WETLAND IDENTIFICATION AND DELINEATION

Cloverleaf Road and Schwanger Road
INTERSECTION IMPROVEMENTS

MOUNT JOY TOWNSHIP
LANCASTER COUNTY, PENNSYLVANIA

Prepared for:

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Prepared by:

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EXECUTIVE SUMMARY

This report presents the results of a wetland identification and delineation study conducted for the Cloverleaf Road (SR 4025) and Schwanger Road (T-483) intersection improvement project in Mount Joy Township, Lancaster County, Pennsylvania. Wetlands were delineated in the project area by using a combination of secondary data analysis and field verification. Fieldwork for the wetland identification and delineation was conducted in accordance with the U.S. Army Corps of Engineers Wetlands Delineation Manual (1987).

Wetland identification and delineation activities were conducted in accordance with Section 404 of the 1977 Clean Water Act, including Section 404(b)(1) Guidelines (40 CFR 230) – December 24, 1980; Environmental Protection Agency (EPA) State Programs Regulations (40 CFR 232-233) – June 6, 1988, and U.S. Army Corps of Engineers Regulations (33 CFR 320-330) – November 13, 1986; and with the Pennsylvania Department of Environmental Protection (PADEP), Section 401 – Water Quality Certification.

One stream was located in the project area and flows northeast under the existing intersection. The stream is an intermittent/ephemeral channel that originates in the residential area to the southwest of the intersection. The stream then is conveyed via a culvert under the intersection to a location outside of the project area where the channel becomes indiscernible. The culvert carrying the stream is a 36-inch reinforced concrete pipe which meets a manhole in the middle of the intersection, turns and becomes and 29x45-inch elliptical pipe. An on-line detention facility is located directly downstream from the project area. No palustrine wetlands were identified within the project area.
1.0 INTRODUCTION

Mount Joy Township in conjunction with Pennsylvania Department of Transportation, Engineering District 8-0, has authorized the development of preliminary engineering and environmental studies for the Cloverleaf Road (SR 4025) and Schwanger Road (T-483) intersection improvement project in Mount Joy Township, Lancaster County, Pennsylvania. Refer to attached project location map (Figure 1). This report presents the results of a wetland identification and delineation conducted on October 4, 2005 by Traffic Planning and Design, Inc., Pottstown, Pennsylvania.

2.0 PROJECT DESCRIPTION, PURPOSE, AND NEED

The Cloverleaf and Schwanger Roads intersection improvement project involves signalization, widening, and minor realignment of the existing intersection near Rheems, Pennsylvania. Proposed plans call for replacement of the pipe carrying an unnamed tributary diagonally under the intersection and relocation of the intersection slightly to the north to improve roadway geometry. The northern and southern vertical curves that do not meet design criteria will be re-profiled as part of the project. Cloverleaf Road currently experiences a steady stream of traffic from nearly SR 0283, creating long traffic queues on Schwanger Road.

The overall terrain of the project area is considered level to rolling. A central latitude/longitude point is 40.1378°N, 76.5622°W. The project area is low and high density residential with one business located to the north of the project area. The land on the northeast quadrant is overgrown pasture associated with an old farmstead. Wetlands were present in this quadrant adjacent to the road, but have been disturbed by a nearby sewer project. Downstream from the project wetlands are present within the on-line detention basin through which the unnamed tributary to Donegal Creek flows. The remainder of the project area is either in mowed lawn or paved.

3.0 METHODOLOGY

The wetland identification and delineation was conducted in accordance with the U.S. Army Corps of Engineers Wetlands Delineation Manual (1987). The manual observes a three parameter approach to analysis based on consideration of soils, vegetation, and hydrology. Wetland indicators for all three parameters must be present for an area to be determined a wetland.
3.1 Secondary Data Collection

Preliminary evaluation was performed prior to the field investigation through an examination of the Lancaster County Soils Survey (USDA Soil Conservation Service, 1985); the topographic map of the project area; and the National Wetlands Inventory prepared by the U.S. Fish and Wildlife Service (USFWS). It must be noted that the NWI maps were not intended as indicators of regulated wetlands (pursuant to the Clean Water Act), but to serve as a source for locating general wetland areas, boundaries, and characteristics. NWI mapping is used to inventory and classify wetlands using the Cowardin Classification System (Cowardin et al., 1979). This is a hierarchical system, which aids in providing uniformity of concepts and terms used to define wetlands. Table 1 diagrams the Cowardin Classification System.

