# Wetland Delineation and Water Resource Identification Report

## The "Dunes"
## S. Main Street (Approximately 33.72 Acres)
## Culver, Marshall County, Indiana

**Project Number 221054**

***Prepared for:***

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## EXECUTIVE SUMMARY

John Kimpel & Associates, Inc. hired nuInventa, LLC (nuI) to determine if wetlands and other kinds of surface water resources are present on a 33.72-acre undeveloped parcel located on the west side of S. Main Street in Culver, Marshall County, Indiana (Project Site). Under the Public Land Survey System, the Project Site is said to be located in part of the South ½; Northeast ¼; Section 20; Township 32 North; Range 1 East.

The wetland determination and delineation was completed using methodologies outlined in the *Corps of Engineers Wetland Delineation Manual* (1987 Manual) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Midwest Region, Version 2.0*. These documents are currently the professionally accepted documents used to complete wetland determinations and delineations. Other printed and online resources were used to assess current conditions within the limits of the Project Site to gain a perspective of where wetlands may be located, and for fieldwork planning purposes.

Fieldwork required to complete the wetland delineation was conducted November 29, 2022. Through the utilization of methodologies described above, nuI identified the following:

- "Wetland A", a 1.40-acre emergent wetland located in the southwestern quadrant of the Project Site.
- "Wetland B", a 0.413-acre emergent wetland located in the northeastern quadrant of the Project Site. This wetland extends offsite to the north.

This wetland delineation report may be submitted to the U.S. Army Corps of Engineers (USACE) along with a written request for a "jurisdictional determination", commonly referred to as a "JD". In Indiana, the USACE is the lead agency with regulatory authority to determine whether or not delineated wetlands, streams, and other water resources are considered "Waters of the U.S.", which are regulated under Sections 401 and 404 of the Clean Water Act (CWA). To obtain a JD, a site visit is typically conducted. At that time, the USACE will determine concurrence with wetland boundaries established; and, occasionally the USACE will request modifications to delineated wetland boundaries in order to issue concurrence with a wetland delineation and complete a JD.

Wetlands, streams, and other water resources that are not regulated under Section 404 of the CWA may otherwise fall into the category of "excluded waters" that are not within the regulatory jurisdiction of the USACE; however, such features are typically considered "isolated" features, or "Waters of the State", and subject to regulation under Indiana's "Isolated Wetlands Rule" (Indiana Code 13-18-22). If necessary, a request may be submitted to the IDEM to complete a "Waters of the State" determination. The request should be accompanied by the JD letter issued by the USACE, if applicable. The IDEM will conclude which wetlands are regulated under Section 401 of the CWA and which are regulated under Indiana Code 13-18-22.

According to Flood Insurance Rate Maps published by the Federal Emergency Management Agency, the footprints of all delineated wetlands occur entirely within the mapped limits of flood "Zone A", which are "areas with 1% annual chance of flooding".

## 1.0 INTRODUCTION

John Kimpel & Associates, Inc. (Client) hired nuInventa, LLC (nuI) to determine if wetlands and other kinds of surface water resources are present on one undeveloped parcel located at the southwest corner of the intersection of S. Main Street and Davis Street in Culver, Marshall County, Indiana. The location of the Project Site is graphically depicted in **Figure 1**, **Project Site Location Map** in Appendix A; and, under the Public Land Survey System, is said to be located in part of the South ½; Northeast ¼; Section 20; Township 32 North; Range 1 East. Marshall County land parcel records indicate the parcel identification number is 502120204012001014.

The purpose of a wetland determination and delineation is to identify and, if present, show the limits of wetlands and other water resources on a site. The federal definition of wetlands are *"…those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas."*

Many wetlands and streams in Indiana are regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA). Wetlands under the jurisdiction of the USACE are also regulated by the Indiana Department of Environmental Management (IDEM) under Section 401 of the CWA. In cases when a wetland is not regulated by the USACE, such "excluded" features are typically regulated by the IDEM under Indiana's Isolated Wetlands Rule (Indiana Code 13-18-22).

## 2.0 METHODOLOGY

nuI uses methodologies of the *Corps of Engineers Wetland Delineation Manual* (1987 Manual) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Midwest Region, Version 2.0* to determine the presence of wetlands and delineate their boundaries. For an area to support wetlands, three criteria must be present, which include a.) a dominance or prevalence of hydrophytic vegetation, b.) hydric soils, and c.) wetland hydrology.

## 3.0 DESKTOP REVIEW

Prior to conducting fieldwork required to complete the wetland determination and delineation, nuI conducted a desktop review of readily-available secondary source information, which includes aerial photography, U.S. Geological Survey (USGS) 7.5-Minute Topographic Quadrangle maps, U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data, Natural Resources Conservation Service (NRCS) soils data; and, Federal Emergency Management Agency (FEMA) Flood Rate Insurance Map (FIRM) maps.

This secondary source information is routinely assessed to identify particular areas on a site where wetlands, streams, and other water resources may be present.

### *3.1 Aerial Imagery*

Recent aerial imagery with coverage for the Project Site was reviewed; refer to **Figure 2**, **Land Use and Land Cover Map** in Appendix A.

The entire Project Site appears to be undeveloped. Land use and cover includes successional forest along the north boundary and in the west one-quarter portion while tilled agricultural fields comprise the remainder of the Project Site. An unpaved drive extends from the east boundary toward the center of the Project Site. Standing water that appears to be a pond, and an area of saturated soil that may indicate the presence of a wetland, are evident in the southwest corner of the Project Site. Land use in the surrounding vicinity consists of tilled agricultural fields to the south and west, residential properties to the east, a commercial facility to the northwest, and undeveloped land to the north and west.

### *3.2 USGS Topographic Quadrangle Map*

A USGS topographic map with coverage for the Project Site was reviewed; refer to **Figure 3**, **USGS 7.5-Minute Topographic Map, Culver (1962)** in Appendix A.

The topography throughout the Project Site appears to slope downward to the north and west, from a high of approximately 765 feet near the southeast corner to a low of 745 feet along the north and west boundaries. Two excavated areas, or ponds, are shown to be located on the Project Site, one in the southwest corner and another along the north boundary. The excavated feature at the north is contiguous to an offsite swamp/marsh located directly north of the Project Site. No streams or other water resources are shown to occur near the Project Site or in the immediate vicinity thereof.

### *3.3 USFWS NWI Data*

With respect to site-specific wetland determinations, USFWS NWI data are useful primarily for project planning purposes. NWI maps were compiled more than two decades ago and are known to sometimes contain erroneous information. The data are useful, however, when combined with other secondary source information, to gain an understanding of where wetlands are likely to occur, and provide insight as to where wetlands may have *historically* occurred. The USACE and the IDEM do not accept the use of NWI data as a substitute for an onsite wetland determination and delineation.

The NWI map indicates two wetlands are present within the limits of the Project Site, and, the Cowardin classifications of the wetlands shown are listed in Table 1, below; refer to **Figure 4**, **National Wetlands Inventory Map** in Appendix A. A rather larger emergent wetland is located to the north, a small portion of which extends onto the northern fringe of the Project Site.

| Table 1. NWI Wetlands | |
|---|---|
| **Symbol** | **Cowardin Classification** |
| PUBFx | Palustrine, Unconsolidated Bottom, Semipermanently Flooded, Excavated |
| PEM1C | Palustrine, Emergent, Persistent, Seasonally Flooded |

### *3.4 NRCS Soils Data*

Hydric soils form under conditions of saturation, flooding, or ponding that occur long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. Presence of hydric soils is one of three criteria required for an area to be considered a wetland. The Web Soil Survey published by the United States Department of Agriculture, Natural Resources Conservation Service was accessed to determine what soil map units for Marshall County, Indiana occur within the limits of the Project Site. Six soil map units are shown to occur within the limits of the Project Site; refer to **Figure 5**, **NRCS Soils Map** in Appendix A. The soils are listed in Table 2, below. Hydric inclusions are small portions within mapped units of hydric soils that were otherwise too small to be mapped, or they are expected to occur within the non-hydric unit.

