<u></u>	FACU	X 1 - Rapid Test for Hydrophytic Vegetation
5. Persicuria sugittata	<u>}.</u>		OBL	2 - Dominance Test is >50%
6. Cirsium arvense	2_	N	FACY	3 - Prevalence Index is ≤3.0 <sup>1</sup>
7				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
8				data in Remarks or on a separate sheet)
9				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
10				
	99	= Total Co	ver	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)				be present, unless distance of problematic.
1				Hydrophytic
2				Vegetation Present? Yes X No
		= Total Co	ver	Present? Yes <u>No</u>
Remarks: (Include photo numbers here or on a separate	sheet.)			······

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)										
Depth	Matrix			ox Feature	5					
(inches)	Color (moist)		Color (moist)	%	Type <sup>1</sup>		Texture	Remarks		
0-9	104R 3/2	95	104R 3/6	5	<u> </u>	PL	Sandyloam			
9-13	10463/1	93	104R 3/3	7	<u> </u>	<u>PL</u>	Sondy loar	h		
13-18	104R 311	90	104R 314	10	C	M	Silt long			
	•	<u> </u>								
						Ann				
		<u> </u>			. <u></u>					
	******					<u></u>				
	oncentration, D=Dep	etion, RM=	Reduced Matrix, M	IS=Masked	d Sand Gra	ains.		=Pore Lining, M=Matrix.		
Hydric Soil	Indicators:							Problematic Hydric Soils <sup>3</sup> :		
Histosol	• •			Gleyed Ma				e Redox (A16)		
1	pipedon (A2)			Redox (S5			Dark Surfac			
·	istic (A3)		· · ·	d Matrix (S	•			nese Masses (F12)		
	n Sulfide (A4)			Mucky Mi				w Dark Surface (TF12)		
	d Layers (A5)			Gleyed M			Other (Exp	ain in Remarks)		
	uck (A10)	- (844)		ed Matrix (						
, ,	d Below Dark Surface	e (A11)		Dark Surfa			<sup>3</sup> Indicators of b	drophytic vegetation and		
	ark Surface (A12)			ed Dark Su			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present,			
	lucky Mineral (S1)		🔀 Redox	Depressio	ins (Fo)		unless disturbed or problematic.			
	ucky Peat or Peat (S3 Layer (if observed):									
Type: Depth (in	ches):						Hydric Soil Pres	ent? Yes 📐 No		
Remarks:										
rtemarka.										
HYDROLO	drology Indicators:									
-	cators (minimum of c		ed: check all that a	(viqqe			Secondary In	dicators (minimum of two required)		
	Water (A1)			ained Leav	/es (B9)			Soil Cracks (B6)		
I —	ater Table (A2)			Fauna (B13				Patterris (B10)		
Saturati			True Aqu	atic Plants	(B14)		Dry-Sea	son Water Table (C2)		
Water M	Aarks (B1)		Hydroge	n Sulfide C	dor (C1)		Crayfish	Burrows (C8)		
Sedime	nt Deposits (B2)		Oxidized	Rhizosphe	eres on Liv	ing Roots	s (C3) Saturatio	n Visible on Aerial Imagery (C9)		
	posits (B3)			e of Reduc		-		or Stressed Plants (D1)		
	at or Crust (B4)		Recent I	ron Reduct	tion in Tille	d Soils (C		ohic Position (D2)		
	posits (B5)			ck Surface			· · · ·	utral Test (D5)		
	ion Visible on Aerial	imagery (R7		r Well Data						
	ly Vegetated Concave			xplain in R						
Field Obse										
Surface Wa		′es I	No X Depth (	inches):						

 Surface Water Present?
 Yes \_\_\_\_\_ No \_\_X Depth (inches): \_\_\_\_\_\_

 Water Table Present?
 Yes \_\_\_\_\_ No \_\_X Depth (inches): \_\_\_\_\_\_

 Saturation Present?
 Yes \_\_\_\_\_ No \_\_\_\_ Depth (inches): \_\_\_\_\_\_

 (includes capillary fringe)
 Yes \_\_\_\_\_ No \_\_\_\_\_

 Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

 Remarks:

#### WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: <u>Stum Lublu</u> Applicant/Owner: DPC	_ City/County: Action Co Sampling Date: State: Sampling Point:Q4D2_
Investigator(s): KB + AJ	_ Section, Township, Range: <u>55 T24N RGW</u>
	Local relief (concave, convex, none):
Slope (%): 370 Lat: 44 35 40.26	_Long: <u>-91 8 41,87</u> Datum: <u>NAD83</u>
Soil Map Unit Name: Hixton Silt Locum	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of $M$ . Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hydrology $\underline{N}$ significant Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hydrology $\underline{N}$ naturally p SUMMARY OF FINDINGS – Attach site map showing	ly disturbed? Are "Normal Circumstances" present? Yes 📈 No
Hydrophytic Vegetation Present?       Yes       No         Hydric Soil Present?       Yes       No         Wetland Hydrology Present?       Yes       No         Remarks:       Yes       No	Is the Sampled Area within a Wetland? Yes NoX
VEGETATION – Use scientific names of plants.	

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:)		Species?	••••••	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: (A)
2		<u> </u>	<u></u>	Total Number of Dominant
3				Species Across All Strata: (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A/B)
		= Total Cov	/er	
Sapling/Shrub Stratum (Plot size:)				Prevalence Index worksheet:
1. Autres i daeus		$\underline{\mathcal{N}}$	FACU	Total % Cover of:Multiply by:
2				OBL species x 1 =
3				FACW species x 2 =
4				FAC species x 3 =
5				FACU species x 4 =
•		= Total Cov		UPL species x 5 =
Herb Stratum (Plot size:)				Column Totals: (A) (B)
1. Shalaris arundinacea	99	4	FACW	
2. bomus inermis	1	N	FALL	Prevalence Index = B/A =
3.				Hydrophytic Vegetation Indicators:
4				X 1 - Rapid Test for Hydrophytic Vegetation
5				2 - Dominance Test is >50%
6				3 - Prevalence Index is ≤3.0 <sup>1</sup>
				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
7				data in Remarks or on a separate sheet)
8				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
9				
10				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size:)	100	= Total Cov	ver	be present, unless disturbed or problematic.
1				Hydrophytic Vegetation
2				Present? Yes No
Dementary (Include abote symbols base of an a second		= Total Cov	/er	
Remarks: (Include photo numbers here or on a separate	sneet.)			

Sampling Point: 02402

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)										
Depth	Matrix			x Feature	<u>s</u>					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture Remarks			
0-4	2.5431	_ 100	******				Siltloan			
<u>4- 11</u>	2.54 4/2	100					Silt loam			
11-15	2.54 3/2	100					Silledinglown			
15-14	2,54 4/1	99	1042314	ALC: NOT	C	PL				
***********************************					-					
	,	···· ······			·					
			Doduced Metric MS							
Hydric Soil		pletion, RM-	Reduced Matrix, MS	s-masked	a sano Gri	ams.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils <sup>3</sup> :			
Histosol			Sandy C	Sleved Ma	atrix (S4)		Coast Prairie Redox (A16)			
	pipedon (A2)			Redox (S5			Dark Surface (S7)			
	istic (A3)			Matrix (S			Iron-Manganese Masses (F12)			
Hydroge	en Sulfide (A4)		Loamy I	Mucky Mi	neral (F1)		Very Shallow Dark Surface (TF12)			
Stratified	d Layers (A5)		Loamy (	Gleyed M	atrix (F2)		Other (Explain in Remarks)			
	uck (A10)			d Matrix (						
	d Below Dark Surfa	ce (A11)		Dark Surfa						
	ark Surface (A12)				urface (F7)	)	<sup>3</sup> Indicators of hydrophytic vegetation and			
	/lucky Mineral (S1)	<b>C</b> 21	Redox L	Depressio	ns (F8)		wetland hydrology must be present,			
	ucky Peat or Peat ( Layer (if observed				<u></u>		unless disturbed or problematic.			
Type:		-								
	ches):						Hydric Soil Present? Yes No			
Remarks:	ciica).		·······							
HYDROLO		n se met dele mont so test an elle des ta								
	drology Indicators									
-			red: check all that ap	volu)			Secondary Indicators (minimum of two required)			
	Water (A1)	Une is requi	Water-Sta			****	Surface Soil Cracks (B6)			
	ater Table (A2)		Aquatic Fa		• •					
Saturati			True Aqua				Drainage Patterns (B10)			
Water N	. ,		Hydrogen				Dry-Season Water Table (C2) Crayfish Burrows (C8)			
	nt Deposits (B2)		Oxidized F		-	ing Roots				
	posits (B3)		Presence			-	Stunted or Stressed Plants (D1)			
	at or Crust (B4)		Recent Iro		-					
	posits (B5)		Thin Muck				FAC-Neutral Test (D5)			
	ion Visible on Aeria	I Imagery (B								
	y Vegetated Conca		•		· •					
Field Obser	vations:									
Surface Wat	ter Present?	Yes	No 🔀 Depth (in	ches):						
Water Table	Present?	Yes	No 🖌 Depth (in	ches):						
Saturation P (includes ca	resent? pillary fringe)	Yes	No $\underline{/}$ Depth (in	ches):		We	tland Hydrology Present? Yes No			
			onitoring well, aerial				), if available:			
Remarks:										
1										



# 025D

#### WETLAND DETERMINATION DATA FORM - Midwest Region

	CRIMINAT			-	alapli
Project/Site: Strum Lublin		City/County:	-Unc	Sampling Da	ite: 1/20/1
Applicant/Owner:				State: <u>WF</u> Sampling Po	int <u>02501</u>
nvestigator(s): <u>KB+</u> A			-	•	
andform (hillslope, terrace, etc.):		L	ocal relief	(concave, convex, none): <u>Conce</u>	
Slope (%): <u>19</u> 2 Lat: <u>44</u> <u>35</u> 45.1			<u>/ 8</u>	Datum:	ADR3
Soil Map Unit Name: Hixton Silt Locem				NWI classification:	
re climatic / hydrologic conditions on the site typical for th				(If no, explain in Remarks.)	
Are Vegetation $\underline{N}_{}$ , Soil $\underline{N}_{}$ , or Hydrology $\underline{N}_{}$	significantly	disturbed?	Аге '	Normal Circumstances" present? Yes	_X No
Are Vegetation $N$ , Soil $N$ , or Hydrology $N$	naturally pro	blematic?	(if ne	eded, explain any answers in Remarks	.)
SUMMARY OF FINDINGS – Attach site map	showing	sampling	g point l	ocations, transects, importan	t features, etc.
Hydric Soil Present? Yes	No No No		e Sampled in a Wetla	V	
Remarks: Pho b # 0039, 0046					
<b>/EGETATION</b> – Use scientific names of plants	S. Absolute	Dominant	Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: ) 1	% Cover	Species?		Number of Dominant Species	(A)
2		· ·····		Total Number of Dominant Species Across All Strata:	(B)
4				Percent of Dominant Species	(1.0)
J.		= Total Cov	er	That Are OBL, FACW, or FAC:	(A/B)
Sapling/Shrub Stratum (Plot size:)	*****	10121-001	0.	Prevalence Index worksheet:	
1				Total % Cover of: Mi	
2				OBL species x 1 =	
3				FACW species x 2 =	
4	<u>*</u>			FAC species         x 3 =           FACU species         x 4 =	
5		= Total Cov		UPL species x 5 =	
Herb Stratum (Plot size:)		, Total Cov		Column Totals: (A)	
1. Phalasis arundinarea	75	<u> </u>	FACW		
2. Persicaria sagittata	10	- <u>N</u>	OPL	Prevalence Index = B/A =	
3. Typha Angustifolia	5_	<u> </u>	OBL	Hydrophytic Vegetation Indicators	
4				X 1 - Rapid Test for Hydrophytic V	egetation
5				2 - Dominance Test is >50% $3$ - Prevalence Index is $\leq 3.0^1$	
6				3 - Prevalence index is ≤3.0	Provide supporting
7				data in Remarks or on a sepa	arate sheet)
8				Problematic Hydrophytic Vegeta	tion <sup>1</sup> (Explain)
10.					
	100	= Total Cov	/er	<sup>1</sup> Indicators of hydric soil and wetland be present, unless disturbed or probl	
Woody Vine Stratum (Plot size:)					
1				Hydrophytic	
2		= Total Cov		Vegetation Present? Yes X	o

Sampling Point: 0250

	e to the dept	h needed to docu			or confin	m the absence	of indicators.)
epth <u>Matrix</u> ches) Color (moist)	%	Redo Color (moist)	x Features %		Loc <sup>2</sup>	Texture	Remarks
-8 104R 3/1			70	Type		TEXIDIE	Post
17 10 11 11		104R 3/6			0.	<u></u>	
-20 104R 3/1	95%	10 (n -16	5.72		Y lar	May lan	macky
						•	
					****************		
be: C=Concentration, D=De	pletion PM=	Peduced Matrix M	S=Masked	Sand Gr		<sup>2</sup> Location	: PL=Pore Lining, M=Matrix.
ric Soil Indicators:		inequiced Matrix, M	0-Waskeu				for Problematic Hydric Soils <sup>3</sup> :
Histosol (A1)		Sandy	Gleyed Ma	trix (S4)			Prairie Redox (A16)
Histic Epipedon (A2)			Redox (S5				urface (S7)
Black Histic (A3)			d Matrix (S			Iron-M	anganese Masses (F12)
Hydrogen Sulfide (A4)			Mucky Min				hallow Dark Surface (TF12)
Stratified Layers (A5)			Gleyed Ma			Other	(Explain in Remarks)
2 cm Muck (A10)	/# /		ed Matrix (F	•			
Depleted Below Dark Surfa	ice (A11)		Dark Surfa ed Dark Su		N N	<sup>3</sup> Indicators	of hydrophytic vegetation and
Thick Dark Surface (A12) Sandy Mucky Mineral (S1)			Depression		)		d hydrology must be present,
5 cm Mucky Peat or Peat (S	S3)	11000X	Depression	15 (1 5)			disturbed or problematic.
trictive Layer (if observed							
Туре:							
Depth (inches):						Hydric Soil	Present? Yes No
emarks:							
DROLOGY							
DROLOGY tland Hydrology Indicators							
DROLOGY tland Hydrology Indicators mary Indicators (minimum of							
DROLOGY tland Hydrology Indicators mary Indicators (minimum of Surface Water (A1)		Water-Sta	ained Leav	• •		Sur	face Soil Cracks (B6)
DROLOGY tland Hydrology Indicators nary Indicators (minimum of Surface Water (A1) High Water Table (A2)		Water-Sta Aquatic F	ained Leav auna (B13	)		Sur Dra	face Soil Cracks (B6) inage Patterns (B10)
DROLOGY tland Hydrology Indicators mary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3)		Water-Sta Aquatic F True Aqu	ained Leav auna (B13 atic Plants	) (B14)		Sur Dra Dry	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2)
DROLOGY tland Hydrology Indicators mary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)		Water-Sta Aquatic F True Aqu Hydroger	ained Leave auna (B13 atic Plants n Sulfide Oc	) (B14) dor (C1)	ing Roch	Sur Dra Dry Cra	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8)
DROLOGY tland Hydrology Indicators mary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)		Water-Sta Aquatic F True Aqu Hydroger Oxidized	ained Leav auna (B13 atic Plants n Sulfide Oo Rhizosphe	) (B14) dor (C1) res on Liv	-	Sur Dra Dry Cra s (C3) Sat	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9
DROLOGY tland Hydrology Indicators mary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)		Water-Sta Aquatic F True Aqu Hydroger Oxidized Presence	ained Leav auna (B13 atic Plants n Sulfide Oo Rhizosphe e of Reduce	) (B14) dor (C1) res on Liv d Iron (C	4)	Sur Dra Dry Cra s (C3) Sat Stu	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aenal Imagery (C9 nted or Stressed Plants (D1)
DROLOGY tland Hydrology Indicators mary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)		Water-Sta Aquatic F True Aqu Hydroger Oxidized Presence Recent Ir	ained Leav auna (B13 atic Plants n Sulfide Or Rhizosphe of Reduce on Reducti	) (B14) for (C1) res on Liv d Iron (C on in Tille	4)	Sur Dra Dry Cra s (C3) Sat Stu C6) Geo	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9
DROLOGY tland Hydrology Indicators mary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	<u>one is requi</u>	Water-Sta Aquatic F True Aqu Hydroger Oxidized Presence Recent Ir Thin Muc	ained Leav auna (B13 atic Plants n Sulfide Oo Rhizosphe e of Reduce	) (B14) dor (C1) res on Liv d Iron (C on in Tille C7)	4)	Sur Dra Dry Cra s (C3) Sat Stu C6) Geo	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9 nted or Stressed Plants (D1) omorphic Position (D2)
DROLOGY tland Hydrology Indicators mary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	<u>one is requi</u>	<pre> Water-Sta  Aquatic F  True Aqu  Hydroger  Oxidized  Presence  Recent Ir  Thin Muc 7) Gauge or</pre>	ained Leave auna (B13 atic Plants o Sulfide Oo Rhizosphe of Reduce on Reducti k Surface (	(B14) dor (C1) res on Liv d Iron (C on in Tille C7) (D9)	4)	Sur Dra Dry Cra s (C3) Sat Stu C6) Geo	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9 nted or Stressed Plants (D1) omorphic Position (D2)
DROLOGY tland Hydrology Indicators mary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aeria Sparsely Vegetated Conca	<u>one is requi</u>	<pre> Water-Sta  Aquatic F  True Aqu  Hydroger  Oxidized  Presence  Recent Ir  Thin Muc 7) Gauge or</pre>	ained Leave auna (B13 atic Plants o Sulfide Oo Rhizosphe o Reduce on Reducti k Surface ( Well Data	(B14) dor (C1) res on Liv d Iron (C on in Tille C7) (D9)	4)	Sur Dra Dry Cra s (C3) Sat Stu C6) Geo	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9 nted or Stressed Plants (D1) omorphic Position (D2)
DROLOGY tiland Hydrology Indicators mary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aeria Sparsely Vegetated Conca	one is requi l Imagery (B ive Surface (	<pre> Water-Sta  Aquatic F  True Aqu  Hydroger  Oxidized  Presence  Recent Ir  Thin Muc 7) Gauge or</pre>	ained Leave auna (B13 atic Plants o Sulfide Or Rhizosphe of Reduce on Reduce on Reducti k Surface ( Well Data oplain in Re	(B14) dor (C1) res on Liv d Iron (C on in Tille C7) (D9)	4)	Sur Dra Dry Cra s (C3) Sat Stu C6) Geo	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9 nted or Stressed Plants (D1) omorphic Position (D2)
DROLOGY etland Hydrology Indicators mary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aeria Sparsely Vegetated Conca eld Observations: urface Water Present?	one is requi l Imagery (B ive Surface ( Yes	Water-Sta     Aquatic F     Aquatic F     True Aqu     Hydroger     Oxidized     Presence     Recent Ir     Thin Muc 7) Gauge or B8) Other (E) No Depth (ii)	ained Leave auna (B13 atic Plants o Sulfide Or Rhizosphe of Reduce on Reducti k Surface ( Well Data oplain in Re	(B14) dor (C1) res on Liv d Iron (C on in Tille C7) (D9) marks)	4)	Sur Dra Dry Cra s (C3) Sat Stu C6) Geo	inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9 nted or Stressed Plants (D1) omorphic Position (D2)
DROLOGY etland Hydrology Indicators mary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aeria Sparsely Vegetated Conca eld Observations: urface Water Present? ater Table Present?	d Imagery (B we Surface ( Yes Yes	Water-Sta     Aquatic F     Aquatic F     True Aqu     Hydroger     Oxidized     Presence     Recent Ir     Thin Muc 7) Gauge or B8) Other (E2 No Depth (i No Depth (i	ained Leave auna (B13 atic Plants n Sulfide Oo Rhizosphe o of Reduce on Reducti k Surface ( Well Data cplain in Re nches):	(B14) dor (C1) res on Liv d Iron (C on in Tille C7) (D9) marks)	4) ed Soils (0	Sur Dra Dry Cra s (C3) Sat Stu C6) Gea FAG	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9 nted or Stressed Plants (D1) omorphic Position (D2)
DROLOGY Itland Hydrology Indicators mary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aeria Sparsely Vegetated Conca Id Observations: rface Water Present? ater Table Present? turation Present? cludes capillary fringe)	d Imagery (B ave Surface ( Yes Yes Yes	Water-Sta Aquatic F True Aqu True Aqu Hydroger Oxidized Presence Recent Ir Thin Muc 7) Gauge or B8) Other (Es) No Depth (in No Depth (in No Depth (in	ained Leave auna (B13 atic Plants n Sulfide Or Rhizosphe on Reducti k Surface ( Well Data cplain in Re nches): nches):	(B14) dor (C1) res on Liv d Iron (C on in Tille C7) (D9) marks)	4) ed Soils (0	Sur Dra Dry Cra s (C3) Sat Stu C6) Ged FAG	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aeriał Imagery (C9 nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
DROLOGY tland Hydrology Indicators mary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aeria Sparsely Vegetated Conca Id Observations: rface Water Present? ater Table Present? turation Present?	d Imagery (B ave Surface ( Yes Yes Yes	Water-Sta Aquatic F True Aqu True Aqu Hydroger Oxidized Presence Recent Ir Thin Muc 7) Gauge or B8) Other (Es) No Depth (in No Depth (in No Depth (in	ained Leave auna (B13 atic Plants n Sulfide Or Rhizosphe on Reducti k Surface ( Well Data cplain in Re nches): nches):	(B14) dor (C1) res on Liv d Iron (C on in Tille C7) (D9) marks)	4) ed Soils (0	Sur Dra Dry Cra s (C3) Sat Stu C6) Ged FAG	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aeriał Imagery (C9 nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)
DROLOGY tland Hydrology Indicators mary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aeria Sparsely Vegetated Conca Id Observations: rface Water Present? ater Table Present? turation Present? cludes capillary fringe)	d Imagery (B ave Surface ( Yes Yes Yes	Water-Sta Aquatic F True Aqu True Aqu Hydroger Oxidized Presence Recent Ir Thin Muc 7) Gauge or B8) Other (Es) No Depth (in No Depth (in No Depth (in	ained Leave auna (B13 atic Plants n Sulfide Or Rhizosphe on Reducti k Surface ( Well Data cplain in Re nches): nches):	(B14) dor (C1) res on Liv d Iron (C on in Tille C7) (D9) marks)	4) ed Soils (0	Sur Dra Dry Cra s (C3) Sat Stu C6) Ged FAG	face Soil Cracks (B6) inage Patterns (B10) -Season Water Table (C2) yfish Burrows (C8) uration Visible on Aeriał Imagery (C9 nted or Stressed Plants (D1) omorphic Position (D2) C-Neutral Test (D5)

				- Midwest Region
Project/Site: Stun Lublin	с	ity/County:	Jac	LST~ Co Sampling Date: 4/19/12
				State: Sampling Point:5DZ
				nge: 55 T24N RGW
Landform (hillslope, terrace, etc.):				
Slope (%): 37, Lat: 44 35 45.	72 <u></u> L	.ong:	11 8	41.89 Datum: NAD 83
Soil Map Unit Name: Hixton Silt lown				NWI classification:
Are climatic / hydrologic conditions on the site typical for this	s time of yea	r? Yes	<u>×_</u> No_	(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrologys				Normal Circumstances" present? Yes X
Are Vegetation, Soil, or Hydrology n	aturally prob	olematic?	(If ne	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	sampling	g point le	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes <u>Ves</u> N				· · · · · · · · · · · · · · · · · · ·
Hydric Soil Present? Yes N		ls th	e Sampled	
Wetland Hydrology Present? Yes N	o <u> </u>	withi	in a Wetlar	nd? Yes No
Remarks:			, 1~	
Photo # 0038	at s	Struct	in 43	38
VEGETATION – Use scientific names of plants.				
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?		Dominance Test worksheet: Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4 5				Percent of Dominant Species
		= Total Cov	er	That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size:)				Prevalence Index worksheet:
1. LORALS FALLMOSA	90		FAC	Total % Cover of:        Multiply by:           OBL species         x 1 =
2				FACW species
4				FAC species x 3 =
5				FACU species x 4 =
	90	= Total Cov	rer	UPL species x 5 =
Herb Stratum (Plot size:)	La Č.	<i>U</i>	FACW	Column Totals: (A) (B)
1. Urtica Moioica 2. Phalaris Arundinacea	10%		FACU	Prevalence Index = B/A =
3				Hydrophytic Vegetation Indicators:
4				1 - Rapid Test for Hydrophytic Vegetation
5				$\underline{\times}$ 2 - Dominance Test is >50%
6				3 - Prevalence Index is ≤3.0 <sup>1</sup>
7	<u> </u>			4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
8			<u></u>	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
9				
10	~ .			<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size:)		= Total Cov		be present, unless disturbed or problematic.
1. Vitis Vulpina	203	<u> </u>	FAC	Hydrophytic
2. Parthenocissus guinguefolia		<u> </u>	FACU	Vegetation Present? Yes X No
Remarks: (Include photo numbers here or on a separate		= Total Cov	/er	
	we 100 10 10 5			

-

Sampling Point: 02502

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth	Matrix		Redo	x Features	<u>}</u> 1		Techne		
(inches)	Color (moist)	<u>%</u>	Color (moist) 1042 312	<u>%</u>	Type <sup>1</sup>		Texture Remarks		
<u>D-S</u>	104B311	- 99_	1094 313			1-5	Silt loum		
5-8	104R3/1	100		. <u></u>			Siltion		
8-14	104R 5/4		104R 4/1	50			Silflour Probable Fill		
			10423/1	10					
14-18	104R 2/1	99	104R3/3	 I			Siltlam		
1110	<u>[-in , i</u>			{					
	<u> </u>		***						
		pletion, RM=	Reduced Matrix, M	S=Masked	Sand Gr	ains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils <sup>3</sup> :		
Hydric Soil			Cardy		1-1-1 (C 1)		Coast Prairie Redox (A16)		
Histosol	(A1) pipedon (A2)			Gleyed Ma Redox (S5			Dark Surface (S7)		
	istic (A3)			d Matrix (S			Iron-Manganese Masses (F12)		
	en Sulfide (A4)			Mucky Mir	•		Very Shallow Dark Surface (TF12)		
	d Layers (A5)			Gleyed Ma			Other (Explain in Remarks)		
	uck (A10)		Deplete	d Matrix (I	=3)				
	d Below Dark Surfac	æ (A11)		Dark Surfa			1		
	ark Surface (A12)			d Dark Su		)	<sup>3</sup> Indicators of hydrophytic vegetation and		
	lucky Mineral (S1)		Redox	Depressio	ns (F8)		wetland hydrology must be present, unless disturbed or problematic.		
	ucky Peat or Peat (S								
	Layer (if observed)								
Type:							Hydric Soil Present? Yes No		
Remarks:	ches):								
HYDROLO	GY								
Wetland Hy	drology Indicators	:							
Primary Indi	cators (minimum of	one is requi	red: check all that a	oply)			Secondary Indicators (minimum of two required)		
Surface	Water (A1)		Water-Sta	lined Leav	es (B9)		Surface Soil Cracks (B6)		
High Wa	ater Table (A2)			auria (B13			Drainage Patterns (B10)		
Saturati			True Aqu	atic Plants	(814)		Dry-Season Water Table (C2)		
Water N	larks (B1)		Hydrogen	Sulfide O	dor (C1)		Crayfish Burrows (C8)		
Sedime	nt Deposits (B2)		Oxidized	Rhizosphe	res on Liv	ing Roots	(C3) Saturation Visible on Aerial Imagery (C9)		
Drift De	posits (B3)		Presence	of Reduce	ed Iron (C	4)	Stunted or Stressed Plants (D1)		
Algal M	at or Crust (B4)		Recent In	on Reducti	on in Tille	d Soils (C			
Iron De	posits (B5)		Thin Muc	k Surface (	(C7)		X FAC-Neutral Test (D5)		
	ion Visible on Aerial				•				
Sparsel	y Vegetated Conca	/e Surface (	(B8) Other (Ex	plain in Re	emarks)				
Field Obser									
1			No <u>×</u> Depth (in						
Water Table			No <u>X</u> Depth (ir				$\checkmark$		
Saturation F		Yes	No <u>X</u> Depth (ii	nches):		We	tland Hydrology Present? Yes No		
Describe Re	pillary fringe) ecorded Data (stream	n gauge, m	onitoring well, aerial	photos, pi	evious in	spections)	), if available:		
Remarks:									



# **031D**

#### TERMINATION DATA FORM - Midwest Region 14/100

WEILAND DEIERI				- /
Project/Site: Strun Lublin	(	City/County:	EAN	<u>Claura Co</u> Sampling Date: <u>7/20/12</u>
Applicant/Owner:				State: <u>W</u> Sampling Point: <u>SID</u>
Investigator(s): $\underline{KB + A}$		Section, Tov	wnship, Ran	nge: 531 T25N RGW
Landform (hillslope, terrace, etc.): <u><u><u>Closd</u></u><u>plain</u></u>				
Slope (%): <u>25</u> , Lat: <u>44</u> 36 <u>33</u> , 19		Long: <u>- 역</u>	18.	<u>41.66 Datum: NAD 83</u>
Soil Map Unit Name: Houghton MUCK				NWI classification:
Are climatic / hydrologic conditions on the site typical for this ti				
Are Vegetation $N$ , Soil $W$ , or Hydrology $N$ sigr			Are *	Normal Circumstances" present? Yes $\angle$ No
Are Vegetation $N_{}$ , Soil $N_{}$ , or Hydrology $N_{}$ nat	urally prol	blematic?	(If nee	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map sh	nowing	sampling	g point lo	ocations, transects, important features, etc.
Hydrophytic Vegetation Present?       Yes No _         Hydric Soil Present?       Yes No _         Wetland Hydrology Present?       Yes No _			e Sampled in a Wetlan	V
Remarks: Structure 453				
Photo # 0045,0046,				.)
VEGETATION – Use scientific names of plants.				
	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
1				Number of Dominant Species           That Are OBL, FACW, or FAC:         (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
		= Total Cov	/er	
Sapling/Shrub Stratum (Plot size:) 1. Lubus idenus	2_	$\mathcal{N}$	FACU	Prevalence Index worksheet: Total % Cover of:Multiply by:
2				OBL species         x 1 =
3				FACW species x 2 =
4				FAC species x 3 =
5.				FACU species x 4 =
		= Total Cov	/er	UPL species x 5 =
Herb Stratum (Plot size:) 1. Phalaris arvadinacea	25	Y.	FACU	Column Totals: (A) (B)
2. Carex Stricta	50	9	OBL	Prevalence index = B/A =
3. Scirpus also virens.	15	N	OBL	Hydrophytic Vegetation Indicators:
4. Solidaga exigenter	3.	<u>_N</u>	FACH	X 1 - Rapid Test for Hydrophytic Vegetation
5. Persicaria sugittata		<u></u>	OBL	2 - Dominance Test is >50%
6				$ \begin{array}{c}3 - \text{Prevalence Index is } \leq 3.0^{1} \\4 - \text{Morphological Adaptations}^{1} (\text{Provide supporting}) \end{array} $
7				data in Remarks or on a separate sheet)
8 9				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
10				
Woody Vine Stratum (Plot size:)	94	= Total Cov	ver	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1				Hydrophytic
2				Vegetation Present? Yes No No
		= Total Co	ver	
Remarks: (Include photo numbers here or on a separate sh	ieet.)			

Profile Desc	ription: (Describe	e to the dep	th needed to docum	nent the	indicator o	or confirm	n the absence o	of indicators.)
Depth	Matrix		Redox	<u> Feature</u>				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	104R312	73	104R 2/1	20	<u>a</u>	M	Siltion	Very ormanic
	у÷		10 YR 4/6	7	C	PL		су ф 
4-6	2.54 2.5/	95	104R 3/3	5	C	PL	Silt ban	Very organiz
6-8	2.54 5/3	95	104R316	5	<u> </u>	PL	Sand	<u> </u>
8-14	Gley 2.5/N	95	1046316	5	C	PL	Sillyclash	Ohu
14-18	2,5431	100					Sillyclay	
18-20	2.545/1	100					Clay lon.	~~ <u>~</u>
<sup>1</sup> Type: C=C	oncentration, D=De	pletion, RM	=Reduced Matrix, MS	=Masked	d Sand Gra	ains.	<sup>2</sup> Location:	PL=Pore Lining, M=Matrix.
Hydric Soil		- L						or Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Sandy G	Sleyed Ma	atrix (S4)		Coast P	Prairie Redox (A16)
Histic E	pipedon (A2)		Sandy F	Redox (S5	5)		Dark Su	Irface (S7)
Black Hi	istic (A3)		Stripped	Matrix (S	S6)		Iron-Ma	nganese Masses (F12)
Hydroge	en Sulfide (A4)		Loamy M	Jucky Mi	neral (F1)		Very Sh	allow Dark Surface (TF12)
🔀 Stratified	d Layers (A5)		🔀 Loamy C	Gleyed M	atrix (F2)		Other (E	Explain in Remarks)
2 cm Mi	uck (A10)		Deplete	d Matrix (	F3)			
Deplete	d Below Dark Surfa	ice (A11)	Redox D	Dark Surfa	ace (F6)			
Thick Da	ark Surface (A12)		Deplete	d Dark Su	urface (F7)		<sup>3</sup> Indicators	of hydrophytic vegetation and
Sandy M	/lucky Mineral (S1)		Redox D	Depressic	ns (F8)		wetland	hydrology must be present,
5 cm Mi	ucky Peat or Peat (	S3)					unless (	disturbed or problematic.
Restrictive	Layer (if observed	l):						
Туре:							Hydric Soil I	Present? Yes X No
Depth (in	ches):						Injunic Soli i	
HYDROLO	GY							
Wetland Hy	drology Indicator	s:						
Primary Indi	cators (minimum of	fone is requ	ired; check all that ap	ply)			Seconda	ry Indicators (minimum of two required)
Surface	Water (A1)		Water-Sta	ined Leav	/es (B9)		Surfa	ace Soil Cracks (B6)
	ater Table (A2)		Aquatic Fa		• •		Drair	age Patterns (B10)
X Saturati			True Aqua					Season Water Table (C2)
	/arks (B1)		Hydrogen		• •			fish Burrows (C8)
	nt Deposits (B2)		Oxidized F			ing Roots		ration Visible on Aerial Imagery (C9)
			Presence	-		-		ted or Stressed Plants (D1)
	posits (B3)					-		
	at or Crust (B4)		Recent Iro			u 5015 (C		morphic Position (D2)
	posits (B5)		Thin Muck				FAC-	-Neutral Test (D5)
	ion Visible on Aeria							
	y Vegetated Conca	ive Surface	(B8) Other (Exp	plain in R	emarks)	r		
Field Obser								
	ter Present?	Yes	No $\underline{\times}$ Depth (in	ches):	a			
Water Table		Yes <u>X</u>	No Depth (in	ches):	-1			
	pillary fringe)		No Depth (in nonitoring well, aerial					Present? Yes No
		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · ·			,		

Remarks:

### WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Strum Lublin		City/County:	En	Claure Co Sampling Date: 1/20/12			
Applicant/Owner: DPC			State: Sampling Point: SID2				
		Section, Township, Range: <u>S31 T25N R6W</u>					
Landform (hillslope, terrace, etc.):							
		41.76 Datum: NAD 83					
Soil Map Unit Name: <u>Hough ton Mu</u>				NWI classification:			
Are climatic / hydrologic conditions on the site typ							
	E E			Normal Circumstances" present? Yes X			
Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hydrology	y <u>IV</u> naturally pr	oblematic?	(it nee	eded, explain any answers in Remarks.)			
		sampling	point lo	ocations, transects, important features, et			
	<u> </u>		Sampled	A.r.o.			
	No		a Wetlan				
	No	within	a weuan				
Remarks: At Structure 452							
Photo # 004	4						
VEGETATION – Use scientific names of	•	Development	- 11 4				
Tree Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant I Species?		Dominance Test worksheet: Number of Dominant Species			
1 2				That Are OBL, FACW, or FAC: (A)			
3			1	Total Number of Dominant           Species Across All Strata:			
4 5.				Percent of Dominant Species			
- D		_ = Total Cove		That Are OBL, FACW, or FAC: (A/B			
Sapling/Shrub Stratum (Plot size:	)		1	Prevalence Index worksheet:			
1. Cornus racemosa		<u> </u>	FAC	Total % Cover of:Multiply by:			
2				OBL species x 1 =			
3				FACW species x 2 =			
4.				FAC species x 3 =			
5				FACU species x 4 =			
Herb Stratum (Plot size:)		_ = Total Cove	r	UPL species x 5 = (b)			
	20	Y	FACH	Column Totals: (A) (B)			
1. Solidon gigentea 2. Philains arundinacea	75	Y	FACW	Prevalence Index = B/A =			
3. Toxicodendion Fradica		N	FAC	Hydrophytic Vegetation Indicators:			
4				$\underline{X}$ 1 - Rapid Test for Hydrophytic Vegetation			
5				2 - Dominance Test is >50%			
6				3 - Prevalence Index is ≤3.0 <sup>1</sup>			
7				4 - Morphological Adaptations <sup>1</sup> (Provide supportin data in Remarks or on a separate sheet)			
8				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)			
9							
10		= Total Cove	÷r	<sup>1</sup> Indicators of hydric soil and wetland hydrology must			
Woody Vine Stratum (Plot size:	)			be present, unless disturbed or problematic.			
1				Hydrophytic Vegetation			
2		= Total Cove	 9 r	Present? Yes No			
Remarks: (Include photo numbers here or on a	a separate sheet.)			1			

### Sampling Point: <u>031DZ</u>

Profile Desc	Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth Matrix Redox Features						Terreture	Demodra		
(inches)	<u>Color (moist)</u>	100%	Color (moist)	%	Type'	Loc <sup>2</sup>	Texture	Remarks	
$\frac{0 - 12}{12}$	104R 5/3						Silflour		
12-19	104R 0/2	932	104R 4/4	5%	<u></u>	<u>FL</u>	Siltlorm		
102	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Coley 2.5/N	2%		M			
19-20	1042-11	100%	J				Silfloam		
1- 0.0							<sup>2</sup> t anotion: DL =	Pore Lining, M=Matrix.	
Hydric Soil		pletion, RM=	Reduced Matrix, MS	=masked	Sand Gr	ains.		roblematic Hydric Soils <sup>3</sup> :	
Histosol			Sandy G	leyed Mai	rix (S4)			Redox (A16)	
	pipedon (A2)			edox (S5)			Dark Surface		
	istic (A3)			Matrix (S				ese Masses (F12)	
Hydroge	en Sulfide (A4)		Loamy N	lucky Min	eral (F1)		Very Shallow	/ Dark Surface (TF12)	
	d Layers (A5)			leyed Ma			Other (Expla	in in Remarks)	
	uck (A10)			l Matrix (F					
	d Below Dark Surfa	ice (A11)		ark Surfa	• •		3 Indiantana of hu	deeply die voorstatien and	
	ark Surface (A12) /lucky Mineral (S1)			Dark Sur			•	drophytic vegetation and ology must be present,	
	ucky Peat or Peat (	53)		chicosio	is (i 0)			bed or problematic.	
	Layer (if observed			******			1	•	
Type:		-							
Depth (in	ches):						Hydric Soil Prese	ent? Yes No _X	
Remarks:									
HYDROLO	IGY								
-	drology Indicator								
Primary Indi	cators (minimum of	one is requi	red: check all that ap					licators (minimum of two required)	
	Water (A1)		Water-Stain				0	oil Cracks (B6)	
	ater Table (A2)		Aquatic Fa					Patterns (B10)	
	on (A3)		True Aquat					on Water Table (C2)	
I	Aarks (B1) at Doposite (B2)		Hydrogen S Oxidized R			ing Poots		Burrows (C8) n Visible on Aerial Imagery (C9)	
·	nt Deposits (B2) posits (B3)		Presence of					r Stressed Plants (D1)	
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2) Iron Deposits (B5) Thin Muck Surface (C7) FAC-Neutral Test (D5)									
	ion Visible on Aeria	il Imagery (B							
	y Vegetated Conca								
Field Obser	-					1			
Surface Wa	ter Present?	Yes	No <u>×</u> Depth (inc	:hes):					
Water Table	Present?		No 🔀 Depth (inc					. J	
Saturation F	Present?		No <u> </u>				tland Hydrology Pre	sent? Yes No	
(includes capillary fringe)									
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:									
Pamarka									
Remarks:									
ł									

## Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap



# **032D**

#### MULTION DATA CODA B.411-1 . . ----.

WETLAND DETER				-		. 1
Project/Site: <u>Strun Lubin</u>	City	/County:	Ear (	laire Co.	Sampling Date:	1/20/12
Applicant/Owner: DPC				State:	Sampling Point: D	32D1
Investigator(s): <u>KD+A5</u>	Se	ction, Tow	nship, Ran	ge: <u>530 T251</u>	JRGW	·····
Landform (hillslope, terrace, etc.): <10000 plain		Lo	ocal relief (	concave, convex, none):	concare	
Slope (%): Lat: <u>44 37 /2.95</u>						
Soil Map Unit Name: Kert Locum				NWI classific	ation:	
Are climatic / hydrologic conditions on the site typical for this ti	ime of year?	Yes 🔀	No	(If no, explain in R	emarks.)	
Are Vegetation, Soil, or Hydrology sign	nificantly dist	turbed?	Are "I	lormal Circumstances" p	present? Yes 📐	_ No
Are Vegetation $\mathcal{N}_{}$ , Soil $\mathcal{N}_{}$ , or Hydrology $\mathcal{N}_{}$ nat				eded, explain any answe	rs in Remarks.)	
SUMMARY OF FINDINGS – Attach site map sh	nowing es	ampling	noint lo	cations transacts	important feat	ires etc
		anibunā I	pointic			103, 010.
$\sim$		ls the	Sampled	Area		
Wetland Hydrology Present? Yes No		withir	n a Wetlan	d? Yes 🔀	No	
Pamarke <sup>,</sup>						
Ph.6 #004/						
VEGETATION – Use scientific names of plants.	****		***			
		ominant		Dominance Test work		
Tree Stratum         (Plot size:)         2           1	<u>% Cover S</u>			Number of Dominant Sp That Are OBL, FACW, o		(A)
2				Total Number of Domin	ant	
3		<u> </u>		Species Across All Stra		(B)
4			1	Percent of Dominant Sp	pecies	
5				That Are OBL, FACW,		(A/B)
Sapling/Shrub Stratum (Plot size:)	= 1	l otal Cove	sr i	Prevalence index wor	ksheet:	
1				Total % Cover of:	Multiply by	Ľ
2				OBL species	x 1 =	
3			1	FACW species	x 2 =	
4				FAC species		
5				FACU species		
<u>Herb Stratum</u> (Plot size:)	= = -	Total Cove	ər	UPL species		
1. Phalacis altadinacea	40	Ч.	FACH	Column Totals:	(A)	(B)
2. Persicaria Sauittatum	.5	N	062	Prevalence Index	: = B/A =	
3. Calumagrostis Canadensis	5	Ň	OBL	Hydrophytic Vegetation	on Indicators:	
4. Calex Stricta	45	4	OBL	🔀 1 - Rapid Test for H	Hydrophytic Vegetatic	n
5. Verbern hastala		N	FACW	2 - Dominance Tes	st is >50%	
6				3 - Prevalence Inde		
7				4 - Morphological A	Adaptations <sup>1</sup> (Provide s or on a separate shi	supporting
8				Problematic Hydro		
9					prijas regenaam (=	··p·-···)
10	96 =	Total Cove	er	<sup>1</sup> Indicators of hydric soi be present, unless dist		ogy must
1				Hydrophytic		
2				Vegetation		
	= .	Total Cov	er	Present? Yes Ko		
Remarks: (Include photo numbers here or on a separate sh	eet.)					