A background search was requested for the Pennsylvania Natural Diversity Inventory (PNDI) on the project study area. PNDI is a site-specific information system, which describes significant natural resources of Pennsylvania. PNDI includes data descriptive of plant and animal species of special concern, exemplary natural communities, and unique geologic features. The data system is coordinated and maintained by the Pennsylvania Department of Conservation and Natural Resources (PADCNR) with technical assistance from the Nature Conservancy and the Western Pennsylvania Conservancy.

3.2 Field Reconnaissance

The Routine On-Site Determination Method, as described in the U.S. Army Corps of Engineers Wetlands Delineation Manual (1987), was used to identify and delineate wetlands. The characteristics of the soils, vegetation, and hydrology existing in the project area were studied to identify wetlands and delineate wetland boundaries.

Soil characteristics within 41 centimeters (16 inches) of the surface were examined using soil pits and a soil probe. Generally, to confirm the presence or absence of hydric soils, observations were made immediately below the A-horizon or at 25 centimeters (10 inches) below the surface; whichever was shallower. Soil color (hue, value, and chroma) was determined using Munsell Soil Color Charts (1975). Soils with mottling and a matrix chroma of 2, as well as soils with a chroma of 1, whether mottled or not, indicate hydric conditions.

Field guides appropriate to the geographic setting of the project area provided the data with which plant species were identified. The reference section lists these sources. The National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary (Region 1) (USFWS Website, 1997) provided information on the indicator status of identified, dominant plant species. The indicator status designates the probability of occurrence (expressed as a percentage) of a given plant species in wetlands of the northeastern United States.
## TABLE 1
**NWI WETLAND CLASSIFICATIONS**

### SYSTEM

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>P - PALUSTRINE</td>
<td>P - Palustrine</td>
<td>Unknown Bottom</td>
<td>1 Algal</td>
<td>1 Cobble-Gravel</td>
<td>1 Moss</td>
<td>1 Persistent</td>
<td>1 Broad-Leaved</td>
<td>1 Broad-Leaved Deciduous</td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>1 Bedrock</td>
<td>2 Rubble</td>
<td>3 Mud</td>
<td>4 Organic</td>
<td>5 Unknown Submergent</td>
<td>6 Vegetated</td>
<td>2 Non-persistent</td>
<td>2 Needle-Leaved</td>
<td>2 Needle-Leaved Deciduous</td>
</tr>
<tr>
<td></td>
<td>1 Cobble-Gravel</td>
<td>2 Sand</td>
<td>3 Rooted Vascular</td>
<td>3 Aquatic Moss</td>
<td>4 Floating Vascular</td>
<td>5 Unknown Submergent</td>
<td>2 Persistent</td>
<td>3 Broad-Leaved</td>
<td>3 Broad-Leaved Evergreen</td>
</tr>
<tr>
<td>SYSTEM</td>
<td><strong>R - RIVERINE</strong></td>
<td>Unknown Bottom</td>
<td>1 Algal</td>
<td>1 Cobble-Gravel</td>
<td>1 Moss</td>
<td>1 Persistent</td>
<td>1 Broad-Leaved</td>
<td>1 Broad-Leaved Deciduous</td>
<td></td>
</tr>
<tr>
<td>SUBSYSTEM</td>
<td>1 - TIDAL</td>
<td>2 - LOWER PERENNIAL</td>
<td>3 - UPPER PERENNIAL</td>
<td>4 - INTERMITTENT</td>
<td>5 - UNKNOWN PERENNIAL</td>
<td><strong>EMERGENT</strong></td>
<td><strong>OW - OPEN WATER/ BOTTOM</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subclass</td>
<td>1 Bedrock</td>
<td>2 Rubble</td>
<td>3 Mud</td>
<td>4 Organic</td>
<td>5 Unknown Submergent</td>
<td>6 Vegetated</td>
<td>2 Non-persistent</td>
<td>2 Needle-Leaved</td>
<td>2 Needle-Leaved Deciduous</td>
</tr>
<tr>
<td></td>
<td>1 Cobble-Gravel</td>
<td>2 Rubble</td>
<td>3 Sand</td>
<td>4 Organic</td>
<td>5 Unknown Submergent</td>
<td>6 Vegetated</td>
<td>2 Non-persistent</td>
<td>3 Broad-Leaved</td>
<td>3 Broad-Leaved Evergreen</td>
</tr>
<tr>
<td></td>
<td>2 Rooted Vascular</td>
<td>2 Aquatic Moss</td>
<td>4 Floating Vascular</td>
<td>5 Unknown Submergent</td>
<td>6 Vegetated</td>
<td>2 Non-persistent</td>
<td>4 Needle-Leaved</td>
<td>4 Needle-Leaved Evergreen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 Broad-Leaved Evergreen</td>
<td>4 Rooted Vascular</td>
<td>4 Floating Vascular</td>
<td>5 Unknown Submergent</td>
<td>6 Vegetated</td>
<td>2 Non-persistent</td>
<td>5 Dead</td>
<td>6 Deciduous</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 Evergreen</td>
<td>4 Rooted Vascular</td>
<td>4 Floating Vascular</td>
<td>5 Unknown Submergent</td>
<td>6 Vegetated</td>
<td>2 Non-persistent</td>
<td>7 Evergreen</td>
<td>7 Evergreen</td>
<td></td>
</tr>
</tbody>
</table>