| Table 2. Mapped Soil Units | | | |
|---|---|---|---|
| **Map Unit Symbol** | **Map Unit Name** | **Status** | **Hydric Inclusions** |
| HpjmA | Houghton muck, disintegration moraine, 0 to 2 percent slopes | Hydric | Yes |
| OndA | Owosso sandy loam, 0 to 2 percent slopes | Non-Hydric | No |
| RopB | Riddles-Oshtemo fine sandy loams, 1 to 5 percent slopes | Non-Hydric | No |
| RopC2 | Riddles-Metea complex, 5 to 10 percent slopes, eroded | Non-Hydric | No |
| TxuA | Tyner loamy sand, 0 to 1 percent slopes | Non-Hydric | No |
| WkxC2 | Wawasee sandy loam, 6 to 12 percent sloped, eroded | Non-hydric | No |

### *3.5 Floodplains*

A review of FEMA FIRMs was conducted to determine the existence, location, and zone of floodplains on and within the vicinity of the Project Site. The FIRMs show floodplain areas along lakes, rivers, and tributaries. These maps record the following data: 100-year (1% chance of annual flooding) and 500-year (0.2% annual chance of flooding) floodplains, the height of the base flood elevation, and the risk of premium zones developed from topographical information across the floodplain. The FEMA Flood Map Service Center was accessed; and, data coverage for the Project Site was accessed by address query. See **Figure 6**, **FEMA FIRM Map** in Appendix A.

Nearly all of the forested area on the Project Site is located in "Zone A", which is a "zone with a 1% annual chance of flooding" while a small portion of the forested area and nearly all of the tilled agricultural field is located in "Zone X", which is a "zone with a minimal risk of flood hazard".

## 4.0 RESULTS

Fieldwork required to complete the wetland determination and delineation was conducted November 29, 2022. The temperature was approximately 58 degrees, which is abnormally high for the time of year.

Data were collected at nine data points to determine the presence or absence of areas exhibiting all three wetland criteria. The locations of these data points are shown in **Figure 7**, **Wetland Delineation and Water Resource Map** in Appendix A.

Photographs of the data points and other areas of the Project Site are provided in the **Photographic Log** in Appendix B.

### *4.1 Wetlands*

Two wetlands were identified within the limits of the Project Site. Data regarding the wetlands are provided in Table 2, below.

**Table 2. Summary of Delineated Wetlands**

| Wetland ID | Type | Size (acres) | Wetland Data Points |
|---|---|---|---|
| Wetland A | Palustrine, forested | 1.40 | 1, 3, 5 |
| Wetland B | Palustrine, emergent | 0.413 | 7 |

Wetland A

The presence of a water feature shown on the NWI map and the USGS topographic map in the southwest quadrant of the Project Site was confirmed. The emergent wetland identified is entirely contained within the limits of the Project Site.

The periphery of the wetland is forested; however, the vegetation community throughout most of the wetland is herbaceous. For instance, no species were observed in the sapling/shrub and herbaceous strata at Data Point (DP) 3, whereas trees were present along the edge of the wetland, including silver maple (*Acer saccharinum*, FACW); eastern cottonwood (*Populus deltoides*, FAC); and, pin oak (*Quercus palustris*, FACW). Cursed buttercup (*Ranunculus sceleratus*, OBL) was dominant at DPs 1 and 5. Trees occurring near the edge of the wetland near these data points include *Acer saccharinum* at both and *Populus deltoides* at DP 1, only.

The mapped soil type shown to occur throughout the entire wetland is Houghton muck, a hydric soil. The observed soil characteristics observed at these data points coincide with the that of soil unit. Applicable hydric soil indicators observed include a depleted matrix, a redox dark surface, and a loamy mucky mineral texture.

At least one primary wetland hydrology indicator confirmed the presence of wetland hydrology conditions at all three data points. The depth to the water table was less than 12 inches at DPs 1 and 5 and the depth to saturated soil at DP 3 was 10 inches. Other primary indicators include inundation that is visible on aerial imagery, sparsely vegetated concave surfaces, and water-stained leaves. Applicable secondary wetland hydrology indicators include a dry-season water table, saturation that is visible on aerial imagery, the geomorphic position of the wetland in a concave depression, and the FAC-Neutral Test.

An exposed field drainage tile was observed along the west boundary of the wetland, which conveys surface water into the wetland.

The Cowardin classification for the wetland indicates that it is an excavated feature. Given the characteristics of surrounding uplands, the presence of an upland ridge that protrudes into the interior of the wetland, and steep and abrupt slopes at the wetland's boundaries, it is likely the wetland was indeed "excavated" and not created, as least not entirely, by natural geologic processes.

Wetland B

The NWI map indicates that a palustrine, emergent wetland located to the north extends southward onto the northern fringe of the Project Site; and, data collected and observations made at DP 7 confirm its presence. The USGS topographic map indicates that DP 7 is situated in an excavated feature.

The vegetation throughout most of the wetland, including the offsite portion, is a monotypic stand of reed canary grass (*Phalaris arundinacea*, FACW). Black willow (*Salix nigra,* OBL) trees were observed as isolated inclusions in various areas along the wetland fringe. No sapling/shrub species were observed within the onsite portion of the wetland.

The soil had a loamy, mucky, mineral texture, which confirms the soil is consistent with the mapped soil type, Houghton muck, a hydric soil. Other hydric characteristics observed include a depleted matrix, a redox dark surface, and depletions below a dark surface.

Saturated soil and a high water table were observed at the surface and two inches below the surface, respectively, which are primary wetland hydrology indicators. Applicable secondary indicators include the geomorphic position of the wetland as a depression in the landscape and the FAC-Neutral Test.

### *4.2 Streams*

No streams were identified within the limits of the Project Site.

### *4.3 Other Features*

No other surface water resources were identified within the limits of Project Site.

### *4.4 Upland Areas*

Data were collected and observations were recorded at DPs 2, 4, 6, 8, and 9 to document typical upland characteristics. The textures of soils in upland areas were sandy, and the soils were well-drained. No hydric soil indicators or wetland hydrology indicators were observed at any of these upland data points. DPs 2, 4, and 8 are located near wetlands in upland forested areas. DPs 6 and 9 are located at farther distances from wetlands. The vegetation communities observed at all upland data points are essentially successional forested areas with intermingled upland old field. Tilled agricultural fields are present in the central, northeast, and most of the south one-third portions of the Project Site.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

Through best professional judgement and utilization of methodologies outlined in the *Corps of Engineers Wetland Delineation Manual* (1987 Manual) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Midwest Region, Version 2.0*, nuI confirmed the presence of two wetlands on the Project Site that are depicted on the NWI and USGS topographic maps. Wetland A is contained entirely within the limits of the Project Site and is not connected at the surface to any other surface water feature. Wetland B is part of a much larger emergent wetland that is situated north of the Project Site. No contiguous onsite surface water features to Wetland B were observed; however, the existence of any such features at offsite locations could not be determined due to the limits of the project scope.

Nearly all of the forested area and small portions of the tilled agricultural field are located in flood "Zone A"; and, the footprints of all delineated wetlands occur within the limits of this mapped flood zone.

This wetland delineation report may be submitted to the USACE along with a written request for a "jurisdictional determination", commonly referred to as a "JD". In Indiana, the USACE is the lead agency with regulatory authority to determine whether or not delineated wetlands, streams, and other water resources are considered "Waters of the U.S.", which are regulated under Sections 401 and 404 of the CWA. To obtain a JD, a site visit is typically conducted. At that time, the USACE will determine concurrence with wetland boundaries established; and, occasionally the USACE will request modifications to delineated wetland boundaries in order to issue concurrence with a wetland delineation and complete a JD.