### Sampling Point: 03201

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth Matrix	Redox Features							
(inches) Color (moist) %	Color (moist) % Type <sup>1</sup> Loc <sup>2</sup>	Texture Remarks						
0-11 2.54 2.5/1 100		Sillachikan Murky						
11-110 2.54 4/1 100		Ninloam						
		Policity Send, All out						
16-20		Marsh 26-2, 2011 Out						
	Reduced Matrix, MS=Masked Sand Grains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.						
Hydric Soil Indicators:		Indicators for Problematic Hydric Soils <sup>3</sup> :						
Histosol (A1)	Sandy Gleyed Matrix (S4)	Coast Prairie Redox (A16)						
Histic Epipedon (A2)	Sandy Redox (S5)	Dark Surface (S7)						
Black Histic (A3)	Stripped Matrix (S6)	Iron-Manganese Masses (F12) Very Shallow Dark Surface (TF12)						
Hydrogen Sulfide (A4) Stratified Layers (A5)	Loamy Gleyed Matrix (F2)	Other (Explain in Remarks)						
2 cm Muck (A10)	Depleted Matrix (F3)							
Depleted Below Dark Surface (A11)	Redox Dark Surface (F6)							
Thick Dark Surface (A12)	Depleted Dark Surface (F7)	<sup>3</sup> Indicators of hydrophytic vegetation and						
Sandy Mucky Mineral (S1)	Redox Depressions (F8)	wetland hydrology must be present,						
5 cm Mucky Peat or Peat (S3)		unless disturbed or problematic.						
Restrictive Layer (if observed):								
Туре:								
Depth (inches):	Hydric Soil Present? Yes 📈 No							
Remarks:								
HYDROLOGY								
Wetland Hydrology Indicators:								
Primary Indicators (minimum of one is requi	red; check all that apply)	Secondary Indicators (minimum of two required)						
X Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)						
High Water Table (A2)	Drainage Patterns (B10)							

		Drainage r allerna (Dro)
Saturation (A3)	True Aquatic Plants (B14)	Dry-Season Water Table (C2)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Ro	oots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils	(C6) Geomorphic Position (D2)
Iron Deposits (B5)	Thin Muck Surface (C7)	FAC-Neutral Test (D5)
Inundation Visible on Aerial Imagery (E	B7) Gauge or Well Data (D9)	
Sparsely Vegetated Concave Surface	(B8) Other (Explain in Remarks)	
Field Observations:		
Surface Water Present? Yes	No Depth (inches):	
Water Table Present? Yes	No Depth (inches):	
Saturation Present? Yes (includes capillary fringe)	No Depth (inches): V	Netland Hydrology Present? Yes <u></u> No
Describe Recorded Data (stream gauge, m	nonitoring well, aerial photos, previous inspectio	ons), if available:
Remarks:		

### WETLAND DETERMINATION DATA FORM - Midwest Region

			cul. 1.
Project/Site: Strung Lublin		City/County: <u>Fau</u>	Claime Co Sampling Date: 9/20/1
Applicant/Owner: <u>DPC</u>			State: WI Sampling Point: (13202
nvestigator(s): <u>KB+AJ</u>		Section, Township, Ra	ange: <u>530 T25N RGW</u>
andform (hillslope, terrace, etc.):		Local relief	f (concave, convex, none):
Slope (%): <u>22</u> Lat: <u>44 37 14,56</u>	>	Long: <u>-918</u>	8 41.81 Datum: NAD 83
ioil Map Unit Name: Kert Lown			NWI classification:
are climatic / hydrologic conditions on the site typical for the			
			"Normal Circumstances" present? Yes No
re Vegetation $\underline{\mathcal{N}}_{}$ , Soil $\underline{\mathcal{N}}_{}$ , or Hydrology $\underline{\mathcal{N}}_{}$	naturally pro	oblematic? (If n	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	sampling point	locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes I		la Aba Campia	d Area
Hydric Soil Present?     Yes     No     X     Is the Sam       Wetland Hydrology Present?     Yes     No     X     within a W			
Remarks: 1106 # 0242, 000	13		
Heavily grazed pasture			
/EGETATION - Use scientific names of plants	5.		
	Absolute	Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)		Species? Status	Number of Dominant Species (A)
1			That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant 2 Species Across All Strata: (B)
4			
5		·	Percent of Dominant Species (A/B)
Sapling/Shrub Stratum (Plot size:)		= Total Cover	Prevalence Index worksheet:
			Total % Cover of:Multiply by:
2			OBL species x 1 =
3		·	FACW species x 2 =
4			FAC species x 3 =
5			FACU species         x 4 =           UPL species         x 5 =
Herb Stratum (Plot size:)		_ = Total Cover	Column Totals: (A) (B)
1. Jarrens tenuis		N FAC	_
2. Tribolium repeas		N FACY	
3. <u>Aavostis gigantea</u> 4. Phileum prutinse		T FACW	- 1
5. Paa pentensis		Y FAC	- X 2 - Dominance Test is >50%
6			3 - Prevalence Index is ≤3.0 <sup>1</sup>
7			4 - Morphological Adaptations <sup>1</sup> (Provide supporting
8			data in Remarks or on a separate sheet) - Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
9			
10		_ = Total Cover	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1)			- Hydrophytic
2.			Vegetation
			Present? Yes X No

I

### Sampling Point: 032 D2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth Matrix Redox Features									
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
0-1	104R 4/2	27	104R 4/6		<u> </u>	PL	Sittim		
9-14	6427/4	94	1042 6/6	2	C	PL	SiltIonn		
	<u></u>	ti-l <sub>e</sub> t		-	· ·····				
					<u> </u>				
				-					
				<u>.</u>					
<sup>1</sup> Type: C=C	oncentration, D=Dep	letion RM=	Reduced Matrix, M	S=Masker	 d Sand Gra		<sup>2</sup> Location: PL:	=Pore Lining, M=Matrix.	
Hydric Soil								Problematic Hydric Soils <sup>3</sup> :	
Histosol	(A1)		Sandy	Gleyed Ma	atrix (S4)		Coast Prairi	e Redox (A16)	
	pipedon (A2)			Redox (St			Dark Surfac	æ (S7)	
Black Hi	istic (A3)		Strippe	d Matrix (	S6)		Iron-Manganese Masses (F12)		
	en Sulfide (A4)				neral (F1)			w Dark Surface (TF12)	
	d Layers (A5)				atrix (F2)		Other (Expl	ain in Remarks)	
	uck (A10) d Dalaw Daak Surfaa	- / 4 4 4 3		ed Matrix (	• •				
	d Below Dark Surfac ark Surface (A12)	æ (A11)		Dark Surfa of Dark St	ace (F6) urface (F7)		<sup>3</sup> Indicators of b	drophytic vegetation and	
	Aucky Mineral (S1)			Depressio				rology must be present,	
	ucky Peat or Peat (S	3)					-	irbed or problematic.	
	Layer (if observed)						1		
Type:								$\checkmark$	
	ches):						Hydric Soil Pres	sent? Yes No <u>/</u>	
Remarks:									
HYDROLO									
-	drology Indicators:						<b>C</b>	diante a (minimum of the security d)	
	cators (minimum of o	one is requi			·~~·			dicators (minimum of two required)	
	face Water (A1) Water-Stained Leaves (B9)			Surface Soil Cracks (B6)					
	ater Table (A2)		Aquatic Fauna (B13)					Patterns (B10)	
	aturation (A3) True Aquatic Plants (B14)						son Water Table (C2)		
	Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)								
	Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Plants (D1)								
	posits (B3)				•	•		or Stressed Plants (D1)	
	at or Crust (B4)				tion in Tille	u aons (C		ohic Position (D2) utral Test (D5)	
1	posits (B5) ion Vicible on Aprial	Imagent (P	Thin Muc		-		FAC-NEI		
	ion Visible on Aerial y Vegetated Concav								
Field Obser					eniains)				
		1		aboe'					
Surface Wat	ter Present?	res	No <u>×</u> Depth (ir	icnes):					

Yes \_\_\_\_\_ No 🔀 Depth (inches): \_\_\_\_\_

(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Yes \_\_\_\_\_ No \_\_\_\_ Depth (inches): \_\_\_\_\_\_

Water Table Present? Saturation Present?

Remarks:

\_ No <u>X</u>\_\_\_

Wetland Hydrology Present? Yes \_\_\_\_

## Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap



# 038D
#### CON DATA CODM Midwoot Bogion .

					,
Project/Site: Stun Lublin	c	City/County	Ean (	Claure Co Sampling Date: 9/20/	12
Applicant/Owner: DLP				State: <u>4</u> JT_ Sampling Point: <u>03801</u>	<u> </u>
Investigator(s): KB + AJ	{	Section, To	wnship, Rar	nge: 528 T25N RGW	
Landform (hillslope, terrace, etc.): <u>Flood plane</u>			Local relief (	(concave, convex, none):	
Slope (%): 1 - Lat: 44 37 18.29		Long:	716	48.37 Datum: NAD83	
Soil Map Unit Name: Otter Silt loam					
Are climatic / hydrologic conditions on the site typical for this					
Are Vegetation, Soil, or Hydrology sig				Normal Circumstances" present? Yes $\angle$ No	
Are Vegetation, Soil, or Hydrology na				eded, explain any answers in Remarks.)	
SUMMARY OF FINDINGS – Attach site map s			g point le	ocations, transects, important features, e	etc.
Hydrophytic Vegetation Present? Yes No	)(				]
Hydric Soil Present? Yes 🔀 No		1	e Sampled		
Wetland Hydrology Present? Yes <u>Yes</u> No	)	with	in a Wetlar	nd? Yes <u>No </u>	
Remarks: At Structure 493	Photo	0 #	0047	1,0048	
<b>VEGETATION</b> – Use scientific names of plants.					
Tree Stratum (Plot size:)	Absolute % Cover		, , ,	Dominance Test worksheet:	
1 /				Number of Dominant Species           That Are OBL, FACW, or FAC:	,
2 3				Total Number of Dominant Species Across All Strata: (B)	,
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/	/B)
		= Total Co	ver	Prevalence index worksheet:	
Sapling/Shrub Stratum     (Plot size:)       1. A NUS INCAA	6	Y	FACW	Total % Cover of:Multiply by:	
2. Cornus racemosa	2	$\overline{\boldsymbol{\mathcal{N}}}$	FAC	OBL species x1 =	
3				FACW species x 2 =	
4				FAC species x 3 =	
5				FACU species x 4 =	
		= Total Co	ver	UPL species x 5 ∞	
Herb Stratum (Plot size:)	2	N	DBL	Column Totals: (A) (B	B)
1. <u>Symphyotrichum puniceum</u> 2. TUDHA auguli-folla		N	OBL	Prevalence index = B/A =	
3. Carey Stinda	40	-9	OBL	Hydrophytic Vegetation Indicators:	
4. Phanelis neurolanica	25	Ŷ	FACW	X 1 - Rapid Test for Hydrophytic Vegetation	
5. Schoenoplectus tubernaemonta		N	OBL	2 - Dominance Test is >50%	
6. Eutrochium maculatum	1	Ň	OBL	3 - Prevalence Index is ≤3.0 <sup>1</sup>	
7. Eupatorium pecfolintium	-	2	DOL	4 - Morphological Adaptations <sup>1</sup> (Provide support	ting
8	. <u></u>			data in Remarks or on a separate sheet)	
9				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
10	89	= Total Co	ver	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	t
Woody Vine Stratum (Plot size:)	¥,				
1				Hydrophytic Vegetation	
2		= Total Co		Present? Yes No	
Remarks: (Include photo numbers here or on a separate s	sheet.)		VCI		

ES.

#### Sampling Point: 03801

Profile Desc	ription: (Describe	to the dept	h needed to docum	nent the indicato	or or confin	m the absence of	of indicators.)
Depth (inches)	Matrix Color (moist)	%	Redox Color (moist)	Features <u>%</u> Type	Loc <sup>2</sup>	Texture	Remarks
0-2							Muck
2-14	2.5431	100				silf / cam	
14-18	2.543/1	75	2.542.5/1	25		Sundalon	Antoni
			l			· <u> </u>	
	·					•	
						•	
<sup>1</sup> Type: C=Co	oncentration, D=De	pletion, RM=	Reduced Matrix, MS	=Masked Sand (	Grains.		PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:					Indicators I	for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Sandy G	Sleyed Matrix (S4	)	Coast F	Prairie Redox (A16)
Histic Ep	pipedon (A2)			(S5) (Redox			urface (S7)
	istic (A3)			Matrix (S6)			inganese Masses (F12)
	en Sulfide (A4)			Aucky Mineral (F	-		nallow Dark Surface (TF12)
	d Layers (A5)			Gleyed Matrix (F2	!)	Other (i	Explain in Remarks)
🔀 2 cm Mu		(611)		d Matrix (F3) Dark Surface (F6)			
·	d Below Dark Surfac ark Surface (A12)	ce (ATT)		d Dark Sunace (FO)		<sup>3</sup> Indicators	of hydrophytic vegetation and
	Aucky Mineral (S1)			epressions (F8)	')		hydrology must be present,
	ucky Peat or Peat (S	63)					disturbed or problematic.
	Layer (if observed)					T	
Туре:							$\times$
Depth (in	ches):					Hydric Soil	Present? Yes <u>No</u> No
Remarks:							
HYDROLO	GY			****			
Wetland Hy	drology Indicators	:	<u></u>				
			ed: check all that ap	(vla		Seconda	ry Indicators (minimum of two required)
X Surface		<u></u>		ned Leaves (B9)			ace Soil Cracks (B6)
/	ater Table (A2)		Aquatic Fa				nage Patterns (B10)
	on (A3)			tic Plants (B14)			Season Water Table (C2)
	larks (B1)			Sulfide Odor (C1	)		fish Burrows (C8)
	nt Deposits (B2)			hizospheres on			ration Visible on Aerial Imagery (C9)
1							ted or Stressed Plants (D1)
Drift Deposits (B3)     Presence of Reduced Iron (C4)     Algal Mat or Crust (B4)     Recent Iron Reduction in Tilled Soils (							morphic Position (D2)
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils ( Iron Deposits (B5) Thin Muck Surface (C7)							-Neutral Test (D5)
	ion Visible on Aerial	Imagery (B7					
			38) Other (Exp				
Field Obser		(-	, <u> </u>				
Surface Wat		Yes <u>×</u> 1	No Depth (inc	ches): $\underline{< l}$			
Water Table			No Depth (inc				
Saturation P			No Depth (inc		We	tiand Hydrology	/ Present? Yes No
(includes ca	pillary fringe)						
Describe Re	ecorded Data (strea	m gauge, mo	nitoring well, aerial p	photos, previous	Inspections	), if available:	

Remarks:

#### WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Stinn Lublin	City/Co	untv: Emia	Claire (a Sampling Date: $9/20/12$
			State: Sampling Point: State: State: State: State: Sampling Point: State: State: State: Sampling Point: State: State: Sampling Point: State: State: Sampling Point: State: State: State: Sampling Point: State: State: State: Sampling Point: State: State: Sampling Point: State: State: State: Sampling Point: State: Sampling Point: State: Sampling Point: State: Sampling Point: State: State: Sampling Point: Sampling Point: State: State: State: State: Sampling Point: Sampling
Investigator(s): KB + A)			
Landform (hillslope, terrace, etc.):			
Slope (%): <u>19</u> Lat: <u>44 37 18.23</u>			
Soil Map Unit Name: Billett Sandy Loan			
	•		
Are climatic / hydrologic conditions on the site typical for this time			
Are Vegetation $\underline{Y}$ , Soil $\underline{N}$ , or Hydrology $\underline{N}$ signifi			
Are Vegetation $\underline{\mathcal{N}}_{-}$ , Soil $\underline{-\mathcal{N}}_{-}$ , or Hydrology $\underline{-\mathcal{N}}_{-}$ natura	ally problemati	ic? (if ne	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map sho	wing samp	oling point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	X	is the Sampled	l Aroa
Hydric Soil Present?         Yes No           Wetland Hydrology Present?         Yes No		within a Wetla	
Wetland Hydrology Present? Yes No Remarks:	<u>/`</u>		
Children the alfalfa field			
	6		
VEGETATION – Use scientific names of plants.	solute Domi	nant Indicator	Dominance Test worksheet:
	Cover Speci	ies? Status	Number of Dominant Species That Are OBL, FACW, or FAC:(A)
2			Total Number of Dominant Species Across All Strata: 2 (B)
4			Percent of Dominant Species
5			That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size:)	= Tota	I Cover	Prevalence Index worksheet:
1. Planus scrotina	5 4	FACU	Total % Cover of: Multiply by:
2. Vitis Unibioa	3 N	FAC	OBL species x 1 =
3. Tuhus Idaeus	<u>                                      </u>	FACU	FACW species x 2 =O
4			FAC species $19 \times 3 = 57$
5			FACU species $23 \times 4 = 92$
	= Tota	l Cover	UPL species $(45) \times 5 = 325$
Herb Stratum (Plot size:) 1. Eleusina indica	2 N	FACU	Column Totals: <u>107</u> (A) <u>474</u> (B)
2. Medicago Sativa	15 N	<u> </u>	Prevalence Index = $B/A = 4.42$
3. Monolepis nuttalliana	65 Y	NAL	Hydrophytic Vegetation Indicators:
	15 N	J FAL	1 - Rapid Test for Hydrophytic Vegetation
5. Symphyotrichum lanceolatum	1 1	J FAC	2 - Dominance Test is >50%
6			3 - Prevalence Index is ≤3.0 <sup>1</sup>
7			4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
8			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
9			
	<u>98</u> = Tota	I Cover	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum         (Plot size:)           1.			Hydrophytic
2			Vegetation
		l Cover	Present? Yes No X
Remarks: (Include photo numbers here or on a separate shee	et.)		

#### Sampling Point: 03802

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth <u>Matrix</u>	Redox Features	- <u></u>						
(inches) Color (moist) %		DC <sup>2</sup> Texture Remarks						
0-20 104R 4/3 100 _		5-rdy loam						
	······							
		······································						
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=R	educed Matrix, MS=Masked Sand Grains.							
Hydric Soil Indicators:		Indicators for Problematic Hydric Soils <sup>3</sup> :						
Histosol (A1)	Sandy Gleyed Matrix (S4)	Coast Prairie Redox (A16) Dark Surface (S7)						
Histic Epipedon (A2)	Sandy Redox (S5) Stripped Matrix (S6)	Dark Sufface (S7) Iron-Manganese Masses (F12)						
Black Histic (A3) Hydrogen Sulfide (A4)	Loamy Mucky Mineral (F1)	Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)	Loamy Gleyed Matrix (F2)	Other (Explain in Remarks)						
2 cm Muck (A10)	Depleted Matrix (F3)							
Depleted Below Dark Surface (A11)	Redox Dark Surface (F6)							
Thick Dark Surface (A12)	Depleted Dark Surface (F7)	<sup>3</sup> Indicators of hydrophytic vegetation and						
Sandy Mucky Mineral (S1)	Redox Depressions (F8)	wetland hydrology must be present,						
5 cm Mucky Peat or Peat (S3)		unless disturbed or problematic.						
Restrictive Layer (if observed):								
Туре:		Hydric Soil Present? Yes No						
Depth (inches):								
Remarks:								
HYDROLOGY	-							
Wetland Hydrology Indicators:								
Primary Indicators (minimum of one is required	d: check all that apply)	Secondary Indicators (minimum of two required)						
Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)						
High Water Table (A2)	Aquatic Fauna (B13)	Drainage Patterns (B10)						
Saturation (A3)	True Aquatic Plants (B14)	Dry-Season Water Table (C2)						
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)						
Sediment Deposits (B2)	Oxidized Rhizospheres on Living							
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)						
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled So							
Iron Deposits (B5)	Thin Muck Surface (C7)	FAC-Neutral Test (D5)						
Inundation Visible on Aerial Imagery (B7)								
Sparsely Vegetated Concave Surface (B8	B) Other (Explain in Remarks)							
Field Observations:								
	$ \sum_{i=1}^{\infty} $ Depth (inches):							
	D _ ★ Depth (inches):							
Saturation Present? Yes X No	o Depth (inches):8	Wetland Hydrology Present? Yes No 🗡						
Describe Recorded Data (stream gauge, mon	itoring well, aerial photos, previous inspec	itions), if available:						
Remarks:								

## Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap



# **039D**

WETLAND DETERM				-	$\sim 1$ .
Project/Site: Strum Lublin	C	;itv/County:	Equ	Claire (0	Sampling Date: 1/20/12
Applicant/Owner: DPC	~~~~~			State: WF	Sampling Point: 0390
Investigator(s): KB + A J					
Landform (hillslope, terrace, etc.):					
Slope (%): <u>170</u> Lat: <u>44</u> <u>37</u> 18.30					
Soil Map Unit Name: Otter Silt 1000					
Are climatic / hydrologic conditions on the site typical for this time	me of vea	r2 Ves	× No	(If no, explain in F	Remarks )
Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hydrology $\underline{N}$ sign					present? Yes X No
Are Vegetation, soli, or Hydrology sign				eded, explain any answe	/ .
			-		
SUMMARY OF FINDINGS – Attach site map sh		sampling	j point le	ocations, transects	s, important features, etc
Hydrophytic Vegetation Present?       Yes       No         Hydric Soil Present?       Yes       No         Wetland Hydrology Present?       Yes       No         Remarks:       Ves       No			e Sampled n a Wetlar		No
Phito #0054,0055					
VEGETATION – Use scientific names of plants.					
		Dominant		Dominance Test worl	ksheet:
Tree Stratum         (Plot size:)         7           1		Species?		Number of Dominant S That Are OBL, FACW,	
2				Total Number of Domin Species Across All Stra	
4 5				Percent of Dominant S	pecies or FAC: (A/B
		= Total Cov	er		
Sapling/Shrub Stratum (Plot size:)				Prevalence Index wo	Multiply by:
1 2				1	x 1 =
3					×2 =
4					x 3 =
5				FACU species	× 4 =
-		= Total Cov	er	UPL species	x5=
Herb Stratum (Plot size:) 1. Philaps areundinacea	60	V	FALIN	Column Totals:	(A) (B)
2. Typha andustifalia		-1-	OBL	Prevalence index	x = B/A =
3				Hydrophytic Vegetati	Ion Indicators:
4				⊥ 1 - Rapid Test for	Hydrophytic Vegetation
5				2 - Dominance Te	
б				3 - Prevalence Inc	
7				4 - Morphological data in Remark	Adaptations <sup>1</sup> (Provide supportin ks or on a separate sheet)
8					ophytic Vegetation <sup>1</sup> (Explain)
9 10					bil and wetland hydrology must
Woody Vine Stratum (Plot size:)	90_	= Total Cov	er	be present, unless dis	
1			<del></del>	Hydrophytic	
2		= Total Cov		Vegetation Present? Ye	es No
- Remarks: (Include photo numbers here or on a separate she		- TOTAL COV		1	

#### Sampling Point: 039 D1

Profile Desc	cription: (Describe	to the de	oth needed to docur	ment the	indicator	or confin	m the absence of indi	cators.)	
Depth	Matrix			x Feature	s.		,		
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
0-4	2.54 4/1	98	2.544/3		<u> </u>	PL	Silfloam		
4-9	2.54 3/1	75	1042 3/4	25	C	PL	Silty Clay low	M	
9-15	2,544/1	75	104R3/6	25	2	PL	SiltyChillon		
15-18	2.5941	100					Silt loam	¥	
		• ••••					· · · · · · · · · · · · · · · · · · ·		
				<u> </u>	-		-		
<sup>1</sup> Type: C=C	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Maske	d Sand Gr	ains.		ore Lining, M=Matrix.	
Hydric Soil	Indicators:						Indicators for Pro	blematic Hydric Soils <sup>3</sup> :	
Histosol	I (A1)		Sandy (	Gleyed Ma	atrix (S4)		Coast Prairie I	Redox (A16)	
Histic E	pipedon (A2)		Sandy I	Redox (St	5)		Dark Surface (S7)		
Black H	istic (A3)			d Matrix (	•		iron-Manganese Masses (F12)		
Hydroge	en Sulfide (A4)		Loamy	Mucky Mi	rieral (F1)		Very Shallow Dark Surface (TF12)		
Stratifie	d Layers (A5)		Loamy	Gleyed M	atrix (F2)		Other (Explain	n in Remarks)	
2 cm Mi	uck (A10)		Deplete	ed Matrix (	(F3)				
Deplete	d Below Dark Surfac	æ (A11)	Redox	Dark Surfa	ace (F6)				
Thick D	ark Surface (A12)		Deplete	ed Dark Se	urface (F7)	)	<sup>3</sup> Indicators of hydi	rophytic vegetation and	
Sandy M	Mucky Mineral (S1)		🔀 Redox	Depressio	ons (F8)		wetland hydrol	ogy must be present,	
5 cm Mi	ucky Peat or Peat (S	3)					unless disturb	ed or problematic.	
Restrictive	Layer (if observed)	:							
Type:							Hydric Soil Preser	nt? Yes 🗡 No	
Depth (in	iches):						Thyunc don Preser	nti 169 <u>~~</u> 110	
Remarks:									
L									
HYDROLO	)GY								
Wetland Hy	drology Indicators:								
Primary Indi	cators (minimum of c	one is reau	lired: check all that a	(vlaa			Secondary India	ators (minimum of two required)	

Primary Indicators (minimum of one is required;	check all that apply)		Secondary Indicators (minimum of two required)			
Surface Water (A1)	Surface Soil Cracks (B6)					
High Water Table (A2)	Drainage Patterns (B10)					
Saturation (A3)	True Aquatic Plants (B14)		Dry-Season Water Table (C2)			
Water Marks (B1)	Hydrogen Sulfide Odor (C1)		Crayfish Burrows (C8)			
Sediment Deposits (B2)	Oxidized Rhizospheres on Living I	Roots (C3)	Saturation Visible on Aerial Imagery (C9)			
Drift Deposits (B3)	Presence of Reduced Iron (C4)		Stunted or Stressed Plants (D1)			
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled So	ils (C6)	🔀 Geomorphic Position (D2)			
Iron Deposits (B5)	Thin Muck Surface (C7)		🔀 FAC-Neutral Test (D5)			
Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)						
Sparsely Vegetated Concave Surface (B8)	Other (Explain in Remarks)					
Field Observations:						
Surface Water Present? Yes No	X Depth (inches):					
	_X Depth (inches):		<b>X</b> .			
	Depth (inches):5	Wetland H	lydrology Present? Yes 🔀 No			
(includes capillary fringe)			labte.			
Describe Recorded Data (stream gauge, monito	onng weil, aenal photos, previous inspec	ions), ir ava	nadle.			
Remarks:						

#### WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Strum Lublin	c	ity/County:	Fau	Claire La	Sampling Date: 9/20/12
Applicant/Owner: P_C					Sampling Point: 03902
	s	Section. Tov	vnship, Rar	Ige: SAGTASA	
5 t				concave, convex, none):	
Slope (%): Lat: <u>44 37 18.50</u>					Datum: NAD 83
	L		<u> </u>		
Soil Map Unit Name: Offer Silt 10000			1		ation:
Are climatic / hydrologic conditions on the site typical for this tim					
Are Vegetation <u>N</u> , Soil <u>N</u> , or Hydrology <u>N</u> signi					present? Yes <u>X</u> No
Are Vegetation $\underline{N}_{}$ , Soil $\underline{N}_{}$ , or Hydrology $\underline{N}_{}$ natu	rally prob	lematic?	(If ne	eded, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site map sho	owing	sampling	g point lo	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes <u>X</u> No		1- 46	Complet	A	
Hydric Soil Present? Yes No	6. F		e Sampled		No_X
Wetland Hydrology Present? Yes No	<u>_X</u>	With	n a Wetlan		
Remarks: Stinctule 527 Photo	中 (	0053	>		
Ontop of continen dam	to	Inte	brog	u fe a is a llucha a bhaile dha a bhachar a dh connadh intern dhuach adha	
VEGETATION – Use scientific names of plants.					*****
	bsolute Cover	Dominant Species?		Dominance Test work	
1				Number of Dominant S That Are OBL, FACW,	
2				Total Number of Domin Species Across All Stra	
4				Percent of Dominant Species	
5		<u></u>		That Are OBL, FACW,	
Sapling/Shrub Stratum (Plot size:)		= Total Cov	er	Prevalence Index wor	ksheet:
1				Total % Cover of:	Multiply by:
2				OBL species	
3			-	FACW species 5	$1 \times 2 = 102$
4				FAC species	x 3 =
5				FACU species	5 x4= <u>100</u>
		= Total Cov	er	UPL species	x 5 =
Herb Stratum (Plot size:)	50%	$\phi$	TACA	Column Totals:(	e (A) <u>202</u> (B)
			FACU	Drevelence Index	= B/A =
2. <u>Cirsin arvense</u> 3. Verbena hastata	190	- <u>7</u>	FACW	Hydrophytic Vegetatio	
		<u></u>	rncw		Hydrophytic Vegetation
4				2 - Dominance Tes	
5				X 3 - Prevalence Ind	
6 7					Adaptations <sup>1</sup> (Provide supporting
8				data in Remark	s or on a separate sheet)
9				Problematic Hydro	phytic Vegetation <sup>1</sup> (Explain)
10.					
	76	= Total Cov	rer	<sup>1</sup> Indicators of hydric so be present, unless dist	il and wetland hydrology must urbed or problematic.
1				Hydrophytic	
2				Vegetation Present? Ye	s_X No
Remarks: (Include photo numbers here or on a separate she		= Total Cov	rer	l	
	er.)				

Profile Desc	ription: (Describe to	o the dep	oth needed to docum	nent the inc	dicator o	or confirm	n the absence of indicators.)			
Depth	Matrix		Redox	Redox Features						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture Remarks			
0-13	104R 513	100					Silt Loan			
12 - 20	INUR 5/2	92	104R314	$\overline{\gamma}$			C. + loan			
<u>5</u> 42			10 11 14				<u></u>			
. <u></u>	******						······			
<sup>1</sup> Type: C=Co	oncentration, D=Deple	etion, RM	=Reduced Matrix, MS	S=Masked S	and Gra	ains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.			
Hydric Soil I	ndicators:						Indicators for Problematic Hydric Soils <sup>3</sup>	:		
Histosol	(A1)		Sandy G	Sleyed Matri	ix (S4)		Coast Prairie Redox (A16)			
Histic Ep	pipedon (A2)		Sandy R	Redox (S5)			Dark Surface (S7)			
Black Hi	stic (A3)		Stripped	Matrix (S6)	)		iron-Manganese Masses (F12)			
Hydroge	n Sulfide (A4)		Loamy N	Aucky Mine	ral (F1)		Very Shallow Dark Surface (TF12)			
Stratified	Layers (A5)		Loamy C	Gleyed Matr	ix (F2)		Other (Explain in Remarks)			
	ick (A10)		Depleted	d Matrix (F3	)					
	Below Dark Surface	(A11)	Redox D	ark Surface	∋ (F6)					
Thick Da	ark Surface (A12)	• •	Depleted	d Dark Surfa	ace (F7)		<sup>3</sup> Indicators of hydrophytic vegetation and			
	lucky Mineral (S1)			Depressions	• •		wetland hydrology must be present,			
	icky Peat or Peat (S3	)		•	• •		unless disturbed or problematic.			
	Layer (if observed):									
Type:								\ /		
	ches):						Hydric Soil Present? Yes No	<u> </u>		
							. 1			
Remarks:										
HYDROLO	GY									

#### Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) \_\_\_\_ Surface Soil Cracks (B6) \_\_\_\_ Surface Water (A1) Water-Stained Leaves (B9) \_\_\_\_ High Water Table (A2) \_\_\_\_ Drainage Patterns (B10) \_\_\_\_ Aquatic Fauna (B13) \_\_\_\_ Dry-Season Water Table (C2) \_\_\_\_ Saturation (A3) \_\_\_\_ True Aquatic Plants (B14) \_\_\_\_ Water Marks (B1) \_\_\_\_ Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8) \_\_\_\_ Sediment Deposits (B2) \_\_\_\_ Oxidized Rhizospheres on Living Roots (C3) \_\_\_\_ Saturation Visible on Aerial Imagery (C9) \_\_\_\_ Stunted or Stressed Plants (D1) \_\_\_\_ Drift Deposits (B3) \_\_\_\_ Presence of Reduced Iron (C4) Geomorphic Position (D2) \_\_\_\_ Recent Iron Reduction in Tilled Soils (C6) \_\_\_\_ Algal Mat or Crust (B4) \_\_\_\_ Iron Deposits (B5) \_\_\_\_ Thin Muck Surface (C7) \_\_\_\_ FAC-Neutral Test (D5) \_\_\_ Gauge or Well Data (D9) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) \_\_\_\_ Other (Explain in Remarks) Field Observations: Yes \_\_\_\_\_ No \_\_\_\_ Depth (inches): \_\_ Surface Water Present? Yes \_\_\_\_\_ No <u>×</u> Depth (inches); \_\_\_\_\_ Water Table Present? Wetland Hydrology Present? Yes \_\_\_\_\_ No \_\_\_\_ Yes \_\_\_\_\_ No <u>X</u> Depth (inches): \_\_\_\_ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aenal photos, previous inspections), if available: Remarks:

## Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap



Wetland is located adjacent to an unnamed intermittent tributary of Hay Creek. Wetland created/enhanced by damming tributary to create pond (seen in lower right corner).

# **041D**

### WETLAND DETERMINATION DATA FORM - Midwest Region

WEILAND DETERM				1
Project/Site: Stran Lublin	c	ity/County:	Eng	Claure Co Sampling Date: 9/20/12
Applicant/Owner: <u>ISPC</u>				State: Sampling Point:
Investigator(s): <u>KB + AJ</u>	s	Section, Tov	nship, Rar	nge: SAG T25N RGW
Landform (hillslope, terrace, etc.): Ditch		L	ocal relief (	concave, convex, none): <u>COACCURE</u>
Slope (%): <u>2-5%</u> Lat: <u>44 37 16.65</u>	<u></u> ι	.ong:	11 4	36.07 Datum: NAD83
Soil Map Unit Name: Ottersilt loam				
Are climatic / hydrologic conditions on the site typical for this tim	ne of yea	r?Yes 📝	<u>K</u> No_	(If no, explain in Remarks.)
Are Vegetation $\underline{N}_{}$ , Soil $\underline{N}_{}$ , or Hydrology $\underline{Y}_{}$ signi	ficantly d	listurbed?	Are "I	Normal Circumstances" present? Yes 🔀 No
Are Vegetation, Soil, or Hydrology natu	rally prob	olematic?	(If ne	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map she	owing	sampling	g point la	ocations, transects, important features, etc.
Hydric Soil Present?         Yes No           Wetland Hydrology Present?         Yes No			e Sampled n a Wetlan	
Remarks: Ditch adjuct to 529 Sticam channelized to d.		Ph	sto	#0052 10056
VEGETATION – Use scientific names of plants.				
		Dominant Species?	Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata: (B)
4				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size:)		= Total Cov	er	Prevalence Index worksheet:
1				Total % Cover of:Multiply by:
2			<u></u>	OBL species x 1 =
3				FACW species x 2 =
4				FAC species X 3 =
5				FACU species x 4 = UPL species x 5 =
Herb Stratum (Plot size:)	<sup>·</sup>	= Total Cov		Column Totals: (A) (B)
1. Verbena hastata		<u>N</u>	FACW	
2. Juncus Ecnuis	3	<u>N</u>	FAC	Prevalence Index = B/A =
3. <u>Phalavis arundinacea</u> 4. Eutrochium Maculstum		$\frac{1}{N}$	FACW	Hydrophytic Vegetation Indicators:
5. Sciepus Cyperinus	5		OBL	2 - Dominance Test is >50%
	:4		OBL	3 - Prevalence Index is ≤3.0 <sup>1</sup>
7				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
8				data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
9				
10 <u>Woody Vine Stratum</u> (Plot size: )	90	= Total Cov	er	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1				Hydrophytic
2				Vegetation Present? Yes <u>No</u>
Remarks: (Include photo numbers here or on a separate she	et.)			