*STREAMBED is limited to TIDAL and INTERMITTENT SUBSYSTEMS, and comprises the only CLASS in the INTERMITTENT SUBSYSTEM. **EMERGENT is limited to TIDAL and LOWER PERENNIAL SUBSYSTEMS. The remaining CLASSES are found in all SUBSYSTEMS.*

### MODIFIERS

In order to more adequately describe wetland and deep water habitats, one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

### WATER REGIME

- Non-Tidal
  - A Temporarily Flooded
  - B Saturated
  - C Seasonally Flooded
  - D Seasonally Flooded/Well Drained
  - E Seasonal-Saturated
  - F Semi-permanently Flooded
  - G Intermittently Exposed

- Permanently Flooded
  - H Permanently Flooded
  - J Intermittently Flooded
  - K Artificially Flooded
  - W Intermittently Flooded
  - Y Saturated/Semi-permanent/Seasonal
  - Z Intermittently Exposed/Permanent
  - U Unknown

- Temporarily Drained/Ditched
  - b Beaver
  - d Partially Drained/Ditched
  - f Farmed

- Intermittently Exposed/Permanent
  - h Diked/Impounded
  - r Artificial Substrate
  - s Spoil
  - x Excavated

U:\Enapps\NEPA group\NWI Wetland Classification
Several indicators may be used to determine the presence of hydrophytic vegetation. These are discussed in the U.S. Army Corps of Engineers Wetlands Delineation Manual (1987). The evaluation completed for this project used the following indicator: more than 50% of the dominant species are OBL, FACW, FAC+ or FAC from lists of plant species that occur in wetlands. The 50-20 rule is used to establish plant dominance at a site. First, areal coverage of identified species is totaled. Identified species for each strata are then ranked in order of areal coverage. When cumulatively totaled in this order, the species comprising the top 50% of the coverage of the stratum are dominant. Additionally, any species that comprise 20% or more of the coverage of the stratum is also dominant.

For an area to be considered a wetland, inundation or saturation must persist for a sufficient time during the growing season to support hydrophytic vegetation and hydric soils. Primary indicators of wetland hydrology include inundation, saturation, water marks, drift lines, waterborne sediment deposits, and drainage patterns. Only one of these indicators needs to be present for the hydrology criteria of a wetland to be met. Secondary indicators include, but are not limited to, oxidized root channels, water stained leaves, morphological plant adaptations, and local Soil Survey data. Two secondary indicators need to be present in order to meet the hydrology criteria of a wetland. A majority of these primary and secondary indicators are present even during dry periods and are therefore useful indicators of wetland boundaries.