Wetlands, streams, and other water resources that are not regulated under Section 404 of the CWA may otherwise fall into the category of "excluded waters" that are not within the regulatory jurisdiction of the USACE; however, such features are typically considered "isolated" features, or "Waters of the State", and subject to regulation under Indiana's "Isolated Wetlands Rule" (Indiana Code 13-18-22). If necessary, a request may be submitted to the IDEM to complete a "Waters of the State" determination. The request should be accompanied by the JD letter issued by the USACE, if applicable. The IDEM will conclude which wetlands are regulated under Section 401 of the CWA and which are regulated under Indiana Code 13-18-22.

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## GLOSSARY OF TERMS AND DEFINITIONS*

*Atypical wetland*: This term refers to areas in which one or more parameters (vegetation, soil and/or hydrology) have been sufficiently altered by human activities or natural events to preclude the presence of wetland indicators of the parameter.

*Emergent Wetland*: Vegetative classification of a wetland system based on the dominant vegetation consisting of rooted herbaceous plant species that have parts extending above a water surface.

*100-year Flood*: A flood with a magnitude that has a 1% chance of occurring or being exceeded in any given year.

*Floodplain*: The area of land adjoining a river or stream that will be inundated by a 100-year flood.

*Floodway*: The channel of a river or stream and the portions of the floodplain adjoining the channel, which are reasonably required to carry and discharge a 100-year flood.

*Hydric Soil*: Soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (1991 National Technical Committee on Hydric Soils definition).

*Hydrophytic Vegetation*: Plant species that grow in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content; plants typically found in wet habitats.

*Ordinary High Water Mark*: The point on a stream bank to which the presence and action of surface water is so continuous as to leave a district marked by erosion; destruction or prevention of woody terrestrial vegetation; predominance of aquatic vegetation; or other easily recognized characteristic.

*Scrub-Shrub Wetland*: Vegetative classification of a wetland system based on the dominant vegetation consisting of woody plants less than three inches in diameter but greater than three feet in height.

*Stream*: A general term for a body of flowing water; natural water course containing water at least part of the year. In hydrology, it is generally applied to the water flowing in a natural channel as distinct from a canal.

*Typical Situation*: That, which normally, usually, or commonly occurs.

*Wooded (Forested) Wetland*: Vegetative classification of a wetland system based on the dominant vegetation consisting of woody plants three inches in diameter or greater regardless of height.

*Wetland*: "…land characterized by the presence of water at a frequency and duration sufficient to support and that under normal circumstances does support, wetland vegetation or aquatic life and is commonly referred to as a bog, swamp, or marsh…"

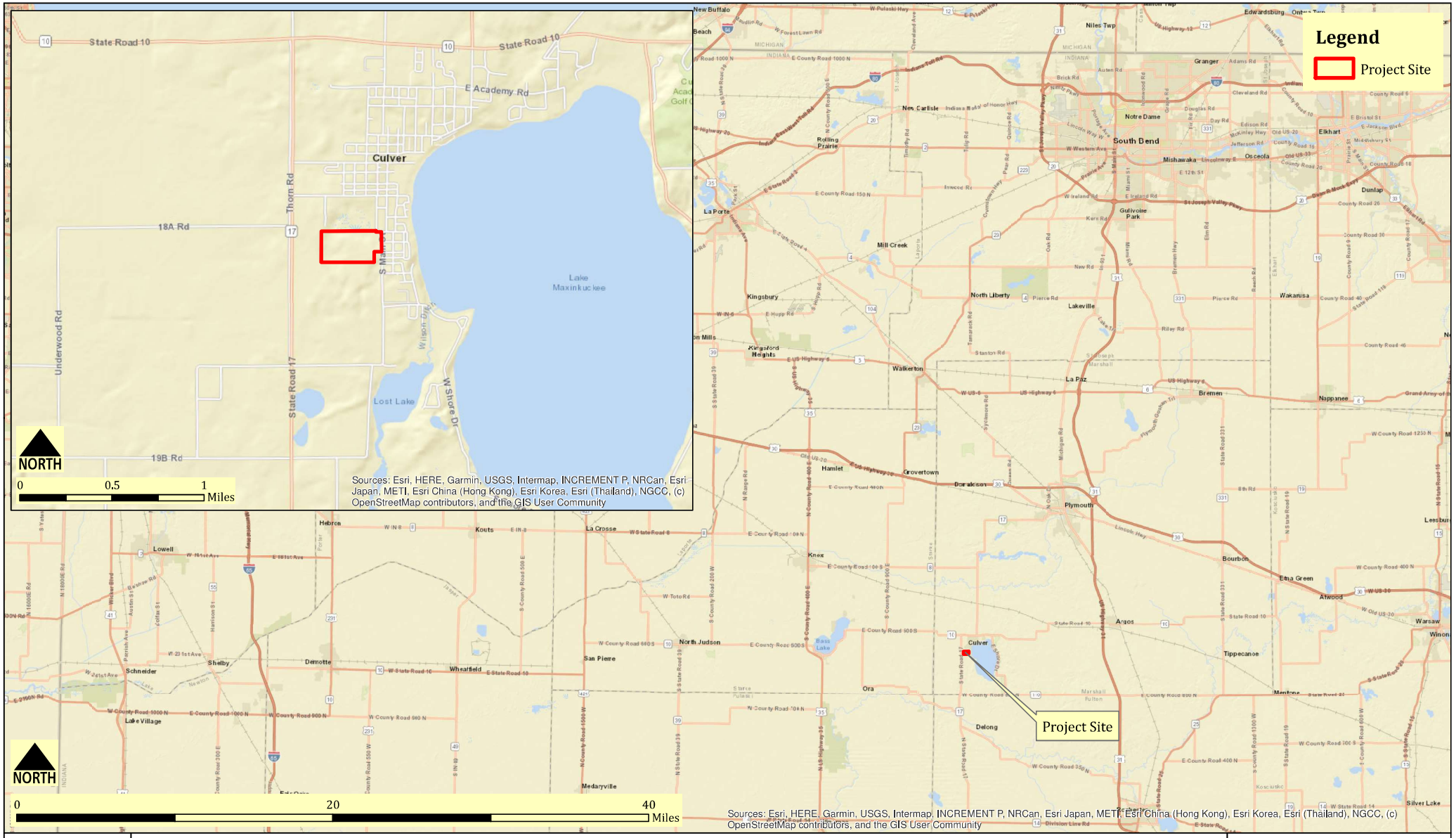
*Wetland Hydrology*: Hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season.

*Wetland Indicator Status*:
OBL: Obligate wetland plant that occurs almost always, 99% of the time, in wetlands under natural conditions, but which rarely occur in non-wetlands.
FACW: Facultative wetland plant that occurs usually, 67% to 99% of the time, in wetlands, but also occurs 1% to 33% of the time in non-wetlands.
FAC: Facultative plant that occurs in both wetlands and non-wetlands 33% to 67% of the time.
FACU: Plant that occurs sometimes, 1% to 33% of the time, in wetlands but occurs more often, 67% to 99% of the time, in non-wetlands.

*Some terms and definitions listed may not necessarily occur within the report.