### Sampling Point: 0410

Profile Desc	cription: (Describe	to the dep	oth needed to docu	ment the i	ndicator	or confirm	n the absence of ind	licators.)
Depth	Matrix		Redo	x Features	5			
(inches)	Color (moist)	%	Color (moist)	%	_Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-8	1044311	93	104R3/6		<u> </u>	PL	Silty Chy loam	
8-16	2.54 4/1	95	10423/6	5		PL	Sill loam	
16-18	2.545/1	100					Soudy loan	
		•						
17		lation DM					21 constinues . DI m	Dave Linies Manhatriu
Hydric Soil	oncentration, D=Dep	Netion, RM	=Reduced Matrix, M	S=masked	Sand Gr	ans.		Pore Lining, M=Matrix. roblematic Hydric Soils <sup>3</sup> :
1 .			0	o				-
Histosol			-	Gleyed Ma				e Redox (A16)
· ·······	pipedon (A2)			Redox (S5	•		Dark Surface	
	istic (A3)			d Matrix (S	•			ese Masses (F12)
	en Sulfide (A4)		/	Mucky Mir	• •			v Dark Surface (TF12)
	d Layers (A5)			Gleyed Ma			Other (Expla	in in Remarks)
	uck (A10) d Balavy Daals Surfac	- (844)		ed Matrix (I	,			
· — ·	d Below Dark Surfac	e (ATT)	X Redox		• •		<sup>3</sup> Indicators of his	drankutio vanatation and
1	ark Surface (A12)			ed Dark Su			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present,	
1 — ·	Mucky Mineral (S1)	<b>^</b> \	Redox	Depression	ns (F8)		•	blogy must be present,
······	ucky Peat or Peat (S Layer (if observed)			*****				bed of problematic.
Type:	Layer (II Observed)	•						
	ches):						Hydric Soil Prese	ent? Yes X No
Remarks:								
HYDROLO	θGY							
Wetland Hy	drology indicators:		·····					
Primary Indi	cators (minimum of c	one is requ	ired: check all that a	pply)			Secondary Ind	licators (minimum of two required)
Surface	Water (A1)		Water-Sta	ained Leav	es (B9)		Surface S	oil Cracks (B6)
	ater Table (A2)			auna (B13				Patterns (B10)
Saturati	• •			atic Plants				on Water Table (C2)
	/arks (B1)			Sulfide O				Burrows (C8)
	nt Deposits (B2)			Rhizosphe		ing Roote		NVisible on Aerial Imagery (C9)
	posits (B3)			of Reduce			• •	r Stressed Plants (D1)
	at or Crust (B4)			on Reducti				hic Position (D2)

K Geomorphic Position (D2)

( "gen men of ottabl(o !)							
Iron Deposits (B5)	_	Thin Muck Surface (C7) X FAC-Neutral Test (D5)					
Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)							
Sparsely Vegetated Concave	Surface (B8)	_ Other (Explain in Remarks)					
Field Observations:							
		Depth (inches):					
Water Table Present? Ye	es No	Depth (inches):					
Saturation Present? Yes No _X_ Depth (inches): (includes capillary fringe)			Wetland Hydrology Present? Yes X No				
Describe Recorded Data (stream	gauge, monitorinç	y well, aerial photos, previous inspec	tions), if available:				
Remarks:							

### WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Strun Lublin	City/County: Ean Claire Co Sampling Date: 9/20/1-
Applicant/Owner:	State: <u> </u>
Investigator(s): <u>KB + AJ</u>	Section, Township, Range: S26 T250 GW
Landform (hillslope, terrace, etc.): <u>Orewage</u>	
Slope (%): 19, Lat: 44 37 18,58	Long: <u>-91 4 33.06</u> Datum: <u>NAD 83</u>
Soil Map Unit Name: (50tham loamy Sana	NWI classification:
Are climatic / hydrologic conditions on the site typical for this tin	ne of year? Yes No (If no, explain in Remarks.)
Are Vegetation $\underline{\gamma}$ , Soil $\underline{P}$ , or Hydrology $\underline{\gamma}$ signi	ificantly disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation $N_{}$ , Soil $N_{}$ , or Hydrology $N_{}$ natu	rally problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map sho	owing sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	
Hydric Soil Present? Yes No	
Wetland Hydrology Present? Yes No	
Remarks: Structure # 530 pho	6. # 0051
Pasture adjust to mode	fred drainage

**VEGETATION** – Use scientific names of plants.

	Absolute		Indicator	Dominance Test worksheet:	
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species	1
1.	. <u></u>	<del></del>		That Are OBL, FACW, or FAC:	(A)
2	. <u></u>			Total Number of Dominant	ì
3	• <u>••• ••••</u> ••	<u></u>		Species Across All Strata:	(B)
4				Demont of Deminant Species	
5				Percent of Dominant Species That Are OBL, FACW, or FAC:	00 (A/B)
		= Total Co	ver		、 ,
Sapling/Shrub Stratum (Plot size:)				Prevalence index worksheet:	
1.			-		tiply by:
2			. <u></u>	OBL species x 1 =	······
3			-	FACW species x 2 =	
4				FAC species x 3 =	
5				FACU species x 4 =	
		= Total Co	ver	UPL species x 5 =	
Herb Stratum (Plot size:)	010		<u> </u>	Column Totals: (A)	(B)
1. Doa pratensia	80	<u> </u>	FAL		
2. Phleum pratense	5	<u>_,y</u>	FACU	Prevalence Index = B/A =	
3. Juneus Convis		N	FAC	Hydrophytic Vegetation Indicators:	
4	~ `			1 - Rapid Test for Hydrophytic Ve	getation
5				$\angle$ 2 - Dominance Test is >50%	
6				3 - Prevalence Index is ≤3.0 <sup>1</sup>	
7				4 - Morphological Adaptations <sup>1</sup> (P	
8				data in Remarks or on a separ	· .
9				Problematic Hydrophytic Vegetati	on <sup>1</sup> (Explain)
10	90	= Total Co		<sup>1</sup> Indicators of hydric soil and wetland h	
Woody Vine Stratum (Plot size:)			NGI	be present, unless disturbed or proble	matic.
1				Hydrophytic	
2.					
		= Total Co	ver	Present? Yes <u>No</u>	
Remarks: (Include photo numbers here or on a separate	·····			1	· · ·
	•				

I

Depth	Matrix		Red	ox Feature	s			
	or (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	24/2	ach	104R3/6	2	$\subset$	PL	Siltloam	
5-10 104	A	98	104R. 316	2	6	PL	Silt loam	
0-18 1041	26/3	90	1042614	10	<u> </u>	M	Siltlaum	
		-		····			·	
Type: C=Concentra	tion, D=Dep	letion, RM	Reduced Matrix, M	IS=Maske	d Sand Gr	ains.		Pore Lining, M=Matrix.
lydric Soil Indicato Histosol (A1) Histic Epipedon Black Histic (A3) Hydrogen Sulfide Stratified Layers	(A2) ≘ (A4)		Sandy Strippe Loamy	•	5)		Coast Prairi Dark Surfac Iron-Mangar Very Shallov	roblematic Hydric Soils <sup>3</sup> : e Redox (A16) e (S7) nese Masses (F12) w Dark Surface (TF12) ain in Remarks)
2 cm Muck (A10     Depleted Below     Thick Dark Surfa     Sandy Mucky Mi     5 cm Mucky Pea	Dark Surface Ice (A12) Ineral (S1)		Redox Deplet	ed Matrix Dark Surf ed Dark S Depressio	ace (F6) urface (F7)	)	wetland hyd	/drophytic vegetation and rology must be present, rbed or problematic.
Restrictive Layer (if Type: Depth (inches):							Hydric Soil Pres	ent? Yes No
Remarks:								
IYDROLOGY								
Wetland Hydrology							_	
Primary Indicators (n	n <mark>inimum of</mark> c	ne is requi						dicators (minimum of two requi
Surface Water (/	A1)		Water-St					Soil Cracks (B6)
High Water Tabl	e (A2)		Aquatic F	•	-			Patterns (B10)
Saturation (A3)			True Aqu					on Water Table (C2)
Water Marks (B*	1)		Hydroger	n Sulfide (	Odor (C1)		Crayfish	Burrows (C8)
Sediment Depos	sits (B2)		Oxidized	Rhizosph	eres on Liv	ring Roots		n Visible on Aerial Imagery (C9
Drift Deposits (B	3)				ed Iron (C			or Stressed Plants (D1)
Algal Mat or Cru	st (B4)		Recent I	on Reduc	tion in Tille	d Soils (C		hic Position (D2)
Iron Deposits (B	5)		Thin Muc	k Surface	(C7)		FAC-Neu	itral Test (D5)
Inundation Visib	le on Andel I	magany /B	7) Gauce o	Well Dat	a (DQ)			

\_\_\_\_ Inundation Visible on Aerial Imagery (B7) \_\_\_\_ Gauge or Well Data (D9)

\_\_\_\_ Sparsely Vegetated Concave Surface (B8) \_\_\_\_ Other (Explain in Remarks) Field Observations: Yes \_\_\_\_\_ No <u>×</u> Depth (inches): \_\_\_\_\_ Surface Water Present? Yes \_\_\_\_\_ No \_\_\_\_ Depth (inches): \_\_\_\_\_ Water Table Present? Yes \_\_\_\_\_ No \_\_\_\_ Depth (inches): \_\_\_\_\_\_ Wetland Hydrology Present? Yes No Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:

## Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap



DIRECTION	FEATURE ID	041D	DATE
East	PHOTOGRAPHER	Kathy Bellrichard and Apryl Jennrich	9/20/2012

#### COMMENTS

Wetland is located adjacent to an unnamed intermittent tributary of Hay Creek. Tributary had largely been diverted to the roadside ditch (seen in left side of frame).

### WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Strum Lublin	Cih	County: Fall	Churce Co Sampling Date: 9/20/12
Applicant/Owner: DPL			
			nge: 524 T25N RGW
Landform (hillslope, terrace, etc.):			(concave, convex, none):
Siope (%): Lat: 44_37_44.3	3/ 10	Edual Tener (	2 57.54 Datum WAN 83
Soil Map Unit Name: <u>Fairchild &amp; Merrilla</u>			
Are climatic / hydrologic conditions on the site typical for this			
Are Vegetation $\underline{\mathcal{L}}_{\mu}$ , Soil $\underline{\mathcal{N}}_{\mu}$ , or Hydrology $\underline{\mathcal{N}}_{\mu}$ si			
Are vegetation, soli, or Hydrology since $N_{\rm eff}$ and $N$			eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map			
Hydrophytic Vegetation Present? Yes No	°	is the Sampled within a Wetlan	Area
Remarks: With # 0057			
heavily grazed pasture			
		*****	
VEGETATION – Use scientific names of plants.			
Tree Stratum (Plot size:)		ominant Indicator species? <u>Status</u>	Dominance Test worksheet: Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2	. <u></u>		Total Number of Dominant
3			Species Across All Strata: (B)
4			Percent of Dominant Species
5	· ····································	Total Cover	That Are OBL, FACW, or FAC: _/ (A/B)
Sapling/Shrub Stratum (Plot size:)			Prevalence Index worksheet:
1			Total % Cover of:Multiply by:
2			OBL species x 1 =
3	- <u></u>		FACW species x 2 =
4			FAC species x 3 =
5		• • • • • • • • • • • • • • • • •	FACU species x 4 =
Herb Stratum (Plot size:)		Total Cover	UPL species x 5 =
1. Echium Unlagic	7	N UPL	Column Totals: (A) (B)
2. A chillen millefolium	$-\frac{1}{10}$	N FACU	Prevalence index = B/A =
3. Plantagn Major	3	W FAC	Hydrophytic Vegetation Indicators:
4. Vible Sorovia	7	N FAC	1 - Rapid Test for Hydrophytic Vegetation
5. Juarus tenuis	15	9 FAC	★ 2 - Dominance Test is >50%
6. Medicano Lupuling	3	N FACU	3 - Prevalence Index is ≤3.0 <sup>1</sup>
7. Pour printenses	25	Y FAC	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
8. Erigeron Canadansis	1	N FACH	data in Remarks or on a separate sheet)
9. Potentilla simpler		N FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
10	74 -	Total Cover	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size:)		Total Cover	be present, unless disturbed or problematic.
1	-		Hydrophytic
2			Vegetation Present? Yes No
		Total Cover	
Remarks: (Include photo numbers here or on a separate s	sneet.)		

Depth	Matrix		Redo	x Feature	25			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10 4R 3/1	98	104R 3/3	2	<u>C</u>	<u>PL</u>	Sandy Wam	
4-7	104R4/1	946	104R 3/6	2	C	PL	Sund	
7-10	104R2/1	98	104R 3/3	2_	C	PL	Sundyloam len	ses of Sand
10-15	104R 4/2	100					Sand	
15-18	254514	100					Ser	
<b></b>	<u></u>						<u></u>	
and the second	oncentration, D=Dep	oletion, RM	=Reduced Matrix, M	S=Maske	d Sand Gr	ains.		Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indicators for Pr	oblematic Hydric Soils <sup>3</sup> :
Histosol	(A1)	Sandy	Gleyed M	atrix (S4)		Coast Prairie	•	
Histic E	Histic Epipedon (A2)		Sandy	Redox (S	5)		Dark Surface	. ,
	Black Histic (A3)			d Matrix (				ese Masses (F12)
Hydroge	en Sulfide (A4)		Loamy	Mucky M	ineral (F1)		Very Shallow Dark Surface (TF12)	
Stratifie	Stratified Layers (A5)			-	latrix (F2)		Other (Explai	n in Remarks)
2 cm Mi	cm Muck (A10)			d Matrix				
Deplete	d Below Dark Surfac	ж (А11)	Redox	Dark Surl	iace (F6)			
Thick D	Thick Dark Surface (A12)		Deplete	ed Dark S	urface (F7)	)	<sup>3</sup> Indicators of hyc	Irophytic vegetation and
Sandy M	Sandy Mucky Mineral (S1)			Depressio	ons (F8)		wetland hydro	ology must be present,
	_ 5 cm Mucky Peat or Peat (S3)			<u> </u>				ped or problematic.
	Layer (if observed)	:						
Туре:							Hydric Soil Prese	nt? Yes No $\underline{X}$
Depth (in	cnes):							
Remarks:								
YDROLO	)GY							
	drology Indicators	•						
necianu ny	urology mulcators	•						

Primary Indicators (minimum of one is required:	check all that apply)	Secondary Indicators (minimum of two required)
Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
High Water Table (A2)	Aquatic Fauna (B13)	Drainage Patterns (B10)
Saturation (A3)	True Aquatic Plants (B14)	Dry-Season Water Table (C2)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living F	oots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)
Aigai Mat or Crust (B4)	Recent Iron Reduction in Tilled Sol	s (C6) Geomorphic Position (D2)
Iron Deposits (B5)	Thin Muck Surface (C7)	FAC-Neutral Test (D5)
Inundation Visible on Aerial Imagery (B7)	Gauge or Well Data (D9)	
Sparsely Vegetated Concave Surface (B8)	Other (Explain in Remarks)	
Field Observations:		
Surface Water Present? Yes No		
Water Table Present? Yes No		1
Saturation Present? Yes No	X Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monito	onng well, aenal photos, previous inspect	ons), if available:
Remarks:		
:		

### WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Strun Lublin	City	County: Eau	Claire Co Sampling Date: 9/2//12
Applicant/Owner: DR C			State: WE Sampling Point: 04702
Investigator(s): $\underline{KB} + AJ$	Sec	tion, Township, Rar	ge: S24 T25N RGW
Landform (hillslope, terrace, etc.): depression			
Slope (%): 190 Lat: 44-37 43.			
		,	NWI classification:
Are climatic / hydrologic conditions on the site typical for t			
			Normal Circumstances" present? Yes 📐 No
Are Vegetation, Soil, or Hydrology			eded, explain any answers in Remarks.)
			ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	No		
Hydric Soil Present? Yes	No	Is the Sampled	
Wetland Hydrology Present? Yes	<u>No X</u>	within a Wetlan	
Remarks: Photo # 0058			
Henvily ginzed pusture			~
VEGETATION - Use scientific names of plan	ts.		
		ominant Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size:) 1.		pecies? Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2.			
3			Total Number of Dominant Species Across All Strata:
4			Percent of Dominant Species
5			That Are OBL, FACW, or FAC: 100 (A/B)
Sapling/Shrub Stratum (Plot size:)	= T	otal Cover	Prevalence Index worksheet:
1			Total % Cover of: Multiply by:
2			OBL species x 1 =
3			FACW species x 2 ≖
4			FAC species x 3 =
5			FACU species         x 4 =           UPL species         x 5 =
Herb Stratum (Piot size:)	= 1		Column Totals: (A) (B)
1. Schoenoplectus tabernae	montani 4	NOBL	
2. Juncas tenuis		N FAC	Prevalence index = B/A =
3. Viola sororia		N FAC	Hydrophytic Vegetation Indicators:
4. Mantago Major		N FAC	1 - Rapid Test for Hydrophytic Vegetation
5. <u>Achillea</u> millefolium		N FACU	<ul> <li>X 2 - Dominance Test is &gt;50%</li> <li>3 - Prevalence Index is ≤3.0<sup>1</sup></li> </ul>
6. Huperzia lucidula		Y FAC	<ul> <li> 3 - Prevalence index is \$3.0</li> <li> 4 - Morphological Adaptations<sup>1</sup> (Provide supporting</li> </ul>
7. Por pratenses			data in Remarks or on a separate sheet)
8 9			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
10			
Woody Vine Stratum (Plot size:)	1	Total Cover	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1)			Hydrophytic
2			Vegetation \/
		Fotal Cover	Present? Yes <u>No</u>
Remarks: (Include photo numbers here or on a separa	te sheet.)		

Depth	Matrix		Redo	ox Feature	s	-	_
inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Remarks
-5	104R 3/1	99	104R 314		<u> </u>	PL	Sandy loan
-10	104R 412	97	104R 316	3	0	92	Sand
0 - 20	2.54 52	95	107R 4/16	5	<u> </u>	М	Sand
					• ••••••••••••••••••••••••••••••••••••		
	oncentration, D=Dep	pletion, RM	1=Reduced Matrix, M	S=Maske	d Sand Gr	ains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol			Sandy	Gleyed M	atrix (S4)		Coast Prairie Redox (A16)
-	pipedon (A2)			Redox (S			Dark Surface (S7)
_ Black Hi	stic (A3)			d Matrix (			Iron-Manganese Masses (F12)
Hydrogen Sulfide (A4)				•	neral (F1)		Very Shallow Dark Surface (TF12)
	Layers (A5)			Gleyed M	• ,		Other (Explain in Remarks)
_ 2 cm Mu		- (644)		ed Matrix (			
	d Below Dark Surfac ark Surface (A12)	æ (A11)		Dark Surf	ace (F6) urface (F7)		<sup>3</sup> Indicators of hydrophytic vegetation and
	lucky Mineral (S1)		North I	Depressio	•	,	wetland hydrology must be present,
	icky Peat or Peat (S	3)	110000	Depressio	, iii (i 0)		unless disturbed or problematic.
	Layer (if observed)	*					
Type:							
• •	ches):						Hydric Soil Present? Yes No
emarks:							
(DROLO	GY	stratų stato darbantos					
	drology Indicators						
-			uired: check all that a	pply)			Secondary Indicators (minimum of two require
	Water (A1)		Water-Sta		ves (B9)		Surface Soil Cracks (B6)
_	ater Table (A2)		Aquatic F				Drainage Patterns (B10)
Saturatio	• •		True Aqu	•	•		Dry-Season Water Table (C2)
	larks (B1)			n Sulfide C	•		Crayfish Burrows (C8)
	nt Deposits (B2)				eres on Liv	ing Roots	
	nanita (D2)			•	ad lean (C	-	

- \_\_\_ Presence of Reduced Iron (C4) \_\_\_ Stunted or Stressed Plants (D1)

Algal Mat or Crust (B4)	Recent Iron Reduction	on in Tilled Soils (C6) Geomorphic Pos	ition (D2)
Iron Deposits (B5)	Thin Muck Surface (0	C7) X FAC-Neutral Tes	st (D5)
Inundation Visible on Aerial Imag	gery (B7) Gauge or Well Data	[D9)	
Sparsely Vegetated Concave Su	urface (B8) Other (Explain in Rei	narks)	
Field Observations:			
Surface Water Present? Yes	No <u>X</u> Depth (inches):		
Water Table Present? Yes	No <u>×</u> Depth (inches):		,
Saturation Present? Yes _ (includes capillary fringe)	No 🔀 Depth (inches):	Wetland Hydrology Present?	Yes No
Describe Recorded Data (stream ga	uge, monitoring well, aerial photos, pre	vious inspections), if available:	
Remarks:			

\_\_\_\_ Drift Deposits (B3)

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

Project/site: Strum Lublin City/C	ounty Earlie Co sampling Date: 7/21/12
Applicant/Owner: DPC	State: WF Sampling Point: 04801
	n, Township, Range: SR4 TREN RGW
Landform (hillstope, terrace, etc.): <u>do prossion</u> Local reli	
Subregion (LRR or MLRA): <u>CRR K</u> Lal: <u>44</u> 37	47.25 Low $91.2$ $51297$ Date $1000$
soil Map Unit Name: <u>Plainbo lowny sand</u>	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Y	
Are Vegetation $\underline{N}_{a,b}$ , Soil $\underline{N}_{a,b}$ , or Hydrology $\underline{N}_{a,b}$ significantly disturb	
Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hydrology $\underline{N}$ naturally problems	tic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sam	pling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?     Yes     No       Hydric Soil Present?     Yes     No       Wetland Hydrology Present?     Yes     No	Is the Sampled Area within a Wetland? Yes No If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
Photo # 0002	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soli Cracks (B6)
Surface Water (A1) Water-Stained Leave	
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Mari Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Od     Sediment Deposits (B2) Oxidized Rhizosphen	or (C1) Crayfish Burrows (C8) es on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)     Ordized Mitcospilation     Presence of Reduced	
Algal Mat or Crust (B4) Recent Iron Reductio	
Iron Deposits (B5) Thin Muck Surface (0	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rer	
Sparsely Vegetated Concave Surface (B8)	K FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (Inches):	
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre Remarks:	vious inspections), if available:

\$2<u>62</u>.

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VEGETATION - Use so	jentific names of plants.
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VEDETATION - Ose scientino hames or planta.				
		Dominant		Dominance Test worksheet:
Tree Stratum (Ptol size:)	% Cover	Species?	Status	
1.				Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3.	-			Species Across All Strata: (B)
4				
				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
5.		-	-	
6				
				Prevalence Index worksheet:
7		-	-	Total % Cover of Multiply by:
		= Total Cov	/er	OBL species x1 =
				FACW species x 2 =
<u>Sapling/Strub Stratum</u> (Plot size:) 1. <u>Salix petiolouris</u>	F	J	T	
1. Salix petiolaris		J	FACW	FAC species x 3 =
				FACU species x 4 =
2				UPL species x 5 =
3.				Column Totals: (A) (B)
4				
5,				Prevalence Index = B/A =
6,				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
7.				
	5	= Total Cov	rer	2 - Dominance Test is >50%
				3 - Prevalence Index is ≤3.0 <sup>1</sup>
Herb Stratum (Plot size:) 1. Onne leg Sensibilis	60	Y	FACLI	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
2. Lybus hispidus	-	Ý	FACE	Problematic Hydrophytic Vegetation' (Explain)
	-		and a summing the statements.	
3. Solidary ranadasis		<u> </u>	FACY	Indicators of burden call and walls ad burden and second
4. Saliduan alantea	3	Ν	FACW	Indicators of hydric soil and welland hydrology must be present, unless disturbed or problematic.
· · · · · · · · · · · · · · · · · · ·	n samutanaan		-	be present, divess asidibed or problemato.
5.			-	Definitions of Vegetation Strata:
6.				
				Tree - Woody plants 3 in. (7.6 cm) or more in diameter
7.	* ****	******		at breast height (DBH), regardless of height.
8.	-			Sapling/shrub - Woody plants less than 3 in, DBH
9				and greater than or equal to 3.28 ft (1 m) tall.
10				Herb - All herbaceous (non-woody) plants, regardless
11,	-			of size, and woody plants less than 3.28 ft tall.
12.		-		Woody vines - All woody vines greater than 3.26 ft in
	810	= Total Co	ner	height.
		- 10ia 00	-61	
Woody Vine Stratum (Plot size:)				
1,				
	. <u></u>			
2.	6. Brattana and Andrea		annotes communes.	
3				Hydrophylic
	··········			Vagatalian
4	• •	• •		Present? Yes No
		= Total Co	ver	7
Remarks: (include photo numbers here or on a separate	sheet 1			-
······································	,			
L				

Profile Description: (Description: (Description: Construction to depth needed to document the indicator or confirm the absence of indicators.)         Depth       Lativ       Codor (motist)       45       York       Testure       Remarks         0.~       S       MYR 3/1       40       Codor (motist)       45       York       Codor (motist)       Active York       Codor (motist)       Codor (motist)       Active York       Codor (motist)	SOIL Profile Desi	rintion. (Decrite	to the der	th needed to docu	ment the	Indicator	or confirm	the absence of i		ang Politi _	04801
D			to the def				or comm		noicatoi s.j		
Internation         Internation <thinternation< th=""> <thinternation< th=""></thinternation<></thinternation<>				Color (moist)	<u>%</u>	Type	_ <u>Loc</u> ²	1	<u> </u>	temarks	
IDYR. 3/L       Z. C. PL         I2-15       2.54 5/4       95       QL         I2-19       2.54 6/4       90       IDYR. 5/L       10       C         I2-19       2.54 6/4       90       IDYR. 5/L       10       C       M         I2-19       2.54 6/4       90       IDYR. 5/L       10       C       M       Sand         I2-19       2.54 6/4       90       IDYR. 5/L       10       C       M       Sand         I2-19       2.55 7/24       90       IDYR. 5/L       10       C       M       Sand         I2-19       2.55 7/24       90       IDYR. 5/L       10       C       M       Sand         I2-19       2.55 7/24       90       IDYR. 5/L       IDREAD       IDREAD       IDREAD         I2-19       IDREAD		- Alada Desans	an miningeligentions								
Image:	5-12	10412 211	<u> 40</u>	1				Silh Clin long	Sar) in	clusis n	
Image:		N		A		<u> </u>					
Image: Carbon Contentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains       ?Location: PL=Pore Lining, M=Matrix, Image: Polyvalue Below Surface (S8) (LRR R, Image: Polyvalue Below Surface (S9) (LRR R, Image: Polyvalue Below Surface (S7) (LRR K, L, R)         Histic Epipedon (A2)       MLRA 149B)	12-15	2.51 5/4				<u> </u>	PL				
Hydric Soll Indicators:       Indicators for Problematic Hydric Solis <sup>3</sup> :	15-19	2.544/4	<u>9D</u>	104R 5/6		<u> </u>	<u></u>	Sand			
Hydric Soll Indicators:       Indicators for Problematic Hydric Solis <sup>3</sup> :			-				(Marco 20 100000 1000000000000000000000000000				
Hydric Soll Indicators:       Indicators for Problematic Hydric Solis <sup>3</sup> :		. <u></u>									
Hydric Soll Indicators:       Indicators for Problematic Hydric Solis <sup>3</sup> :											
Hydric Soll Indicators:       Indicators for Problematic Hydric Solis <sup>3</sup> :				where we introduce that have do also be an advertised of	-						
Hydric Soll Indicators:       Indicators for Problematic Hydric Solis <sup>3</sup> :											
Hydric Soll Indicators:       Indicators for Problematic Hydric Solis <sup>3</sup> :							-	ananana alampanya daharanan			
Hydric Soll Indicators:       Indicators for Problematic Hydric Solis <sup>3</sup> :	******										
	<sup>1</sup> Type: C≈C	oncentration, D=Der	pletion, RM	Reduced Matrix, M	S=Maske	d Sand Gr	ains	<sup>2</sup> Location: P	L=Pore Linin	ng, M=Matri	<b>X</b> .
Histic Epipedon (A2)       MLRA 1498)       Coast Prairie Redox (A16) (LRR K, L, R)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)       5 cm Mucky Peat or Peat (S3) (LRR K, L, R)         Hydrogen Sulfide (A4)       Loamy Mucky Minerat (F1) (LRR K, L)       Dark Surface (S7) (LRR K, L, M)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L, R)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Piedmont Floodplain Sols (F19) (MLRA 1498)         Sandy Redox (S5)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 1498)         Shripped Matrix (S6)       Redox Depressions (F8)       Red Parent Material (F21)         Dark Surface (S7) (LRR R, MLRA 1498)       Coher (Explain in Remarks) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       Coher (Explain in Remarks) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       No         Type:										-	
Black Histic (A3)		• •				(S8) (LR)	κ <b>κ</b> ,				*
Stratified Layers (A5)       Loamy Gleved Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)         Depieted Below Dark Surface (A11)       Depieted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L, R)         Sandy Mucky Mineral (S1)       Depieted Dark Surface (F7)       Piedmont Floodplain Sots (F19) (MLRA 1498)         Sandy Gleved Matrix (S4)       Redox Depressions (F0)       Mesic Spodic (TA6) (MLRA 144A, 145, 149B)         Sandy Redox (S5)       Red Parent Material (F21)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 149B)       Very Shallow Dark Surface (TF12)       Other (Explain in Remarks)         *Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problemalic.       Restrictive Layer (If observed):         Type:	Black H	listic (A3)		Thin Dark Surf	ace (S9) (			) 5 cm Much	ry Peat or Po	eat (S3) (LI	
Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L, R)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Predmont Floodplain Soits (F19) (MLRA 1498)         Sandy Redox (S5)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 1498)         Sandy Redox (S5)       Red Parent Material (F21)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 1498)       Cther (Explain in Remarks)         *Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       Restrictive Layer (if observed):         Type:		· •					L, L)				RR K. L)
Sandy Mucky Mineral (S1)       Depieted Dark Surface (F7)       Friedmont Floodplain Soils (F19) (MLRA 1498)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 1498)         Sandy Redox (S5)       Red Parent Material (F21)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 1498)       Other (Explain in Remarks)         *Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Restrictive Layer (if observed):       Type:         Depth (inches):       No			æ (A11)			.,					
Sandy Gleyed Matrix (S4)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 149B)         Sandy Redox (S5)       Red Parent Material (F21)         Stripped Matrix (S6)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 149B)       Cther (Explain in Remarks) <sup>3</sup> Indicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic.         Restrictive Layer (if observed):       Type:         Depth (inches):       No		* *		And the second s							
Stripped Matrix (S6)		•							-		
Dark Surface (S7) (LRR R, MLRA 149B)     Cther (Explain in Remarks)  Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (if observed):     Type: Depth (inches): No											
Restrictive Layer (if observed):         Type:         Depth (inches):         Weight (inches):		• •	MLRA 149	8)						-	:)
Restrictive Layer (if observed):         Type:         Depth (inches):         Weight (inches):	Åla dia skave d		السعام ماند	ويتمع ومعرفة والمراجع المرمية والمر			مر مار مار روم	ا به معمل مسمون			
Depth (inches):				ellend hydrology mu	stoc bees	GIR, UINCY		iospicolematic.			
Rahii (ususa):	Туре:		1 0 13 1 3 13313								$\mathbf{v}$
Remarks	Depth (in	rches):		···				Hydric Soll Pro	sant? Yo	IS	No 📈
	Remarks	den in geschilte alleren ist einen eine den sind den in den sind den in den sind den sind den sind den sind den									

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# **051D**

WETLAND DETERMINATION DATA FOR	RM – Northcentral and Northeast Region
Projecusite: Strum Lublin Cityici	sunty Englaver CG Sampling Date: 7/2//2
Applicant/Owner: DPC	State: WI Sampling Point: 051D1
Investigator(s): KB+AJ Section	
Landform (hillstope, terrace, etc.): <u>Ploodplain</u> Local relia	if (concave, convex, none): <u>ADA</u> Slope (%):
Subregion (LRR or MLRA):KK_KLat:44_38	1.76 Long: -92 2 42.52 Datum: NAD 83
Soll Map Unit Name: Fuirchild & Merillan soils	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Ye	es X No (If no, explain in Remarks.)
Are Vegetation $\underline{N}$ , Soil $\underline{N}$ , or Hydrology $\underline{N}$ significantly disturt	$\sim$ Are "Normal Circumstances" present? Yes $\times$ No
Are Vegetation N, Soil N, or Hydrology N naturally problema	
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	is the Sampled Area within a Wetland? Yes No
Hydric Soll Present? Yes No	
Wetland Hydrology Present?         Yes         No           Remarks:         (Explain alternative procedures here or in a separate report.)	If yes, optional Wetland Site ID:
Photo # 0060,0061	
Mars # 0000,0001	
Cherry S	ure STI
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soli Cracks (B6)
Surface Water (A1) Water-Steined Leave	s (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Mart Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Od	or (C1) Crayfish Burrows (C8)
	es on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced	
Algal Mat or Crust (B4) Recent Iron Reductio	
Iron Deposits (B5) Thin Muck Surface (C	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Ren	
Sparsely Vegetated Concave Surface (B8)	K FAC-Neutral Test (D6)
Field Observations:	
Surface Water Present? Yes No Y Depth (Inches):	
Water Table Present? Yes No K Depth (inches):	Welland Hydrology Present? Yes X No
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:
Remarks:	

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VEGETATION – Use scientific names of plants				Sampling Point: 00101
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1				Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata:(B)
4		terraries and the second	-	Percent of Dominant Species That Are OBL, FACW, or FAC:(A/B)
5 6			Antoine and the feature	
7			-	Prevalence Index worksheet: Total % Cover of Multiply by:
		= Total Co	ver	OBL species         x 1 =           FACW species         x 2 =
Sapling/Shrub Stratum (Pick size:) 1. Pinus Strabus	3	Ņ	FACU	FAC species X 3 =
2. Viccioum corymbosun	10	<u> </u>	FACW	FACU species         x 4 =           UPL species         x 5 =
3,				Column Totals: (A) (B)
4 5				Prevalence Index ≠ B/A ≠
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
	_15_	= Total Co	ver	2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.01
Herb Stratum (Plot size: ) 1. Os Munda Cinnamanea	5	N	FACU	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
2. Rubus hispidus	50	<u> </u>	FACW	Problematic Hydrophytic Vegetation1 (Explain)
3. Vaccing Caryabasuna	20	- <del>0</del> -	FACL	<sup>1</sup> Indicators of hydric soil and welland hydrology must
4. Lycopodiella inundata		<u> </u>	<u>ABL</u> FACU	be present, unless disturbed or problematic.
5. Botrypus vivginianus 6. Scirpus cypelinus		- <u>N</u>	OBL	Definitions of Vegetation Strata:
7. Eripphorum Virainiaum	<u> </u>	N	OBL	Tree – Woody plants 3 in. (7,6 cm) or more in diameter at breast height (DBH), regardless of height.
8. <u>Carex cruptolepis</u>		<u>N</u>	OBL	Sapiing/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.26 ft (1 m) tail.
10				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3 28 ft tall.
11				Woody vines - All woody vines greater than 3.26 ft in
	87	= Tolal Co	wer	height.
Woody Vine Stratum (Plot size:)				
2.			•	
3		-		Hydrophylic
4				Vegetation Present? Yes No
<b>6</b>		= Total Co	Mer	
Remarks: (Include photo numbers here or on a separate	e sneet.}			

SOIL								Sampling Point: 03101
Profile Desc	ription: (Describe i	to the dept	h needed to docur	nent the in	dicator	or confirm	the absence of	of Indicators.)
Depth	Matrix			x Features		Land	<b>.</b>	
(inches)	Color (moist)	- 46	Color (moist)	<u>*/</u>	Type'	Loc	Texture	Remarks Peat
V-lis	0 FU 2.5%			-				<u>energy and a second s</u>
15-3	2.542.5/1	100	13.7.	. <del></del> .		-	Silt low	Muety
3-12	2.54 0/1	50	2.544/1	50			Sand	Stierked
12-16	2,54 4/2	100					SARD	
16-18	2.543/2	100					Sand	
-		, inclusionidades d	na na stali in maini da in anna an anna an an da dhairte an an anna an anna an anna an anna an an	-	*****	dana mananana a		an a
		-	1644994998499999999999999999999999999999	•		derbar adrebie derbalta debeke		
	<u></u>							******************
		-				***		
		. <u></u> .						
	······································							
	••••••••••••••••••••••••••••••••••••••					·		
	oncentration, D=Dep	letico RM=	Reduced Matrix M	S=Masked	Sand Gri		<sup>2</sup> Location:	PL=Pore Lining, M=Matrix.
Hydric Soll	and a second					and a second	Common yeski di saman da bi bihak barbaha jelan nga bikak ka	for Problematic Hydric Solis <sup>9</sup> :
Histosol	(A1)		Polyvalue Belo	w Surface (	(LRF	R,		luck (A10) (LRR K, L, MLRA 1498)
	pipedon (A2)		MLRA 1498	·				Prairie Redox (A16) (LRR K, L, R)
	istic (A3) m Sulfide (A4)		Thin Dark Surfa Loamy Mucky M					lucky Peat or Peat (S3) (LRR K, L, R) urface (S7) (LRR K, L, M)
	d Layers (AS)		Losmy Gleyed					we Below Surface (S8) (LRR K, L)
	d Below Dark Surface	e (A11)	Depieted Matrix					ark Surface (S9) (LRR K, L)
	ark Surface (A12) Aucky Mineral (S1)		Redox Dark Su Depicted Dark	, ,	n		- Contraction	anganese Masses (F12) (LRR K, L, R) ont Floodplain Soils (F19) (MLRA 1498)
1	Sleyed Malrix (S4)		Redox Depress					Spodec (TAG) (MLRA 144A, 145, 149B)
	Redox (85)							irent Material (F21)
· · ·	l Matrix (S6) ríace (S7) (LRR R, N	AI RA 1498	<b>1</b>					hallow Dark Susface (TF12) Explain in Remarks)
			,					
	I hydrophylic vegetal		liand hydrology mu	st be prese	nt, unless	s disturbed	or problematic	- -
	Layer (if observed):							
Туре:							Hudde Soil	Present? ' Yes <u>/</u> No
	ches):		na financia de la companya de la comp				If the con	
Remarks:								
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	RM - Northcentral and Northeast Region
Project/site: Stim Lublan City/C	ounty: <u>Fan Claive Co</u> Sampling Date: <u>9/2/</u>
Applicant/Owner: DPC	State: WI Sampling Point: 051D2
Investigator(s): KB + A) Section	State: <u>W</u> Sampling Point: <u>051D2</u> on, Township, Range: <u>524 T250 RG</u>
Landform (hillslope, terrace, etc.): 1100 Dic.m Local reli	
Subregion (LRR or MLRA):KLat:4438 14	.90 Long: -91 2 45.81 Datum: NAD 83
Soil Map Unit Name: Elm Calce Loamy Sand	
Are climatic / hydrologic conditions on the site typical for this time of year? Y	
Are Vegetation $\frac{N}{N}$ , Soil $\frac{N}{N}$ , or Hydrology $\frac{N}{N}$ significantly distur	
Are Vegetation, Soil, or Hydrology significantly distant	
SUMMARY OF FINDINGS – Attach site map showing san	ipling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soli Present? Yes No	is the Sampled Area within a Wetland? Yes No
Hydric Soli Present? Yes <u>No X</u> Wetland Hydrology Present? Yes <u>No X</u>	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
Photo #0059	
410010 - 000 1	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary indicators (minimum of two required)
Primary Indicators (minimum of one is required: check all that apply)	Surface Soll Cracks (B6)
Surface Water (A1) Water-Stained Leave	
High Water Table (A2) Aquatic Fauna (B13)	
Saturation (A3) Mari Deposits (B15)	
Water Marks (B1) Hydrogen Sulfide Od	
Sediment Deposits (B2) Oxidized Rhizospher	
Drift Deposits (B3) Presence of Reduced	
Algai Mat or Crust (B4) Recent Iron Reduction	
Iron Deposits (B5) Thin Muck Surface (0	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rer	
Sparsely Vegetated Concave Surface (BB)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No X Depth (inches):	
Surface Water Present?         Yes No Depth (inches):           Water Table Present?         Yes No Depth (inches):	
Saturation Present? Yes No X Depth (inches):	Wetland Hydrology Present? Yes No X
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks;	

A.

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VEGETATION - Use scientific names of plants.