A qualitative method, adapted from the U.S. Army Corps of Engineers, New England Division, The Highway Methodology Workbook (Supplement, 1995) and based on field observation, categorizes wetland functions. This method evaluates a total of 13 functions and values (8 functions and 5 values) that are considered by the Regulatory Division for any Section 404 water encroachment permit. These functions and values consider specific wetland qualities including aspects of habitat, aesthetics, and the management of water quality and quantity.

4.0 RESULTS

Secondary source information and field investigations were utilized in order to determine the existence of Waters of the United States and of the Pennsylvania Commonwealth (rivers, streams, and wetlands) located within project boundaries. The following information consists of the results of the secondary source information search and detailed field investigation. The appendices give more detailed information on the results.

Appendix A contains the Pennsylvania Natural Diversity Inventory (PNDI) coordination form. Appendix B presents field data forms which detail vegetative, soil, and hydrologic data acquired at each data point.
4.1 Secondary Source Results

Secondary source information assists in determining the location of possible wetlands or streams in the project area. This leads to more focused and detailed field reconnaissance in these areas.

4.1.1. Geology and Soils

The project site is underlain by New Oxford conglomerate (Trnc) in the northern portion and the Cocalico Formation (Oco) to the south. The Trnc formation contains coarse conglomerate, consisting chiefly of quartz and quartzite pebbles, cobbles, and boulders in a poorly sorted, red brown sand matrix. The formation has good surface drainage. It has low to moderate primary porosity, especially in the weathered zone. Joint and bedding plane openings provide a secondary porosity. Permeability is low. The sandstone member of the Oco formation is composed of yellowish brown, argillaceous and quartzose sandstone. The member has good surface drainage. Joint and bedding plane openings provide secondary porosity of moderate magnitude. Permeability is low.

The project area is located within the Unger-Bucks-Landsdale and the Duffield-Hagerstown associations. The Unger-Bucks-Landsdale association is characterized by nearly level to very steep, well drained soils on ridges, side slopes, and foot slopes formed in residuum from Triassic siltstone, conglomerate, shale, and sandstone. The Duffield-Hagerstown association is characterized nearly level to steep, well drained soils in undulating broad valleys formed in residuum from limestone. Soils found within the project area are listed on Table 2 and locations are shown on the figure following it.

TABLE 2
SOIL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Soil Series</th>
<th>Map Symbol</th>
<th>Slope %</th>
<th>Depth to</th>
<th>Permeability (in/hr)</th>
<th>Hydric Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Seasonal High Water Table (ft)</td>
<td>Bedrock (ft)</td>
<td></td>
</tr>
<tr>
<td>Lansdale loam</td>
<td>LaB</td>
<td>3-8</td>
<td>6.0+</td>
<td>3.3-5.0</td>
<td>0.6-6.0</td>
</tr>
<tr>
<td></td>
<td>LaC</td>
<td>8-15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bucks silt loam</td>
<td>BuC</td>
<td>8-15</td>
<td>6.0+</td>
<td>3.3+</td>
<td>0.2-2.0</td>
</tr>
<tr>
<td>Hagerstown silt loam</td>
<td>HaB</td>
<td>3-8</td>
<td>6.0+</td>
<td>3.3+</td>
<td>0.6-6.0</td>
</tr>
</tbody>
</table>
4.1.2 Pennsylvania Natural Diversity Inventory

The results of the Pennsylvania Natural Diversity Inventory indicated that no conflicts are present in the project area (Appendix A).

4.1.3 National Wetlands Inventory

Review of National Wetlands Inventory Mapping indicated that there are no wetlands or streams within or adjacent to the project area.
4.1.4 Property Owners

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Snowden et al c/o J. Kenneth Kreider</td>
<td>Northwest corner</td>
</tr>
<tr>
<td>Michael and Donna Costigan</td>
<td>Southwest corner</td>
</tr>
<tr>
<td>Blaise Lifick and Alanna Berger</td>
<td>Northeast corner</td>
</tr>
<tr>
<td>Robert and Sandra Hippensteel</td>
<td>Southeast corner</td>
</tr>
</tbody>
</table>

4.2 Field Reconnaissance Results

In order to systematically investigate the presence of wetlands, secondary information was reviewed prior to the field investigation. A detailed field investigation took place on October 4, 2005. Identified wetland boundaries were delineated and marked with numbered flags. A surveyed site map with a 1” = 50’ scale was used as the base map for stream and wetland location (Figure 2, Wetland Location Map).