# APPENDIX A

## Maps




| | | |
|---|---|---|
| Figure 1 | **Project Site Location Map**<br>The "Dunes" (Approximately 33.72 Acres)<br>S. Main Street, Culver, Marshall County, Indiana | nuInventa |
| Project No. 221054 | | Drawn By: R. Newkirk \| Date: 11-25-2022<br>Reviewed By: C. Appleman \| Rev: 0 |


Figure 2

Project No. 221054

**Land Use and Land Cover Map**

The "Dunes" (Approximately 33.72 Acres)
S. Main Street, Culver, Marshall County, Indiana

nuInventa

| | |
|---|---|
| Drawn By: R. Newkirk | Date: 11-25-2022 |
| Reviewed By: C. Appleman | Rev: 0 |

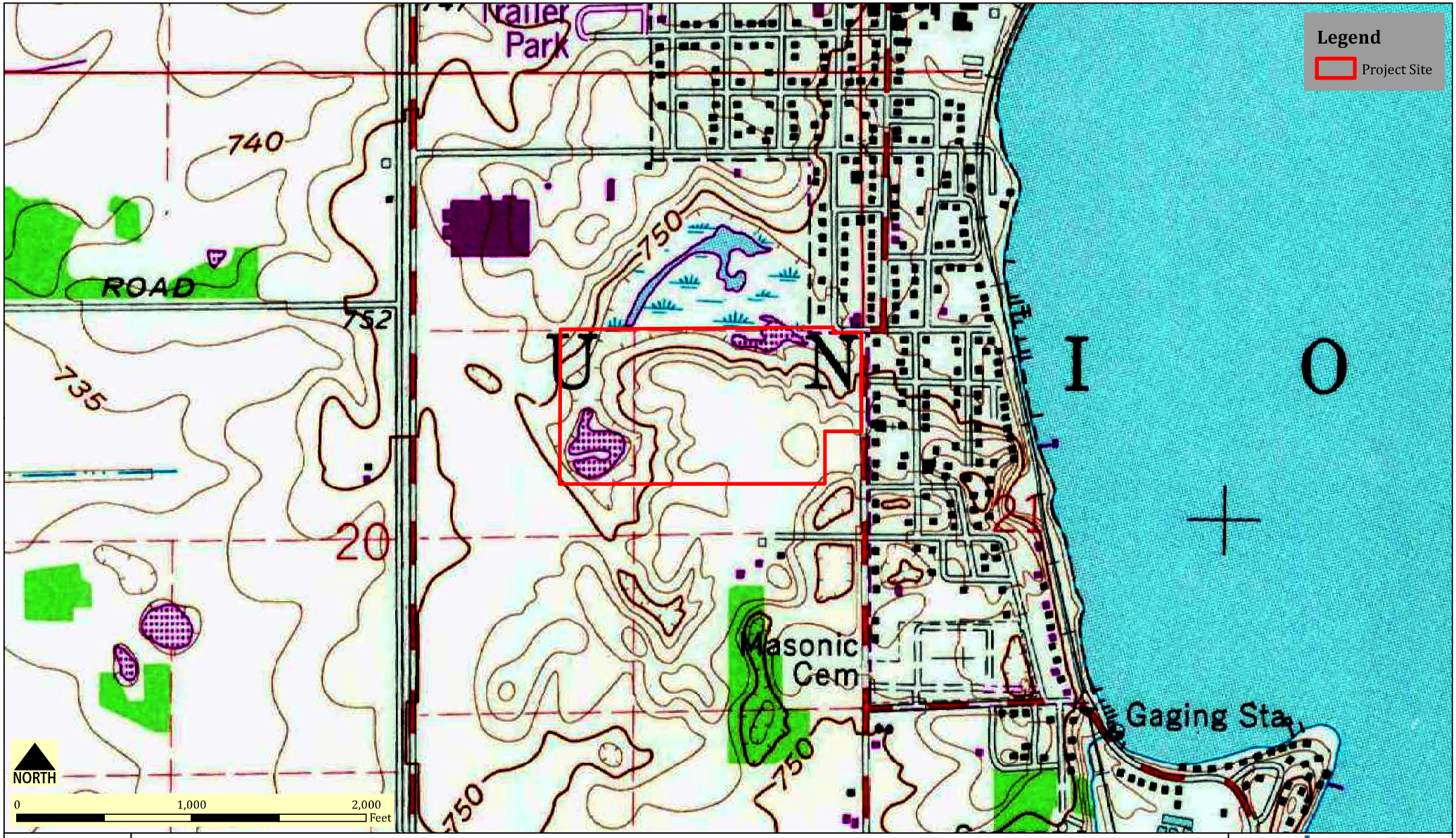



Figure 3

Project No. 221054

**USGS 7.5-Minute Topographic Map, Culver Quadrangle (1962)**

The "Dunes" (Approximately 33.72 Acres)
S. Main Street, Culver, Marshall County, Indiana

nuInventa

| | |
|---|---|
| Drawn By: R. Newkirk | Date: 11-25-2022 |
| Reviewed By: C. Appleman | Rev: 0 |

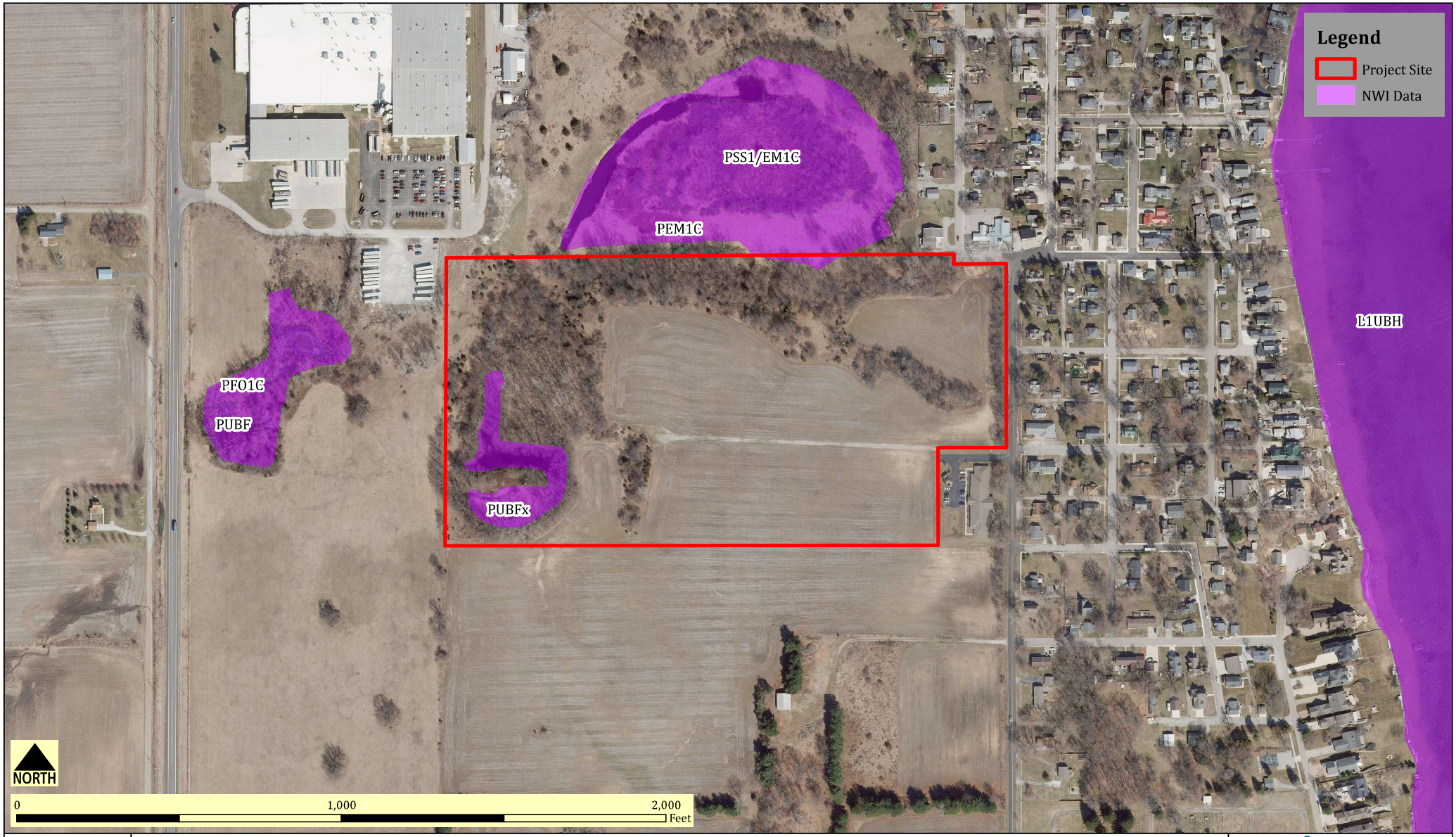



Figure 4

Project No. 221054

**National Wetlands Inventory Map**

The "Dunes" (Approximately 33.72 Acres)
S. Main Street, Culver, Marshall County, Indiana