Sampling Point: 05102

VESETATION - Ose scientino harries or pidnita				
	Absolute		t indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	obside in the second se	Species?	<u>Status</u>	
1. Pinus strobus	752	Y	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
· · · · ·			e adecentineadimenede	
2				Total Number of Dominant
3.				Species Across All Strata: (B)
4.		<del></del>		Percent of Dominant Species 56 (A/E)
5.	-			That Are OBL, FACW, or FAC: (A/B)
6				Prevalence Index worksheet:
7.				Total % Cover of Multiply by:
	75	= Total Co	wer	OBL species x1 =
	<del>aanahanyiaa</del> na			
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
1,				FAC species x 3 =
				FACU species 82 x4= 328
2.			4 ****************	UPL species x 5 =
3.				Column Totals: $1/2$ (A) $4/8$ (B)
				$ \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \end{array} \end{array} \end{array} \end{array} \end{array} \end{array} \left( \begin{array}{c} \begin{array}{c} \end{array} \end{array} \right) \left( \begin{array}{c} \begin{array}{c} \end{array} \end{array} \right) \left( \begin{array}{c} \end{array} \right) \left( \end{array} \right) \left( \begin{array}{c} \end{array} \right) \left( \end{array} \right) \left( \begin{array}{c} \end{array} \right) \left( \end{array} \right) \left($
4			• •	Prevalence Index = B/A =
5		*****		
6				Hydrophytic Vegetation Indicators:
7			-	1 - Rapid Test for Hydrophytic Vegetation
		≖ Total Co	war	2 - Dominanca Test is >50%
		- Total CC		3 - Provalence Index is ≤3.0 <sup>1</sup>
Herb Stratum (Plot size: ) 1. Osmunda Cinnamompa	50	Y	TACW	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
		- Ń		data in Remarks or on a separate sheet)
2. Rubus hispidus		-	FACW	Problematic Hydrophytic Vegetation' (Explain)
3. Potentillia Smplex		N	FACU	
				<sup>1</sup> Indicators of hydric soil and welland hydrology must
4,		*****	• ••••••••	be present, unless disturbed or problematic.
5		. dessenationstationstationstation		Definitions of Vegetation Strata:
6.				
				Tree - Woody plants 3 in. (7.6 cm) or more in diameter
7				at breast height (DBH), regardless of height.
8.				Annual thread and a second to a second to a second
				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.26 ft (1 m) tall.
9				and greater man or equal to 5.20 if ( inftan.
10				Herb - All herbaceous (non-woody) plants, regardless
				of size, and woody plants less than 3.28 ft tall.
11				
12.				Woody vines - All woody vines greater than 3,26 ft in
	67	= Total Co	WRI	height.
				· ·
Woody Vine Stratum (Plot size:)				
1,				
2				
<b>*</b> •• <u></u>		-		
3.				Hydrophytic
4				Vegetation
				Present? Yes No
		= Total Co	14£L	
Remarks: (Include photo numbers here or on a separate	sheet.]			
Anderstory is sparely	Vealth	le r	V/ d	Sec.
		لية - <sub>الم</sub> ي ا	-1-C.Q.F	1. 1 16.4 25

SOIL			Sampling Point: 65102
	th needed to document the indicator or conf	rm the absence	of Indicators.)
Depth <u>Matrix</u> (inches) Color (moist) %	Redox Features	Texture	Remarks
0-2	www.XIIIiiiiiiiiiiiiiiiiiiii www.iiiiiiii w.iiiiiiii	- Trotes	Organic pat
2-4 2.54 5/1 100		San)	
4-20 2,54 6/2 100		Sand	*****
	=Reduced Matrix, MS=Masked Send Grains		h: PL=Pore Lining, M=Matrix.
Hydric Sol) Indicators: Histosol (A1)	Polyvalue Below Surface (S8) (LRR R,		s for Problematic Hydric Solis <sup>a</sup> : Muck (A10) (LRR K, L, MLRA 149B)
Histosol (A1)     Histic Epipedon (A2)	MLRA 1498)		Prairie Redox (A16) (LRR K, L, R)
Black Histic (A3)	Thin Dark Surface (S9) (LRR R, MLRA 14		Mucky Peat or Feat (S3) (LRR K, L, R)
Hydrogen Sulfide (A4) Stratified Layers (A5)	Loamy Mucky Mineral (F1) (LRR K, L) Loamy Gleyed Matrix (F2)		Surface (S7) (LRR K, L, M) alue Below Surface (S8) (LRR K, L)
Depleted Below Dark Surface (A11)	Depleted Matrix (F3)		Dark Surface (S9) (LRR K, L)
Thick Dark Surface (A12)	Redox Dark Surface (F6)	annual de la contra de la contr	langanese Masses (F12) (LRR K, L, R)
Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4)	Depleted Dark Surface (F7)     Redox Depressions (F8)		tont Floodplain Soils (F19) (MLRA 1498) Spodic (TA6) (MLRA 144A, 145, 1498)
Sandy Redox (S5)			Parent Material (F21)
Shipped Matrix (S6)			Shallow Dark Surface (TF12)
Dark Surface (S7) (LRR R, MLRA 149	8)	Cther	(Explain in Remarks)
	effand hydrology must be present, unless disturt	ed or problemati	ć.
Restrictive Layer (If observed):			
Туре:			Present? Yes No X
Depth (inches):		Hydric Sol	Present? Yes No
Remarks:			

4<u>44</u>

## Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap



DIRECTION	FEATURE ID	051D	DATE
Northeast	PHOTOGRAPHER	Kathy Bellrichard and Apryl Jennrich	9/21/2012

#### COMMENTS

Wetland is located adjacent to Travis Creek. Southwest end of wetland used as horse pasture.

# 053D

WETLAND DETERMINATION DATA FO	RM - Northcentral and Northeast Region
Project/site: Strum Lublin City	county Ency Claire (6 sampling Date: 7/21/12
Applicant/Owner: DPC	State: WI Sampling Point: 053 D1
	on, Township, Range: SI8 T25N R5W
Landform (hillslope, terrace, etc.): <u>DeDressida</u> Local rel	
	32.32 Long: -91 2 22.17 Datum: NAD83
Soll Map Unit Name: Elm Lalce loamy sand	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation, Soil, or Hydrology significantly distu	•
Are Vegetation, Soil, or Hydrology naturally problem	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sar	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?     Yes     No       Hydric Soli Present?     Yes     No	Is the Sampled Area within a Wetland? Yes No
Welland Hydrology Present? Yes X No	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
Structure 577	
Photo # 0063	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (E6)
High Water Table (A2)	
Saturation (A3) Marl Deposits (B15)	
Water Marks (B1) Hull Seponds (B1)	
	res on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduce	
	on in Tilled Soils (C6) X Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (	· · · · · · · · · · · · · · · · · · ·
Inundation Visible on Aerial Imagery (B7) Other (Explain in Re	
Indication visible of Aenal Inagery (b) Oner (Expan in Ne	X FAC-Neutral Test (D5)
Field Observations:	
Water Table Present?         Yes No Depth (inches):           Saturation Present?         Yes No Depth (inches):	
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pr	evious inspections), if available:
Remarks;	
Remarks.	

US Army Corps of Engineers

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۰,
VEGETATION - Use scientific names of plants.

Sampling Point: 05301

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VEGETATION - Use scienting harnes or plants.				camping Point.
		Dominant		Dominance Test worksheet:
Tree Stralum (PloI size:)	% Cover	Species?	<u>Status</u>	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: (A)
2.				·····································
				Total Number of Dominant
3.				Species Across All Strata:(B)
4,				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A/B)
6				Prevalence index worksheet:
7.				Total % Cover of Multiply by:
		= Total Co	vær	OBL species x1 ≖
	<del>a kaominina kaom</del> inina kaominina kaominina kaominina kaominina mangkao kaominina ka			FACW species X 2 =
Sapling/Shrub Stratum (Plot size:)				
1.			*****	FAC species x 3 =
2.				FACU species x 4 =
				UPL species x 5 =
3.				Column Totals: (A) (B)
4				
5				Prevalence Index = B/A =
				Hydrophytic Vegetation Indicators:
6,	<u>.</u>			1 - Rapid Test for Hydrophytic Vegetation
7.				2 - Dominance Test is >50%
		= Total Co	ver	·
Herb Stratum (Plot size:)				3 - Prevalence Index is ≤3.01
	25	$\omega$	TACLI	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
	25		a and an international states of the	data in Remarks or on a separate sheet)
2. LACODUDICILA INLENDATA	25	<u> </u>	$\bigcirc \mathcal{C}_{\underline{L}}$	Problematic Hydrophytic Vegetation' (Explain)
3. Casex Struta		<u> </u>	OBL	
		N	OBL	Indicators of hydric soil and welland hydrology must
4. Scirpus Cypermus				be present, unless disturbed or problematic.
5.				Definitions of Vegetation Strata:
6.				
				Tree – Woody plants 3 in. (7.6 cm) or more in diameter
7			-	at breast height (DBH), regardless of height.
δ		-		Sapling/shrub - Woody plants less than 3 in. DBH
9				and greater than or equal to 3.28 ft (1 m) tall.
10				Herb - All herbaceous (non-woody) plants, regardless
		-	******	of size, and woody plants less than 3.28 ft tall.
11.				,, <b>,</b> ,
12.				Woody vinas - All woody vines greater than 3.26 ft in
	97	= Tolal Co	vel	height.
		, - <b>.</b>		
Woody Vine Stratum (Plot size:)				
1.		-	-	
2	and the state of the			
2				
4, <u></u>				Hydrophylic Vegetation
4.				Present? Yes No
		= Total Co	wer	
Remarks: (Include photo numbers here or on a separate	sheet.]			
······				
				· · · · · · · · · · · · · · · · · · ·

US Army Corps of Engineers

SOIL								Sar	mpling Point: Oʻ	5301
Profile Desc	cription: (Describe)	to the depth r				or confirm	the absence	of indicator	s.)	
Oepth (inches)	Color (moist)		Redo Color (moist)	K Features	Type	Loc	Texture		Remarks	
b-1		100		X	1160	<u>_</u>	TOVIALE	Port	nellierts	******
	2 - 4 2.5%	. mharann anna		-		and the second	<u></u>			1.7
1-2	<u> 201 /1</u>	100 -				*******		un Slisheli	mucky So	ud kenses
5-10	2.545/2						Sand			
10 - 18	2.547/2	98 11	17R 5/8	<u>Z</u>	<u> </u>	PL	Sand			
discisioniniliterrisciiliterri	Network International Science of Science and Science a	, éstellitoriikjoinienis denniku		-	energy and the second sec					
	<u></u>	-					*****	***********		
	<u></u>	. <u></u>								
	*****	. Becommentation and and and and and and and and and an			****			-	******	
				•				-		- And a state of the
		-			-					
		-	******							
Type: C=C	oncentration, D=Dep	etion RM=Re	duced Matrix, M	S=Masked	Sand Gra	ains	<sup>2</sup> Location	PL=Pore L	ining, M=Matrix.	
Hydric Soll	NAME OF A DESCRIPTION OF A				n na sana na s		na nego ta meto potra a se la presidente de telebro de la seco	a construction was the owner of the construction of the	atic Hydric Sol	5 <sup>3</sup> :
Histosol	• •		Polyvalue Belo		(S8) (LRF	R,			.RR K, L, MLRA	
· · · · ·	pipedon (A2)		MLRA 1498; Thin Dark Surfa	e			Annual Contraction		x (A16) (LRR K,	
Black H	en Sulfide (A4)		Loamy Mucky M					-	r Peat (S3) (LRR LRR K, L, M)	C N; L; N?
Stratifie	d Layers (A5)		Loamy Gleyed				Polyva	lue Below St	urface (S8) (LRR	: K, L)
	d Below Dark Surface ark Surface (A12)	e (A11)	Depleted Matrix	• •					(S9) (LRR K, L) asses (F12) (LR	
	Mucky Mineral (S1)		Redox Dark Su Depleted Dark		7)				n Sols (F19) (M	
	Gleyed Matrix (S4)		Redax Depress						) (MLRA 144A, 1	
	Redox (S5)						and the second s	arent Materia		
	1 Matrix (S6) Irface (S7) (LRR R, N	(LRA 149B)						naicw uank (Explain in R	Surface (TF12) emarks)	
									-	
1	d hydrophytic vegetal Layer (if observed):		nd hydrology mus	st be prese	nt, unless	s disturbed	or problematio	3.		
Туре:	raje: (ii obsei reu).								4	
	iches):		_				Hydric Soll	Present?	Yes M	to
Remarks:			anna de la constante de la cons La constante de la constante de	anna a ann an Anna Anna ann ann	anservation and the second second					
							9.23			

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WETLAND DETERMINATION DATA FO	RM – Northcentral and Northeast Region			
Projecusate: Stum Lublin Cityro	county: <u>Ean Claire Co</u> sampling Date: <u>9/21/12</u>			
Applicant/Owner: DLP				
Investigator(s): KB + AJ Section	m, Township, Renge: S18 T25U R.5W			
	ief (concave, convex, none): <u><u><u>A</u></u> <u>A</u> <u>S</u> <u>Cope</u> (%): <u>1</u> <u>A</u> <u>A</u> <u>A</u> <u>A</u> <u>A</u> <u>A</u> <u>A</u> <u>A</u> <u>A</u> <u>A</u></u>			
	2.96 Long: <u>-91 2 21.44</u> Datum: <u>NAD83</u>			
soil Map Unit Name: Elm Calce loamy sand				
Are climatic / hydrologic conditions on the site typical for this time of year? Y	'es X. No (If no, explain in Remarks.)			
Are Vegetation $\underline{N}_{}$ , Soil $\underline{N}_{}$ , or Hydrology $\underline{N}_{}$ significantly distur	bed? Are "Normal Circumstances" present? Yes No			
Are Vegetation Soil, or Hydrology naturally problem	atic? (If needed, explain any answers in Remarks.)			
SUMMARY OF FINDINGS - Attach site map showing san				
	Is the Sampled Area			
Hydrophytic Vegetation Present? Yes X No	within a Wetland? Yes No X			
Hydric Soil Present?         Yes No           Wetland Hydrology Present?         Yes No				
Remarks: (Explain alternative procedures here or in a separate report.)	If yes, optional Wetland Site ID:			
Photo # 0064,0065				
HYDROLOGY				
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)			
Primary Indicators (minimum of one is required, check all that apply)	Surface Soli Cracks (B6)			
Surface Water (A1) Water-Stained Leave	s (B9) Drainage Patterns (B10)			
High Water Table (A2) Aquatic Fauna (B13)				
Saturation (A3) Marl Deposits (B15) Dry-Season Water Table (C2)				
Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)				
	es on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)			
Drift Deposits (B3) Presence of Reduced	d iron (C4) Stunted or Stressed Plants (D1) an in Tilled Solis (C6) Geomorphic Position (D2)			
Iron Deposits (B5)     Inundation Visible on Aerial Imagery (B7)     Other (Explain in Rer	· · · · · · · · · · · · · · · · · · ·			
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D6)			
Field Observations:				
Surface Water Present? Yes No _K_ Depth (inches):	- S.,			
Water Table Present? Yes No K Depth (inches):				
Saturation Present? Yes No K Depth (inches):	Wetland Hydrology Present? Yes No			
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	· · · · · · · · · · · · · · · · · · ·			
Remarks				

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VEGETATION - Use scientific names of plants.

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EGETATION - Use scientific names of plants		Cominent	in diastor	
Free Stratum (Ptol size;)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
				Number of Dominant Species           That Are OBL, FACW, or FAC:           (A)
•				Total Number of Dominant Species Across All Strata: (B)
				Percent of Dominant Species
				That Are OBL, FACW, or FAC: (A/B)
·				Prevalence Index worksheet:
т				Total % Cover of Multiply by:
	<u>and a first of the state of th</u>	= Total Cov	/er	OBL species X1 =
apling/Strub Stratum (Plot size:)				FACW species X 2 =
				FAC species x 3 =
		****		FACU species X 4 =
				UPL species $x 5 =$
·				Column Totals: (A) (B)
		*****		Prevalence index = B/A =
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
		= Tolal Co	ver	2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 <sup>3</sup>
Rubus hispidus	40	4	TANK	4 - Morphological Adaptations <sup>†</sup> (Provide supporting
Ly copedially inuffet	uner suramafatilitaans	· <del></del>	FACW OBL	data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
		W	OBL	
SErripus cypainus Brickellia euratorioides		<u> </u>	UPL	<sup>1</sup> Indicators of hydric soil and welland hydrology must
CALEX Structs	25	- <del>V-</del>	OBL	be present, unless dislurbed or problematic.
BOELAPHS VIRGINICAUS		N.	FALU	Definitions of Vegetation Strata:
a da			Non-production of the second	Tree – Woody plants 3 in. (7.6 cm) or more in diamete at breast height (DBH), regardless of height.
• • • • • • • • • • • • • • • • • • •				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
).				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3 28 ft tall.
2				Woody wines - All woody vines greater than 3.28 ft in
	96	= Tolai Co	ver	height.
Voody Vine Stratum (Plot size:)				<u></u>
×				
		a		Hydrophytic Vegetation
		-		Present? Yes No
Remarks: (Include photo numbers here or on a separat	a chaot 1	_ = Total Co	Ver	
remarks. (include photo nambers here of on a separat	C BROOLJ			
***************************************				

SOIL						Sampling Point: <u>6530</u> 2
Profile Desc	ription: (Describe)	to the dept	n needed to docum	nent the Indic	ator or confirm	n the absence of indicators.)
Depth	Matrix			x Features		The second se
<u>(inches)</u>		$\frac{\frac{8}{100}}{1000}$	Color (moist)	<u>%</u> Ty	pe' Loc'	Texture Remarks
0-2	104R 2/1	100				Sandy LOAM
2-6	104R 5/2	<u>    100    </u>	*****	-		Sand
6 - 10	104R 4/6	100		-		Sund
10 - 20	2.54 5/4	99	104R 4/L	١		5-)
		. <del>dataina d</del>				
	<u></u>			-		
	**************************************				******	
	ing and a support of the support of	. <u></u> .	juni skina i mili almus kasi kasana jama shiri	•		
		-				
Type: C=C	oncentration, D=Dep	letion, RM=	Reduced Matrix, MS	S=Masked Sar	d Grains	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.
Hydric Soll		nten han elektronik teleben kan kan kan kan tera kan te				Indicators for Problematic Hydric Solis <sup>5</sup> :
Histosol		-	Polyvalue Below		(LRR R,	2 cm Muck (A10) (LRR K, L, MLRA 149B)
Luppenner ,	bipedon (A2) stic (A3)		MLRA 1498) Thin Dark Surfa		R. MLRA 1498	Coast Prairie Redox (A16) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4)		Loamy Mucky M		•	Dark Surface (S7) (LRR K, L, M)
	Layers (A5)		Loamy Gleyed			Polyvalue Below Surface (S8) (LRR K, L) This Dark Surface (S2) (LRR K, L)
	d Below Dark Surfac ark Surface (A12)	e (A11)	Depleted Matrix Rediox Dark Suit			Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R)
	Aucky Mineral (S1)		Depieted Dark !			Fiedmont Floodplain Solls (F19) (MLRA 1498)
	Sleyed Matrix (S4)		Redox Depress	ions (F8)		Mesic Spoce (TA6) (MLRA 144A, 145, 149B)
	tedox (S5) I Matrix (S6)					Red Parent Material (F21) Very Shallow Dark Surface (TF12)
1 <u> </u>	rface (S7) (LRR R, N	ALRA 1498	>			Other (Expłain in Remarks)
1						A
	I hydrophytic vegetal Layer (If observed):		and hydrology mus	si de present, i	INESS DISTUIDED	
Type:	mažo: (ii omoai tou):					
	ches):					Hydric Soll Present? Yes No X
Remarks:			in an ann an an an an ann an Anna Anna A	Galanizabilan dikela kalendar majini anendi bilan		
1						

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# Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap 053D DIRECTION FEATURE ID DATE 9/21/2012 PHOTOGRAPHER Kathy Bellrichard and Apryl Jennrich Southwest

### **056D**

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

WETLAND DETERMINATION DATA I	FORM - Northcentral and Northeast Region
Project/site: Stium Lublin CH	ty/county: <u>Fau Claive Co</u> sampling Date: <u>9/21/12</u>
Applicant/Owner:	State: <u><i>W</i></u> Sampling Point: <u><i>U</i></u>
Investigator(s): KB + AJ Se	ection, Township, Range: S18 T23N R3W
Landform (hillslope, terrace, etc.): Floodolain Local	
Subregion (LRR or MLRA): LRR K Lat: 44 38	42.36 Long: -91 2 8.33 Datum: NAD 83
Soil Map Unit Name: Newson lowny sand	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year	
Are Vegetation N., Soil N. or Hydrology N significantly dis	sturbed? Are "Normal Circumstances" present? Yes <u>/</u> No
Are Vegetation $\underline{N}$ . Soil $\underline{N}$ or Hydrology $\underline{N}$ naturally problem	
SUMMARY OF FINDINGS - Attach site map showing s	ampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?       Yes No         Hydric Scil Present?       Yes No         Welland Hydrology Present?       Yes No         Remarks:       (Explain alternative procedures here or in a separate report.)	Is the Sampled Area within a Wetland? Yes No If yes, optional Wetland Site ID:
Photo # 0067,0068 HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required: check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Le	
High Water Table (A2) Aquatic Fauna (B	
Saturation (A3) Mari Deposits (B1	
Water Marks (B1) Hydrogen Sulfide	
	theres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)     Presence of Redu     Algal Mat or Crust (B4)     Recent Iron Redu	
Agai Mat of Clust (B4) Recent a car Recu	
Inundation Visible on Aerial Imagery (B7) Other (Explain in	
Sparsely Vegetaled Concave Surface (BB)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No X Depth (Inches):	
Water Table Present? Yes No 🗡 Depth (inches):	
Saturation Present? Yes No Depth (Inches): (includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos,	, previous inspections), it available:
Remarks:	

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**VEGETATION** – Use scientific names of plants.

Sampling Point: 056 D |

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		Dominant		Dominance Test worksheet:
Tree Stralum (Piol size:)	% Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: (A)
			******	
2				Total Number of Dominant
3,				Species Across All Strata: Z (B)
4.		*****	-	Percent of Dominant Species
				That Are OBL, FACW, or FAC: (A/B)
5.			-	
6				Prevalence Index worksheet:
7.				Total % Cover of Multiply by:
		= Total Cov	/er	OBL species x1 = 90 x1 =
	*******************			FACW species x 2 =
Sapling/Shrub Stratum (Plot size:)	-			
1. Rubis millegheniensis	15	4	FACU	FAC species x 3 =
			angeneration and second	FAC species         x 3 =           FACU species         1 5         x 4 =         0
2.	-			UPL species x 5 =
3.				
				Column Totals: <u>105</u> (A) <u>150</u> (B)
4				1 1/2
				Prevalence index = $B/A = 1 - 4/2$
5.				
6				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
7. <u></u>	-	-		
	15	= Total Cor	/er	2 - Dominance Test is >50%
	And the second se			X 3 - Prevalence Index is ≤3.0°
Herb Stratum (Plot size:)				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
1. Carex Stricta	90	$\checkmark$	ORL	data in Remarks or on a separate sheet)
["- <u></u>	a and a second second		<u>aithing an</u>	
2.			-	Problematic Hydrophytic Vegetation' (Explain)
3				Indicators of hydric soil and welland hydrology must
4.				be present, unless disturbed or problematic.
5				Definitions of Vegetation Strata:
6.				
1				Tree - Woody plants 3 in. (7.6 cm) or more in diameter
7	-		<b>V</b>	at breast height (DBH), regardless of heighl.
8				
1				Sapling/shrub - Woody plants less than 3 in. DBH
9	-			and greater than or equal to 3.28 ft (1 m) tall.
10				Herb - All herbaceous (non-woody) plants, regardless
1				of size, and woody plants less than 3.28 ft tall.
11.				or size, and woody plants isso than 5.20 it tail.
				Woody vines - All woody vines greater than 3.26 ft in
12.	-	-	-	height.
	40	= Total Co	ver	1.0.2
Minute Manager and American				
Woody Vine Stratum (Plot size:)				
1.				
		-		
2.			-	
3.				Hydrophylic
4.		-	******	Present? Yes No
		= Total Co	war	
			· #1	
Remarks: (include photo numbers here or on a separate	sneet.)			

SOIL									nciing Point: 🤇	25601
	ription: (Describe i	to the depth				or confirm	the absence	of Indicators	3.)	
Depth (inches)	Matrix Color (moist)	%	Color (moist)	x Features		Loc	Texture		Remarks	
0-6	25425/	100					Loan	Slight	In mucky	
10-15	2.5431,	100					Sandy los	m	1	
15-22	104R 3/3	100	*****		4	*******	loam, Sa.	0		
		<u> </u>					·			
	<u></u>				eternet and the sections.		-			
	<b></b>			• ••••••••				-	****	
	<u></u>	·								
	******									
-					-		*****	-		
				6 <b>1000000000000000</b> 000			-			
	**********									
<sup>1</sup> Type: C=C	oncentration, D=Dep	letion, RM=R	educed Matrix, N	S=Masked	Sand Gr	ains	<sup>2</sup> Location	PL=Pore Li	ning, M=Matri	χ.
Hydric Soll	Indicators:						Indicators	for Problem	alle Hydric Se	oll s <sup>a</sup> :
Histosol	• •		_ Polyvalue Belo		(S8) (LR	RR,			.RR K, L, MLR ( (A16) (LRR I	
-	bipedon (A2) stic (A3)		MLRA 1498; 		RR R, M	LRA 1498)			r Feat (S3) (LF	
Hydroge	n Sulfide (A4)	Ž	🗹 Losmy Mucky 🛚	vlineral (F1	) (LRR H		Dark S		LRR K, L, M)	
	d Layers (A5) d Below Dark Surlac	- 	Loamy Gleyed Depleted Matrix		)				irlace (S8) (LR S9) (LRR K, L	<i></i>
	ark Surface (A12)	σμ<π)	Redox Dark Su						asses (F12) (L	
Sendy N	lucky Mineral (S1)		_ Depleted Dark	-	7)				n Soils (F19) (	
	Sleyed Matrix (S4) Redox (S5)		Redox Depress	iions (F8)				Spodic (TA6) arent Materia	(MLRA 144A)	, 145, 149B)
	(800x (85) I Matrix (86)								Surface (TF12	)
Dark Su	rface (S7) (LRR R, N	MLRA 1498)					Cther (	Explain in Re	emarks)	
<sup>3</sup> indicators o	f hydrophytic vegetal	tion and well	and hydrology mu	sthe prese	nt unles	s disturbed	or problematic			
L	Layer (if observed):			A 00 p. 000						
Тура:										
Depth (in	ches):						Hydric Soli	Present?	Yes <u>X</u>	No
Remarks:										
Bergersteinensteinen andersteinen										

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				al and Northeast Regio	
Project/Site: Strum	Lublin	City/C	ounty: Ean Cla	ive Lo Samplin	g Date: <u>9/21/12</u>
Applicant/Owner: DPC				State: <u>WI</u> Samp	ling Point: 050DZ
Investigator(s): $KB + A$	J	Section	m. Township, Rance:	518 T25N R5	ω
Landform (hillslope, terrace, etc.					
Subregion (LRR or MLRA):	Q Q V III	44 28 4	177	-91 2 9 22	Datum NAN82
Soil Map Unit Name: <u></u>	256M TOam	y sana		NWI classification:	
Are climatic / hydrologic conditio	· •	K			
Are Vegetation <u>M</u> , Soil				mal Circumstances* present?	Yes No
Are Vegetation, Soil	N or Hydrology	🟒 naturaliy problem	tic? (If neede	d, explain any answers in Ren	naiks.)
SUMMARY OF FINDING	S - Attach site n	nap showing san	npling point loca	tions, transects, impo	rtant features, etc.
Hydrophytic Vegetation Prese	nt? Yes	No	Is the Sampled Arc	6	
Hydric Soli Present?	Yes	NO	within a Wetland?	Yes No	<u> </u>
Wetland Hydrology Present?			If yes, optional Wet	and Site ID:	<i>r</i>
Remarks: (Explain alternative	procedures here or in	a separate report.)			
Structure	581				
<b>J</b> , 1997					
Photo #	Nala				
Moto IF	DOWN				
HYDROLOGY					
Wetland Hydrology Indicato	rs:			Secondary Indicators (min	imum of two required)
Primary Indicators (minimum of	of one is required; chec	k all that apply)		Surface Soli Cracks (	B6)
Surface Water (A1)		Water-Stained Leave	s (B9)	Drainage Patterns (B	10)
High Water Table (A2)	High Water Table (A2) Aquatic Fauna (B13) Moss Trim Lines (B16)				5)
Saturation (A3) Mart Deposits (B15) Dry-Season Water Table (C2)					ble (C2)
Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)					·
Sediment Deposits (B2)		Oxidized Rhizospher			
Drift Deposits (B3)		Presence of Reduce	•	Stunted or Stressed F	
					(D2)
Iron Deposits (B5)		Thin Muck Surface (		Shallow Aquitard (D3	·
Inundation Visible on Aeri		Other (Explain in Re	marks)	Microtopographic Rei	1
Sparsely Vegetated Cond	ave Surface (BB)			FAC-Neutral Test (D6	)]
Field Observations:		Mar			
Surface Water Present?		_ Depth (inches):			
Water Table Present?		_ Depth (inches):			
Saturation Present? (includes capillary fringe)	Yes No	_ Depth (Inches):	Wetlar	nd Hydrology Present? Yes	s No
Describe Recorded Data (sire	am gauge, monitoring	well, aerial photos, pr	vious inspections), if	available:	<u> </u>
Remarks:					

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\* \* VEGETATION - Use scientific names of plants.

Sampling Point: 050D2

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	Abcabita	Demissel	Indiantar	
Tree Stratum (Plot size:)		Dominani Species?		Dominance Test worksheet:
	Charles and the second s			Number of Dominant Species
1.				That Are OBL, FACW, or FAC: (A)
2			-	Total Number of Dominant
3,	-			Species Across All Strata: (B)
4				Percent of Dominant Species
5.				That Are OBL, FACW, or FAC: (A/B)
6	-			Prevalence Index worksheet:
7.	······································			Total % Cover of Multiply by:
	an de la companya de	= Total Co	ver	1 LIHI SDECIES ~ Y1 2 (2 )
Sapling/Shrub Stratum (Plot size:)				L1474A 2head2 X 5
1. Compteonia peregrina	<u>    2                                </u>	<u></u>	UPL	FAC species $\bigcirc$ $x_3 = \bigcirc$
2. Vaccinium angustifolium	10	N	FACU	FACU species X4 = Z20
3. Rubus allegheniensis	20	Ŷ	FALU	UPL species $\frac{29}{100}$ x 5 = $\frac{100}{100}$
	-			Column Totals: <u>135</u> (A) <u>490</u> (B)
4 5				Prevalence index = $B/A = 3.6$
			-	Hydrophytic Vegetation Indicators:
6				1 - Rapid Test for Hydrophytic Vegetation
7				2 - Dominance Test is >50%
		= Total Co	wer	3 - Prevalence Index is ≤3.0 <sup>1</sup>
Herb Stratum (Plot size:)				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
1. Rubus hispidus	30	. <u> </u>	EACW.	data in Remarks or on a separate sheet)
2. Biomus ciliatus martin		<u></u>	FACW	Problematic Hydrophytic Vegetation' (Explain)
3. Featura rubra	50	7	FACY	to a second s
4.				Indicators of hydric soil and welland hydrology must be present, unless disturbed or problematic.
S	-			Definitions of Vegetation Strata:
6.		-	• <del>• • • • • • • • • • • • • • • • • • </del>	Tree – Woody plants 3 in. (7.6 cm) or more in diameter
7.	-			at breast height (DBH), regardless of height.
8			-	Sapling/shrub - Woody plants less than 3 in. OBH
9				and greater than or equal to 3.28 ft (1 m) tail.
10				Herb - All herbaceous (non-woody) plants, regardless
11.				of size, and woody plants less than 3.28 ft tall.
12.	-			Woody vines - All woody vines greater than 3.28 ft in
	-85	= Tolai Co	ver	height.
Woody Vine Stratum (Plot size:)				
1				
			-	
3				Hydrophylic Vegetation
4				Present? Yes No
	*****	= Total Co	wer	
Remarks: (Include photo numbers here or on a separate	sheet.)			