4.2.1 Palustrine Wetlands

No palustrine emergent wetlands were identified in the project area. One potential wetland was identified during preliminary field reconnaissance within the project study area. Field data forms for the potential wetland area studied are found in Appendix B. This area is located northeast of the existing intersection and is within an on-line detention basin. Stream flow from an intermittent/ephemeral tributary flows into the flat area, where it disperses and the channel becomes indiscernible. Two data points were taken in the area. Dominant vegetation found within the area consisted of Reed Canary Grass (*Phalaris arundinacea*), FACW; and an unidentifiable matted grass species, NI. Soils within the wetland were mapped as Hagerstown silt loam (HaB). Soils were a 7.5YR 4/3 dry blocky clay loam with little or no mottles. Both vegetation and hydrology meeting wetland criteria, but hydric soils were not present at either data point. Therefore, the area was not delineated as a wetland. Photos are shown below and oriented on Figure 2.
4.2.2 Waters of the United States

One intermittent/ephemeral stream was located flowing diagonally to the northeast under the existing intersection. The stream is an intermittent/ephemeral channel with a dirt/vegetated bottom (R4SB5/7) that originates from upslope drainage and flows northeast in the project area. Field visits during spring and early summer noted flow in the channel, but the channel was dry during field inspection. Flow during recent storm events was obvious in the channel by observation of drift lines and a scour hole present downstream from the detention basin control structure. Rip-rap has been placed in the channel for approximately 25 feet downstream from the roadway culvert. Rip-rap and silt fencing has been placed across the channel further downstream within the existing right-of-way. The stream channel and banks have been disturbed and regraded by an adjacent sewer project. The stream then spreads out into an on-line detention basin where the normal flow channel is indiscernible. Photos of the stream are shown below. The project area is located within the Donegal Creek watershed, and confluences with Donegal Creek approximately 5 miles downstream from the project. Unnamed tributaries to Donegal Creek are classified as Cold Water Fisheries (CWF) by The Pennsylvania Code. Contributing drainage area to the project area is approximately 135 acres.

5.0 SUMMARY AND CONCLUSIONS

One intermittent/ephemeral stream and no palustrine wetlands were identified and delineated by Traffic Planning and Design, Inc. within the project area. The stream is classified as an intermittent/ephemeral channel with a dirt/vegetated streambed (R4SB5/7). The stream was dry during field inspection.
REFERENCES


APPENDIX A
Project Location

Location Accuracy

Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Receipt is solely responsible for the project location and thus the correctness of the Project Review Receipt content.

0 Known Impacts
Under the Following Agencies’ Jurisdiction:
Based on the project-specific information you provided, no impacts to federally listed, proposed, or candidate species are anticipated. Therefore, no further consultation under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) is required with the U.S. Fish and Wildlife Service. Because no take of federally listed species is anticipated, none is authorized. For a list of species that could occur in your project area (but have not been documented in PNDI), please see the county lists of threatened, endangered, and candidate species. A field visit or survey may reveal previously undocumented populations of one or more threatened or endangered species with a project area. If it is determined that any federally listed species occur in your project area, the U.S. Fish and Wildlife Service requires that you initiate consultation to identify and resolve any conflicts. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

These determinations were based on the project-specific information you provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the information you provided does not accurately reflect this project, or if project plans change, DEP and the jurisdictional agencies require that another PNDI review be conducted.

**DISCLAIMER**

The PNDI environmental review website is a preliminary environmental screening tool. It is not a substitute for information obtained from a field survey of the project area conducted by a biologist. Such surveys may reveal previously undocumented populations of species of special concern. In addition, the PNDI only contains information about species occurrences that have actually been reported to the Pennsylvania Natural Heritage Program.
Pennsylvania State Programmatic General Permit (PASPGP)

Please note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Chester, Cumberland, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) are required by DEP to comply with the bog turtle habitat screening requirements of the PASPGP.