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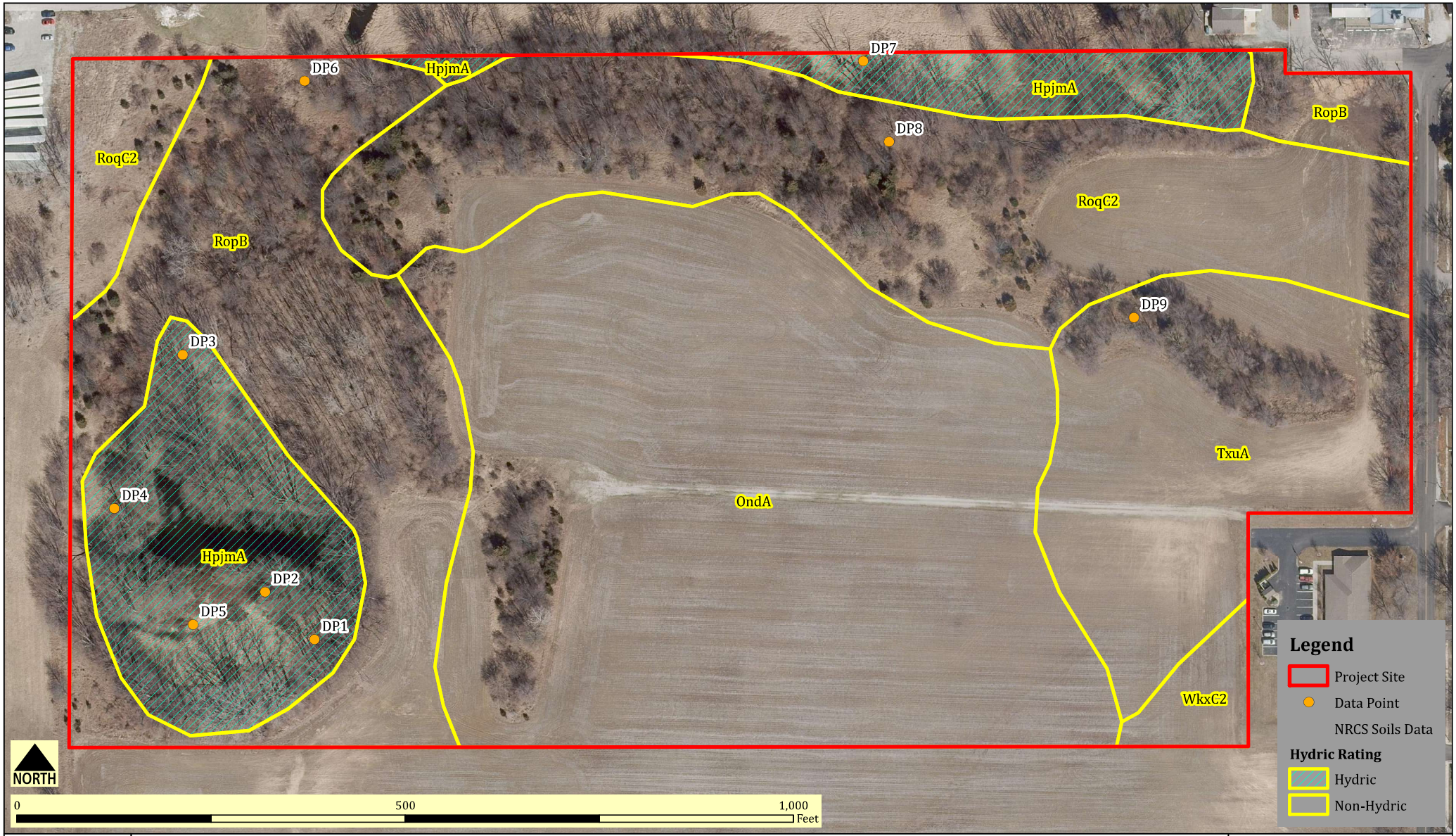
| | |
|---|---|
| Drawn By: R. Newkirk | Date: 11-25-2022 |
| Reviewed By: C. Appleman | Rev: 0 |




| | | |
|---|---|---|
| Figure 5 | **NRCS Soils Map**<br>The "Dunes" (Approximately 33.72 Acres)<br>S. Main Street, Culver, Marshall County, Indiana | nu Inventa |
| Project No. 221054 | | Drawn By: C. Appleman \| Date: 12-12-2022<br>Reviewed By: F. Hoopfer \| Rev: 0 |


Figure 6

Project No. 221054

**FEMA FIRM Map**

The "Dunes" (Approximately 33.72 Acres)
S. Main Street, Culver, Marshall County, Indiana

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| | |
|---|---|
| Drawn By: R. Newkirk | Date: 11-23-2022 |
| Reviewed By: C. Appleman | Rev: 0 |


Figure 7

Project No. 221054

**Wetland Delineation and Water Resource Map**

The "Dunes" (Approximately 33.72 Acres)
S. Main Street, Culver, Marshall County, Indiana

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| | |
|---|---|
| Drawn By: C. Appleman | Date: 12-12-2022 |
| Reviewed By: F. Hoopfer | Rev: 0 |

# APPENDIX B

## Photographic Log

## PHOTOGRAPHIC LOG

| | |
|---|---|
| **Photo:** 1<br>**Date:** 11-29-2022<br>**Direction:** East<br>**Description:** Data Point (DP) 1, shown here, is located in the southeast portion of Wetland A, which is located in the southwest quadrant of the Project Site. |  |

| | |
|---|---|
| **Photo:** 2<br>**Date:** 11-29-2022<br>**Direction:** West<br>**Description:** Another view of emergent Wetland A at DP 1. |  |

## PHOTOGRAPHIC LOG

| | |
|---|---|
| **Photo:** 3<br>**Date:** 11-29-2022<br>**Direction:** South<br>**Description:** DP 2 is located on an upland ridge that protrudes into Wetland A in the shape of a peninsula. |  |

| | |
|---|---|
| **Photo:** 4<br>**Date:** 11-29-2022<br>**Direction:** West<br>**Description:** Alternative view of DP 2 that is located on an upland ridge that protrudes into Wetland A. |  |

## PHOTOGRAPHIC LOG

| | |
|---|---|
| **Photo:** 5<br>**Date:** 11-29-2022<br>**Direction:** South<br>**Description:** View of wetland DP 3 that is located at the north end of Wetland A. |  |

| | |
|---|---|
| **Photo:** 6<br>**Date:** 11-29-2022<br>**Direction:** West<br>**Description:** Another view of wetland DP 3. |  |

## PHOTOGRAPHIC LOG

| | |
|---|---|
| **Photo:** 7<br>**Date:** 11-29-2022<br>**Direction:** North<br>**Description:** DP 4 is located on an upland ridge situated along the west side of Wetland A, in the southwest quadrant of the Project Site. |  |

| | |
|---|---|
| **Photo:** 8<br>**Date:** 11-29-2022<br>**Direction:** East<br>**Description:** Another view of wetland DP 4. |  |

## PHOTOGRAPHIC LOG

| | |
|---|---|
| **Photo:** 9<br>**Date:** 11-29-2022<br>**Direction:** Northwest<br>**Description:** A view of an exposed field tile that is located along the west boundary of Wetland A. |  |

| | |
|---|---|
| **Photo:** 10<br>**Date:** 11-29-2022<br>**Direction:** South<br>**Description:** View of surface water flowing into Wetland A from an exposed field tile located along the west boundary of the wetland. |  |

## PHOTOGRAPHIC LOG

| | |
|---|---|
| **Photo:** 11<br>**Date:** 11-29-2022<br>**Direction:** East<br>**Description:** DP 5 is located in the southwest portion of emergent Wetland A. |  |

| | |
|---|---|
| **Photo:** 12<br>**Date:** 11-29-2022<br>**Direction:** West<br>**Description:** Alternate view of wetland DP 5. |  |