Northcentral and Northeast Region - Version 2.0

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SOIL

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#### Sampling Point: 05002

Color (moist)       %       Color (moist)       %       Type       Loc <sup>2</sup> Texture       Remarks         -3       ////////////////////////////////////	Cotor (molst)         %         Cotor (molst)         %         Texture         Remarks           -2         //// (100)         Source	epin	ription: (Describe Matrix	to me depi	th needed to docur Redo	nent the i « Feature:		or contrit	i use ausence of in-	urca of s. j
Image: Construction of the second		epun hohes)	Color (moist)					Loc	Texture	Remarks
-6       10 4 R. 4/2       100       Iarry Sand         -12       10 4 R. 5/6       100       Iarry Sand         2-20       10 4 R. 5/6       Iarry Sand       Iarry Sand         2-20       10 4 R. 5/6       Iarry Sand       Iarry Sand         2-20       10 4 R. 5/6       Iarry Sand       Iarry Sand         2-20       10 4 R. 5/6       Iarry Sand       Iarry Sand         2-20       10 4 R. 5/6       Iarry Sand       Iarry Sand         2-20       10 4 R. 5/6       Iarry Sand       Iarry Sand         2-20       10 4 R. 5/6       Iarry Sand       Iarry Sand         2-20       10 1 A R. 5/6       Iarry Sand       Iarry S	-C       10 YR 4/2       100       Iarray Sand         -12       10 YR 5/6       100       Iarray Sand         -20       10 YR 4/3       Iarray San	-3	104R 2/1	100					Scady loan	<b>x</b> ₁
-12       IDYR 5/6       100         2-20       IDYR 6/3       200         2-20       IDYR 6/3       100         2-20       IDYR 6/3       100         2-20       IDYR 6/3       100         2-20       IDYR 6/3       1000	-12       ID YR 5/G       100       Ionumy Second         -20       ID YR 6/3       Ionumy Second       Ionumy Second         -20       Indicators       Indicators       Indicators         -20       Indicators       Indicators       Indicators         -20       MLRA 1480       Indicators       Ionuck (A10) (LRR K, L, MLRA 1489)         -20       MUKky Alancei (S3)       Thio Dark Surface (S9) (LRR K, L)       Derk Surface (S9) (LRR K, L)         -20       Depited Dark Surface (A11)       Depited Matrix (F2)       Polyvalue Below Surface (S9) (LRR K, L)         -20       Depited Matrix (S4)	- ( -	104R 6/2						<u></u>	
2-20       IDYR 0/3       100       Journy Sect         Image: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains       Image: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains       Image: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains         Image: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains       Image: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains       Image: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains         Image: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains       Image: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains       Image: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains         Image: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains       Image: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains         Image: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains       Image: C=Concentration, D=Polysalue Below Surface (S9) (LRR K, L, R, MLRA 149B)         Image: C=Concentration, D=Contration, Surface (S9)       Image: C=Concentration, D=Contration, Matrix, MS=Masked Sand Grains       Image: C=Concentration, M=Matrix, L, R,					06000000000000000000000000000000000000				100000 0 00	1
pe: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains <sup>2</sup> Location: PL=Pore Lining, M=Matrix, MS=Masked Sand Grains         indicators:       Indicators for Problematic Hydric Solis*:         Histos (A1)       Polyvalue Below Surface (S8) (LRR R, L R LRA 149B)         Histos (A3)	pe:       C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains <sup>2</sup> Location: PL=Pore Lining, M=Matrix,          dric Soll Indicators:       Indicators for Problematic Hydric Solls*:          Histosol (A1)       Polyvalue Below Surface (S8) (LRR R,          Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 149B)         Stattled Layers (A5)       Loamy Mucky Mineral (F1) (LRR K, L)         Polyvalue Below Surface (S9) (LRR R, MLRA 149B)       S cm Mucky Peat or Peat (S3) (LRR K, L, R)         Stattled Layers (A5)       Loamy Mucky Mineral (F1) (LRR K, L)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F7)         Sendy Micky Mineral (S1)       Depleted Dark Surface (F7)         Sendy Redox (S5)       Redox Depressions (F8)         Shriped Matrix (S4)       Redox Depressions (F8)         Sandy Redox (S5)       URR R, MLRA 149B)         Strictive Layer ((Tobserved):       Type:         Type:       Type:         Depleted Indicators (Problematic									
idric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, L 2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depieted Below Dark Surface (A11)       Depieted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depieted Dark Surface (F7)         Sandy Redox (S5)       Redox Depressions (F8)         Stripped Matrix (S6)       Redox Depressions (F8)         Dark Surface (S7) (LRR R, MLRA 1498)       Very Shallow Dark Surface (TF12)         Dark Surface (S7)       Cederatin Remarks)	dric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)      Polyvalue Below Surface (S8) (LRR R,2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (LRR K, L)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Stratified Layers (A5)      Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)      Depleted Matrix (F3)         Thick Dark Surface (A12)      Redox Dark Surface (F6)         Sendy Mucky Mineral (S1)      Depleted Dark Surface (F7)         Sandy Redox (S5)	2-20	109K-15	100			-		100my Serd	, 
idric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, L 2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depieted Below Dark Surface (A11)       Depieted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depieted Dark Surface (F7)         Sandy Redox (S5)       Redox Depressions (F8)         Stripped Matrix (S6)       Redox Depressions (F8)         Dark Surface (S7) (LRR R, MLRA 1498)       Very Shallow Dark Surface (TF12)         Dark Surface (S7)       Cederatin Remarks)	dric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)      Polyvalue Below Surface (S8) (LRR R,2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (LRR K, L)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Stratified Layers (A5)      Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)      Depleted Matrix (F3)         Thick Dark Surface (A12)      Redox Dark Surface (F6)         Sendy Mucky Mineral (S1)      Depleted Dark Surface (F7)         Sandy Redox (S5)									
idric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, L 2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depieted Below Dark Surface (A11)       Depieted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depieted Dark Surface (F7)         Sandy Redox (S5)       Redox Depressions (F8)         Stripped Matrix (S6)       Redox Depressions (F8)         Dark Surface (S7) (LRR R, MLRA 1498)       Very Shallow Dark Surface (TF12)         Dark Surface (S7)       Cederatin Remarks)	dric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)      Polyvalue Below Surface (S8) (LRR R,2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (LRR K, L)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Stratified Layers (A5)      Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)      Depleted Matrix (F3)         Thick Dark Surface (A12)      Redox Dark Surface (F6)         Sendy Mucky Mineral (S1)      Depleted Dark Surface (F7)         Sandy Redox (S5)									
idric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, L 2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depieted Below Dark Surface (A11)       Depieted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depieted Dark Surface (F7)         Sandy Redox (S5)       Redox Depressions (F8)         Stripped Matrix (S6)       Redox Depressions (F8)         Dark Surface (S7) (LRR R, MLRA 1498)       Very Shallow Dark Surface (TF12)         Dark Surface (S7)       Cederatin Remarks)	dric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)      Polyvalue Below Surface (S8) (LRR R,2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (LRR K, L)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Stratified Layers (A5)      Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)      Depleted Matrix (F3)         Thick Dark Surface (A12)      Redox Dark Surface (F6)         Sendy Mucky Mineral (S1)      Depleted Dark Surface (F7)         Sandy Redox (S5)									
idric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, L 2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depieted Below Dark Surface (A11)       Depieted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depieted Dark Surface (F7)         Sandy Redox (S5)       Redox Depressions (F8)         Stripped Matrix (S6)       Redox Depressions (F8)         Dark Surface (S7) (LRR R, MLRA 1498)       Very Shallow Dark Surface (TF12)         Dark Surface (S7)       Cederatin Remarks)	dric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)      Polyvalue Below Surface (S8) (LRR R,2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (LRR K, L)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Stratified Layers (A5)      Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)      Depleted Matrix (F3)         Thick Dark Surface (A12)      Redox Dark Surface (F6)         Sendy Mucky Mineral (S1)      Depleted Dark Surface (F7)         Sandy Redox (S5)							<u></u>		
idric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, L 2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depieted Below Dark Surface (A11)       Depieted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depieted Dark Surface (F7)         Sandy Redox (S5)       Redox Depressions (F8)         Stripped Matrix (S6)       Redox Depressions (F8)         Dark Surface (S7) (LRR R, MLRA 1498)       Very Shallow Dark Surface (TF12)         Dark Surface (S7)       Cederatin Remarks)	dric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)      Polyvalue Below Surface (S8) (LRR R,2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (LRR K, L)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Stratified Layers (A5)      Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)      Depleted Matrix (F3)         Thick Dark Surface (A12)      Redox Dark Surface (F6)         Sendy Mucky Mineral (S1)      Depleted Dark Surface (F7)         Sandy Redox (S5)		•							
idric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, L 2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depieted Below Dark Surface (A11)       Depieted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depieted Dark Surface (F7)         Sandy Redox (S5)       Redox Depressions (F8)         Stripped Matrix (S6)       Redox Depressions (F8)         Dark Surface (S7) (LRR R, MLRA 1498)       Very Shallow Dark Surface (TF12)         Dark Surface (S7)       Cederatin Remarks)	dric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)      Polyvalue Below Surface (S8) (LRR R,2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (LRR K, L)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Stratified Layers (A5)      Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)      Depleted Matrix (F3)         Thick Dark Surface (A12)      Redox Dark Surface (F6)         Sendy Mucky Mineral (S1)      Depleted Dark Surface (F7)         Sandy Redox (S5)			n- Kanada da kata da k	****	<b></b>	-	-	encirclenter interest	
idric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, L 2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depieted Below Dark Surface (A11)       Depieted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depieted Dark Surface (F7)         Sandy Redox (S5)       Redox Depressions (F8)         Stripped Matrix (S6)       Redox Depressions (F8)         Dark Surface (S7) (LRR R, MLRA 1498)       Very Shallow Dark Surface (TF12)         Dark Surface (S7)       Cederatin Remarks)	dric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)      Polyvalue Below Surface (S8) (LRR R,2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (LRR K, L)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Stratified Layers (A5)      Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)      Depleted Matrix (F3)         Thick Dark Surface (A12)      Redox Dark Surface (F6)         Sendy Mucky Mineral (S1)      Depleted Dark Surface (F7)         Sandy Redox (S5)	****	*****	-			-			
idric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, L 2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depieted Below Dark Surface (A11)       Depieted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depieted Dark Surface (F7)         Sandy Redox (S5)       Redox Depressions (F8)         Stripped Matrix (S6)       Redox Depressions (F8)         Dark Surface (S7) (LRR R, MLRA 1498)       Very Shallow Dark Surface (TF12)         Dark Surface (S7)       Cederatin Remarks)	dric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)      Polyvalue Below Surface (S8) (LRR R,2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (LRR K, L)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Stratified Layers (A5)      Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)      Depleted Matrix (F3)         Thick Dark Surface (A12)      Redox Dark Surface (F6)         Sendy Mucky Mineral (S1)      Depleted Dark Surface (F7)         Sandy Redox (S5)		<u></u>				-			
idric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, L 2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depieted Below Dark Surface (A11)       Depieted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depieted Dark Surface (F7)         Sandy Redox (S5)       Redox Depressions (F8)         Stripped Matrix (S6)       Redox Depressions (F8)         Dark Surface (S7) (LRR R, MLRA 1498)       Very Shallow Dark Surface (TF12)         Dark Surface (S7)       Cederatin Remarks)	dric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :         Histosol (A1)      Polyvalue Below Surface (S8) (LRR R,2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (LRR K, L)         Black Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)         Stratified Layers (A5)      Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)      Depleted Matrix (F3)         Thick Dark Surface (A12)      Redox Dark Surface (F6)         Sendy Mucky Mineral (S1)      Depleted Dark Surface (F7)         Sandy Redox (S5)									
Histosol (A1)       Polyvalue Below Surface (S8) (LRR R,       2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histie Epipedon (A2)       MLRA 1498)       Coast Praine Redox (A16) (LRR K, L, MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)       5 cm Mucky Peat or Peat (S3) (LRR K, L, M)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)       Dark Surface (S7) (LRR K, L, M)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Piedmont Floodplain Soils (F19) (MLRA 1445, Sandy Redox (S5)         Sandy Redox (S5)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 1448, 145, Sandy Redox (S5)         Dark Surface (S7) (LRR R, MLRA 149B)       Cther (Explain in Remarks)         Idicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic.         Type:       Type:       Remarks	Histosol (A1)      Polyvalue Below Surface (S8) (LRR R,2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)      Coast Prairie Redox (A15) (LRR K, L, R)         Back Histic (A3)      Thin Dark Surface (S9) (LRR R, MLRA 1498)      Coast Prairie Redox (A15) (LRR K, L, R)         Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (LRR K, L)      Dark Surface (S7) (LRR K, L, M)         Stratified Layers (A5)      Loamy Gleyed Matrix (F2)      Polyvalue Below Surface (S8) (LRR K, L)         Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)      Redox Dark Surface (F6)      Tron-Manganese Masses (F12) (LRR K, L, Sandy Mucky Mineral (S1)         Sendy Mucky Mineral (S1)      Depleted Dark Surface (F7)      Piedmont Floodplain Solis (F19) (MLRA 144, 145, 14         Sandy Redox (S5)	ype: C=C	oncentration, D=Der	oletion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ains		
Histic Epipedon (A2)       MLRA 1498)       Coast Praine Redox (A16) (LRR K, L, R         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)       5 cm Mucky Peat or Peat (S3) (LRR K, L         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)       Dark Surface (S7) (LRR K, L, M)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Piedmont Floodplain Soits (F19) (MLRA 144A, 145, Sandy Redox (S5)         Sandy Redox (S5)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, Sandy Redox (S5)         Dark Surface (S7) (LRR R, MLRA 149B)       Cther (Explain in Remarks)         Idicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic.         Type:       Type:	Histic Epipedon (A2)       MLRA 1498)       Coast Praine Redox (A15) (LRR K, L, R)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)       5 cm Mucky Peat or Peat (S3) (LRR K, L, R)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)       Dark Surface (S7) (LRR K, L, M)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L, L)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Piedmont Floodplain Soils (F19) (MLRA 145, 14         Sandy Redox (S5)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 14         Sandy Redox (S5)       Very Shallow Dark Surface (TF12)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 149B)       Cther (Explain in Remarks)       Cther (Explain in Remarks)         dicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       Thin Desent? Yes	dric Soll I	Indicators:							•
Black Histic (A3)	Black Histic (A3)						(S8) (LRF	₹R,		
Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)       Dark Surface (S7) (LRR K, L, M)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Piedmont Floodplain Soils (F19) (MLRA 144A, 145, Sandy Redox (S5)         Sandy Redox (S5)       Red Parent Material (F21)       Sinped Matrix (S6)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 149B)       Cither (Explain in Remarks)       Cither (Explain in Remarks)         Indicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic.       Troblematic.         Type:       Type:       Present, unless disturbed or problematic.	Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)       Dark Surface (S7) (LRR K, L, M)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L,         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Piedmont Floodplain Soils (F19) (MLRA 14         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 14         Sandy Redox (S5)       Red Parent Material (F21)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 149B)       Cther (Explain in Remarks)       Cther (Explain in Remarks)         dicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       strictive Layer (If observed):         Type:		•			·	.RR R. MI	.RA 1498		
Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Piedmont Floodplain Soils (F19) (MLRA 144A, 145, Sandy Redox (S5)         Sandy Redox (S5)       Red Parent Material (F21)       Stripped Matrix (S6)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 149B)       Cither (Explain in Remarks)       Cither (Explain in Remarks)         idicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic.       Troblematic.         Type:	Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Pledmont Floodplain Soils (F19) (MLRA 144, 145, 14)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 14)         Sandy Redox (S5)       Red Parent Material (F21)       Very Shallow Dark Surface (TF12)         Stripped Matrix (S6)       Very Shallow Dark Surface (TF12)       Cther (Explain in Remarks)         dicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic.       strictive Layer (if observed):         Type:									
	Thick Dark Surface (A12)						)			
Sandy Mucky Mineral (S1)       Depieted Dark Surface (F7)       Piedmont Floodplain Soils (F19) (MLRA 144A, 145, 145, 2500 (CTA6) (MLRA 144A, 145, 145, 2500 (CTA6) (MLRA 144A, 145, 2500 (CTA6) (MLRA 149B) (CTA6) (MLRA 149B)         Sinpped Matrix (S6)       Red Parent Material (F21)         Sinpped Matrix (S6)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 149B)       Cther (Explain in Remarks)         idicators cl hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic.         restrictive Layer (if observed):       Type:	Sandy Mucky Mineral (\$1)       Depleted Dark Surface (F7)       Piedmont Floodplain Soils (F19) (MLRA 144, 145, 14         Sandy Gleyed Matrix (\$4)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 14         Sandy Redox (\$5)       Red Parent Material (F21)       Very Shallow Dark Surface (TF12)         Stripped Matrix (\$6)       Very Shallow Dark Surface (TF12)       Cther (Explain in Remarks)         Dark Surface (\$7) (LRR R, MLRA 149B)       Cther (Explain in Remarks)       Image: Comparison of the second secon		d Below Dark Surfac	æ (A11)	Depicted Matro	x (F3)			Inin Dark S	NITACE (S9) (LRK K, L)
_ Sandy Redox (S5)       Red Parent Material (F21)         _ Stripped Matrix (S6)       Very Shallow Dark Surface (TF12)         _ Dark Surface (S7) (LRR R, MLRA 149B)       Other (Explain in Remarks)         idicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic.         istrictive Layer (If observed):         Type:	Sandy Redox (S5)       Red Parent Material (F21)         Stripped Matrix (S6)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 149B)       Cther (Explain in Remarks)         dicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic.         strictive Layer (if observed):									nese Masses (F12) (LRR K. L. I
Stripped Matrix (S6)	Stripped Matrix (S6)	_ Thick Da	ark Surface (A12)		Redox Dark Su	rface (F6)			Iron-Manga	
_ Dark Surface (S7) (LRR R, MLRA 149B) Cther (Explain in Remarks)  dicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic.  strictive Layer (If observed): Type:	_ Dark Surface (S7) (LRR R, MLRA 149B) Cther (Explain in Remarks) dicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. strictive Layer (If observed): Type: Depth (inches): No	_ Thick Da _ Sendy N _ Sandy G	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4)		Redox Dark Su Depicted Dark	rface (F6) Surface (F			Iron-Manga Piedmont Fi Mesic Spod	loodplain Soils (F19) (MLRA 14 Sc (TA6) (MLRA 144A, 145, 149
dicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic. estrictive Layer (If observed): Type:	dicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic. strictive Layer (if observed): Type: Depth (inches): No	_ Thick Da _ Sendy M _ Sandy G _ Sandy R	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Recox (S5)		Redox Dark Su Depicted Dark	rface (F6) Surface (F			Iron-Manga Piedmont Fi Mesic Spod	loodpisin Sols (F19) (MLRA 14) Ec (TA6) (MLRA 144A, 145, 149 Material (F21)
strictive Layer (If observed): Type:	strictive Layer (If observed): Type: Depth (inches): No	Thick Da Sendy IV Sandy G Sandy R Sinipped	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6)		Redox Dark Su Depleted Dark Redox Deprese	rface (F6) Surface (F			Iron-Manga Piedmont F Mesic Spod Red Parent Very Shallo	loodpisin Soils (F19) (MLRA 14) Ec (TA6) (MLRA 144A, 145, 149 Material (F21) w Dark Surface (TF12)
Туре:	Type:	_ Thick Da _ Sendy IV _ Sandy G _ Sandy R _ Sinipped	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6)		Redox Dark Su Depleted Dark Redox Deprese	rface (F6) Surface (F			Iron-Manga Piedmont F Mesic Spod Red Parent Very Shallo	loodpisin Soils (F19) (MLRA 14) Ec (TA6) (MLRA 144A, 145, 149 Material (F21) w Dark Surface (TF12)
	Depth (inches): No	_ Thick Da _ Sandy M _ Sandy G _ Sandy R _ Sinipped _ Dark Sun ndicators d	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) rface (S7) (LRR R, I I hydrophytic vegeta	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fl Mesic Spod Red Parent Very Shallo Cther (Expl	loodpisin Soils (F19) (MLRA 14) Ec (TA6) (MLRA 144A, 145, 149 Material (F21) w Dark Surface (TF12)
		Thick Da Sandy M Sandy G Sandy R Sinipped Dark Sun ndicators cl estrictive I	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) rface (S7) (LRR R, I I hydrophytic vegeta	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fl Mesic Spod Red Parent Very Shallo Cther (Expl	loodpisin Soits (F19) (MLRA 14) Ec (TA6) (MLRA 144A, 145, 149 Material (F21) w Dark Surface (TF12)
	IIIBIIKS.	Thick Da Sandy M Sandy G Sandy R Siripped Dark Su dicators d astrictive I	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) I Matrix (S6) I face (S7) (LRR R, I I hydrophytic vegeta Layer (If observed)	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fi Mesic Spod Red Parent Very Shallo Cther (Expl d or problematic.	loodplain Soils (F19) (MLRA 14 Ec (TA6) (MLRA 144A, 145, 149 Material (F21) w Dark Surface (TF12) ain in Remarks)
		Thick Da Sendy M Sandy G Sandy R Shipped Dark Su dicators d strictive I Type: Depth (inc	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) I Matrix (S6) I face (S7) (LRR R, I I hydrophytic vegeta Layer (If observed)	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fi Mesic Spod Red Parent Very Shallo Cther (Expl d or problematic.	loodplain Soils (F19) (MLRA 14 Ec (TA6) (MLRA 144A, 145, 149 Material (F21) w Dark Surface (TF12) ain in Remarks)
		Thick Da Sendy M Sandy G Sandy R Shipped Dark Su dicators d strictive I Type: Depth (inc	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) I Matrix (S6) I face (S7) (LRR R, I I hydrophytic vegeta Layer (If observed)	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fi Mesic Spod Red Parent Very Shallo Cther (Expl d or problematic.	loodplain Soils (F19) (MLRA 14 Ec (TA6) (MLRA 144A, 145, 149 Material (F21) w Dark Surface (TF12) ain in Remarks)
		Thick Da Sendy M Sandy G Sandy R Shipped Dark Su dicators d strictive I Type: Depth (inc	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) I Matrix (S6) I face (S7) (LRR R, I I hydrophytic vegeta Layer (If observed)	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fi Mesic Spod Red Parent Very Shallo Cther (Expl d or problematic.	loodplain Soils (F19) (MLRA 14 Ec (TA6) (MLRA 144A, 145, 149 Material (F21) w Dark Surface (TF12) ain in Remarks)
		Thick Da Sendy M Sandy G Sandy R Siripped Dark Su dicators d strictive I Type: Depth (inc	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) I Matrix (S6) I face (S7) (LRR R, I I hydrophytic vegeta Layer (If observed)	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fi Mesic Spod Red Parent Very Shallo Cther (Expl d or problematic.	loodplein Soils (F19) (MLRA 14 Ec (TA6) (MLRA 144A, 145, 145 Material (F21) w Dark Surface (TF12) ain in Remarks)
		Thick Da Sendy M Sandy G Sandy R Stripped Dark Su dicators d strictive I Type: Depth (inc	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) I Matrix (S6) I face (S7) (LRR R, I I hydrophytic vegeta Layer (If observed)	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fi Mesic Spod Red Parent Very Shallo Cther (Expl d or problematic.	loodplein Soils (F19) (MLRA 14 Ec (TA6) (MLRA 144A, 145, 145 Material (F21) w Dark Surface (TF12) ain in Remarks)
		Thick Da Sendy M Sandy G Sandy R Stripped Dark Su dicators d strictive I Type: Depth (inc	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) I Matrix (S6) I face (S7) (LRR R, I I hydrophytic vegeta Layer (If observed)	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fi Mesic Spod Red Parent Very Shallo Cther (Expl d or problematic.	loodplein Soils (F19) (MLRA 14 Ec (TA6) (MLRA 144A, 145, 145 Material (F21) w Dark Surface (TF12) ain in Remarks)
		Thick Da Sandy M Sandy G Sandy R Siripped Dark Su dicators d astrictive I Type: Depth (inc	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) I Matrix (S6) I face (S7) (LRR R, I I hydrophytic vegeta Layer (If observed)	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fi Mesic Spod Red Parent Very Shallo Cther (Expl d or problematic.	loodplein Soils (F19) (MLRA 14 Ec (TA6) (MLRA 144A, 145, 145 Material (F21) w Dark Surface (TF12) ain in Remarks)
		_ Thick Da _ Sandy M _ Sandy G _ Sandy R _ Sinipped _ Dark Sua adicators cl astrictive I Type:	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) I Matrix (S6) I face (S7) (LRR R, I I hydrophytic vegeta Layer (If observed)	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fi Mesic Spod Red Parent Very Shallo Cther (Expl d or problematic.	loodplein Soils (F19) (MLRA 14 Ec (TA6) (MLRA 144A, 145, 145 Material (F21) w Dark Surface (TF12) ain in Remarks)
		Thick Da Sendy M Sandy G Sandy R Siripped Dark Su Dark Su adicators cl estrictive I Type: Depth (inv	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) I Matrix (S6) I face (S7) (LRR R, I I hydrophytic vegeta Layer (If observed)	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fi Mesic Spod Red Parent Very Shallo Cther (Expl d or problematic.	loodplein Soils (F19) (MLRA 14 Ec (TA6) (MLRA 144A, 145, 145 Material (F21) w Dark Surface (TF12) ain in Remarks)
		Thick Da Sandy M Sandy G Sandy R Siripped Dark Su dicators d astrictive I Type: Depth (inv	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) I Matrix (S6) I face (S7) (LRR R, I I hydrophytic vegeta Layer (If observed)	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fi Mesic Spod Red Parent Very Shallo Cther (Expl d or problematic.	loodplain Soils (F19) (MLRA 14 Ec (TA6) (MLRA 144A, 145, 145 Material (F21) w Dark Surface (TF12) ain in Remarks)
		Thick Da Sandy M Sandy G Sandy R Siripped Dark Su dicators d astrictive I Type: Depth (inc	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) I Matrix (S6) I face (S7) (LRR R, I I hydrophytic vegeta Layer (If observed)	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fi Mesic Spod Red Parent Very Shallo Cther (Expl d or problematic.	loodplain Soils (F19) (MLRA 14 Ec (TA6) (MLRA 144A, 145, 149 Material (F21) w Dark Surface (TF12) ain in Remarks)
		Thick Da Sendy M Sandy G Sandy R Shipped Dark Su dicators d strictive I Type: Depth (inc	ark Surface (A12) Aucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) I Matrix (S6) I Matrix (S6) I face (S7) (LRR R, I I hydrophytic vegeta Layer (If observed)	MLRA 1498 sticn and we	Redox Dark Su     Depleted Dark     Redox Deprese	rface (F6) Surface (F sions (F8)	7)	s disturbed	Iron-Manga Piedmont Fi Mesic Spod Red Parent Very Shallo Cther (Expl d or problematic.	loodplain Soils (F19) (MLRA 14 Ec (TA6) (MLRA 144A, 145, 149 Material (F21) w Dark Surface (TF12) ain in Remarks)

## Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap DIRECTION FEATURE ID 056D DATE 9/21/2012 Kathy Bellrichard and Apryl Jennrich Northeast PHOTOGRAPHER

#### COMMENTS

Wetland is located adjacent to Bridge Creek.

### 058D1 058D2 058D3 058D4

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

Project/site: Stan Lub In Chylor	cunty: Early Claire Co Sampling Date: 9/21/12				
Applicant/Owner: DPC	State: W Sampling Point: 05802				
	n, Township, Renge: S18 T25N R5W				
	ef (concave, convex, none): / On Cause Sicpe (%):				
Subregion (LRR or MLRA):L_RLat:L_3					
Soll Map Unit Name: EIM (alce loanny sand					
Are climatic / hydrologic conditions on the site hypical for this time of year? Ye					
Are Vegetation $\underline{//}$ , Soil $\underline{/}$ , or Hydrology $\underline{/}$ significantly disturt	ed? Are "Normal Circumstances" present? Yes No				
Are Vegetation, Soil, or Hydrology naturally problema	tic? (If needed, explain any answers in Remarks.)				
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, important features, etc.				
Hydrophytic Vegetation Present?     Yes     X     No       Hydric Soil Present?     Yes     X     No       Wetland Hydrology Present?     Yes     X     No	Is the Sampled Area within a Wetland? Yes No If yes, optional Wetland Site ID:				
Remarks: (Explain alternative procedures here or in a separate report.)					
Photo # 0069 Neur structure #5, neur	Ditch				
HYDROLOGY					
Wetland Hydrology Indicators:	Secondary indicators (minimum of two required)				
Primary Indicators (minimum of one is required; check all that apply)	Surface Soli Cracks (B6)				
Surface Water (A1) Water-Stained Leaves	s (B9) Drainage Patterns (B10)				
High Water Table (A2) Aquatic Fauna (B13) Moss Trim Lines (B16)					
Saturation (A3) Marl Deposits (B15) Dry-Season Water Table (C2)					
Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)					
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)					
Drift Deposits (B3)      Presence of Reduced Iron (C4)      Stunted or Stressed Plants (D1)        Algal Mat or Crust (B4)      Recent Iron Reduction in Tilled Solis (C6)      Recomprise Position (D2)					
Argai Mat of Citas (B4) Recent iron Reduction	7				
Inundation Visible on Aerial Imagery (B7) Other (Explain in Ren					
Sparsely Vogetaled Conceve Surface (B8)	× FAC-Neutral Test (D5)				
Field Observations:					
Surface Water Present? Yes No 🔀 Depth (Inches):	-				
Water Table Present? Yes No 🗡 Depth (inches):					
Saturation Present? Yes No X Depth (inches):	Wetland Hydrology Present? Yes 📈 No				
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:				
Remarks:					
Remarks.					

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VEGETATION - Use scientific names of plants.

Sampling Point: 05801

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VEGETATION - Use scienting hames or plants.				sumpling Point: 0000
	Absolute			Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	
1.				Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2.			******	Total Number of Dominant
3.	-	*****	******	Species Across All Strata: (B)
4,				Percent of Dominant Species
				That Are OBL, FACW, or FAC: (A/B)
5				
6				Prevalence index worksheet:
7				Total % Cover of Multiply by:
		= Total Cov		
			/er	OBL species X1 =
Sapling/Shrub Stratum (Plot size:)				FACW species X 2 =
1				FAC species x 3 =
				FACU species x 4 =
2.				UPL species x 5 =
3	-			Cotumn Totals: (A) (B)
4				
5				Prevalence Index = B/A =
6,	-	*****	<u> </u>	Hydrophytic Vegetation Indicators:
7.			-	2 1 - Rapid Test for Hydrophytic Vegetation
		= Total Cov	/er	2 - Dominance Test is >50%
		- 1000, 001		3 - Prevalence Index is ≤3.0 <sup>°</sup>
Herb Stratum (Plot size:) 1. Valacis a condemander	110	4	FALL	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
			anțunea de ministrative de de de la companya de de la companya de la companya de la companya de la companya de	Problematic Hydrophytic Vegetation' (Explain)
2.				
3	w		-	the structure of an other with an dissettion of brocker langements
4.				<sup>1</sup> Indicators of hydric soil and welland hydrology must be present, unless disturbed or problematic.
5				Definitions of Vegetation Strata:
6.				Trae – Woody plants 3 in. (7.6 cm) or more in diameter
7				at breast height (DBH), regardless of heighl.
			*******	an a san una gan gan gan gan gan an san s
8.				Sapling/shrub - Woody plants less than 3 in. DBH
9	-			and greater than or equal to 3.28 ft (1 m) tall.
10,				Herb - All herbaceous (non-wcody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
				Minedus America Allering desidence and the Man 2.00 A fe
12	-	-		Woody vines - All woody vines greater than 3.28 ft in height.
	<u>100</u>	= Tolai Co	ver	
Woody Vine Stratum (Plot size:)				
1				
2.	-			
3.				Hydrophylic
				Manutation
<b>4</b> ,		e <del>dárahulministacislait</del> i	-	Present? Yes <u>No</u>
	<u></u>	= Total Co	ver	
Remarks: (Include photo numbers here or on a separate	sheet.}			

Northcentral and Northeast Region - Version 2.0

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Profile Desc	ription: (Describe	to the dep	th needed to docum	nent the l	ndicator	or confirm	the absence of ind	dicators.)
Depth	Matrix		Redo	c Feature	9			
(inches)	Color (moist)	125	Color (moist)		<u>Type'</u>	Loc*	Texture	Remarks
0-4	1016-11	100	104R 3/6			PL	Loam	
<u>9-10</u>	101K 4/1	95	militaria and a standard and a standard and a standard and a standard a	5		M	Sandy Lunr	
10-10	2.58 112	50	2.54 5/1	40	<u> </u>		Sand	
		-	1022 316	10	<u> </u>	PL		
		**********	*****	******			104-19-10-10-10-10-10-10-10-10-10-10-10-10-10-	94 - 24 - 22 - 24 - 24 - 24 - 24 - 24 -
	<u></u>		*******					***************************************
		-						
				-	*******	*****		
	References and the second s	-	****		-		and a second second statement of the second s	n para an an ann aigt ann a' shàinn air an air an
					-			·····
menonania in atomostrativenessiated	and the second	letion, RM	Reduced Matrix, MS	3=Maskec	i Sand Gr	Bins		Pore Lining, M=Matrix.
Hydric Soll I			Dela elas Detas	~ /	/00- /1 B1			roblematic Hydric Solis <sup>5</sup> :
Histosol Histic Et	(A1) olpedon (A2)		— Polyvalue Below MLRA 1498)		(S6) (LKI	<b>Κ</b> ,		A10) (LRR K, L, MLRA 149B) e Redox (A16) (LRR K, L, R)
Black Hi			Thin Dark Surfa	ce (S9) (l				Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4)		Loamy Mucky N			, L)		e (S7) (LRR K, L, M) alou Surface (S8) (LPR K, L)
Stratified Layers (A5)      Loamy Gleyed Matrix (F2)      Polyvalue Below Surface (S8) (LRR K, L)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Thin Dark Surface (S9) (LRR K, L)								
	ark Surface (A12)		Redox Dark Su				Iron-Mangar	iese Masses (F12) (LRR K, L, R)
	Nucky Mineral (S1) Reyed Matrix (S4)		Depicted Dark 8	-	=7)			ocolplain Soils (F19) (MLRA 1498) c (TA6) (MLRA 144A, 145, 1498)
	ledox (S5)		A Redox Depress	013 (10)				Material (F21)
· · ·	Matrix (86)							w Dark Surface (TF12)
Dark Su	rface (S7) (LRR R, I	MLRA 149	B)				Cther (Expla	in in Remarks)
<sup>3</sup> Indicators c	I hydrophylic vegeta	tion and w	sliand hydrology mus	t be presi	ent, unless	s disturbed	or problematic.	
<b>Restrictive</b>	Layer (If observed)						1	
Туре:								
	ches):						Hydric Soll Pres	ent? Yes No
Remarks:								

WETLAND DETERMINATION DATA FORM Northcentral and Northeast Region							
Project/site: Stan Lublin City	County: EQU CLAIVE Co. Sampling Date: 9/21/12						
Applicant/Owner:	1121						
Sec. 1	tion, Township, Range: S18 TASN R5W						
Landform (hillslope, terrace, etc.): <u>Dia in</u> Local re							
Cubranian (I DD as MI DA): L. L. L. L. Lat. 4/1 20	59.87 Long: $-91.2$ 0.55 Detum: Mad 23						
Soil Map Unit Name: Fairchild & Merrillan Soil:							
Are climatic / hydrologic conditions on the site typical for this time of year?							
	inbed? Are "Normal Circumstances" present? Yes X No						
Are Vegetation Soil, or Hydrology naturally problem	natic? (If needed, explain any answers in Remarks )						
SUMMARY OF FINDINGS - Attach site map showing sa	mpling point locations, transects, important features, etc.						
	Is the Sampled Area						
Hydrophytic Vegetation Present?     Yes No       Hydric Soli Present?     Yes No	within a Wetland? Yes No X						
Welland Hydrology Present? Yes No	If yes, optional Wetland Site ID:						
Remarks: (Explain alternative procedures here or in a separate report.)							
Photo # 70-79 HYDROLOGY							
	Or second state disable to fail and the second burger second state						
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)						
Primary indicators (minimum of one is required; check all that apply)	Surface Soli Cracks (B6)						
Surface Water (A1)     Water-Stained Leav       High Water Table (A2)     Aquatic Fauna (B13)							
Addate Factor (A3) Mari Deposits (B15)							
Water Marks (B1) Hydrogen Sulfide O							
	eres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)						
Drift Deposits (B3) Presence of Reduce							
	ion in Titled Soils (C6) Geomorphic Position (D2)						
Iron Deposits (B5) Thin Muck Surface (	(C7) Shallow Aquitard (D3)						
Inundation Visible on Aerial Imagery (B7) Other (Explain in Re	emarks) Microtopographic Relief (D4)						
Sparsely Vegetated Concave Surface (BB)	FAC-Neutral Test (D5)						
Field Observations:							
Surface Water Present? Yes No X Depth (inches):							
Water Table Present? Yes No X Depth (Inches):							
Saturation Present? Yes No <u>Y</u> Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pi							
	• • •						
Remarks:							

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VEGETATION - Use scientific names of plants.

	Absolute			Dominance Test worksheet:
Tree Stratum (Ptol size:)	% Cover	Species?	Status	Number of Dominant Species
1.		distanting to Description of the		That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3	-			Species Across All Strata: (B)
4.		-		Percent of Dominant Species 33 (A/B)
5.	-			That Are OBL, FACW, or FAC: (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of Multiply by:
		= Total Cov	/er	OBL species         I D         x1 =         I D
Sapling/Shrub Stratum (Plot size:)	<del>6 4.1101 (011014)</del>			FACW species 20 x 2 = 40
1. Salix petiolaris	15	U 1	FACW	FAC species x 3 =
- ALEXAND DEFENSION	15	<del></del>	161	FACU species $20$ x4 = $50$
2. Comptensia peregisia			VKE	UPL species $15$ x 5 = $75$
3.				Column Totals; $1_{0}$ (A) $205$ (B)
4				Prevalence index = $B/A = 3.15$
5				Prevalence index # B/A #
6,				Hydrophytic Vegetation indicators:
7		-		1 - Rapid Test for Hydrophytic Vegetation
	SO	= Total Co	ver	2 - Dominance Test is >50%
Herb Stratum (Plot size:)				3 - Provalence Index is ≤3.0'
1. Bobyous Virginianus	20	Y	FACU	4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
2. Phanaris arundinacea	. <u> </u>	N	TACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
3. Eucopediella milidata	177	-	OBL	
3. PYLOPPOLETA INCOMPAN	10		<u>v bh</u>	<sup>1</sup> Indicators of hydric soil and welland hydrology must
· 4,				be present, unless disturbed or problematic.
5.				Definitions of Vegetation Strata:
6				Tree – Woody plants 3 in, (7,6 cm) or more in diameter at breast height (DBH), regardless of height.
89	-			Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
10			-	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3 28 ft tall.
11				Woody vines - All woody vines greater than 3.28 ft in
	25	= Total Co		height.
		- 1048 CO	<b>▼</b> 6/1	
Woody Vine Stratum (Plot size:)				
1,				
2.		. <u></u>		
3.				Hydrophylic
4.		• •		Vegetation Present? Yes No
		= Total Co	ver	
Remarks: (Include photo numbers here or on a separate	sheet.]			

Sampling Point: 05802

SOIL

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Color (molst)         %         Color (molst)         %         Type         Loc*         Texture         Remarks           0 - 7         / b Y k 2/2         NOO         Srit/dam         Srit/dam           7 - 11         2.5Y/5/2         99         /b Y k 4/6         /b a.m         /b a.m           7 - 14         2.5Y/7/2         106         Srit/dam         /b a.m           11 - 14         2.5Y         7/2         106         Srit/am           12 - 150         Srit/am         Srit/am         Srit/am           12 - 14         2.5Y         Srit/am         Srit/am           12 - 14         2.5Y         Srit/am         Srit/am           12 - 14         Srit/am         Srit/am         Sri	Color (molst)       %       Color (molst)       %       Type         0       -7       / b Y k 3/2       100	Sriff/Jam         Ioan Sand         Sandy Ioan         Sandy Ioan
Z = 1L       Z.5Y.5/Z       99       10 Y K 4/6       I o a.m. Sand         I = 1Y       Z.5Y.7/Z       105       Sandy I o a.m.         I = 1Y       Z.5Y.7/Z       105       Sandy I o a.m.         I = 1Y       Z.5Y.7/Z       105       Sandy I o a.m.         I = 1Y       Z.5Y.7/Z       105       Sandy I o a.m.         I = 100       Sandy I o a.m.       Sandy I o a.m.         I = 100       I = 000       Sandy I o a.m.         I = 000       I = 000       Sandy I o a.m.         I = 000       I = 000       I = 000         I = 000       I = 000       I = 000         I = 000       I = 0000       I = 0000         I = 0000       I = 0000       I = 0000         I = 0000       I = 0000       I = 0000         I = 0000       I = 0000       I = 0000         I = 0000       I = 0000       I = 0000         I = 0000       I = 0000       I = 0000         I = 0000       I = 0000       I = 0000         I = 0000       I = 0000       I = 0000         I = 0000       I = 0000       I = 0000         I = 0000       I = 0000       I = 0000         I = 00000       I = 0000	7 - 11       2.57/15/z       919       10 YR 4/6         1 - 14       2.54       7/z       105         1 - 14       2.54       7/z       105	Ioam Sand         Sandy Ioam         Sandy Ioam         Grains       "Location: PL=Pore Lining, M=Matrix.         Indicators for Problematic Hydric Solis*
Ype:       2,54 7/2       105	I = 14       2, 54       7/2       105         I = 14       2, 54       2, 54       105         I = 14       2, 54       2, 54       105         I = 14       14       14       14       105         I = 14       14       14       110       110       110         I = 14       14       14       14       110       110       110         I = 14       14       14       14       110       110       110       110       110       110       110       11	Grains <sup>2</sup> Location: PL=Pore Lining, M=Matnx. Indicators for Problematic Hydric Solis <sup>3</sup> : 
Ype:	Image: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Send (         Image: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Send (         ydric Soll Indicators:         Histosol (A1)         Polyvalue Below Surface (S8) (L         Histic Eplpedon (A2)         Black Histic (A3)         Hydrogen Sulfide (A4)         Stratified Layers (A5)         Loamy Gleyed Matrix (F3)         Thick Dark Surface (A12)         Thick Dark Surface (A12)         Sandy Mucky Mineral (S1)         Depleted Dark Surface (F6)         Sandy Gleyed Matrix (S4)	Grains <sup>2</sup> Location: PL=Pore Lining, M=Matnx. Indicators for Problematic Hydric Solis <sup>3</sup> : 
ype:       C=Concentration, D=Depletion, RM=Reduced Matrix, NS=Masked Sand Grains <sup>2</sup> Location: PL=Pore Lining, M=Matrix, Indicators for Problematic Hydric Solis*: Indicators Solide (A1)         Histic Epipedion (A2)       MLRA 1498)       Coarry Mucky Mineral (F1) (LRR K, L)       Coarry Praine Redox (A15) (LRR K, L, R)         Hydrogen Sulfide Layers (A5)       Loarny Mucky Mineral (F1) (LRR K, L)       Dark Surface (S3) (LRR K, L, R)         Stratified Layers (A5)       Loarny Gieyed Matrix (F2)       Polyvalue Below Surface (S3) (LRR K, L, R)         Stratified Layers (A5)       Loarny Gieyed Matrix (F2)       Polyvalue Below Surface (S3) (LRR K, L)         Depteted Debor Dark Surface (A11)       Depteted Matrix (F3)       Thin Dark Surface (S3) (LRR K, L, R)         Sandy Mucky Mineral (S1)       Depteted Dark Surface (F7)       Predomont Floodphilo Sotis (F19) (MLRA 1448)         Sindy Refork (S5)       Sindy Refork (S5)       Redox Dark Surface (F7)       Mesic Spodic (TA6) (MLRA 144A, 145, 149E)         Sindy Refork (S5)       Sindy Refork (S5)       Dark Surface (S7) (LRR R, MLRA 144B)       Very Shallow Dark Surfac	ype:       C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Send (         ydric Soll Indicators:	Grains
ydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :	ydric Soll Indicators:       Polyvalue Below Surface (S8) (L         Histosol (A1)       Polyvalue Below Surface (S8) (L         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R,         Hydrogen Sulfide (A4)       Loarny Mucky Mineral (F1) (LRR         Stratified Layers (A5)       Loarny Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F8)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)	Indicators for Problematic Hydric Solis <sup>3</sup> : .RR R,2 cm Muck (A10) (LRR K, L, MLRA 1498) Coast Prairie Redox (A16) (LRR K, L, R) MLRA 1498)5 cm Mucky Peat or Peat (S3) (LRR K, L, R) R K, L)Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L)
ydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :	ydric Soll Indicators:       Polyvalue Below Surface (S8) (L         Histosol (A1)       Polyvalue Below Surface (S8) (L         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R,         Hydrogen Sulfide (A4)       Loarny Mucky Mineral (F1) (LRR         Stratified Layers (A5)       Loarny Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F8)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)	Indicators for Problematic Hydric Solis <sup>3</sup> : .RR R,2 cm Muck (A10) (LRR K, L, MLRA 1498) Coast Prairie Redox (A16) (LRR K, L, R) MLRA 1498)5 cm Mucky Peat or Peat (S3) (LRR K, L, R) R K, L)Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L)
ydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :	ydric Soll Indicators:      Polyvalue Below Surface (S8) (L        Histosol (A1)      Polyvalue Below Surface (S8) (L        Histosol (A1)      Polyvalue Below Surface (S8) (L        Black Histic (A3)      Thin Dark Surface (S9) (LRR R,        Hydrogen Sulfide (A4)      Loarny Mucky Mineral (F1) (LRR        Stratified Layers (A5)      Loarny Gleyed Matrix (F2)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)        Thick Dark Surface (A12)      Redox Dark Surface (F6)        Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)	Indicators for Problematic Hydric Solis <sup>3</sup> : .RR R,2 cm Muck (A10) (LRR K, L, MLRA 1498) Coast Prairie Redox (A16) (LRR K, L, R) MLRA 1498)5 cm Mucky Peat or Peat (S3) (LRR K, L, R) R K, L)Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L)
ydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :	ydric Soll Indicators:       Polyvalue Below Surface (S8) (L         Histosol (A1)       Polyvalue Below Surface (S8) (L         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R,         Hydrogen Sulfide (A4)       Loarny Mucky Mineral (F1) (LRR         Stratified Layers (A5)       Loarny Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F8)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)	Indicators for Problematic Hydric Solis <sup>3</sup> : .RR R,2 cm Muck (A10) (LRR K, L, MLRA 1498) Coast Prairie Redox (A16) (LRR K, L, R) MLRA 1498)5 cm Mucky Peat or Peat (S3) (LRR K, L, R) R K, L)Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L)
ydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :	ydric Soll Indicators:       Polyvalue Below Surface (S8) (L         Histosol (A1)       Polyvalue Below Surface (S8) (L         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R,         Hydrogen Sulfide (A4)       Loarny Mucky Mineral (F1) (LRR         Stratified Layers (A5)       Loarny Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F8)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)	Indicators for Problematic Hydric Solis <sup>3</sup> : .RR R,2 cm Muck (A10) (LRR K, L, MLRA 1498) Coast Prairie Redox (A16) (LRR K, L, R) MLRA 1498)5 cm Mucky Peat or Peat (S3) (LRR K, L, R) R K, L)Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L)
ydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :	ydric Soll Indicators:       Polyvalue Below Surface (S8) (L         Histosol (A1)       Polyvalue Below Surface (S8) (L         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R,         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)	Indicators for Problematic Hydric Solis <sup>3</sup> : .RR R,2 cm Muck (A10) (LRR K, L, MLRA 1498) Coast Prairie Redox (A16) (LRR K, L, R) MLRA 1498)5 cm Mucky Peat or Peat (S3) (LRR K, L, R) R K, L)Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L)
ydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :	ydric Soll Indicators:       Polyvalue Below Surface (S8) (L         Histosol (A1)       Polyvalue Below Surface (S8) (L         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R,         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)	Indicators for Problematic Hydric Solis <sup>3</sup> : .RR R,2 cm Muck (A10) (LRR K, L, MLRA 1498) Coast Prairie Redox (A16) (LRR K, L, R) MLRA 1498)5 cm Mucky Peat or Peat (S3) (LRR K, L, R) R K, L)Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L)
ydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :	ydric Soll Indicators:       Polyvalue Below Surface (S8) (L         Histosol (A1)       Polyvalue Below Surface (S8) (L         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R,         Hydrogen Sulfide (A4)       Loarny Mucky Mineral (F1) (LRR         Stratified Layers (A5)       Loarny Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F8)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)	Indicators for Problematic Hydric Solis <sup>3</sup> : .RR R,2 cm Muck (A10) (LRR K, L, MLRA 1498) Coast Prairie Redox (A16) (LRR K, L, R) MLRA 1498)5 cm Mucky Peat or Peat (S3) (LRR K, L, R) R K, L)Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L)
ydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :	ydric Soll Indicators:      Polyvalue Below Surface (S8) (L        Histosol (A1)      Polyvalue Below Surface (S8) (L        Histosol (A1)      Polyvalue Below Surface (S8) (L        Black Histic (A3)      Thin Dark Surface (S9) (LRR R,        Hydrogen Sulfide (A4)      Loarny Mucky Mineral (F1) (LRR        Stratified Layers (A5)      Loarny Gleyed Matrix (F2)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)        Thick Dark Surface (A12)      Redox Dark Surface (F6)        Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)	Indicators for Problematic Hydric Solis <sup>3</sup> : .RR R,2 cm Muck (A10) (LRR K, L, MLRA 1498) Coast Prairie Redox (A16) (LRR K, L, R) MLRA 1498)5 cm Mucky Peat or Peat (S3) (LRR K, L, R) R K, L)Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L)
ydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :	ydric Soll Indicators:       Polyvalue Below Surface (S8) (L         Histosol (A1)       Polyvalue Below Surface (S8) (L         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R,         Hydrogen Sulfide (A4)       Loarny Mucky Mineral (F1) (LRR         Stratified Layers (A5)       Loarny Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F8)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)	Indicators for Problematic Hydric Solis <sup>3</sup> : .RR R,2 cm Muck (A10) (LRR K, L, MLRA 1498) Coast Prairie Redox (A16) (LRR K, L, R) MLRA 1498)5 cm Mucky Peat or Peat (S3) (LRR K, L, R) R K, L)Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L)
ydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :	ydric Soll Indicators:      Polyvalue Below Surface (S8) (L        Histosol (A1)      Polyvalue Below Surface (S8) (L        Histosol (A1)      Polyvalue Below Surface (S8) (L        Black Histic (A3)      Thin Dark Surface (S9) (LRR R,        Hydrogen Sulfide (A4)      Loarny Mucky Mineral (F1) (LRR        Stratified Layers (A5)      Loarny Gleyed Matrix (F2)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)        Thick Dark Surface (A12)      Redox Dark Surface (F6)        Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)	Indicators for Problematic Hydric Solis <sup>3</sup> : .RR R,2 cm Muck (A10) (LRR K, L, MLRA 1498) Coast Prairie Redox (A16) (LRR K, L, R) MLRA 1498)5 cm Mucky Peat or Peat (S3) (LRR K, L, R) R K, L)Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L)
Histic Epipedon (A2)       MLRA 149B)       Coast Prairie Redox (A16) (LRR K, L, R)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 149B)       5 cm Mucky Peat or Peat (S3) (LRR K, L, R)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)       Dark Surface (S7) (LRR K, L, M)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Ircon-Manganese Masses (F12) (LRR K, L, R)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Pledmont Floodplain Soits (F19) (MLRA 1498)         Sandy Redox (S5)       Redox Depressions (F8)       Mesic Spotic (TA6) (MLRA 144A, 145, 145E         Stripped Matrix (S6)       Red Parent Material (F21)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 1498)       Coher (Explain in Remarks)       Coher (Explain in Remarks)         Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       Train in Remarks)	Histic Epipedon (A2)       MLRA 149B)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R,         Hydrogen Sulfide (A4)       Loarny Mucky Mineral (F1) (LRR         Stratified Layers (A5)       Loarny Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)	Coast Prairie Redox (A16) (LRR K, L, R)           MLRA 149B)          5 cm Mucky Peat or Peat (S3) (LRR K, L, R)           R K, L)          Dark Surface (S7) (LRR K, L, M)            Polyvalue Below Surface (S8) (LRR K, L)
Black Histic (A3)	Black Histic (A3) Thin Dark Surface (S9) (LRR R, Hydrogen Sulfide (A4) Loarny Mucky Mineral (F1) (LRR Stratified Layers (A5) Loarny Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8)	MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) R K, L) Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L)
	Hydrogen Sulfide (A4)       Loarny Mucky Mineral (F1) (LRR         Stratified Layers (A5)       Loarny Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)	R K, L) Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L)
	Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mneral (S1)       Depleted Dark Surface (F7)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)	Polyvalue Below Surface (S8) (LRR K, L)
Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L, R         Sandy Mucky Mneral (S1)       Depleted Dark Surface (F7)       Piedmont Floodplain Soits (F19) (MLRA 1449, 145, 1498)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 1498)         Sandy Redox (S5)       Red Parent Material (F21)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 149B)       Other (Explain in Remarks)         Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       It is be divide wetland in the state of th	Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)	
Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Piedmont Floodplain Soits (F19) (MLRA 1494)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 1498)         Sandy Redox (S5)       Red Parent Material (F21)       Very Shallow Dark Surface (TF12)         Siripped Matrix (S6)       Very Shallow Dark Surface (TF12)       Other (Explain in Remarks)         Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       Image: Comparison of the served	Sandy Mucky Mineral (S1) Depieted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8)	
Sandy Gleyed Matrix (S4)     Redox Depressions (F8)     Mesic Spoce (TA6) (MLRA 144A, 145, 1498     Sandy Redox (S5)     Red Parent Material (F21)     Stripped Matrix (S6)     Very Shallow Dark Surface (TF12)     Dark Surface (S7) (LRR R, MLRA 1498)     Other (Explain in Remarks)  Indicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic.  Type: Type:	Sandy Gleyed Matrix (S4) Redox Depressions (F8)	
Stripped Matrix (S6)     Very Shallow Dark Surface (TF12)     Dark Surface (S7) (LRR R, MLRA 1498)     Other (Explain in Remarks)  Indicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic.  testrictive Layer (If observed):     Type:      Type:	Sandy Redox (S5)	
Dark Surface (S7) (LRR R, MLRA 149B) Other (Explain in Remarks) Other (Explain in Remarks) Indicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic. testrictive Layer (If observed): Type:	Decision - 2 - 4 March 10.05	
Indicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (If observed):  Type:		
testrictive Layer (If observed): Type:		
Туре:		ess distuibed or problematic.
		Hydric Soll Present? Yes No
emarks:		

Northcentral and Northeast Region - Version 2.0

### Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap

DIRECTION	FEATURE ID	058D1	DATE
West	PHOTOGRAPHER	Kathy Bellrichard and Apryl Jennrich	9/21/2012





### 059D1 059D2

WETL	AND	DETERMINA	TION DAT/	FORM	- Northcentral	and Northea	st Region
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manger Stun Lublin	City/County: Ean Claire Co Sampling Date: 9/22/12
N 0 4	State:
Applicant/Owner: DPC	
1	
	Local relief (concave, convex, none):Stope (%):Stope (%):
Subregion (LRR or MLRA):K Lat:39	51.52 Long: <u>-91 59,90</u> Datum: <u>NAD83</u>
Soli Map Unit Name: Vesper Locum	
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes No (if no, explain in Remarks.)
Are Vegetation <u>N</u> , Soil <u>N</u> , or Hydrology <u>N</u> significan	thy disturbed? Are "Normal Circumstances" present? Yes Xes No
Are Vegetation Soil, or Hydrology naturally	problematic? (If needed, explain any answers in Remarks )
SUMMARY OF FINDINGS - Attach site map showi	ng sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No No Yes No Yes No Yes No No Yes No	Within a Wetland? Yes No If yes, optional Wetland Site ID:
Photo # 0081-84	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary indicators (minimum of two required)
Primary indicators (minimum of one is required; check all that app	VI Surface Soli Cracks (B6)
	ed Leaves (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fau	
Seturation (A3) Mari Deposi	
	ulfide Odor (C1) Crayfish Burrows (C8)
	Izospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
	Reduced Iron (C4)    Stunted or Stressed Plants (D1)       Reduction in Tilled Solis (C6)     XGeomorphic Position (D2)
Agai Mat of Clusi (64) Recent inch Iron Deposits (B5) Thin Muck S	
	in in Remarks) Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	End Renarks) Record optigation (D4)
Field Observations:	
	ves):
	les):
Saturation Present? Yes No Depth (inch	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial ph	ŕ
Remarks:	
rceinarxs.	

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**VEGETATION** – Use scientific names of plants.

Sampling Point:059D1

	Absolute	Dominant Indicator	
Tree Stratum (Plot size:)		Species? Status	Dominance Test worksheet:
1		an ann an ann an an an an an an an an an	Number of Dominant Species           That Are OBL, FACW, or FAC:         (A)
2			Total Number of Dominant
3	-		Species Across All Strata:(B)
4	* ****		Percent of Dominant Species
5.			That Are OBL, FACW, or FAC: (A/B)
6			Presenta e a la dese superiorde de
			Prevalence Index worksheet:
7			Total % Cover of Multiply by
		= Total Cover	OBL species x 1 =
Saplino/Shrub Stratum (Plot size:)			FACW species X 2 =
1.	-		FAC species x 3 =
2			FACU species x 4 =
3.			UPL species x 5 =
			Column Totals; (A) (B)
4			Descalance Index a D/A a
5.			
6	<u>.</u>		Hydrophytic Vegetation Indicators:
7			1 - Rapid Test for Hydrophytic Vegetation
		= Total Cover	2 - Dominance Test is >50%
		- 1000 0010	3 - Prevalence Index is ≤3.0 <sup>1</sup>
Herb Stratum (Plat size:) 1. <u>Carex</u> Structure	50	U OBL	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
2. Photolis albodinacco	10	N) FACW	Problematic Hydrophytic Vegetation' (Explain)
3			Indicators of hydric soil and welland hydrology must
4,	-		be present, unless disturbed or problematic.
5.			Definitions of Vegetation Strata:
6			Demandris of Tegeral of Volara.
			Tree - Woody plants 3 in. (7.6 cm) or more in diameter
7.			et breest height (DBH), regardless of height.
8			<ul> <li>Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tail.</li> </ul>
9			
10			<ul> <li>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tail.</li> </ul>
12.			Woody vines - All woody vines greater than 3.28 ft in
	108	= Tolal Cover	height.
	an a		
Woody Vine Stratum (Plot size:)			
1,		<u> </u>	-
2.		• ••••••••••••••••	
3.		<u> </u>	_ Hydrophylic
4			Vegetation Present? Yes X No
	***	= Total Cover	Present? Yes <u>No</u> No
Demostral (Instude abote supervise bars of an a separate	enast 1		
Remarks: (Include photo numbers here or on a separate	areolj		
			,
fus been Nomed			

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Sampling Point 05901

1	-	to the depti				or confirm	n the absence of In	dicators.)
Depth (inches)	Color (moist)	%	Color (moist)	x Feature: %	Type	Loc	Texture	Remarks
0-5	104L3/2	95	104R 316	5	C	PL	Silt loan	
5-9	INV031	95	10423/16	5		PL	Silf Idam	der sonspegt i live i som deskapstoppingen og i konstrukter i den i den som en deskapstoppingen om omer
$\frac{2}{\alpha}$ 14	2.546/2	91	1040.46	<u> </u>		PL	-	Tracks 1
4-10	2,37 12		10 912-10			<u> </u>	Sill loam	TI CALLAR I
		-	*****					***
<u></u>			en initian ann an Antoneo an Anton	-	-	6777971001100100000	. <u></u>	e vilet, e trans e et an antien a trans a trans trans an anna internet
-				•		÷	-	<u></u>
							-	
-	<b>gal in an air aig ann an triachta an an air an triachta an air a</b>	* ****	****			<del></del>	- Hentöllörðaralarsökkökkököndö - Þöranalók	nan da ninga manan da kana da kanan ina yang mang mang mang mang mang mang mang m
****					*****		-	
	<u> </u>							
<sup>1</sup> Type: C=C Hydric Soll	oncentration, D=Dep	letion, RM=	Reduced Matrix, M	S=Masked	Sand Gr	ains		⊧Pore Lining, M≕Matrix.
Histosol			Polyvalue Belo	w Surface	(S8) (LR)	R 17		roblematic Hydric Solis <sup>a</sup> : (A10) (LRR K, L, MLRA 1498)
	pipedon (A2)	-	MLRA 1498		(00) (21)			e Redox (A16) (LRR K, L, R)
	istic (A3)	-	Thin Dark Surfa					Peat or Peat (S3) (LRR K, L, R)
	en Sulfide (A4) d Layers (A5)	-	Loamy Mucky Muc			., L.)		e (S7) (LRR K, L, M) elow Surface (S8) (LRR K, L)
	d Below Dark Surfac	æ (A11)	Depleted Matrix		,			urface (S9) (LRR K, L)
	ark Surface (A12)	-	Redox Dark Su				-	nese Masses (F12) (LRR K, L, R)
	Vucky Mineral (S1) Sleved Matrix (S4)	-	Depleted Dark Redox Depress		7)			loodplain Soils (F19) (MLRA 1498) ic (TA6) (MLRA 144A, 145, 1498)
	Redox (S5)	-	A Redux Depress	sons (10)			— ·	Material (F21)
	I Matrix (S6)						Very Shallo	w Dark Surface (TF12)
Dark Su	rface (S7) (LRR R, I	MLRA 149B;	I				Other (Expla	ain in Remarks)
<sup>3</sup> Indicators o	a hydrophylic vegeta	tion and wet	and hydrology mus	st be prese	nt, unles	s disturbed	d or problematic.	
	Layer (If observed):							*******
Туре:								\/
Depth (in	ches):		in a line of the second se				Hydric Soll Pres	ent? Yes No
Remarks:								~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

WETLAND DETERMINATION DATA FO	RM - Northcentral and Northeast Region	
Project/site:LublinCity/C	county. Fan Claive Co sampling Date: 9/22/12	
Applicant/Owner: DPC	State: UT Sampling Point: 054 P2	
Investigator(s): KB + A) Section	on, Township, Range: <u>37 TQ5N R5W</u>	
	ief (concave, convex, none): <u>Adime</u> Slope (%): <u>1</u>	
Subregion (LRR or MLRA): LRR K Lat: 44 39 52	2.21 Long: -91 1 59.90 Datum: NAD 83	
Soil Map Unit Name: VESTER LOCUM	NWI classification:	
Are climatic / hydrologic conditions on the site typical for this time of year? Y		
Are Vegetation N, Soil N, or Hydrology N significantly distur	bed? Are "Normal Circumstances" present? Yes No	
Are Vegetation Soil or Hydrology significantly distant	atic? (If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS – Attach site map showing san		
	iping point locations, transects, important leatures, etc.	
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area within a Wetland? Yes No	
Hydric Soli Present? Yes No X		
Wetland Hydrology Present? Yes <u>No</u> Remarks: (Explain alternative procedures here or in a separate report.)	If yes, optional Wetland Site ID:	
Photo Number 0080		
Structure #21		
adjucent to ditch.		
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)	
Surface Water (A1) Water-Stained Leave	s (B9) Drainage Patterns (B10)	
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)	
Saturation (A3) Mari Deposits (B15)	Dry-Season Water Table (C2)	
Water Marks (B1) Hydrogen Sulfide Od	or (C1) Crayfish Burrows (C8)	
Sediment Deposits (B2) Oxidized Rhizospher	es on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)	
Drift Deposits (B3) Presence of Reduced	d iron (C4) Stunted or Stressed Plants (D1)	
Algai Mat or Crust (B4) Recent Iron Reduction	n in Tilled Soils (C6) Geomorphic Position (D2)	
Iron Deposits (B5) Thin Muck Surface (C7) Shallow Aquitard (D3)		
Inundation Visible on Aerial Imagery (B7) Other (Explain In Rer		
Sparsely Vegetated Concave Surface (B8)	🗡 FAC-Neutral Test (D5)	
Field Observations:		
Surface Water Present? Yes No X Depth (Inches):		
Water Table Present? Yes No X Depth (inches):		
Saturation Present? Yes No X Depth (inches):	Wetland Hydrology Present? Yes No	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:	
Remarks;		

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VEGETATION - Use scientific names of plants.

Sampling Point: 059 DZ

VEDETA HOIT - Ose scientillo harries or planto.				
		Dominant		Dominance Test worksheet:
Tree Stratum (Ptot size:)	% Cover	Species?	<u>Status</u>	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3.			******	Species Across All Strata: (B)
4.				Percent of Dominant Species
	-			That Are OBL, FACW, or FAC: (A/B)
5.		****		
6				Prevalence index worksheet:
				Total % Cover of Multiply by:
7,			······	
		= Totai Co	ver	OBL species x1 =
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
1. Populas tumuloides	2	<b>A</b> D	FACU	FAC species x 3 =
1. Vopulas tumulaides		<u> </u>	<u> <u>n</u><u></u></u>	FACU species x 4 =
2	-			
3.				UPL species x 5 =
з, <u></u>	-		. <u></u>	Column Totals: (A) (B)
4				
5				Prevalence Index ≠ B/A ≠
				Hydrophytic Vegetation Indicators:
6		. <u></u>		
7			-	1 - Rapid Test for Hydrophytic Vegetation
	7	= Total Co		2 - Dominance Test is >50%
		- Total CC	14.01	3 - Prevalence Index is ≤3.0 <sup>5</sup>
Herb Stratum (Plot size:)			<i>_</i> ,	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
1 Phalacis alundinacca	10	$\mathbb{N}$	FACW	data in Remarks or on a separate sheet)
	40	J	AO1 .	Problematic Hydrophytic Vegetation' (Explain)
2. Glyconia canadensis		. <u></u>	<u>ABL</u>	Problemate Hydrophyde Ysgetation (Explain)
3		_		
4. Salidaan giaunta		N	FACH	Indicators of hydric soil and welland hydrology must
		. <u></u>	e <del>(rodentriktering</del> -	be present, unless disturbed or problematic.
5. Agrostis alba	<u> </u>		FACW	Definitions of Vegetation Strata:
6				
Q	an announcementations			Tree - Woody plants 3 in. (7.6 cm) or more in diameter
7				at breast height (DBH), regardless of height.
8				Sapling/shrub - Woody plants less than 3 In. DBH
				and greater than or equal to 3.28 ft (1 m) tall.
9				and greater and or equal to exact the instant
10	_	-	-	Herb - All herbaceous (non-woody) plants, regardless
				of size, and woody plants less than 3.28 ft tall.
11.				
12.				Woody vines - All woody vines greater than 3.26 ft in
	91	= Total Co	19VC	height.
Woody Vine Stratum (Plot size:)				
1.				
Z				
3				Hydrophytic V
A				Vegetation Present? Yes No
				Present? Yes No
		_ = Total C	0401	
Remarks: (Include photo numbers here or on a separate	sheet.)			
1				
Martin lave				
Vegetation has been M	alalo A			
	- VVE U			
L				

SOIL							Si	amceng Polr	11 059DZ
Profile Desc	cription: (Describe	to the depi	h needed to docu	ment the indicate	r or confirm	n the absence	of Indicato	<b>(</b> \$.)	-u
Depth	Matrix			x Features					
(inches)	Color (moist)		Color (moist)	<u>% Type</u>		Texture		Remarks	
0-2	10 4R 4/2			. <u></u>		Siltlan			
2-13	104RG/3	13	1042 3/le	10	PL_	Sitt loam	w 910	vel	
		-							
		-				ale Julian lunar			
				-					
				-					
		-		49 Areadonua-Alari Sirangearan	***				
·						<u> </u>			
	oncentration, D=Dep	oletion, RM=	Reduced Matrix, M	S=Masked Send (	Grains			Lining, M=M	
Hydric Soli Historol			Dobasius Dala	v Ourlage (OB) (I	00 B			natic Hydri I BB K I B	
Histosol	pipedon (A2)		MLRA 1498	w Surface (S8) (L	<b>КК К</b> .			скк к, ц, п ох (А16) (Lfi	NLRA 1498) (R K. L. R)
Black H	•			., ace (S9) (LRR R,	MLRA 1498				(LRR K, L, R)
	en Sulfide (A4)		Loamy Mucky		K, L)			(LRR K, L,	,
	d Layers (A5)		Loamy Gleyed					Surface (S8)	
	d Below Dark Surfac ark Surface (A12)	æ (A11)	Depicted Matri Redox Dark St					(S9) (LRR I Asses (E12	к, L) ) (LRR K, L, R)
	Vlucky Mineral (S1)		Depleted Dark	, .		and the second s			9) (MLRA 1498)
	Gleyed Matrix (S4)		Redox Depres				-		I4A, 145, 149B)
	Redox (S5)						arent Materi		
	1 Matrix (86) referen (87) (LBB P. 1	MI BA 4300	•		,		hallow Dark (Explain in F	(Surface (Ti Remotive)	F12)
Uaik 30	arface (S7) (LRR R, I	NUMA 1430	••				скралтит	verouncay	
<sup>3</sup> Indicators o	a hydrophytic vegeta	tion and we	liand hydrology mu	st be present, unle	ess disturbed	t or problematic	Y.,		
Restrictive	Layer (If observed)	:							
Туре:									V
Depth (in	ches):					Hydric Soll	Present?	Yes	_ No <u>/</u>
Remarks:						****			
		1		1					
Ket	usel a	t le	5 91123	el					
			) 0						
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Northcentral and Northeast Region - Version 2.0





### **060D**

	ORM – Northcentral and Northeast Region
Projecusile: Strum Lublin CH	y/County: Equ Claire Co sempling Date: 9/22/12
Applicant/Owner: DPC	State: 4) F Sampling Point: 060 D1
	ction, Township, Range: 57 T25N R5W
Landform (hillstope, terrace, etc.): <u><u>do0rc8513</u> Local</u>	relief (concave, convex, none): <u>Cencade</u> Slope (%):
Subregion (LRR or MLRA): LER 12 Lat: 44 40	2.15 Long: -91 59.94 Datum: NAD 83
Soil Map Unit Name: Veedum Silt Locum	
Are climatic / hydrologic conditions on the site typical for this time of year's	
	sturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation <u>P</u> , Soil <u>P</u> , or Hydrology <u>N</u> naturally proble	ematic? (If needed, explain any answers in Remarks)
SUMMARY OF FINDINGS – Attach site map showing s	ampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No No No No Yes No	Is the Sampled Area No
Welland Hydrology Present? Yes X No	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
Structure 24 Photo # 95	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary indicators (minimum of one is required; check all that apply)	Surface Soll Cracks (B6)
Surface Water (A1) Water-Stained Le	aves (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B	
Saturation (A3) Mart Deposits (B1	5) Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide	
	heres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Redu	
	ction in Tilled Soils (C6) <u>V</u> Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surfac	
Sparsely Vegetaled Conceve Surface (BB)	Y FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No X Depth (Inches):	
Surface Water Present?     Yes No Depth (inches):       Water Table Present?     Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	
(includes capillary fringe) / Describe Recorded Data (stream gauge, monitoring well, aerial photos,	
Remarks;	

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VEGETATION - Use scientif	fic names of plants.
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VEGETATION - Use scienting names of plants.				Sampling Point:						
	Absolute		Indicator	Dominance Test worksheet:						
Tree Stratum (Ptot size:)	% Cover	Species?	Status	Number of Dominant Species						
1			. <u></u>	That Are OBL, FACW, or FAC:						
2				Total Number of Dominant						
3				Species Across All Strate: (B)						
4.		<del></del>		Percent of Dominant Species						
5	a. <u>materia-instationis</u>			That Are OBL, FACW, or FAC: (A/B)						
6,	-			Prevalence index worksheet:						
7				Total % Cover of Multiply by						
		= Total Co	ver	OBL species x1 =						
Sapling/Shrub Stratum (Plot size:)	Contraction of the second			FACW species x 2 =						
1. Salix Petiolaris	2	N	FACW	FAC species x 3 =						
		. <del></del>	1/100	FACU species x 4 =						
2.				UPL species x 5 =						
3	16 autoritation and a second			Column Totals: (A) (B)						
4										
5.	-			Prevalence index = B/A =						
6			. <u></u>	Hydrophytic Vegetation Indicators:						
7				1 - Rapid Test for Hydrophytic Vegetation						
	2	= Total Co	wer	X 2 - Dominance Test is >50%						
Herb Stratum (Plot size:)				3 - Prevalence Index is ≤3.0 <sup>3</sup>						
1. Casex Stricta	7	$\mathcal{N}$	OBL	4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)						
2. Juneurs tenuis	15	Y	FAC	Problematic Hydrophylic Vegetation' (Explain)						
3. Vecbena hastata		$\overline{\mathcal{N}}$	FALW							
4. Agostis ginantea	20	$\overline{\nabla}$	FACW	Indicators of hydric soil and welland hydrology must						
4. Hylosis gigantia 5. Mentha aldensis	$\frac{\overline{z}}{2}$	· <u> </u>	FACE	be present, unless disturbed or problematic.						
	5			Definitions of Vegetation Strata:						
6. <u>Sciepus Cyperious</u>		· <u> </u>	OBL	Tree - Woody plants 3 in. (7.6 cm) or more in diameter						
7. Jun cus effusus		$\cdot \underline{\mathcal{N}}$	OBL	at breast height (DBH), regardless of height.						
8. <u>Glycecia Canadensis</u>		. <u> </u>	OBL	Sapling/shrub Woody plants less than 3 in. DBH						
9. Potentilla Simpley	5	· <u>~</u>	FACU	and greater than or equal to 3.28 ft (1 m) tall.						
10. Persicuria sagittata	2	<u> </u>	OBL	Herb - All herbaceous (non-woody) plants, regardless						
11.				of size, and woody plants less than 3.28 ft tall.						
12.				Woody vines - All woody vines greater than 3.26 ft in						
	69	= Total Co	wer	height.						
Woody Vine Stratum (Plot size:)										
1,										
2.		•								
3.				Hydrophylic						
4.		u daialadhireinnair		Vegetation Present? Yes <u>No</u> No						
		_ = Total Co	over							
Remarks: (Include photo numbers here or on a separate	sheet.)									
			5							
			-							
SOIL								Sampling Point 0600		
---------------------------	--	-------------------------	--	----------------------	-----------------------------	--	--	---	--	--
	ription: (Describe	to the dept	or confirm	the absence of li	ndicators.)					
Depth (inches)	Color (moist)	%	Color (moist)	x Feature: %	Type	Loc	Texture	Remarks		
0 - 5	10YR 4/1	50	104R 211	45	$\mathcal{Q}$	М	Silty Clay	luan		
	· · · · · · · · · · · · · · · · · · ·		104R 3/6	5	Ċ	44	, ,			
5-15	2,54 6/2	98	2.54 5/6	2	C	PL	Sand			
15-21	2.546/2	933	104R 5/8	7	<u> </u>	PL	Silly cley 1	lan		
21-23	2,544/1	855	104R 5/8	15%	Ċ		·*	alan kakan dan seri kanan dan kakan kana kana kana kana kan		
		a, Animiran (Animiran .		<u></u>			<u> </u>			
****	19-2-20-20-20-20-20-20-20-20-20-20-20-20-2					·····				
	dente-s		<u> </u>							
	<u> </u>		n in the second seco	in dynamian/chidanai	<del>ýminnelsinistein</del>	<del></del>	ppenyspyratorynaessada – <del>panola</del>	nin ayan ayin yoshada a dalayoo yoshalaraan ki dayadayad dalaraa in iyo yosha		
						de la construction de la		na nyananana na manana manangana manana na manana na manana na manana na manana na manana ina manana ina mana m		
			<del></del>							
<sup>1</sup> Type: C=C	oncentration, D=Dep	letion, RM=	Reduced Matrix, M	- S=Masked	Send Gr	ains	<sup>2</sup> Location: PI	L=Pore Lining, M=Matrix.		
Hydric Soll							Indicators for	Problematic Hydric Solis <sup>9</sup> :		
Histosol Histic Fr	(A1) bipedon (A2)		Polyvalue Belo MLRA 1498		(S8) (LRI	RR,		: (A10) (LRR K, L, MLRA 1498) rie Redox (A16) (LRR K, L, R)		
Black Hi	stic (A3)		Thin Dark Surfi	ace (S9) (L	,		5 cm Muck	y Peat or Peat (S3) (LRR K, L, R)		
	n Sulfide (A4) 1 Layers (A5)		Loamy Mucky I Loamy Gleyed			(, L)	Dark Surface (S7) (LRR K, L, N) Polyvalue Below Surface (S8) (LRR K, L)			
Depleter	d Below Dark Surfac	æ (A11)	Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)					Surface (S9) (LRR K, L)		
	ark Surface (A12) Nucky Mineral (S1)		Redox Dark S. Depieted Dark				<ul> <li>Iron-Manganese Masses (F12) (LRR K, L, R)</li> <li>Piedmont Floodplain Soils (F19) (MLRA 1498)</li> </ul>			
Sandy G	Sleyed Matrix (S4)				.,		Mesic Specie (TA6) (MLRA 144A, 145, 1498)			
Sandy R	tecox (SS) Matrix (S6)						Red Parent Material (F21) Very Shallow Dark Surface (TF12)			
· · · ·	rface (S7) (LRR R, I	MLRA 1498	3)				Other (Explain in Remarks)			
<sup>3</sup> Indicators o	f hydrophytic vegeta	tion and wa	liand hydrology mu	st he mess	tot unles	s risturbedu	ororbiematic			
	Layer (If observed)							<mark>ya ya kubu ya kubu kubu kubu kubu ya kubu ya kubu kubu kubu kubu kubu kubu kubu kub</mark>		
Тура:										
	ches):		<u>ta de la constante de la constante en constante de la constante de la constante de la constante de la constante</u>				Hydric Soll Pre	sent? Yes X No		
Remarks:										

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	RM - Northcentral and Northeast Region
Projecusite: Strum Lublin cityro	county: East Chure Co Sampling Date: 9/22/12
Applicant/Owner: DPC	State: WI Sampling Point: 060002
Investigator(s): <u>KB+A</u> Section	m, Township, Renge: 57 TREN REW
Landform (hillslope, terrace, etc.):	
Subranian (IBB or All BA): L-RIK (all: 44 29 5	18.68 Long: -91 1 59.94 Datum: NAD83
soll Map Unit Name: <u>Veedurn Silt loarn</u>	
Are climatic / hydrologic conditions on the site typical for this time of year? Y	es No (If no, explain in Remarks.)
Are Vegetation $\underline{\mathcal{M}}_{\underline{\mathcal{M}}}$ . Soli $\underline{\mathcal{N}}_{\underline{\mathcal{M}}}$ , or Hydrology $\underline{\mathcal{N}}_{\underline{\mathcal{M}}}$ significantly disturb	bed? Are "Normal Circumstances" present? Yes No
Are Vegetation Soil, or Hydrology naturally problems	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sam	pling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes <u>No</u> No Hydric Soll Present? Yes <u>No</u> No	Is the Sampled Area within a Wetland? Yes No
Welland Hydrology Present? Yes No	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
Photo #00866,0087	
LHYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary indicators (minimum of one is required; check all that apply)	Surface Soli Cracks (B6)
Surface Water (A1) Water-Stained Leave	
High Water Table (A2) Aquatic Fauna (B13)	
Saturation (A3)Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Od	or (C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospher	es on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced	d Iron (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reductio	n in Titled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (0	C7) Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rer	
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No X Depth (inches):	
Water Table Present? Yes No X Depth (Inches):	
Saturation Present? Yes No X Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	Welland Hydrology Present? Yes No vious inspections), if available:
Remarks:	

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EGETATION - Use scientific names of plants.				Sampling Point: 0602
Tree Stratum (Ptol size:)		Dominant Species?		Dominance Test worksheet:
1		<u></u>		Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata: (B)
4				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
5				Prevalence Index worksheet:
7	. <del></del>			Total % Cover of Multiply by:
		= Total Cov	/er	OBL species 27 x1 = 27
Sapling/Shrub Stratum (Plot size:)				FACW species $24$ x 2 = $48$ FAC species $3 = 0$
				FACU species $30$ $x4 = 120$
				UPL species $3$ x 5 = $5$
3				Column Totals: $\underline{84}$ (A) $\underline{340}$ (B)
<b>1</b>				Prevalence index = $B/A = -2.5$
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
		= Total Cov	ver	2 - Dominance Test is >50%
Herb Stratum (Plot size:)	0.1	U	T,	<ul> <li>4 - Morphological Adaptations<sup>1</sup> (Provide supporting</li> </ul>
1. <u>Poa Compressa</u>	25	$\frac{1}{\omega}$	Fakcu	data in Remarks or on a separate sheet)
2. Schipus Caperinus		$\frac{N}{N}$	064	Problematic Hydrophytic Vegetation' (Explain)
3. Symphyptrichum lanceplatum		- <u>10</u> -	FACW	Indicators of hydric soil and welland hydrology must
4. Hiericium Scabrum 5. Solidago gigantea		<u></u>	FACW	be present, unless disturbed or problematic.
6. Potentilla simplex		- JJ	FACU	Definitions of Vegetation Strata:
Pastinara Sativa		- W	UPL	Tree – Woody plants 3 in. (7.6 cm) or more in diamete at breast height (DBH), regardless of height.
B. Carix Eribulaides	15	N	FACU	Sapling/shrub - Woody plants less than 3 in. DBH
9. Glyceria Conadersia	25	4	OBL	and greater than or equal to $3.28 \text{ ft}$ (1 m) tall.
10		· <u> </u>		Herb - All herbaccous (non-woody) plants, regardless
11,				of size, and woody plants less than 3.28 ft tall.
12				Woody vines - All woody vines greater than 3.28 ft in height.
	-94	, = Total Co	VEL	
Woody Vine Stratum (Flot size:)				
		• •••••••		
2	da. <del>Kanalaka katalaka ka</del> ta			Hydrophylic
4.				Vegetation
		= Total Co	ver	Present? Yes No
Remarks: (Include photo numbers here or on a separate	sheet.]			

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SOIL	
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		to the dep				or confirm	the absence of Ind	icators.)
Depth (inches)	Color (moist)	%	Color (moist)	x Feature %	s Type'	Loc	Texture	Remarks
0-7	104h 2/2	100					Silt loan	unnynnymnyn yn frifit yn feftig fan yn
7-10	104R311	99	104/23/4		~	PL	Description and the second sec	2
	10110 5/0		104R 5/4				Contraction of the contraction o	
10-18	1041572	93	109K 14			<u> </u>	Silty Clay lan	<u>ň-</u>
	******	• •				<del></del>		
		-						
	A 227.00.204.00.00 (200.01) - 004.010(200.00	-	<del></del>					***********
	· · · · · · · · · · · · · · · · · · ·			<del></del>		······	<u></u>	······································
				-				
****	•••••••••••••••••••••••••••••••••••••••			-	*****	-		
	******	-		-				1947 (1948 - 1947) 1948 - 1947 - 1948 - 1947 - 1947 (1947) 1948 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 194
Type: C=Co	oncentration, D=Dec	letion, RM	Reduced Matrix, M	S=Masked	Send Gr	ains	<sup>2</sup> Location: PL=F	Pore Lining, M=Matrix.
Hydric Soll I	ndicators:							oblematic Hydric Solis <sup>3</sup> :
Histosol	• •		Polyvalue Belo		(S8) (LRI	RR,		10) (LRR K, L, MLRA 149B)
Histic Ep	olpedon (A2) stic (A3)		MLRA 1498 Thin Dark Surfa	-	RR R MI	RA 1498.		Redox (A15) (LRR K, L, R) Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4)		Loamy Mucky I					(S7) (LRR K, L, M)
	Leyers (A5)		Loamy Gleyed		9			low Surface (S8) (LRR K, L)
	l Below Dark Surfac irk Surface (A12)	æ (A11)	Depicted Matrix Redox Dark Su					rface (S9) (LRR K, L) ese Masses (F12) (LRR K, L, R)
	lucky Mineral (S1)		Depleted Dark				-	odplain Soils (F19) (MLRA 1498)
	leyed Matrix (S4)		Redox Depress	sions (F8)				(TA6) (MLRA 144A, 145, 149B)
	edox (S5)							Aaterial (F21) Dedu Surface (TE12)
1	Matrix (86) Nace (87) (LRR R, I	WLRA 149	Bì					r Dark Surface (TF12) in in Remarks)
			elland hydrology mu	st be presi	ant, unles	s disturbed	or problematic.	
	ayer (if observed).							
							Hydric Soll Press	nl? YesNoX
Remarks:	:hes):							
FTEIREAS.								
								•
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Northcentral and Northeast Region - Version 2.0

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			a deres how
Alter and the second		A Ventering Andrew Alexandre	A Contract
			Read and the second second
Star Martin			
DIRECTION South	FEATURE ID PHOTOGRAPHER	060D         Kathy Bellrichard and Apryl Jennrich	DATE 9/22/20

WETLAND DETERMINATIO		
Projectisite: Stimm Lublin	City/County: EAL C	1414 Co Sempling Date:
Applicant/Owner: DPC		State: (J) Sampling Point: 06/51
	Section, Township, Range	
Landform (hillslope, terrace, etc.): hill slope		-
Subregion (LRR or MLRA): LRRK Lel: 44		
Soil Map Unit Name: Hiles +Kort Soils	warmenter warmenter and the second se	NWI classification:
Are climatic / hydrologic conditions on the site typical for this t		
Are carnatic 7 hyprologic conditions on the site typical for this i Are Vegetation Soil or Hydrology sig		
Are Vegetation Soil/ or Hydrology sig Are Vegetation Soil or Hydrology na		mel Circumstances" present? Yes No ed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map s		
Hydrophytic Vegetation Present? Yes No Hydric Soll Present? Yes No Welland Hydrology Present? Yes No Remarks: (Explain alternative procedures here or in a sepa	Is the Sampled Ar within a Wetland?	68
Photo #20088 Oraintiled		
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all th	at apply)	Surface Soli Cracks (B6)
Surface Water (A1) Water	-Stained Leaves (B9)	Drainage Patterns (B10)
High Water Table (A2) Aquat	ic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Mari 1	Deposits (B15)	Dry-Season Water Table (C2)
	gen Sulfide Odor (C1)	Crayfish Burrows (C8)
	, <del>,</del> ,	C3) Saturation Visible on Aerial Imagery (C9)
	nce of Reduced Iron (C4)	Stunted or Stressed Plants (D1)
	t Iron Reduction in Tilled Solls (C6)	
	fuck Surface (C7)	Shallow Aquitard (D3)
	(Explain in Remarks)	Microtopographic Relief (D4) FAC-Neutral Test (D5)
Sparsely Vegetaled Concave Surface (B8)		
Field Observations: Surface Water Present? Yes No Dept	h finals and	
Water Table Present? Yes No X Dept Saturation Present? Yes No X Dept		nd Hydrology Present? Yes No 🗡
(includes capillary fringe)	(inclus).	
Describe Recorded Data (stream gauge, monitoring well, as	rial photos, previous inspections), l	favailable:
Remarks:		

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VEGETATION - Use scientific names of plants.

Sampling Point: 06101

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VEGETATION - Use scienting harnes or plants.				Samping Point.
		Dominani		Dominance Test worksheet:
Tree Stratum (Piol size:)	% Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: (A)
2				
				Total Number of Dominant Species Across All Strata: (B)
3.				
4	-		-	Percent of Dominant Species
Ś.				That Are OBL, FACW, or FAC: (A/B)
6				Prevalence index worksheet:
7				Total % Cover of Multiply by
	<u>printerson sources</u>	= Total Co	ver	OBL species x1 =
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
1.			. <u></u>	FAC species x 3 =
2.				FACU species X 4 =
				UPL species x 5 =
3.	-		. <u> </u>	Column Totels: (A) (B)
4			• <u></u>	
5.				Prevalence Index = B/A =
6,				Hydrophytic Vegetation indicators:
				1 - Rapid Test for Hydrophytic Vegetation
7.				2 - Dominance Test is >50%
		= Total Co	wer	3 - Prevalence Index is ≤3.01
Herb Stratum (Plot size:)		. /		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
1. Phlans alundmarca	95	Ч	FACU	data in Remarks or on a separate sheet)
			a discussion and a second	Problematic Hydrophytic Vegetation' (Explain)
2	-		-	
3	-			<sup>1</sup> Indicators of hydric soil and wetland hydrology must
4			a <u>waananaanaanaanaa</u>	be present, unless disturbed or problematic.
5				D. C. Martin and Martin Martin
				Definitions of Vegetation Strata:
6.				Tree - Woody plants 3 in. (7.6 cm) or more in diameter
7.				et breast height (DBH), regardless of height.
8	-			Sapling/shrub - Woody plants less than 3 in. DBH
9				and greater than or equal to 3.28 ft (1 m) tall.
10				<ul> <li>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3 28 ft tall.</li> </ul>
11.				
12			-	Woody vines - All woody vines greater than 3.26 ft in
		= Tolal Co	wer	height,
Woody Vine Stratum (Plot size:)		•		<u></u>
1.				
2.				
3				Hydrophylic
				Present? Yes No
		= Total Co	over	
Remarks: (Include photo numbers here or on a separate	sheet.)			
Heavily grazed pushue				

SOIL

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	cription: (Describe	to the dep				91 - OI 111 111	ule ausence u	rindicators.)	
Depth (inches)	Color (moist)	%	Redox Features Color (molst) % Type Loc*			Loc	Texture	Remarks	
0-6	104R3/1	95	1042 314	5	C	PL	Silt loan	1	
6-10	104R4/1	95	104R 3/3	5	2	PL	Sandy loa		
10-20	2.54 4/2	90	104B 5/8	10	<u> </u>	PL	Sand	ind a number of the second sector and the database districted before to the sector of the sector of the sector and the database distribution in the sector of the sector and the sector of th	
	<u></u>								
-	*****					****	and a second contract contract of the second se	nyi shinin ma'ani yada yalanda kabada dabi yalan ayo hida boxan Jamoson ya ba'da komundoksi kilini H	
<u></u>	distant and and an an interference and an an and				-	*******	nanispananananananan sa		
	*******			**********				an a an	
								*****	
							<u> </u>	·····	
4		-			-				
		-	-	-					
							·		
				-					
In the second	***************************************	oletion, RM	=Reduced Matrix, M	S=Masker	l Sand Gr	ains		PL=Pore Lining, M=Matrix.	
Hydric Soll Histosol			Polyvalue Belo	w Surface	(S8) (LRI	7 R		or Problematic Hydric Solis <sup>9</sup> : ck (A10) (LRR K, L, MLRA 149B)	
Histic E	pipedon (A2)		MLRA 1498	))			Coast Pr	alrie Redox (A16) (LRR K, L, R)	
	listic (A3) en Sulfide (A4)		Thin Dark Surfa					icky Peat or Peat (S3) (LRR K, L, R) iface (S7) (LRR K, L, M)	
	d Leyers (A5)		Loamy Gleyed	• •		, =)		e Below Surface (S8) (LRR K, L)	
	d Below Dark Surface	æ (A11)		Depleted Matrix (F3)				k Surface (S9) (LRR K, L)	
	ark Surface (A12) Viucky Mineral (S1)		Redox Dark Su Depleted Dark					nganese Masses (F12) (LRR K, L, R) It Floodplain Soils (F19) (MLRA 1498)	
	Gleyed Matrix (S4)			sions (FB)				podic (TAG) (MLRA 144A, 145, 1498)	
	Redox (S5) 1 Matrix (S6)							ent Material (F21) allow Dark Surface (TF12)	
	arface (S7) (LRR R, I	MLRA 149	B)					xplain in Remarks)	
<sup>3</sup> Indicators o	x hydrophytic vegete	tion and w	eliand hydrology mu	st be pres	ent unles	s disturbed	or problematic.		
	Layer (If observed)								
Туре:								X	
	ches):				en communication construction of		Hydric Soll P	resent? Yes No	
Remarks:									
1									

## 063D

WETLAND DETERMINATION DATA FOR	-
Project/site: Strum Lublin City/Co	unty: Ear Clusse Co sempling Date: 9/22/12
Applicant/Owner: DPC	State: WF Sampling Point: 06301
	1, Township, Range: SC TREN REW
Landform (hillslope, terrace, etc.): <u>depression</u> Local relie	
Subregion (LRR or MLRA): LAL K Lal: 44 40 4	768 Long: - 91 1 50.32 Datum: NAD 83
Soil Map Unit Name: <u>Veerlum Silt lown</u>	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Ye	
Are Vegetation	
Are Vegetation, Soil, or Hydrology naturally problemat	tic? (If needed, explain any answers in Remarks )
SUMMARY OF FINDINGS - Attach site map showing sam	pling point locations, transects, important features, etc.
Hydric Soil Present? Yes No	Is the Sampled Area within a Wetland? Yes <u>No</u> <u>No</u>
Wetland Hydrology Present?         Yes         No           Remarks:         (Explain alternative procedures here or in a separate report.)	If yes, optional Wetland Site ID:
Photo #00.90 #0091	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary indicators (minimum of one is required, check all that apply)	Surface Soli Cracks (B6)
Surface Water (A1) Water-Stained Leaves	
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
X         Seturation (A3)         Mart Deposits (B15)           Water Marks (B1)         Hydrogen Sulfide Odo	Dry-Season Water Table (C2)     Crayfish Burrows (C8)
	is on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)	- · · · · · · · · · · · · · · · · · · ·
Algai Mat or Crust (B4) Recent Iron Reduction	
Iron Deposits (B5) Thin Muck Surface (C	7) Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rem	arks) Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No X Depth (inches):	
Water Table Present? Yes No X Depth (Inches):	<u> </u>
Saturation Present? Yes X No Depth (inches): C	Wetland Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, prev	rious inspections), if available:
Remarks:	

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VEGETATION - Use scientific names of plants.