## PHOTOGRAPHIC LOG

| | |
|---|---|
| **Photo:** 13<br>**Date:** 11-29-2022<br>**Direction:** East<br>**Description:** DP 6 is located in an upland old field in the northwest quadrant of the Project Site. |  |

| | |
|---|---|
| **Photo:** 14<br>**Date:** 11-29-2022<br>**Direction:** North<br>**Description:** View of wetland DP 7, which is located in the northwestern quadrant of Wetland B, an emergent wetland that extends offsite to the north. |  |

## PHOTOGRAPHIC LOG

| | |
|---|---|
| **Photo:** 15<br>**Date:** 11-29-2022<br>**Direction:** East<br>**Description:** Another view of wetland DP 7. |  |

| | |
|---|---|
| **Photo:** 16<br>**Date:** 11-29-2022<br>**Direction:** South<br>**Description:** View of a forested upland ridge at DP 8, which is located approximately 25 feet south of Wetland B. |  |

## PHOTOGRAPHIC LOG

| | |
|---|---|
| **Photo:** 17<br>**Date:** 11-29-2022<br>**Direction:** South<br>**Description:** DP 9 is located in an elongated upland area flanked on its two long sides by tilled agricultural fields. The vegetation consists of interspersed trees and shrubs with a herbaceous understory. |  |

# APPENDIX C

## Wetland Determination Data Forms

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Midwest Region**
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

*OMB Control #: 0710-0024, Exp:11/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: The "Dunes" (Project No. 221054) S. Main Street (33.72 ac) City/County: Culver/Marshall County Sampling Date: 11-29-2022

Applicant/Owner: Culver Equities LLC (deeded owner) State: IN Sampling Point: DP 1

Investigator(s): R. Newkirk; F. Hoopfer Section, Township, Range: S1/2; NE1/4; Sec. 20; T32N; R1E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 3 Lat: 41.209205 Long: 41.209205 Datum: WGS1984

Soil Map Unit Name: HpjmA - Houghton muck, disintegration moraine, 0 to 2 percent slopes NWI classification: PUBFx

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

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No 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 X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

**Is the Sampled Area within a Wetland?** **Yes** X **No** ____

Remarks:
Data point is located in the southeast portion of Wetland A, which is located in the southwest quadrant of the Project Site.

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Acer saccharinum* | 40 | Yes | FACW |
| 2. *Populus deltoides* | 5 | No | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 45 | =Total Cover | |
| Sapling/Shrub Stratum (Plot size: 15 ) | | | |
| 1. None | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | | =Total Cover | |
| Herb Stratum (Plot size: 5 ) | | | |
| 1. *Ranunculus sceleratus* | 30 | Yes | OBL |
| 2. *Leersia oryzoides* | 8 | No | OBL |
| 3. *Phalaris arundinacea* | 5 | No | FACW |
| 4. *Boehmeria cylindrica* | 2 | No | OBL |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 45 | =Total Cover | |
| Woody Vine Stratum (Plot size: 15 ) | | | |
| 1. None | | | |
| 2. | | | |
| | | =Total Cover | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 40 | x 1 = | 40 |
| FACW species | 45 | x 2 = | 90 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 90 (A) | | 145 (B) |

Prevalence Index = B/A = 1.61

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: DP 1

**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[1] | Loc[2] | Texture | Remarks |
| 0-8 | 10YR 4/2 | 50 | 5YR 3/4 | 50 | C | M | Loamy/Clayey | Prominent redox concentrations |
| 8-18 | 10YR 4/2 | 80 | 7.5YR 4/6 | 20 | C | M | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ? Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ? Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** X **No** ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes X | No ___ | Depth (inches): 11 |
| Saturation Present? (includes capillary fringe) | Yes X | No ___ | Depth (inches): 9 |

**Wetland Hydrology Present?** **Yes** X **No** ___

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

Remarks:

Data point is located near a pool of standing water, approximately six inches deep.

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Midwest Region**
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

*OMB Control #: 0710-0024, Exp:11/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: The "Dunes" (Project No. 221054) S. Main Street (33.72 ac) City/County: Culver/Marshall County Sampling Date: 11-29-2022

Applicant/Owner: Culver Equities LLC (deeded owner) State: IN Sampling Point: DP 2

Investigator(s): R. Newkirk; F. Hoopfer Section, Township, Range: S1/2; NE1/4; Sec. 20; T32N; R1E

Landform (hillside, terrace, etc.): ridge Local relief (concave, convex, none): convex

Slope (%): 1 Lat: 41.209371 Long: -86.429601 Datum: WGS1984

Soil Map Unit Name: HpjmA - Houghton muck, disintegration moraine, 0 to 2 percent slopes NWI classification: UPL

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

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No 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 X
Hydric Soil Present? Yes ____ No X
Wetland Hydrology Present? Yes ____ No X

**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X

Remarks:
Data point is located on an upland ridge that protrudes into Wetland A in the shape of a peninsula.

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Morus rubra* | 40 | Yes | FACU |
| 2. *Acer saccharinum* | 30 | Yes | FACW |
| 3. *Prunus serotina* | 5 | No | FACU |
| 4. | | | |
| 5. | | | |
| | 75 | =Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15 )** | | | |
| 1. *Elaeagnus umbellata* | 35 | Yes | UPL |
| 2. *Lonicera maackii* | 4 | No | UPL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 39 | =Total Cover | |
| **Herb Stratum (Plot size: 5 )** | | | |
| 1. *Rubus occidentalis* | 40 | Yes | UPL |
| 2. *Phytolacca americana* | 25 | Yes | FACU |
| 3. *Carex blanda* | 7 | No | FAC |
| 4. *Echinocystis lobata* | 5 | No | FACW |
| 5. *Geum canadense* | 3 | No | FAC |
| 6. *Geum macrophyllum* | 3 | No | FACW |
| 7. *Solidago canadensis* | 1 | No | FACU |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 84 | =Total Cover | |
| **Woody Vine Stratum (Plot size: 15 )** | | | |
| 1. *Echinocystis lobata* | 10 | Yes | FACW |
| 2. | | | |
| | 10 | =Total Cover | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 48 | x 2 = | 96 |
| FAC species | 10 | x 3 = | 30 |
| FACU species | 71 | x 4 = | 284 |
| UPL species | 79 | x 5 = | 395 |
| Column Totals: | 208 (A) | | 805 (B) |
| Prevalence Index = B/A = | | | 3.87 |

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** ____ **No** X

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

## SOIL

Sampling Point: DP 2

**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[1] | Loc[2] | Texture | Remarks |
| 0-11 | 10YR 2/1 | 100 | | | | | Loamy/Clayey | |
| 11-17 | 10YR 3/1 | 95 | 7.5YR 3/4 | 5 | C | M | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** ____ **No** X

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ 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)

**Field Observations:**

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

**Wetland Hydrology Present?** **Yes** ____ **No** X

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

Remarks:

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Midwest Region**
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

*OMB Control #: 0710-0024, Exp:11/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: The "Dunes" (Project No. 221054) S. Main Street (33.72 ac) City/County: Culver/Marshall County Sampling Date: 11-29-2022

Applicant/Owner: Culver Equities LLC (deeded owner) State: IN Sampling Point: DP 3

Investigator(s): R. Newkirk; F. Hoopfer Section, Township, Range: S1/2; NE1/4; Sec. 20; T32N; R1E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 41.210205 Long: -86.429996 Datum: WGS1984

Soil Map Unit Name: HpjmA - Houghton muck, disintegration moraine, 0 to 2 percent slopes NWI classification: PUBFx

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

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No 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 X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

**Is the Sampled Area within a Wetland?** **Yes** X **No** ____

Remarks:
Data point is located at the north end of Wetland A.