Sampling Point: 063P1

VEGETATION - Use scienting names of plants.				Sampling Point: COUPT
Tree Steelum (Blot citeren )		Dominant Species 2		Dominance Test worksheet:
Tree Stratum (Piot size:)	36 COVer	Species?	5 <u>19105</u>	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: (A)
2	• ••••••			Total Number of Dominant
3				Species Across All Strata: (B)
4	-			Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A/B)
6				Prevalence Index worksheet:
7.			-	Total % Cover of Multiply by:
		= Total Cov	/er	OBL species x1 =
Sapling/Shrub Stratum (Plot size:)				FACW species X 2 =
1.	-	·····	******	FAC species x 3 =
2				FACU species X 4 =
3.				UPL species x 5 =
		2-10-10-10-10-10-10-00-		Column Totals: (A) (B)
4				Prevalence Index = B/A =
5			****	
6,		<u></u>	<u> </u>	Hydrophytic Vegetation Indicators:
7				X 1 - Rapid Test for Hydrophytic Vegetation
		= Total Co	ver	2 - Dominance Test is >50%
Herb Stratum (Plot size:)				3 - Prevalence Index is ≤3.01
1. schoenoplectustabernaem	and the second	201	OBL	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
				Problematic Hydrophytic Vegetation' (Explain)
2. Eupatorium Perfaliatum			FACW	Problematic Hydrophytic Vegetation (Explain)
3. Symphyotrichom lanceolatu		$\underline{\nu}$	TAKU	Indicators of hydric soil and welland hydrology must
4. Symphyotrichum poniceum	<u>J</u>	$\underline{\nu}$	OPL	be present, unless disturbed or problematic.
5. Sciences attantions	25	Y	OBL	Definitions of Vegetation Strata:
6. Carix Uulpinoidea	IĎ	$\mathcal{N}$	UBL	
				Tree – Woody plants 3 in. (7,6 cm) or more in diameter at breast height (DBH), regardless of height.
7.				a, preasi neight (DSH), regardless oi neight.
8.				Sapling/shrub - Woody plants less than 3 in. DBH
9				and greater than or equal to 3.28 ft (1 m) tall.
10				Herb - All herbaceous (non-woody) plants, regardless
11,				of size, and woody plants less than 3.28 ft tall.
12.				Woody vines - All woody vines greater than 3.28 ft in
	5	= Tolai Co		height.
		,= Tuta: Cu	461	
Woody Vine Stratum (Plot size:)				
1,				
2.				
3				Hydrophylic
4				Vegetation Present? Yes No
	•••••••••••••••••••••••••••••••••••••••	= Total Co	wer	Present? Yes No
Remarks: (include photo numbers here or on a separate	speet 1			
Renarks. (include proto numbers here of on a separate	31000.)			
grazed pasture				
0. 200 prospore				
US Army Corps of Engineers				Northcentral and Northeast Region - Version 2.0

SOIL							Sampling P	ioint: <u>663D1</u>	
Profile Description: (Desc	,				or confirm	n the absence o	of Indicators.)		
Depth <u>Mat</u> (inches) Color (mois	st) %	Color (moist)	× Feature	Type'	Loc	Texture	Rema	rks	
0-3 2.54 2.5	1 100					Clay War	1		
3-11 2.54 2.5	1 93	104R 3/6	7	Ċ	PL	Sandyloum	snal lea	(Ses)	
11-18 2.54 6/	3 60	101R 5/2	40	C	PL	Sand			
New york and an any sequence of the stand of the standard standard standard standard security of the standard security of						*****	****		
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		****					9,9944 0,994 0,994 0,994 0,994 0,994 0,994 0,994 0,994 0,994 0,994 0,994 0,994 0,994 0,994 0,994 0,994 0,994 0		
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						-	************		
		*****		******	*******	*********			
					<u> </u>	·			
<sup>1</sup> Type: C=Concentration, D	=Depletion_RM	-Reduced Matrix M	SeMaskar	i Send Cri		<sup>2</sup> Location:	PL=Pore Lining, M	=Matrix	
Hydric Soll Indicators:	-Depiction, Kin						or Problematic Hy		
Histosol (A1)		Polyvalue Belo		(S8) (LRF	tR,		uck (A10) (LRR K, L		
Histic Epipedon (A2) Black Histic (A3)		MLRA 1498	*	.RR R, MI	LRA 1498		raine Redox (A16) ( ucky Peat or Peat (S		
Hydrogen Sulfide (A4)		Loamy Mucky Mineral (F1) (LRR K, L)				inface (S7) (LRR K,			
Stratified Layers (A5) Depleted Below Dark S	urface (A11)	Loamy Gleyed Matrix (F2) Depleted Matrix (F3)			Polyvalue Below Surface (\$8) (LRR K, L) Thin Dark Surface (\$9) (LRR K, L)				
Thick Dark Surface (A1	2)	Redox Dark S	x Dark Surface (F6)				nganese Masses (F	12) (LRR K, L, R)	
Sandy Mucky Mineral (S Sandy Gleyed Matrix (S		Depieted Dark X Redox Depres		7)				F19) (MLRA 1498) 144A, 145, 1498)	
Sandy Redox (S5)	- • •	<del>, .</del>				Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Red Parent Material (F21)			
Stripped Matrix (S6) Dark Surface (S7) (LRF	R MIRA 149	Bi				Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
<sup>3</sup> Indicators of hydrophytic ve Restrictive Layer (If obser		eliand hydrology mu	st be presi	ent, uniess	s disturbed	l or problematic.	****		
Туре:								,	
Depth (inches):						Hydric Soll F	Preseni? Yes	No	
Remarks:		949-9-0-0,200-0009999-0-0000-0-0-99999-0-0-09992-0-000-0-000992-0-0-0-0	9.7292940-427929-0948792800799495229498	*****	ene gezouetanin une don trovernaisco	****		na zakole melek miszeker in elemenintenine et melen izenet innen til henneksi nisa demakani e	

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WETLAND DETERMINATION DATA FO	RM - Northcentral and Northeast Region
Projecusite: Stun Lublon Cityro	county. Face Claure Co. Sempling Date: 9/42/17
Applicant/Owner: DPC	State: Wt Sampling Point: 063DZ
	m, Township, Range: <u>SG T25N R5W</u>
	ief (concave, convex, none): O (a Stope (%):
	. 38 Long: -91 50,29 Datum: NAD 83
Soll Map Unit Name: Arlund Sandy Joan	
Are climatic / hydrologic conditions on the site typical for this time of year? Y	
Are Vegetation $\underline{N}_{\underline{M}}$ . Soil $\underline{N}_{\underline{N}}$ or Hydrology $\underline{N}_{\underline{N}}$ significantly disturb	
Are Vegetation, Soil, or Hydrology naturally problems	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sam	pling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?     Yes No       Hydric Soll Present?     Yes No	is the Sampled Area within a Wetland? Yes No
Welland Hydrology Present? Yes No	If yes, optional Wetland Site ID:
Photo #20087 Structure 2	9
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary indicators (minimum of one is required; check all that apply)	Surface Soli Cracks (86)
Surface Water (A1) Water-Stained Leave	
High Water Table (A2) Aquatic Fauna (B13) Saturation (A3) Mart Deposits (B15)	Moss Trim Lines (B16) Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Od	
	es on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced	
Algal Mat or Crust (B4) Recent Iron Reductio	n in Tilled Salls (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C	C7) Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rer	marks) Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (Inches):	
Water Table Present? Yes No X Depth (inches):	
Saturation Present? Yes NoX_ Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:
Remarks.	

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VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: \_\_\_\_\_)

1.

~	

(A)

2				Total Number of Dominant
3,				Species Across All Strata: (B)
45				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
6				Prevalence Index worksheet:
7		* ****************		Total % Cover of Multiply by:
	<u></u>	= Total Co	never	OBL species x1 ≖ FACW species x2 ≖
Sapling/Shrub Stratum (Plot size:)				FAC w species $2 = 2 = 2$ FAC species $2 = 2$
			-	FACU species 72 x 4 = 2%8
2.				UPL species $O$ x 5 = $O$
3.				Column Totels: 72 (A) 268 (B)
4 5		-		Prevalence Index = B/A =
6				Hydrophytic Vegetation indicators:
7	<u></u>	-		1 - Rapid Test for Hydrophytic Vegetation
		= Total Co	over	2 - Dominance Test is >50% 3 - Prevalence Index is ≾3.0°
Herb Stratum (Plot size:)		1	1.	4 - Morphological Adaptations <sup>1</sup> (Provide supporting)
1. Phleum praderse	10	<u>    N                                </u>	FACU	data in Remarks or on a separate sheet)
2. Plantago Major		<u>- N</u>	FACY	Problematic Hydrophytic Vegetation' (Explain)
3. Erifolium protense		- <u>~</u>	FACY	<sup>1</sup> Indicators of hydric soil and welland hydrology must
4. Taraxacum officiale	40	- <del>- 6</del>	- EACU	be present, unless disturbed or problematic.
5. Pou pratense	- management		- EACU	Definitions of Vegetation Strata:
6. Ambiosia artemisiifatia 7	And the second sec	<u>N</u>	- FACY	Tree – Woody plants 3 in, (7.6 cm) or more in diameter at breast height (DBH), regardless of heighl.
8				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
9				Herb – All herbaceous (non-woody) plants, regardless
11,				of size, and woody plants less than 3 28 ft tall.
12				Woody vines - All woody vines greater than 3.26 ft in height.
	12	_ = Tolal C	over	
Woody Vine Stratum (Plot size:)				
1,				
2	-			
3				Hydrophylic Vegetation
4. <u></u>		= Total C		Present? Yes No
Remarks: (Include photo numbers here or on a separate s	neet.1		over	
Newply grazed pasture				

Absolute Dominant Indicator % Cover Species? Status

US Army Corps of Engineers

Sampling Point: 063D2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:

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SOIL

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		to the dep				or confirm	the absence of Ind	licators.)
Depth (inches)	Matrix Color (moist)	%	Color (moist)	× Feature %	s Type	Loc	Texture	Remarks
0-4	104/ 3/1	100					Sudy Sitt	
4-12	1042 472	99	10412 4/3	)	C	PL	Sardy lan	
12-18	2,54 5/2	100	and an an a faith and a second se	, <del></del>	-		loan	а цара в Солина у Сарији Солију и Солина и сири сали и Солуј и Сулина и ракали и Солуји су Сулина и Силина и С
*****						******		
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					• •••••			- an an international and an international and an an and a state of the state of the state of the state of the
	<u></u>	·		·	· <u></u>	. <u></u>	<u></u>	
-				-			Quridistanijanistinstrajians) Abuldajija	
	***							****
	***************************************				· <u></u>			· · · · · · · · · · · · · · · · · · ·
<sup>1</sup> Type: C=C	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Masker	d Sand Gra	ains	<sup>2</sup> Location: PL=	Pore Lining, M=Matrix.
Hydric Soll								oblematic Hydric Solis <sup>‡</sup> :
Histosol	• •		Polyvalue Belov MLRA 1498		(S8) (LRI	tR,		A10) (LRR K, L, MLRA 1498)
	stic (A3)		Thin Dark Surfa		LRR R, MI	LRA 1498		: Redox (A16) (LRR K, L, R) Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4)		Loamy Mucky M	dineral (F	1) (LRR K		Dark Surface	(S7) (LRR K, L, M)
	d Layers (A5) d Below Dark Surlac	e (A11)	Loamy Gleyed Depleted Matrix		?)			Now Surface (S8) (LRR K, L) Inface (S9) (LRR K, L)
	ark Surface (A12)	• • • • • •	Redox Dark Su		i			ese Masses (F12) (LRR K, L, R)
· — ·	Aucky Mineral (S1)		Depieted Dark : Redox Depress	•	-			odplain Soils (F19) (MLRA 1498)
	Sleyed Matrix (S4) Redox (S5)		Redox Depress	10115 (FO)				c (TA6) (MLRA 144A, 145, 149B) Vaterial (F21)
, <u> </u>	Matrix (86)		_		-		Very Shallow	r Dark Surface (TF12)
Dark Su	rface (S7) (LRR R, N	ALRA 149	B)				Other (Expla	in in Remarks)
<sup>3</sup> Indicators o	f hydrophytic vegeta	tion and w	etiand hydrology mus	st be pres	ent, unies:	s disturbed	l or problematic.	
	Layer (If observed):							
							Mudda Call Cross	ont? Yes No 🗶
	ches):				0004-00070400-000-000-000-000-000-000-00		Hydric Son Prese	
Remarks:								



# 065D1 065D2

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

Project/Site: Stinn Lyblin City/County Eng Claive Co sampling Date: 9/22/12
Applicant/Owner: DPC
Investigetor(s): KB + A) Section, Township, Range: SG TASN R.SW
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):
Subregion (LRR or MLRA):K Lat:44_40_8_89_Long:/ 42.35_Datum: MAD 83
Soil Map Unit Name: Vesper Tocum NWI classification:
Are climatic / hydrologic conditions on the site hypical for this time of year? Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation Soit, or Hydrology naturally problematic? (If needed, explain any answers in Remarks )
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?       Yes No       Is the Sampled Area within a Wetland?       Yes No         Hydric Scil Present?       Yes No       Is the Sampled Area within a Wetland?       Yes No         Wetland Hydrology Present?       Yes No       If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.) Photo # 0012
HYDROLOGY
Wetland Hydrology Indicators:         Secondary Indicators (minimum of two required)
Primary indicators (minimum of one is required; check all that apply) Surface Soli Cracks (B6)
Surface Water (A1) Water-Stained Leaves (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13) Moss Trim Lines (B16)
X     Seturation (A3)
Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)
Sediment Deposits (B2)      Oxidized Rhizospheres on Living Roots (C3)      Saturation Visible on Aerial Imagery (C9)        Drift Deposits (B3)      Presence of Reduced Iron (C4)      Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2)
Agai mat of close (64) Solution (62) Solution (6
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Microtopographic Relief (D4)
FAC-Neutral Test (D5)
Field Observations:
Surface Water Present? Yes No X Depth (inches):
Water Table Present? Yes No 🔀 Depth (Inches):
Saturation Present? Yes X No Depth (Inches): / Q Wetland Hydrology Present? Yes X No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Remarks;

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**VEGETATION** - Use scientific names of plants.

Sampling Point: 0650

VEGETATION - Use scienting harnes of plants.				Sampling Fount. <u>Seggen</u>
	Absolute			Dominance Test worksheet:
Tree Stratum (Plot size:)		Species?	018105	Number of Dominant Species
1.	a. <u>musimuu musimuu musi</u>			That Are OBL, FACW, or FAC: (A)
				Total Number of Dominant Species Across All Strata: (B)
3				Species Across All Strata: (B)
4.				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
5				
6			*****	Prevalence Index worksheet:
7.				Total % Cover of Multiply by:
		= Total Cov	/er	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)				FACW species X 2 =
1,	-			FAC species x 3 =
2				FACU species X 4 =
3.				UPL species X 5 =
4				Column Totals: (A) (B)
5.				Prevalence index = B/A =
6.				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
		= Total Cov		2 - Dominance Test is >50%
Use Chatter (Distaine)		- 100 00		3 - Prevalence Index is ≤3.0 <sup>7</sup>
Herb Stratum (Plot size:) 1. Plantano Argist	3	N	<u>CACY</u>	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
2 Scipis Validus	5	N	OBL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
3. Carix Vulpinoidea	10	N	084	
4. Scirpus atrovicens	20	Ч	OBL	Indicators of hydric soil and welland hydrology must be present, unless disturbed or problematic.
5 Ennatorrum perfoliation	-	N	FACW	Definitions of Vegetation Strata:
6. Phloum Diaters	5	N	TACU	-
7. Juncus tenuis		N	FAC	Tree – Woody plants 3 in. (7,6 cm) or more in diameter at breast height (DBH), regardless of height.
8. Phylaris areadoncea	15	· <del>R</del>	FACW	
9. Gluceria Candensis	25	- Y	OBL	Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.26 ft (1 m) tall.
		•		
10	-	•		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12				Woody vines - All woody vines greater than 3.26 ft in
	91	= Tolal Co	ver	height.
Woody Vine Stratum (Plot size:)				
1,			·	
2.				
3.				Hydrophytic
4				Vegetation
		= Total Co		Present? Yes No
Remarks: (include photo numbers here or on a separate	sheet.)			

SOIL

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		to the dep	oth needed to docur			or confirm	the absence of in	dicators.)		
Depth (inches)	Matrix Color (moist)	%	Color (moist)	x Feature: %		Loc	Texture	Remarks		
0-4	2,543/1	100		·			5.17 10am			
4-9	2.543/1	95	104R 3/6	5				/11		
9-18	2,545/1	90	104R. 4/6	10			Jan (	á in J		
1-10	4.21-11		10-1K 14	<u>- 70</u>			10amy Dar	J		
		-				<del></del>	<del></del>			
an a	en e	<u> </u>			*****					
			••••••••••••••••••••••••••••••••••••••							
				· <u></u>						
				•			·····			
	-	-		• <del>•••••••••••••••••••••••••••••••••••</del>						
		*********			<del></del>					
	••••••		· · · · ·				·····			
and a second		oletion, RN	EReduced Matrix, M	S=Masked	I Sand Gr	ains		Pore Lining, M=Matrix.		
Hydric Soll				. <i>.</i>	(5.6) (I E)			roblematic Hydric Solis <sup>3</sup> :		
Histosol Histic Et	(A1) bipedon (A2)		Polyvalue Belo MLRA 1498		(S8) (LRI	<b>Κ</b> ,		(A10) (LRR K, L, MLRA 149B) e Redox (A16) (LRR K, L, R)		
	stic (A3)		Thin Dark Surfa		.RR R, M	LRA 1498		Peat or Peat (S3) (LRR K, L, R)		
	m Sulfide (A4)		Loamy Mucky I			, L)		e (S7) (LRR K, L, M)		
	d Layers (A5) d Below Dark Surfac	æ (A11)	Loamy Gleyed		)			elow Surface (S8) (LRR K, L) urface (S9) (LRR K, L)		
	ark Surface (A12)	~ µ,	Redox Dark Su					nese Masses (F12) (LRR K, L, R)		
	Aucky Mineral (S1)		Depleted Dark					loodplain Soils (F19) (MLRA 1498		
	Sleyed Matrix (S4) Redox (S5)		Kedox Depress	Rouz (FQ)				ic (TA6) (MLRA 144A, 145, 149B) Material (F21)		
	Matrix (S6)							Very Shallow Dark Surface (TF12)		
Dark Su	rface (S7) (LRR R, I	MLRA 149	B)				Cther (Expla	ain in Remarks)		
<sup>3</sup> Indicators o	f hwirophylic wegeta	tico and w	elland hydrology mu:	the ores	ent unles	s disturbed	l or orchiematic			
	Layer (If observed)		chang nyo dogy no.	a be prese	510, 41865	5 0 5 0 10 0 0				
Туре:	-									
Depth (in	ches):	And in a standard last last last line in the					Hydric Soll Pres	ent? Yes <u>×</u> No		
Remarks:	Several Analysis in Analysis (Analysis) Charling and Charling and Charling and Charling and Charles and Charles	del manning i del principal del manda de		Section of the sectio			100			
							,			
							1			

WETLAND DET	TERMINATION DA	TA FORM N	<b>lorthcentral and</b>	Northeast Region
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WETLAND DETERMINATION DATA FOR	
Project/Site: Strum Cublin City/Ca.	inty Eurolaine Co Sampling Date: 9/22/12
Applicant/Owner: DPC	State: <u>WI</u> Sampling Point: <u>OG5D3</u>
	Township, Range: 56 TASN RSW
Landform (hillslope, terrace, etc.): hillslope Local relief	(conceve convex none) (OK ING K Stone (%); 3
Subregion (LRR or MLRA): UR TOK Lat: 44 40 9,5	$\frac{1}{4} = \frac{1}{1} = \frac{1}{4} = \frac{1}$
Soil Map Unit: Name: Kert Journ	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	
Are Vegetation A. Soil A. or Hydrology A significantly disturbe	
Are Vegetation Soil, or Hydrology naturally problematic	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing samp	ling point locations, transects, important features, etc.
	s the Sampled Area within a Wetland? Yes No
	f yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
Photo 93, 014,	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary indicators (minimum of one is required; check all that apply)	Surface Soli Cracks (B6)
Surface Water (A1) Water-Stained Leaves (	
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Mart Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor	
	on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)         Presence of Reduced Ir          Algal Mat or Crust (B4)        Recent Iron Reduction I	
Algal Mat or Crust (B4) Recent Iron Reduction I Iron Deposits (B5) Thin Muck Surface (C7)	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rema	
Sparsely Vegetaled Concave Surface (BB)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No X Depth (Inches):	
Water Table Present? Yes No X Depth (Inches):	
Saturation Present? Yes <u>No K</u> Depth (inches): <u>No K</u> (includes capillary fringe)	Wetland Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previo	ous inspections), if available:
Remarks:	

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**VEGETATION** – Use scientific names of plants.

Sampling Point:

	Abenhite	Dominant	Indicator	
Tree Stratum (Ptol size:)		Species?		Dominance Test worksheet:
				Number of Dominant Species
1.				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata:(B)
2,				
4,				Percent of Dominant Species
5.	a haran da barati e na fanan bita Mata	March Victoria and March March 199		That Are OBL, FACW, or FAC: (A/B)
6				Prevalence Index worksheet:
7.		<del></del>		Total % Cover of Multiply by:
		= Total Cov	/er	OBL species x1 =
De the Dhall of Dhall an IDistrict	*******			FACW species x 2 =
Sapling/Starub Stratum (Plot size:)				FAC species x 3 =
1.		-	<del></del>	$r_{AU}$ species $r_{AU}$ $r_{AU}$
2.				FACU species $\underline{90}$ x4 = $\underline{360}$
			*****	UPL species x 5 =
3,	<u></u>			Column Totals: <u>92</u> (A) <u>362</u> (B)
4				0.00
				Prevalence index = $B/A = 3.93$
5.				
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
		= Total Cov	APIC	2 - Dominance Test is >50%
			4ĊI	3 - Prevalence Index is ≤3.0 <sup>5</sup>
Herb Stratum (Plot size:)		. 4		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
1. Onleym protense	3	N	FALL	data in Remarks or on a separate sheet)
		N	FACU	Problematic Hydrophytic Vegetation' (Explain)
2. Plantago Major			and a second	From Productinals (Haropinjae Vegetation (Explant)
3. Frifelium Protense	<u>_/D</u>	NN	FACU	The structure of the state part and south and be shall as constant
4 Taraxacum officinale	7	N	FACU	Indicators of hydric soil and welland hydrology must be present, unless disturbed or problematic.
5 Pan Protense	60	Y	FALL	be present entres antistes a presentent.
				Definitions of Vegetation Strata:
6.5ch pencolectus tubernaemontan	<u>i 2</u>	<u>N</u>	OBL	
7				Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
· · · · · · · · · · · · · · · · · · ·		******		a, breesi height (bort), tegenesss of height.
8			-	Sapling/shrub - Woody plants less than 3 in. DBH
9				and greater than or equal to 3.28 ft (1 m) tall.
10.	-	4 400-00-00-00-00-00-00-00-00-00-00-00-00-		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3 28 ft tall.
11,				
12				Woody vines - All woody vines greater than 3.28 ft in
12	02			height,
	92	= Total Co	ver	
Woody Vine Stratum (Plot size:)				······································
1,				
I,				
2.				
3				Hydrophylic
				Non-staffing /
<b>4</b> ,				Present? Yes No X
		_ = Total Co	wer	
Remarks: (include photo numbers here or on a separate :	sheet.)			
Henrily monorad mostrone				
Heavily grazed pasture				

US Army Corps of Engineers

SOIL

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	, .	to the dep	oth needed to docum			or confirm	n the absence of ind	dicators.)	
Depth (inches)	<u>Matrix</u> Color (moist)	%	Color (moist)	x Feature %	s Type	Loc	Texture	Remerks	
0-8	164R 5/2	97	104R 5/6	3	Ċ.	PL	Silt loam		
G-14	INUR 5/4	98	104R 4/6	2	. <u> </u>	PL	Sandylonm		
0-10			101:14	<u> </u>			2		
		-							
		-							
	@x2220000000000000000000000000000000000		Aliantification of the second s				#12+1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	1944 - Martin Maria, and an ann an ann an ann an ann an ann an	
	<u></u>	<u> </u>							
	*****					-	inistration and a second contractor	y y y dák i panie i konjim panjan panjanja i konjim pani konjim mani na posobil konjim konjekcije.	
			****		-			minime prism (see of several ways of a side side side second and second second second second second second seco	
			·····	·				······	
Type: C=C	oncentration Define	nietion Rt	Reduced Matrix, MS		d Send G	ains	<sup>2</sup> Location <sup>2</sup> Pt =	Pore Lining, M=Matrix,	
Hydric Soll	An A CONTRACTOR AND A CO						ler oronic flex knows the location of the ship is the ship of the	roblematic Hydric Solis <sup>3</sup> :	
Histosol	(A1)		Polyvalue Below	w Surface	(S8) (LR	R R,	2 cm Muck (	(A10) (LRR K, L, MLRA 1498)	
	pipedon (A2)		MLRA 1498)					e Redox (A16) (LRR K, L, R)	
Black Hi	en Sulfide (A4)		Thin Dark Surfa					Peat or Peat (S3) (LRR K, L, R) e (S7) (LRR K, L, M)	
	d Layers (A5)		Loamy Gleyed I			-, -,		elow Surface (S8) (LRR K, L)	
	d Below Dark Surfac	œ (A11)	Depleted Matrix (F3)					unface (S9) (LRR K, L)	
	ark Surface (A12) vlucky Mineral (S1)		Redox Dark Surface (F6)					nese Masses (F12) (LRR K, L, R)	
	Sleyed Matrix (S4)		Depleted Dark Surface (F7) Redox Depressions (F8)				Piedmont Floodplain Sols (F19) (MLRA 1498) Mesic Spodic (TA6) (MLRA 144A, 145, 1498)		
	Redox (S5)						Red Parent Material (F21)		
	1 Matrix (86)		-				Very Shallow Dark Surface (TF12) Other (Explain in Remarks)		
Dank Su	rface (S7) (LRR R,	MLKA 145	16)				Other (expa	an in Remarks)	
<sup>3</sup> Indicators o	a hydrophylic vegela	ation and w	elland hydrology mus	st be pres	ent, unles	s disturbed	for problematic.		
Restrictive	Layer (If observed)	):							
Туре:									
Depth (in	ches):						Hydric Soll Pres	ent? Yes No	
Remarks:									
			da managa ang mangkana managana ang ma						

Projectisite: Strum Lublin Cl	ty/County: Eau Clarre Co Sempling Date: 9/22/12
Applicant/Owner: DPC	State: Sampling Point:SDZ_
	ection, Township, Renge: SG T25N R5W
	I relief (concave, convex, none): Concave Stope (%):
	1 relier (concave, convex, none): <u>Brite 400</u> Sope (%): <u>1</u> 3, 61 Long: <u>-91   37,29</u> Datum: <u>NAO 83</u>
Soll Map Unit Name: VESPER DOWN	
Are climatic / hydrologic conditions on the site typical for this time of year	? Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly di	sturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology naturally probl	lematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing s	sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?       Yes X       No         Hydric Soil Present?       Yes X       No         Welland Hydrology Present?       Yes X       No         Remarks:       (Explain alternative procedures here or in a separate report.)	Is the Sampled Area within a Wetland? Yes No If yes, optional Wetland Site ID:
Photo 95	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply	Surface Soli Cracks (B6)
Surface Water (A1) Water-Stained Le	
High Water Table (A2) Aquatic Fauna (B	
X Seturation (A3) Mari Deposits (B <sup>4</sup>	
Water Marks (B1) Hydrogen Sulfide	
Sediment Deposits (B2) Oxidized Rhizosp Drift Deposits (B3) Presence of Redu	cheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) uced Iron (C4) Stunted or Stressed Plants (D1)
	uction in Tilled Solis (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surfac	
Inundation Visible on Aerial Imagery (B7) Other (Explain in	
Sparsely Vegetated Concave Surface (B6)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No 🔀 Depth (inches):	
Water Table Present? Yes No X Depth (Inches):	
Saturation Present? Yes X No Depth (inches):	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos,	
Remarks;	

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e.

**VEGETATION** – Use scientific names of plants.

Sampling Point: 00502

VEDETATION - Ose solencino fizindo or pianto.					
Tree Stratum (Plot size:)		Dominant Species?		Dominance Test worksheet:	
				Number of Dominant Species	
1				That Are OBL, FACW, or FAC:	(A)
2				Total Number of Dominant	
3.				Species Across All Strata:	(B)
4.				Dessent of Dominant Species	
				Percent of Dominant Species That Are OBL, FACW, or FAC:	(A/B)
5.					
6				Prevalence index worksheet:	
7,				Total % Cover of Multiply by:	
		= Total Cov	/er	OBL species x1 =	•
				FACW species x 2 =	
Sapling/Shrub Stratum (Plot size:)					
1.	-		<del></del>	FAC species X 3 =	
2				FACU species X4 =	
3.				UPL species x 5 =	
				Column Totals: (A)	(B)
4				Descriptions index in DIA in	
5.				Prevalence Index = B/A =	*
6				Hydrophytic Vegetation indicators:	
		· <u></u>		X 1 - Rapid Test for Hydrophytic Vegetation	
7				2 - Dominance Test is >50%	
		≍ Total Co	/er	3 - Prevalence Index is ≤3.0'	
Herb Stratum (Plot size:)		. 1		5 - Provalence index is 25.5 4 - Morphological Adaptations <sup>1</sup> (Provide supp	odina
1. Dhalans alundiancea	90	Y	FACUL	data in Remarks or on a separate sheet)	on ang
		1. N	OBL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain	0
2. Schoenoplectus tabernaemontas	1		<u></u>		.,
3				Indicators of hydric soil and welland hydrology m	iie)
4.				be present, unless dislurbed or problematic.	U 34,
5.				Definitions of Vegetation Strata:	
6.		-	*****	Trae - Woody plants 3 in. (7.6 cm) or more in dia	meter
7				at breast height (DBH), regardless of height.	
8				Analysistem in the state is a three 2 in DD	-1.a
				Sapling/shrub – Woody plants less than 3 in. DB and greater than or equal to 3.28 ft (1 m) tall.	н
9				and greater and or educto also in ( initiality	
10			-	Herb - All herbaceous (non-woody) plants, regard	dess
11				of size, and woody plants less than 3.28 ft tall.	
12.				Woody vines - All woody vines greater than 3.26	3 ft in
12.	100		-	height,	
	100	= Tolal Co	ver		
Woody Vine Stratum (Plot size:)					
1.					
2.			-	· ]	
3	-			Hydrophylic	
4	-			Vegetation Yes No	
		= Total Co	ver	(149 <u></u> 110	
Remarks: (include photo numbers here or on a separate	sheet 1				
nonaria, unicado proto nambera nere or on a separate	*********				

SOIL

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¥.

Sampling Point 065D2

inches)	Matrix			ox Features				
<u>, 7</u>		<u>%</u>	Color (moist)	<u>*6</u>	Type			Remerks
<u></u>	2.544/2	100	11.4031			<u> </u>	Silty chy loan	
3-11	2.54 4/1	95	10423/6		<u> </u>	PL	·	
- 15	2.54 6/3	93	104R3/10		<u> </u>	PL_	loung sand	
5-16.5	2.543/1	99	104R314		<u> </u>	PL	Sitty Chy Ibam	Sylfir odor
<u>L,5-20</u>	2.54 5/2	99	10 4R 5/6			PL	Sand	
							· · · · · · · · · · · · · · · · · · ·	
CONTRACTOR CONTRACTOR OF CONTRAC	oncentration, D=Dep	bletion, RN	⊨Reduced Matrix, N	IS=Masked	Sand Gr	ains	<sup>2</sup> Location: PL≃Pon Indicators for Probl	e Lining, M≖Matrix. ematlc Hydric Solls <sup>3</sup> :
Stratifies Deplete Thick Da Sandy M Sandy C Sandy F Siripped	en Sulfide (A4) d Layers (A5) d Below Dark Surfac ark Surface (A12) Mucky Mineral (S1) Sleyed Matrix (S4) Redox (S5) 1 Matrix (S6) Irface (S7) (LRR R, 1		Loarny Mucky Loarny Gleyed Depleted Main Redox Dark S Depleted Dark X Redox Depres	i Metrix (F2) ix (F3) urface (F6) : Surface (F	)	, L)	Polyvalue Below     Thin Dark Surface     Iron-Manganese     Pledmont Flood     Mesic Spodic (T     Red Parent Mate	rk Surface (TF12)
	f hydrophylic vegete		elland hydrology m.	ist be prese	nt, unles	s disturbe	d or problematic.	
	Layer (If observed)							
	ches):						Hydric Soli Present?	Yes 📈 No
Depth (in Remarks:								

	RM - Northcentral and Northeast Region
Projecusite: Strun Lublin City	County: <u>Earn Clarite Co</u> sempling Date: <u>9/22/12</u>
Applicant/Owner: DPC	State: 41 Sampling Point: 00504
Investigator(s): KB+AJ Secti	on, Township, Renge: <u>56 TR5N R5W</u>
Landform (hillslope, terrace, etc.): <u>h, )  S ()</u> Local rel	set (concave, convex, none): $\underline{10}$
	<u>9.68</u> Long: <u>-91 1 37.27</u> Datum: <u>N4D83</u>
Soil Map Unit Name: VESPEN LOUM	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation <u>M</u> . Soli <u>M</u> , or Hydrology <u></u> significantly distu	nbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation $\underline{N}$ . Soli $\underline{N}$ , or Hydrology $\underline{\mathcal{N}}$ naturally problem	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sar	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Scil Present? Yes No	Is the Sampled Area within a Wetland? Yes No
Welland Hydrology Present?         Yes         No           Remarks:         (Explain alternative procedures here or in a separate report.)	If yes, optional Wetland Site ID:
Photo 1096, 10517	32.
LHYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary indicators (minimum of one is required, check all that apply)	Surface Soli Cracks (B6)
Surface Water (A1) Water-Stained Leave	es (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	) Moss Trim Lines (B16)
Saturation (A3) Mart Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Or	
	res on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduce	
	on in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface ( Inundation Visible on Aerial Imagery (B7) Other (Explain in Re	
Inundation Visible on Aerial Imagery (B7)     Other (Explain in Re     Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No $\times$ Depth (inches):	
Water Table Present? Yes No X Depth (inches):	
Saturation Present? Yes No 🔨 Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pr	
Remarks:	

ъ<sup>27</sup>

**VEGETATION** – Use scientific names of plants.

	Absolute	Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species? Status	Number of Dominant Species
1.			That Are OBL, FACW, or FAC: (A)
2			
			Total Number of Dominant Species Across All Strata: (B)
3			
4,			Percent of Dominant Species
Ś			That Are OBL, FACW, or FAC: (A/B)
6			Prevalence index worksheet:
7.			Total % Cover of Multiply by:
	<b></b>	= Total Cover	OBL species X 1 =
Sapling/Strub Stratum (Plot size:)			FACW species x 2 =
1,	-		FAC species x 3 =
2			FACU species x 4 =
3			UPL species x 5 =
			Column Totels: (A) (B)
4			Prevalence Index = B/A =
5			Hydrophytic Vegetation indicators:
6,			A 1 - Rapid Test for Hydrophytic Vegetation
7.			
		= Total Cover	2 - Dominance Test is >50%
Herb Stratum (Plot size:)			3 - Prevalence Index is ≤3.0 <sup>3</sup>
1. Philains cuirdinales	95	FACH	<ul> <li>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</li> </ul>
2.			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
3			<sup>1</sup> Indicators of hydric soil and welland hydrology must
4, <u></u>	•		be present, unless disturbed or problematic.
5.	-		Definitions of Vegetation Strata:
6.		. <del>Generation and a second sec</del>	Tree – Woody plants 3 in. (7.6 cm) or more in diameter
7.	-		at breast height (DBH), regardless of height.
8.			Sapling/shrub - Woody plants less than 3 in. DBH
9			and greater than or equal to 3.26 ft (1 m) tall.
			•
10			Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3 28 ft tall.
11.	<del>.</del>		
12	-	-	Woody vines - All woody vines greater than 3.28 ft in
	95	= Total Cover	height,
Woody Vine Stratum (Plot size:)		-	
1.			
2.		-	
3			Hydrophylic
4		a alamining income alamining interimentation	Vegetation Present? Yes <u>No</u> No
		= Total Cover	Present? Yes No
Remarks: (include photo numbers here or on a separate	speet 1		
Remarka. Anciado proto número a nero de on a seperaro	0.1000.)		