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Acer saccharinum* | 70 | Yes | FACW |
| 2. *Populus deltoides* | 10 | No | FAC |
| 3. *Quercus palustris* | 7 | No | FACW |
| 4. | | | |
| 5. | | | |
| | 87 | =Total Cover | |

| Sapling/Shrub Stratum (Plot size: 15 ) | | | |
|---|---|---|---|
| 1. None | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | | =Total Cover | |

| Herb Stratum (Plot size: 5 ) | | | |
|---|---|---|---|
| 1. None | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | | =Total Cover | |

| Woody Vine Stratum (Plot size: 15 ) | | | |
|---|---|---|---|
| 1. None | | | |
| 2. | | | |
| | | =Total Cover | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 77 | x 2 = | 154 |
| FAC species | 10 | x 3 = | 30 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 87 (A) | | 184 (B) |

Prevalence Index = B/A = 2.11

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: DP 3

**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[1] | Loc[2] | Texture | Remarks |
| 0-2 | 10YR 2/1 | 70 | 5YR 3/4 | 30 | C | M | Loamy/Clayey | Prominent redox concentrations |
| 2-18 | 2.5YR 3/1 | 60 | 5YR 3/4 | 40 | C | M | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ? Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ? Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ? Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** X **No** ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- X Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes X | No ___ | Depth (inches): 14 |
| Saturation Present? (includes capillary fringe) | Yes X | No ___ | Depth (inches): 10 |

**Wetland Hydrology Present?** **Yes** X **No** ___

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

Remarks:

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Midwest Region**
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

*OMB Control #: 0710-0024, Exp:11/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: The "Dunes" (Project No. 221054) S. Main Street (33.72 ac) City/County: Culver/Marshall County Sampling Date: 11-29-2022

Applicant/Owner: Culver Equities LLC (deeded owner) State: IN Sampling Point: DP 4

Investigator(s): R. Newkirk; F. Hoopfer Section, Township, Range: S1/2; NE1/4; Sec. 20; T32N; R1E

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex

Slope (%): 5 Lat: 41.209661 Long: -86.430311 Datum: WGS1984

Soil Map Unit Name: HpjmA - Houghton muck, disintegration moraine, 0 to 2 percent slopes NWI classification: UPL

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

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No 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 X
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes ____ No X

**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X

Remarks:
Data point is located on an upland ridge situated along the west side of Wetland A, in the southwest quadrant of the Project Site.

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Acer saccharinum* | 45 | Yes | FACW |
| 2. *Quercus palustris* | 15 | No | FACW |
| 3. *Morus rubra* | 10 | No | FACU |
| 4. *Prunus serotina* | 7 | No | FACU |
| 5. | | | |
| | 77 | =Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15 )** | | | |
| 1. *Lonicera maackii* | 5 | Yes | UPL |
| 2. *Elaeagnus umbellata* | 4 | Yes | UPL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 9 | =Total Cover | |
| **Herb Stratum (Plot size: 5 )** | | | |
| 1. *Schedonorus arundinaceus* | 90 | Yes | FACU |
| 2. *Urtica dioica* | 8 | No | FACW |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 98 | =Total Cover | |
| **Woody Vine Stratum (Plot size: 15 )** | | | |
| 1. None | | | |
| 2. | | | |
| | | =Total Cover | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 68 | x 2 = | 136 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 107 | x 4 = | 428 |
| UPL species | 9 | x 5 = | 45 |
| Column Totals: | 184 (A) | | 609 (B) |
| Prevalence Index = B/A = | | | 3.31 |

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** ____ **No** X

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

## SOIL

Sampling Point: DP 4

**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[1] | Loc[2] | Texture | Remarks |
| 0-8 | 10YR 3/2 | 95 | 10YR 5/6 | 5 | C | M | Loamy/Clayey | Prominent redox concentrations |
| 8-15 | 10YR 5/1 | 40 | 10YR 5/8 | 60 | C | M | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ? Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** X **No** ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ 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)

**Field Observations:**

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

**Wetland Hydrology Present?** **Yes** ___ **No** X

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

Remarks:

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Midwest Region**
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

*OMB Control #: 0710-0024, Exp:11/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: The "Dunes" (Project No. 221054) S. Main Street (33.72 ac) City/County: Culver/Marshall County Sampling Date: 11-29-2022

Applicant/Owner: Culver Equities LLC (deeded owner) State: IN Sampling Point: DP 5

Investigator(s): R. Newkirk; F. Hoopfer Section, Township, Range: S1/2; NE1/4; Sec. 20; T32N; R1E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 41.209254 Long: -86.429937 Datum: WGS1984

Soil Map Unit Name: HpjmA - Houghton muck, disintegration moraine, 0 to 2 percent slopes NWI classification: PUBFx

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

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No 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 X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

**Is the Sampled Area within a Wetland?** **Yes** X **No** ____

Remarks:
Data point is located in the southwest portion of Wetland A.

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Acer saccharinum* | 15 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 15 | =Total Cover | |
| **Sapling/Shrub Stratum** (Plot size: 15 ) | | | |
| 1. *Cephalanthus occidentalis* | 20 | Yes | OBL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 20 | =Total Cover | |
| **Herb Stratum** (Plot size: 5 ) | | | |
| 1. *Ranunculus sceleratus* | 60 | Yes | OBL |
| 2. *Phalaris arundinacea* | 10 | No | FACW |
| 3. *Phragmites australis* | 4 | No | FACW |
| 4. *Bidens frondosa* | 3 | No | FACW |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 77 | =Total Cover | |
| **Woody Vine Stratum** (Plot size: 15 ) | | | |
| 1. None | | | |
| 2. | | | |
| | | =Total Cover | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 80 | x 1 = | 80 |
| FACW species | 32 | x 2 = | 64 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 112 (A) | | 144 (B) |

Prevalence Index = B/A = 1.29

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: DP 5

**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[1] | Loc[2] | Texture | Remarks |
| 0-8 | 10YR 2/2 | 100 | | | | | Loamy/Clayey | |
| 8-17 | 10YR 3/1 | 97 | 10YR 4/6 | 3 | C | M | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** X **No** ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes X | No ___ | Depth (inches): 9 |
| Saturation Present? (includes capillary fringe) | Yes X | No ___ | Depth (inches): 7 |

**Wetland Hydrology Present?** **Yes** X **No** ___

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

Remarks:

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Midwest Region**
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

*OMB Control #: 0710-0024, Exp:11/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: The "Dunes" (Project No. 221054) S. Main Street (33.72 ac) City/County: Culver/Marshall County Sampling Date: 11-29-2022

Applicant/Owner: Culver Equities LLC (deeded owner) State: IN Sampling Point: DP 6

Investigator(s): R. Newkirk; F. Hoopfer Section, Township, Range: S1/2; NE1/4; Sec. 20; T32N; R1E

Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): none

Slope (%): 3 Lat: 41.211173 Long: -86.429437 Datum: WGS1984

Soil Map Unit Name: RopB - Riddles-Oshtemo fine sandy loams, 1 to 5 percent slopes NWI classification: UPL

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

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No 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 X
Hydric Soil Present? Yes ____ No X
Wetland Hydrology Present? Yes ____ No X

**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X

Remarks:
Data point is located in an upland old field in the northwest quadrant of the Project Site.

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Acer saccharinum* | 40 | Yes | FACW |
| 2. *Prunus serotina* | 25 | Yes | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 65 | =Total Cover | |
| **Sapling/Shrub Stratum** (Plot size: 15 ) | | | |
| 1. *Elaeagnus umbellata* | 5 | Yes | UPL |
| 2. *Sambucus nigra* | 3 | Yes | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 8 | =Total Cover | |
| **Herb Stratum** (Plot size: 5 ) | | | |
| 1. *Bromus inermis* | 95 | Yes | FACU |
| 2. *Phalaris arundinacea* | 5 | No | FACW |
| 3. *Phytolacca americana* | 4 | No | FACU |
| 4. *Urtica dioica* | 4 | No | FACW |
| 5. *Rubus occidentalis* | 3 | No | UPL |
| 6. *Elaeagnus umbellata* | 2 | No | UPL |
| 7. *Hackelia virginiana* | 1 | No | FACU |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 114 | =Total Cover | |
| **Woody Vine Stratum** (Plot size: 15 ) | | | |
| 1. *Vitis riparia* | 20 | Yes | FACW |
| 2. | | | |
| | 20 | =Total Cover | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 69 | x 2 = | 138 |
| FAC species | 3 | x 3 = | 9 |
| FACU species | 125 | x 4 = | 500 |
| UPL species | 10 | x 5 = | 50 |
| Column Totals: | 207 (A) | | 697 (B) |
| Prevalence Index = B/A = | | | 3.37 |

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** ____ **No** X

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

## SOIL

Sampling Point: DP 6

**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[1] | Loc[2] | Texture | Remarks |
| 0-12 | 10YR 3/3 | 100 | | | | | Sandy | |
| 12-16 | 10YR 3/4 | 97 | 10YR 4/6 | 3 | C | M | Sandy | Distinct redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** ____ **No** X

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ 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)

**Field Observations:**

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

**Wetland Hydrology Present?** **Yes** ____ **No** X

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

Remarks:

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Midwest Region**
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

*OMB Control #: 0710-0024, Exp:11/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: The "Dunes" (Project No. 221054) S. Main Street (33.72 ac) City/County: Culver/Marshall County Sampling Date: 11-29-2022

Applicant/Owner: Culver Equities LLC (deeded owner) State: IN Sampling Point: DP 7

Investigator(s): R. Newkirk; F. Hoopfer Section, Township, Range: S1/2; NE1/4; Sec. 20; T32N; R1E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 41.211261 Long: -86.426824 Datum: WGS1984

Soil Map Unit Name: HpjmA - Houghton muck, disintegration moraine, 0 to 2 percent slopes NWI classification: PEM1C

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

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No 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 X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

**Is the Sampled Area within a Wetland?** **Yes** X **No** ____

Remarks:
Data point is located in the northwestern quadrant of Wetland B, an emergent wetland that extends offsite to the north.

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix nigra* | 30 | Yes | OBL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 30 | =Total Cover | |
| **Sapling/Shrub Stratum** (Plot size: 15 ) | | | |
| 1. None | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | | =Total Cover | |
| **Herb Stratum** (Plot size: 5 ) | | | |
| 1. *Phalaris arundinacea* | 90 | Yes | FACW |
| 2. *Urtica dioica* | 1 | No | FACW |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 91 | =Total Cover | |
| **Woody Vine Stratum** (Plot size: 15 ) | | | |
| 1. *Toxicodendron radicans* | 5 | Yes | FAC |
| 2. | | | |
| | 5 | =Total Cover | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 30 | x 1 = | 30 |
| FACW species | 91 | x 2 = | 182 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 126 (A) | | 227 (B) |

Prevalence Index = B/A = 1.80

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: DP 7

**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[1] | Loc[2] | Texture | Remarks |
| 0-9 | 10YR 3/1 | 95 | 10YR 5/8 | 5 | C | M | Loamy/Clayey | Prominent redox concentrations |
| 9-18 | 10YR 4/1 | 95 | 10YR 4/6 | 5 | C | M | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ? Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ? Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: ___

Depth (inches): ___

**Hydric Soil Present?** **Yes** X **No** ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes X | No ___ | Depth (inches): 2 |
| Saturation Present? (includes capillary fringe) | Yes X | No ___ | Depth (inches): 0 |

**Wetland Hydrology Present?** **Yes** X **No** ___

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

Remarks:

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Midwest Region**
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

*OMB Control #: 0710-0024, Exp:11/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: The "Dunes" (Project No. 221054) S. Main Street (33.72 ac) City/County: Culver/Marshall County Sampling Date: 11-29-2022

Applicant/Owner: Culver Equities LLC (deeded owner) State: IN Sampling Point: DP 8

Investigator(s): R. Newkirk; F. Hoopfer Section, Township, Range: S1/2; NE1/4; Sec. 20; T32N; R1E

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex

Slope (%): 8 Lat: 41.210978 Long: -86.426700 Datum: WGS1984

Soil Map Unit Name: RopC2 - Riddles-Metea complex, 5 to 10 percent slopes, eroded NWI classification: UPL

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

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No 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 X
Hydric Soil Present? Yes ____ No X
Wetland Hydrology Present? Yes ____ No X

**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X

Remarks:
Data point is located on a forested upland ridge approximately 25 feet south of Wetland B.

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Acer saccharinum* | 60 | Yes | FACW |
| 2. *Prunus serotina* | 35 | Yes | FACU |
| 3. *Quercus rubra* | 10 | No | FACU |
| 4. *Juniperus virginiana* | 10 | No | FACU |
| 5. | | | |
| | 115 | =Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15 )** | | | |
| 1. *Elaeagnus umbellata* | 8 | Yes | UPL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 8 | =Total Cover | |
| **Herb Stratum (Plot size: 5 )** | | | |
| 1. *Elaeagnus umbellata* | 10 | Yes | UPL |
| 2. *Ligustrum vulgare* | 5 | Yes | FACU |
| 3. *Geum canadense* | 5 | Yes | FAC |
| 4. *Lonicera maackii* | 4 | No | UPL |
| 5. *Phytolacca americana* | 1 | No | FACU |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 25 | =Total Cover | |
| **Woody Vine Stratum (Plot size: 15 )** | | | |
| 1. *Vitis riparia* | 5 | Yes | |
| 2. | | | |
| | 5 | =Total Cover | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 28.6% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | 61 | x 4 = | 244 |
| UPL species | 22 | x 5 = | 110 |
| Column Totals: | 148 (A) | | 489 (B) |
| Prevalence Index = B/A = | | | 3.30 |

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** ____ **No** X

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

## SOIL

Sampling Point: DP 8

**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[1] | Loc[2] | Texture | Remarks |
| 0-4 | 10YR 3/3 | 100 | | | | | Sandy | |
| 4-20 | 10YR 5/6 | 100 | | | | | Sandy | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** ____ **No** X

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ 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)

**Field Observations:**

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

**Wetland Hydrology Present?** **Yes** ____ **No** X

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

Remarks:

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Midwest Region**
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

*OMB Control #: 0710-0024, Exp:11/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: The "Dunes" (Project No. 221054) S. Main Street (33.72 ac) City/County: Culver/Marshall County Sampling Date: 11-29-2022

Applicant/Owner: Culver Equities LLC (deeded owner) State: IN Sampling Point: DP 9

Investigator(s): R. Newkirk; F. Hoopfer Section, Township, Range: S1/2; NE1/4; Sec. 20; T32N; R1E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 41.210365 Long: -86.425547 Datum: WGS1984

Soil Map Unit Name: TxuA - Tyner loamy sand, 0 to 1 percent slopes NWI classification: UPL

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

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No 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 X
Hydric Soil Present? Yes ____ No X
Wetland Hydrology Present? Yes ____ No X

**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X

Remarks:
Data point is located in an elongated upland area flanked on its two long sides by tilled agricultural fields.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: 30 ) | | | |
| 1. *Juniperus virginiana* | | | FACU |
| 2. *Quercus rubra* | | | FACU |
| 3. *Populus deltoides* | | | FAC |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| Sapling/Shrub Stratum (Plot size: 15 ) | | | |
| 1. *Elaeagnus umbellata* | | | UPL |
| 2. *Lonicera maackii* | | | UPL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| Herb Stratum (Plot size: 5 ) | | | |
| 1. *Urtica dioica* | | | FACW |
| 2. *Bidens frondosa* | | | FACW |
| 3. *Bromus inermis* | | | FACU |
| 4. *Athyrium filix-femina* | | | UPL |
| 5. *Hesperis matronalis* | | | FACU |
| 6. *Lonicera maackii* | | | UPL |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | =Total Cover | | |
| Woody Vine Stratum (Plot size: 15 ) | | | |
| 1. *Toxicodendron radicans* | | | FAC |
| 2. | | | |
| | =Total Cover | | |

**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:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species | x 1 = | |
| 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
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** ____ **No** X

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

## SOIL

Sampling Point: DP 9

**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[1] | Loc[2] | Texture | Remarks |
| 0-4 | 10YR 3/3 | 100 | | | | | Sandy | |
| 4-20 | 10YR 5/6 | 100 | | | | | Sandy | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** ____ **No** X

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ 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)

**Field Observations:**

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

**Wetland Hydrology Present?** **Yes** ____ **No** X

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

Remarks:

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