Sampling Point: 065 04

Depin       Matrix       Redox Features         dinches)       Color (moist)       %       Color (moist)       %         // - 12,       Color (Moist)       %       Color (moist)       %       Color (moist)         // - 12,       C. YH       H)       H)       H       J       J       J         // - 12,       C. YH       H)       H)       J       J       J       J       J         // - 12,       C. YH       H)       H)       J	Celor (moles)         Color (moles)         %         Color (moles)         %         Type:         Los <sup>2</sup> Texture         Remarks           U - U         U/H         U/H         U	Profile Desc	ription: (Describe	to the dep	th needed to docum	nent the l	ndicator	or confirm	the absence	of Indicato	43.)	
Image:	1         10 4 1/3         100         10 4 1/3         10 4 1/					alarah menangka karing menangka		last	<b>Taid</b>		C) a second second	
Y = 12, 2, 53' 4/1       97       104'R, 3/Lett 3       2       PL       704 m         12-72, 2, 54' 3/1       97       104'R, 3/Lett 3       2       PL       5n_Lett 14 mm	<sup>1</sup> /19-12, 2.59/ 4/1 <sup>1</sup> /19/12, 3/14, 3, C, PL, John, M., M., M., M., M., M., M., M., M., M.		LUCA 412		Color (moist)		TYDe				Kemerks	<u></u>
Image: P3-22 2.54 3/1       Image: P1 10 4 R 3/4       Image: P1 10 4 R 3/4       Image: P1 10 4 R 3/4         Image: P2 2.54 3/1       Image: P1 10 4 R 3/4       Image: P1 10 4 R 10 1 R 10 4 R 10 1 R 10 4 R 10 1 R 10 1 R 10 4 R 10 1 R 10 1 R 10 4 R 10 1 R	IB_2-22       2.54       3/1       9/1       ////////////////////////////////////	0-7	107R 1/3	in and a second s					llan	-		
Image: Second	Image: Solution of the second seco	4-13	2048 (1040) (104	<u> 40</u>			<u> </u>	PL.	loam			0
Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;	Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;	13-72	2.54 3/1	97	104R 3/4	3	<u> </u>	Ph_	Sald 1	ann		
Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :	Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;											
Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;	Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;			** *********				-				
Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;	Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;			-						******		والمرابعة والمتركبة المتحاد والمحادثة المرابع والمحادثة
Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;	Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;											
Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;	Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;		<u> </u>	<u> </u>		······		. <u></u>	<u></u>			<u> </u>
Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;	Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;							·	"	<u>.</u>		
Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;	Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;									<u></u>		
Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> :	Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;											
Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;	Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;								******			
Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;	Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;										*****	******
Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;	Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;								2			
Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Epipedon (A2)       MLRA 1498)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)         Depteted Below Dark Surface (A11)       Depteted Matrix (F2)         Depteted Below Dark Surface (A12)       Redox Dark Surface (F6)         Thick Dark Surface (A12)       Redox Dark Surface (F7)         Sandy Mucky Mineral (S1)       Depteted Dark Surface (F7)         Sandy Redox (S5)       Redox Depressions (F8)         Stripped Matrix (S6)       Redox Depressions (F8)         Stripped Matrix (S6)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 1498)       Cost (TA6) (MLRA 1448, 145, 1498)         *Indicators of hydrophytic vegetation and wetliand hydrology must be present, unless disturbed or problematic.       Cost (TF12)         Type:		and the second	n construction construction de la c	pletion, RM	Reduced Matrix, MS	S=Masker	d Send Gr	8/05				
		-			Polyvalue Below	v Surface	(S8) (LRI	RR.			•	
Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)       Dark Surface (S7) (LRR K, L, M)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L, R)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Predmont Floodplain Soits (F19) (MLRA 1498         Sandy Redox (S5)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 1498)         Sinpped Matrix (S6)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 149B)       Cther (Explain in Remarks) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       Mesic Soil Present? Yes No         Popth (inches):       Uppth (inches):       Hydric Soil Present? Yes No			• •				,,		Coast	Prairie Red	ox (A15) (LRR	t K, L, R)
Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F5)       tron-Manganese Masses (F12) (LRR K, L, R)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Pledmont Ploodplain Soits (F19) (MLRA 1498         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 1498)         Sandy Redox (S5)       Redox Depressions (F8)       Red Parent Material (F21)         Stripped Matrix (S6)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 149B)       Cther (Explain in Remarks) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Restrictive Layer (If observed):       Type:         Type:       No         Depth (inches):       No	Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F5)       tron-Manganese Masses (F12) (LRR K, L, R)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Pledmont Floodplain Soits (F19) (MLRA 1498         Sandy Redox (S5)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 1498)         Sandy Redox (S5)       Red Parent Material (F21)         Sinpped Matrix (S6)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 149B)       Cther (Explain in Remarks) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problemalic.       Resirictive Layer (If observed):         Type:							(, L)				
Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Pledmont Floodplain Soits (F19) (MLRA 1498         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 1498)         Sandy Redox (S5)       Red Parent Material (F21)       Very Shallow Dark Surface (TF12)         Stripped Matrix (S6)       Very Shallow Dark Surface (TF12)       Cther (Explain in Remarks) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       Restrictive Layer (If observed):         Type:	Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Pledmont Floodplain Soits (F19) (MLRA 1498)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 1498)         Sandy Redox (S5)       Red Parent Material (F21)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 1498)       Cther (Explain in Remarks) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Restrictive Layer (If observed):       Type:         Type:       No         Depth (inches):       No			æ (A11)			,					
										-		
Sandy Redox (S5)     Red Parent Material (F21)     Stripped Matrix (S6)     Very Shallow Dark Surface (TF12)     Dark Surface (S7) (LRR R, MLRA 149B)     Cther (Explain in Remarks) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.     Restrictive Layer (If observed):     Type: Depth (inches): No	Sandy Redox (S5)     Red Parent Material (F21)     Stripped Matrix (S6)     Dark Surface (S7) (LRR R, MLRA 149B)     Cther (Explain in Remarks)     indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (If observed):     Type: Depth (inches): No											
Dark Surface (S7) (LRR R, MLRA 149B)     Cther (Explain in Remarks)      Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.      Restrictive Layer (If observed):     Type: Depth (inches): No	Dark Surface (S7) (LRR R, MLRA 149B)     Cther (Explain in Remarks)      indicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic.      Restrictive Layer (If observed):     Type:      Depth (inches): No	· ·	•		Heddar Dopiess							
<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.          Restrictive Layer (If observed):         Type:         Depth (inches):    No	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (If observed):  Type: Depth (inches): No											(2)
Restrictive Layer (If observed):	Restrictive Layer (if observed):	Dark Su	ríace (S7) (LRR R, I	MLRA 149	B>				Cther	(Explain in I	Remarks)	
Restrictive Layer (If observed):	Restrictive Layer (if observed):	<sup>3</sup> Indicators o	f hydrophylic vegeta	stion and w	eliand hydrology mus	t be pres	ent, unles	s disturbed i	or problemati	c.		
Depth (inches): No X	Depth (inches): No X								Ī			*****
		Туре:										
Remarks	Remarks	Depth (in	ches):						Hydric Sol	Present?	Yes	. No <u>×</u>
		Remarks:									an jaitu mentekan panyan panakan satu kan	

5

SOIL

Sampling Point. 06504



### Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap

DIRECTION	FEATURE ID	065D2	DATE
DIRECTION West	FEATURE ID PHOTOGRAPHER	065D2 Kathy Bellrichard and Apryl Jennrich	DATE 9/22/2012

### 067D 068

WETLAND DETERMINATION	DATA FORM Northcentral and Northeast Region
Projecusite: Strum Lublin	City/County: Eau Claire Co Sempling Date: 9/23/12
Applicant/Owner: DPC	State: <u>WF</u> Sampling Point OC 57 D
	Section, Township, Range: SG TABU R.5W
Landform (hillslope, terrace, etc.): depression	Local relief (concave, convex, none):C & < Stope (%):
	40 8.33 Long: -91 1 6.62 Datum: NAD 83
Soil Map Unit Name: Elm Lake Loumy	Sand NWI classification:
	e of year? Yes No (If no, explain in Remarks.)
Are Venetation N Soil IV or Hurtrology N signif	Frenthy disturbed? Are "Normal Circumstances" nresent? Yes Y No
Are Vegetation N. Soil N. or Hydrology M. natur	icantly disturbed? Are "Normal Circumstances" present? Yes <u>k</u> No <u>second</u> No
	owing sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?       Yes       No         Hydric Soll Present?       Yes       No         Wetland Hydrology Present?       Yes       No         Remarks:       (Explain alternative procedures here or in a separate	Is the Sampled Area within a Wetland? Yes No If yes, optional Wetland Site ID:
Photo # 101 - 103	
L HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary indicators (minimum of one is required, check all that	apply) Surface Soil Cracks (B6)
Surface Water (A1) Water-S	tained Leaves (B9) Drainage Patterns (B10)
	Fauna (B13) Moss Trim Lines (B16)
X Saturation (A3) Mari De	posits (B15) Dry-Season Water Table (C2)
Water Marks (B1) Hydroge	en Sulfide Odor (C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized	d Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presenc	e of Reduced Iron (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent I	tron Reduction in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Mu	ck Surface (C7) Shallow Aquitard (D3)
	Explain in Remarks) Nicrotopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No K Depth (	(Inches):
Water Table Present? Yes No $\chi$ Depth (	
Saturation Present? Yes X No Depth ( (includes capillary fringe)	(inches): <u>10</u> Wetland Hydrology Present? Yes <u>X</u> No
Describe Recorded Data (stream gauge, monitoring well, aeria Remarks:	al photos, previous inspections), if available:

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EGETATION - Use scientific names of plants.				Sampling Point: 06701
Tree Stratum (Ptot size:) 1)	% Cover		t Indicator	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2 3				Total Number of Dominant Species Across All Strata: (B)
4				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
6				Prevalence Index worksheet: Total % Cover of. Multiply by:
Sapling/Shrub Stratum (Plot size:)		= Totai Co	wer	OBL species         x 1 =           FACW species         x 2 =
1				FAC species         x 3 =           FACU species         x 4 =           UPL species         x 5 =
3				Column Totals: (A) (B)
5				Prevalence Index = B/A = Hydrophytic Vegetation indicators:
7		= Total Co		1 - Rapid Test for Hydrophytic Vegetation     2 - Dominance Test is >50%
Herb Stratum (Plot size) 1. <u>Calamacostis</u> Candonsi	5 25	Ч	ORL	<ul> <li>3 - Prevalence Index is ≤3.0<sup>3</sup></li> <li>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</li> </ul>
2. Carex Sturcta 3. Carex Unipinoida	2.0	4	0.81	Problematic Hydrophylic Vegetation <sup>1</sup> (Explain)
4. Eutrochium maculatum 5. Glycerin canadensis		4-1-	082	<sup>1</sup> Indicators of hydric soil and welland hydrology must be present, unless disturbed or problematic.
6. <u>Sciepus ationilens</u>			004	Trae – Woody plants 3 in. (7.6 cm) or more in diamete at breast height (DBH), regardless of height.
8				Sapling/shrub Woody plants less than 3 In. DBH and greater than or equal to 3.26 ft (1 m) tail.
10				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3 28 fi tall.
12.	00	= Totai C		Woody vines - All woody vines greater than 3.26 ft in height.
Woody Vine Stratum (Plot size:)				
2				Hydrophylic
4	a. dagaantikaaniida	= Total C	over	Vegetation Present? Yes <u>No</u> No
Remarks: (Include photo numbers here or on a separate	sheet.}			

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SOIL
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Calor (molst)       %       Color (molst)       %       Type       Loc*       Texture       Remarks         0 - 11       2,5Y       0/2       9       10/4       2       5       1/4       2       5       1/4       2       5       1/4       2       5       1/4       2       5       1/4       2       5       1/4       2       5       1/4       2       5       1/4       2       5       1/4       2       5       1/4       2       5       1/4       2       5       1/4       2       5       1/4       2       5       1/4       2       5       1/4       2       1/4       2       1/4       2       1/4       2       1/4       2       1/4<	Ueptn						or comann	the absence o	i indicatora.)		
b - II       2.5 Y 4/2       Y       ID       Stringely for the second seco		Color (moist)	%				Loc	Texture	Re	marks	
IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	· 1'1	and the second se		annan dia Bir Saindi dia Kri Shina ang	-		gan Balanin ana				
Image: Second control in the image in t		attend of an house here here here		1120211			<u>addaaaaaaaaaadaaaa</u>	Sur yen 7	<u></u>		
'Type: C=Concentration, D=Depietion, RM=Reduced Matrix, MS=Masked Send Grains       ?Location: PL=Pore Lining, M=Malrix.         'Iype: C=Concentration, D=Depietion, RM=Reduced Matrix, MS=Masked Send Grains       ?Location: PL=Pore Lining, M=Malrix.         Indicators i:       Indicators for Problemalle Hydric Solls?:         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, L Cast Praine Redox (A16) (LRR K, L, R)         Histic Epledon (A2)       MLRA 1498)         Black Histic (A3)	11 - 18	40112	78	101 K 9/6				Jang -			
'Type: C=Concentration, D=Depietion, RM=Reduced Matrix, MS=Masked Send Grains       ?Location: PL=Pore Lining, M=Malrix.         'Iype: C=Concentration, D=Depietion, RM=Reduced Matrix, MS=Masked Send Grains       ?Location: PL=Pore Lining, M=Malrix.         Indicators i:       Indicators for Problemalle Hydric Solls?:         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, L Cast Praine Redox (A16) (LRR K, L, R)         Histic Epledon (A2)       MLRA 1498)         Black Histic (A3)											
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Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)         Histic Epipedon (A2)       MLRA 149B)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 149B)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depieted Below Dark Surface (A11)       Depieted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Stratified Layers (A5)       Depieted Dark Surface (F7)         Stratified Layers (A5)       Depieted Dark Surface (F7)         Stratified Layers (A5)       Redox Dark Surface (F7)         Stratified Layers (A5)       Redox Dark Surface (F7)         Stratified Layers (A5)       Redox Depressions (F8)         Mucky Mineral (S1)       Depieted Dark Surface (F7)         Strady Redox (S5)       Redox Depressions (F8)         Stripped Matrix (S6)       Very Shallow Dark Surface (T12)         Dark Surface (S7) (LRR R, MLRA 149B)       Cher (Explain in Remarks) <sup>3</sup> Indicators of hydrophytic vegetation and wetlend hydrology must be present, unless disturbed or problematic.         Restrictive Layer (If observed):       Type:         Type:       No <tr< td=""><td></td><td></td><td></td><td><del></del></td><td></td><td>-</td><td>*****</td><td></td><td></td><td></td><td></td></tr<>				<del></del>		-	*****				
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Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R,       2 cm Muck (A10) (LRR K, L, MLRA 149B)         Histic Epipedon (A2)       MLRA 149B)       Coast Praine Redox (A15) (LRR K, L, R)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 149B)       5 cm Mucky Peat or Peat (S3) (LRR K, L, R)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)       Derk Surface (S7) (LRR K, L, M)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)											
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Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R,       2 cm Muck (A10) (LRR K, L, MLRA 149B)         Histic Epipedon (A2)       MLRA 149B)       Coast Prainte Redox (A15) (LRR K, L, R)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 149B)       5 cm Mucky Peat or Peat (S3) (LRR K, L, R)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)       Derk Surface (S7) (LRR K, L, M)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)		Between the state of the state	-	*****	-		-	******			
Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R,       2 cm Muck (A10) (LRR K, L, MLRA 149B)         Histic Epipedon (A2)       MLRA 149B)       Coast Praine Redox (A15) (LRR K, L, R)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 149B)       5 cm Mucky Peat or Peat (S3) (LRR K, L, R)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)       Derk Surface (S7) (LRR K, L, M)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)											
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Hydric Soll Indicators:       Indicators for Problematic Hydric Solls <sup>3</sup> ;         Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)         Histic Epipedon (A2)       MLRA 149B)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 149B)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Stratified Layers (A5)       Depleted Dark Surface (F7)         Stratified Layers (A5)       Depleted Dark Surface (F7)         Stratified Layers (A5)       Depleted Dark Surface (F7)         Stratified Layers (A5)       Redox Dark Surface (F7)         Stratified Layers (A5)       Redox Depressions (F8)         Mucky Mineral (S1)       Depleted Dark Surface (F7)         Straty Redox (S5)       Redox Depressions (F8)         Stripped Matrix (S6)       Very Shallow Dark Surface (T12)         Dark Surface (S7) (LRR R, MLRA 149B)       Cher (Explain in Remarks) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Restrictive Layer (If observed):       Type:         Type:       Depth (inches):			letion Di	Daducad Matrix 14	Salfask-	d Cand C-		2) postiar :	Di «Dara i isia a	hd-hdat-	~
Histosol (A1)       Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 1498)         Histic Eplpedon (A2)       MLRA 1498)       Coast Prairie Redox (A16) (LRR K, L, R)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 1498)       S cm Mucky Peat or Peat (S3) (LRR K, L, R)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)       Dark Surface (S7) (LRR K, L, M)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)         Mick Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L, R)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L, R)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Fledmont Floodplain Soits (F19) (MLRA 1498)         Sandy Redox (S5)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 1498)         Stripped Matrix (S6)       Red Parent Material (F21)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 1498)       Cher (Explain in Remarks)       Cher (Explain in Remarks)         *Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       Restrictive Layer (If observed):       Type:         Type:	THE REPORT OF THE PARTY OF THE	AND A REPORT OF A	iletion, inm		3-M034CI	u denu ce	0413				
Histic Epipedon (A2)       MLRA 149B)       Coast Prairie Redox (A16) (LRR K, L, R)         Black Histic (A3)       Thin Dark Surface (S9) (LRR R, MLRA 149B)       5 cm Mucky Peat or Peat (S3) (LRR K, L, R)         Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)       Dark Surface (S7) (LRR K, L, M)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)         Y Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR A, L, R)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Pledmont Floodplain Soils (F19) (MLRA 149B         Sandy Redox (S5)       Redox Depressions (F8)       Mesic Spocia (TA6) (MLRA 144A, 145, 149B         Sandy Redox (S5)       Red Parent Material (F21)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 149B)       Citer (Explain in Remarks)       Citer (Explain in Remarks)         Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       Restrictive Layer (If observed):       Type:         Type:	•			Polwalue Below	w Surface	(S8) (LR)	R.R.				
Hydrogen Sulfide (A4)       Loamy Mucky Mineral (F1) (LRR K, L)       Dark Surface (S7) (LRR K, L, M)         Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)         ✓ Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L, R)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Fledmont Floodplain Sols (F19) (MLRA 1498         Sandy Redox (S5)       Mesic Spodic (TA6) (MLRA 144A, 145, 1498         Stripped Matrix (S6)       Redox Depressions (F8)       Red Parent Material (F21)         Stripped Matrix (S6)       Clher (Explain in Remarks)       Clher (Explain in Remarks)         *       Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       Restrictive Layer (If observed):         Type:						,,		Coast P	rairie Redox (A1	6) (LRR H	(, L, R)
Stratified Layers (A5)       Loamy Gleyed Matrix (F2)       Polyvalue Below Surface (S8) (LRR K, L)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Thin Dark Surface (S9) (LRR K, L)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       Iron-Manganese Masses (F12) (LRR K, L, R)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Pledmont Floodplain Sols (F19) (MLRA 1498         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)       Mesic Spocic (TA6) (MLRA 144A, 145, 1498         Sandy Redox (S5)       Redox Depressions (F8)       Very Shallow Dark Surface (TF12)         Dark Surface (S7) (LRR R, MLRA 1498)       Clher (Explain in Remarks) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       Restrictive Layer (If observed):         Type:								5 cm ML	icky Peat or Pea	it (S3) (LP	RR K, L, R)
Model       Model <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>(, L)</td><td></td><td></td><td></td><td></td></td<>							(, L)				
		• • •	e (411)			2)					
Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Fledmont Floodplain Sols (F19) (MLRA 1498         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)       Mesic Spodic (TA6) (MLRA 144A, 145, 1498         Sandy Redox (S5)       Red Parent Material (F21)       Very Shallow Dark Surface (TF12)         Stripped Matrix (S6)       Very Shallow Dark Surface (TF12)       Other (Explain in Remarks)         Parent Material (Very Shallow Dark Surface (TF12)       Other (Explain in Remarks)         Park Surface (S7) (LRR R, MLRA 149B)       Cther (Explain in Remarks)         Park Surface (S7) (LRR R, MLRA 149B)       Hydric Soil Present?         Yes       No	<del></del>		~ (~~~)			)					
Sandy Redox (S5)     Red Parent Material (F21)     Stripped Matrix (S6)     Dark Surface (S7) (LRR R, MLRA 149B)     Cther (Explain in Remarks)     destrictive Layer (If observed):     Type: Depth (inches): No											
Stripped Matrix (S6) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, MLRA 149B) Cther (Explain in Remarks) Cther (Explain in Remarks) Cther (Explain in Remarks) Type: Type: Depth (inches): No No				Redox Depress	ions (F8)						, 145, 149B)
Dark Surface (S7) (LRR R, MLRA 149B) Cther (Explain in Remarks) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (If observed): Type: Depth (inches): No	,									-	1
<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.          Restrictive Layer (If observed):         Type:         Depth (inches):             No			NI PA 140	R1							)
Restrictive Layer (If observed):         Type:		nace (or / territ r, i	1	<b>G</b> ,				Other (C	acpeant in rearrai		
Type:		hydronhylic yenete	tion and w	etiand hydrology mus	st be pres	ent, uni <del>cs</del>	s disturbed	or problematic.			
Depth (inches): No	<sup>3</sup> indicators of	nga opnyaa vegera	-			, , , , , , , , , , , , , , , , , , ,					
			•							$\mathbf{X}$	
Romarke'	Restrictive L	ayer (If observed)									
	Restrictive L Type:	.ayer (If observed)		Andread and a 199.				Hydric Soll F	resent? Yes	<u> </u>	No
	Restrictive L Type: Depth (inc	.ayer (If observed)					04405044594469044463044604505	Hydric Soll F	resent? Yes	<u>X</u>	No
	Restrictive L Type: Depth (inc	.ayer (If observed)					999997504699946999469994699949999	Hydric Soll F	iteseni? Yes	<u>×</u>	No
	Restrictive L Type: Depth (inc	.ayer (If observed)						Hydric Soll F	resent? Yes	<u>X</u>	No
	Restrictive L Type: Depth (inc	.ayer (If observed)				00500-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0		Hydric Soll F	resemi? Yes	<u>X</u>	No
	Restrictive L Type: Depth (inc	.ayer (If observed)						Hydric Soll F	Yresenti? Yes	<u>X</u>	No
	Restrictive L Type: Depth (inc	.ayer (If observed)						Hydric Soll F	resem? Yes	<u>X</u>	No
	Restrictive L Type: Depth (inc	.ayer (If observed)						Hydric Soll F	Yresenti ? Yes	<u>X</u>	<u>No</u>
	Restrictive L Type: Depth (inc	.ayer (If observed)						Hydric Soll F	Yresenti ? Yes	<u>X</u>	<u>No</u>
	Restrictive L Type: Depth (inc	.ayer (If observed)				249-97-94-100-100-100-		Hydric Soll F	Yeseni? Yes	<u>×</u>	No
	Restrictive L Type:	.ayer (If observed)						Hydric Soll F	Yeseni? Yes	<u>×</u>	No
	Restrictive L Type: Depth (inc	.ayer (If observed)						Hydric Soll F	Yeseni? Yes	<u>×</u>	No
	Restrictive L Type: Depth (inc	.ayer (If observed)						Hydric Soll F	Yeseni? Yes	<u>×</u>	No
	Restrictive L Type: Depth (inc	.ayer (If observed)						Hydric Soll F	Yeseni? Yes	<u>×</u>	No
	Restrictive L Type: Depth (inc	.ayer (If observed)						Hydric Soll F	Yeseni? Yes	<u>×</u>	No
	Restrictive L Type: Depth (inc	.ayer (If observed)						Hydric Soll F	Yesenti? Yes	<u>×</u>	No

US Army Corps of Engineers

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Northcentral and Northeast Region - Version 2.0

WETLAND DETERMINATION DATA FO	RM - Northcentral and Northeast Region					
Projecusite: Strum Lublin Citwo	county: <u>EAU CLANCE (c. sempling Date: 9/23/12</u>					
Applicant/Owner: DPC	State: WI Sampling Point: 05702 & C68					
	on, Township, Renge: <u>55 TASU</u> RSW					
	ief (concave, convex, none): <u>000</u> Stope (%): <u>2</u>					
Subregion (LRR or MLRA): Lat: Lat: 49	$\mathcal{C}_{133}$ Long: $-91$ 0 58.77 Datum: NAD83					
Soll Map Unit Name: <u>Cuclination + Itumbind 20115</u>						
Are climatic / hydrologic conditions on the site typical for this time of year?						
	defendencies for the second seco					
Are Vegetation N. Soil N. or Hydrology N significantly distur						
Are Vegetation, Soil, or Hydrologynaturally problem						
SUMMARY OF FINDINGS - Attach site map showing san	npling point locations, transects, important features, etc.					
Hydrophytic Vegetation Present? Yes No Hydric Soll Present? Yes No Weithed the follow Present?	Is the Sampled Area within a Wetland? Yes No					
Wetland Hydrology Present?         Yes No           Remarks:         (Explain alternative procedures here or in a separate report.)	If yes, optional Wetland Site ID:					
Remarks: (Explain aremative procedures here of in a separate report.)						
Photo # 99, 100						
HYDROLOGY						
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)					
Primary indicators (minimum of one is required; check all that apply)	Surface Soli Cracks (86)					
Surface Water (A1) Water-Steined Leave						
High Water Table (A2) Aquatic Fauna (B13)						
Saturation (A3) Mart Deposits (B15)						
Water Marks (B1) Hydrogen Sulfide Od						
	res on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)					
Drift Deposits (B3) Presence of Reducer						
Algai Mat or Crust (B4) Recent Iron Reduction in Tilled Solls (C6) Geomorphic Position (D2)						
Iron Deposits (B5) Thin Muck Surface (C7) Shallow Aquitard (D3)						
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rer						
Sparsely Vegetated Conceve Surface (B8)	FAC-Neutral Test (D5)					
Field Observations:						
Surface Water Present? Yes No Depth (inches):						
Water Table Present? Yes No X Depth (Inches):						
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes No					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	evious inspections), if available:					
Remarks;						
itema ()						

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**VEGETATION** – Use scientific names of plants.

Sampling Point: 06702 066152

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Piol size:)		Species?		Number of Dominant Species
1. Populars Ermulaides		$\underline{\nu}$	FACU	That Are OBL, FACW, or FAC:
2.				
				Total Number of Dominant Species Across All Strata: (B)
3,				opecies Across Air Grate (o)
4,				Percent of Dominant Species
Ś				That Are OBL, FACW, or FAC: (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of Multiply by:
	·	= Total Co		
			vel	FACW species $40 \times 2 = 80$
Sapling/Shrub Stratum (Plot size:)	١			FAC species $- 2 = - 2 $
1. Populus tremulaides	<u> </u>	$\underline{\mathcal{N}}$	FACU	
2,				FACU species $52 \times 4 = 208$
3				UPL species $\bigcirc$ x 5 = $\bigcirc$
				Column Totals: <u>92</u> (A) (B)
4	-			Prevalence index = B/A =
5,		······	*****	
6,				Hydrophytic Vegetation Indicators:
7.				1 - Rapid Test for Hydrophytic Vegetation
	1	= Total Co		2 - Dominance Test is >50%
	<u> </u>	= Total CO	vei	3 - Prevalence Index is ≤3.0 <sup>1</sup>
Herb Stratum (Plot size:)	05	.1	C.4.	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
1. Phalalis alundinacea 2. Solidago gigantea	. 25	<u>~~</u>	FACW	data in Remarks or on a separate sheet)
2 Solidago gigantea	15	S	FACH	Problematic Hydrophytic Vegetation' (Explain)
3. Poa composed	50	9	FACU	
1				<sup>1</sup> Indicators of hydric soil and welland hydrology must
4.	•		• ••••••	be present, unless disturbed or problematic.
5				Definitions of Vegetation Strata:
6.		****	-	The second
7.				Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
8				Sapiling/shrub - Woody plants less than 3 in. DBH
9	-			and greater than or equal to 3.28 ft (1 m) tall.
10.				Herb - All herbaceous (non-woody) plants, regardless
11.				of size, and woody plants less than 3.28 ft tail.
12.				Woody vines - All woody vines greater than 3.25 ft in
	90			height.
	-D	= Total Co	wer	
Woody Vine Stratum (Plot size:)				
1.				
2				
				thuda a shudha
->			• ••••••	Hydrophylic Vegetation
4.		•	•	Present? Yes No X
		= Total Co	wer	/ `
Remarks: (Include photo numbers here or on a separate	sheet.)			

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Samcling Point:	06702	20680	2

	cription: (Describe	to the def						
Depth (inches)	Matrix Color (moist)	%	Color (moist)	x Feature		Loc	Texture	Remarks
0-5	1048412	100					loan	
5-7	104B 5/2	97	104R 4/6	3				
7-18	2.54 6/3	100	•		-		Siltloam	
							ailinnininterterininin dana	
	*****		**********		******	474072401000-1-0700000		NA WARAN KARAN Yan da ana bala karin kale kin da ana da kinda waka da masa na karana ya mana wana wan
<u> Andreas an </u>		is. <del>description (colored</del>	*****	-	-	etilenen antionia.	netivitien ekonomisteren erente	
-	an a	* *********	10/2002/1/2010/1/2010/2010/2010/2010/20	•	-	<del></del>		99999499999999999999999999999999999999
<u></u>	*******		<u> </u>			<u> </u>	<u> </u>	
				-				
<u></u>			••••••••••••••••••••••••••••••••••••		******	-		a ana minanya manana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fi
*****				-	-		website the second second second second	
	oncentration, D=Dep	letion, RM	Reduced Matrix, M	S=Masker	i Sand Gr	ains	Construction of the	L=Pore Lining, M=Matrix.
Hydric Soll				<u>.</u>	(5.5. (I <b>1</b> 1)			Problematic Hydric Solis <sup>9</sup> :
Histosol	i (A1) pipedon (A2)		MLRA 1498		(S8) (LRI	<b>τ</b> κ,		k (A10) (LRR K, L, MLRA 1498) Irie Redox (A15) (LRR K, L, R)
	istic (A3)		Thin Dark Surfa	ace (S9) (l	,		l) 5 cm Mucl	ky Peat or Peat (S3) (LRR K, L, R)
	en Sulfide (A4) d Layers (A5)		Loamy Mucky I	,		, L)		ace (S7) (LRR K, L, M) Below Surface (S8) (LRR K, L)
	d Below Dark Surfac	e (A11)	Depieted Matri		.,		*	Surface (S9) (LRR K, L)
	ark Surface (A12)		Redox Dark Su					anese Masses (F12) (LRR K, L, R)
	Mucky Mineral (S1) Gleyed Matrix (S4)		Depieted Dark Redox Depress		.0			Floodplain Soils (F19) (MLRA 1498) cdic (TA6) (MLRA 144A, 145, 1498)
	Redax (S5)							nt Material (F21)
	1 Matrix (86) Inface (87) (LRR R, 1	WI RA 149	Bi					iow Dark Surface (TF12) plain in Remarks)
	f hydrophytic vegeta Layer (if observed):		elland hydrology mu	st be presi	ent, unles	s disturbed	1 or problematic.	
	Eayar (ii Obsai vad).							
	ches):						Hydric Soll Pre	eseni? Yes No
Remarks:				an a	*****			

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	RM – Northcentral and Northeast Region
Project/site: Sturm Lublin Cityre	ounty: East Clarke to sampling Date: 9/23/12
Applicant/Owner: DPC	State: Sampling Point:
Investigator(s): KB + AJ Section	n, Township, Range: <u>55 T25N R5W</u>
Landform (hillslope, terrace, etc.): Dedressing Local reli	
Subregion (LRR or MLRA): <u>LRR K</u> Lat: <u>44408</u>	
soil Map Unit Name: Elm Lalce Lowmy Saunch	
Are climatic / hydrologic conditions on the site typical for this time of year? Y	
Are Vegetation $\underbrace{N}_{(A, b)}$ . Soil $\underbrace{M}_{(A, b)}$ or Hydrology $\underbrace{N}_{(A, b)}$ significantly disturb	
Are Vegetation, Soil, or Hydrology naturally problema	dic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sam	pling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes <u>No</u> No Hydric Soll Present? Yes No <u>X</u>	Is the Sampled Area within a Wetland? Yes No
Welfand Hydrology Present? Yes No X	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
Phois #0098	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leave	s (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Mart Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Od	
	es on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced	
Algal Mat or Crust (B4)Recent Iron Reductio	
Iron Deposits (B5) Thin Muck Surface (C	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rer	
Sparsely Vegetated Concave Surface (BB)	A FAC-Neutral Test (D6)
Field Observations: Surface Water Present? Yes No Depth (inches):	
Water Table Present?         Yes No Depth (Inches):           Saturation Present?         Yes No Depth (Inches):	Wetland Hydrology Present? Yes No X
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	
Describe Recorded Data (siteari gauge, monitoring wen, aenar proces, pre	
Remarks:	

4.

VEGETATION - Use scientific names of plants.

Indicator       Dominance Test worksheet:         Number of Dominant Species         That Are OBL, FACW, or FAC:
Number of Dominant Species         That Are OBL, FACW, or FAC:         Yere of Dominant Species         Percent of Dominant Species         That Are OBL, FACW, or FAC:         Percent of Dominant Species         That Are OBL, FACW, or FAC:         Prevalence Index worksheet:         Total % Cover of         Multiply by:         OBL species         FACW species         Yerevalence Index worksheet:         FACW species         Yerevalence
Total Number of Dominant Species Across All Strata:       (B)         Percent of Dominant Species That Are OBL, FACW, or FAC:       (A/B)         Prevalence Index worksheet:       (A/B)         FACW species       x1 =         FACU species       x3 =         FACU species       x4 =         UPL species       x5 =         Column Totals:       (A)         Prevalence Index = B/A =       (B)         Prevalence Index = B/A =       (B)         Prevalence Index = S/A =       (A)         Quarkstore       (A)       (B)         Prevalence Index = S/A =       (A)         Quarkstore       (A)       (B)         Prevalence Index = S/A =       (A)       (B)         Prevalence Index is ≤3.0 <sup>1</sup> (A)       (B)         Prevalence Index is ≤3.0 <sup>1</sup> (A)       (B)         Quarkstore       (B)       (B)         Prevalence Index is ≤3.0 <sup></sup>
Species Across All Strata:       (B)         Percent of Dominant Species       (A/B)         Prevalence Index worksheet:       (A/B)         Prevalence Index = X1 =       (B)         Prevalence Index = X4 =       (B)         Prevalence Index = B/A =       (B)         Prevalence Index = B/A =       (B)         Prevalence Index = B/A =       (B)         Prevalence Index = S/A =       (Column Totals:         Image: A split Test for Hydrophytic Vegetation       (Column Totals:         Image: A split Test for Hydrophytic Vegetation       (Column Totals: \$20%)         Image: A split Test for Hydrophytic Vegetation       (Provide supporting data in Remarks or on a separate sheet)
Percent of Dominant Species         That Are OBL, FACW, or FAC:         Prevalence Index worksheet:         Total % Cover of.         Multiply by:         OBL species         FACW species         Y2 =         FACU species         Y3 =         FACU species         Y4 =         UPL species         Y5 =         Column Totals:         (A)         Prevalence Index = B/A =         Hydrophytic Vegetation Indicators:         1 - Rapid Test for Hydrophytic Vegetation         2 - Dominance Test is >50%         3 - Prevalence Index is $≤3.0^3$ 4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
That Are OBL, FACW, or FAC:       (A/B)         Prevalence Index worksheet:       Total % Cover of       Multiply by:         OBL species $x 1 = $ FACW species $x 2 =$ FACU species $x 3 =$ FACU species $x 4 =$ UPL species $x 5 =$ Column Totals:       (A)         Prevalence Index = B/A =         Hydrophytic Vegetation Indicators:         A - Rapid Test for Hydrophytic Vegetation         2 - Dominance Test is >50%         3 - Prevalence Index is $43.0^3$ 4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
Prevalence Index worksheet:         Total % Cover of       Multiply by:         OBL species $x 1 = $
Total % Cover of.       Multiply by:         er       OBL species $x 1 =$ FACW species $x 2 =$ FAC species $x 3 =$ FACU species $x 4 =$ UPL species $x 5 =$ Column Totals:       (A)         Prevalence Index = B/A =         Hydrophytic Vegetation Indicators:         1 - Rapid Test for Hydrophytic Vegetation         2 - Dominance Test is >50%         3 - Prevalence Index is $\le 3.0^3$ 4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
Total % Cover of.       Multiply by:         er       OBL species $x 1 =$ FACW species $x 2 =$ FAC species $x 3 =$ FACU species $x 4 =$ UPL species $x 5 =$ Column Totals:       (A)         Prevalence Index = B/A =         Hydrophytic Vegetation Indicators:         1 - Rapid Test for Hydrophytic Vegetation         2 - Dominance Test is >50%         3 - Prevalence Index is $\le 3.0^3$ 4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
er       OBL species $x 1 =$ FACW species $x 2 =$ FAC species $x 3 =$ FACU species $x 4 =$ UPL species $x 5 =$ Column Totals:       (A)         Prevalence Index = B/A =         Hydrophytic Vegetation Indicators:         1 - Rapid Test for Hydrophytic Vegetation         2 - Dominance Test is >50%         3 - Prevalence Index is $\le 3.0^3$ 4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
FACW species $x 2 =$ FAC species $x 3 =$ FACU species $x 4 =$ UPL species $x 5 =$ Column Totals:       (A)         Prevalence Index = B/A =         Hydrophytic Vegetation Indicators:         1 - Rapid Test for Hydrophytic Vegetation         2 - Dominance Test is >50%         3 - Prevalence Index is $\le 3.0^3$
FAC species       x 3 =         FACU species       x 4 =         UPL species       x 5 =         Column Totals:       (A)         Prevalence Index = $B/A =$ Hydrophytic Vegetation Indicators:         1 - Rapid Test for Hydrophytic Vegetation         2 - Dominance Test is >50%         3 - Prevalence Index is $\le 3.0^{1}$ 4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
FACU species       x 4 =         UPL species       x 5 =         Column Totals:       (A)         Prevalence Index = B/A =       (B)         Prevalence Index = B/A =       (B)         Hydrophytic Vegetation Indicators:       1 - Rapid Test for Hydrophytic Vegetation         2 - Dominance Test is >50%       3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
UPL species       x 5 =
Column Totals:       (A)       (B)         Prevalence Index = B/A =       (B)         Hydrophytic Vegetation Indicators:       (A)       (B)         I - Rapid Test for Hydrophytic Vegetation       (A)       (B)         er       (A)       (B)       (B)         er       (A)       (B)       (B)         FACW       4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)       (Column Totals)
Prevalence Index ≠ B/A =         Hydrophytic Vegetation Indicators:         1 - Rapid Test for Hydrophytic Vegetation         2 - Dominance Test is >50%         3 - Prevalence Index is ≤3.0 <sup>3</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Hydrophytic Vegetation Indicators:         1 - Rapid Test for Hydrophytic Vegetation         2 - Dominance Test is >50%         3 - Prevalence Index is ≤3.0 <sup>3</sup> 4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
Hydrophytic Vegetation Indicators:         1 - Rapid Test for Hydrophytic Vegetation         2 - Dominance Test is >50%         3 - Prevalence Index is ≤3.0 <sup>1</sup> FACW         4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Image: A start of the sta
2 - Dominance Test is >50%         3 - Prevalence Index is ≤3.0³         4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
3 - Prevalence Index is ≤3.01        3 - Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
FACW - 4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
the data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation' (Explain)
Indicators of hydric soil and welland hydrology must be present, unless disturbed or problematic.
Definitions of Vegetation Strata:
Tree - Woody plants 3 in. (7.6 cm) or more in diameter
at breast height (DBH), regardless of height.
Sapling/shrub - Woody plants less than 3 in. DBH
and greater than or equal to 3.28 ft (1 m) tall.
Herb - All herbaceous (non-woody) plants, regardless
of size, and woody plants less than 3 28 ft tall.
Woody vines - All woody vines greater than 3.26 ft in
heicht.
er
Hydrophylic
Vagetallan
er Present? Yes No
<u>u</u> 1
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SOIL

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	cription: (Describe	to the dep				or confirm	the absence i	of indicators.)
Depth (inches)	Matrix Color (moist)	%	Color (moist)	x Feature %	s Type'	Loc*	Texture	Remarks
0-5	104 B 3/2	958	1048 3/6	2	C	PL	lasm	
5-18	2.54 %/1	95	104× 4/6	5	$\subseteq$	PL	Sand	
		-						
				<u> </u>				
	Beneseter 29-1000-0000-000-00000000000000000000000				-			
	· · · · · · · · · · · · ·						<u> </u>	
	-	-			• •	gininkogalajinovo		
						-	10-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	
					·		<u> </u>	·······
Type: C=C	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Masked	d Sand Gr	ains	<sup>2</sup> Location:	PL=Pore Lining, M=Matrix.
Hydric Soll	A compared and the interview of the second and the	an bandan bili bandan kan banda da sa minist		antinus en statut an lier de statut a	in to be in the second seco	n na na serie de la compositio de la compositio de la composition de la composition de la composition de la com		for Problematic Hydric Solis <sup>9</sup> :
Histosol	• •		Polyvalue Beio		(S8) (LR	RR,		luck (A10) (LRR K, L, MLRA 1498)
	plpedon (A2) istic (A3)		MLRA 1498 Thin Dark Surfi		LRR R. M	LRA 1498)		Prairle Redox (A15) (LRR K, L, R) lucky Peat or Peat (S3) (LRR K, L, R)
Hydroge	en Sulfide (A4)		Loamy Mucky	Mineral (F	1) (LRR		Dark St	urface (S7) (LRR K, L, M)
	d Leyers (AS) d Below Dark Surfac		Loamy Gieyed		2)			ue Below Surface (S8) (LRR K, L) ark Surface (S9) (LRR K, L)
	u Below Daik Surfac ark Surface (A12)	e (ATT)	Depieted Matri Redox Dark St		1			inganese Masses (F12) (LRR K, L, R)
	Nucky Mineral (S1)		Depleted Dark	-				nt Floodplain Sols (F19) (MLRA 1498)
Sandy C Sandy F	Sleyed Mairix (S4) Redox (S5)		Redox Depres	sions (FØ)				Spodic (TA6) (MLRA 144A, 145, 149B) irent Material (F21)
	1 Matrix (86)							hallow Dark Surface (TF12)
Dark Su	rface (S7) (LRR R, I	MLRA 149	B)				Clher (	Explain in Remarks)
<sup>3</sup> indicators o	f hydrophylic vegeta	tion and w	etiand hydrology mu	st be pres	ent, unics	s disturbed	or problematic.	*
	Layer (If observed)		<u>X</u>				T	
Тура:								
Depth (in	ches):						Hydric Soll	Present? Yes No_X
Remarks:								

### Strum-Lublin 69kV (N-3) Transmission Line Rebuild Project Phase I: Strum Tap to Willard Tap

DIRECTION	FEATURE ID PHOTOGRAPHER	067D Kathy Bellrichard and Apryl Jennrich	DATE 9/23/2012