TERMS OF USE

Upon signing into the PNDI environmental review website, and as a condition of using it, you agreed to certain terms of use. These are as follows:

The web site is intended solely for the purpose of screening projects for potential impacts on resources of special concern in accordance with the instructions provided on the web site. Use of the web site for any other purpose or in any other way is prohibited and subject to criminal prosecution under federal and state law, including but not limited to the following: Computer Fraud and Abuse Act of 1986, as amended, 18 U.S.C. § 1030; Pennsylvania Crimes Code, § 4911 (tampering with public records or information), § 7611 (unlawful use of computer and other computer crimes), § 7612 (disruption of service), § 7613 (computer theft), § 7614 (unlawful duplication), and § 7615 (computer trespass).

The PNHP reserves the right at any time and without notice to modify or suspend the web site and to terminate or restrict access to it.

The terms of use may be revised from time to time. By continuing to use the web site after changes to the terms have been posted, the user has agreed to accept such changes.

This review is based on the project information that was entered. The jurisdictional agencies and DEP require that the review be redone if the project area, location, or the type of project changes. If additional information on species of special concern becomes available, this review may be reconsidered by the jurisdictional agency.

PRIVACY and SECURITY

This web site operates on a Commonwealth of Pennsylvania computer system. It maintains a record of each environmental review search result as well as contact information for the project applicant. These records are maintained for internal tracking purposes. Information collected in this application will be made available only to the jurisdictional agencies and to the Department of Environmental Protection, except if required for law enforcement purposes—see paragraph below.

This system is monitored to ensure proper operation, to verify the functioning of applicable security features, and for other like purposes. Anyone using this system consents to such monitoring and is advised that if such monitoring reveals evidence of possible criminal activity, system personnel may provide the evidence to law enforcement officials. See Terms of Use.

Print this Project Review Receipt using your Internet browser’s print function and keep it as a record of your search.

Signature: ________________________________

Date: ________________________________

Project applicant on whose behalf this search was conducted:

APPLICANT

Contact Name: ________________________________

Page 3 of 4    APPLICANT INITIALS: ____________
The following contact information is for the agencies involved in this Pennsylvania Natural Diversity Inventory environmental review process. Please read this entire receipt carefully as it contains instructions for how to contact these agencies for further review of this particular project.
APPENDIX B
### DATA FORM

**ROUTINE WETLAND DETERMINATION**

*(1987 ACOE Wetland Delineation Manual)*

<table>
<thead>
<tr>
<th>Project/Site:</th>
<th>Cloverleaf + Schuerman Roads</th>
<th>Date:</th>
<th>10-4-05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicant/Owner:</td>
<td>Mt. Joy Township</td>
<td>County:</td>
<td>Lancaster</td>
</tr>
<tr>
<td>Investigator:</td>
<td>T. Stoesheim</td>
<td>State:</td>
<td>PA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Do normal circumstances exist?</th>
<th>YES</th>
<th>No</th>
<th>Community ID:</th>
</tr>
</thead>
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<tr>
<td>Is the site significantly disturbed?</td>
<td>Yes</td>
<td>No</td>
<td>Transect ID:</td>
</tr>
<tr>
<td>Is the area a potential problem area?</td>
<td>Yes</td>
<td>No</td>
<td>Plot ID: S-1</td>
</tr>
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</table>

### DOMINANT PLANT SPECIES

<table>
<thead>
<tr>
<th>Herbaceous</th>
<th>Percent Areal Cover</th>
<th>Indicator Status</th>
<th>Separings</th>
<th>Percent Areal Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phalaris arundinacea</td>
<td>50%</td>
<td>FACW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impatiens capensis</td>
<td>2%</td>
<td>FACW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polygonum pensylvanicum</td>
<td>2%</td>
<td>FACW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubus fruticosus</td>
<td>10%</td>
<td>FACW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polygonum cynoides</td>
<td>10%</td>
<td>FACW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Echinocereus rigidus</td>
<td>6%</td>
<td>FACW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aster sp.</td>
<td>2%</td>
<td>NT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grass sp.</td>
<td>20%</td>
<td>NT</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Shrub | | Trees | |
|-------|------------------|--------||

| Woody Vines | |
|-------------||

<table>
<thead>
<tr>
<th>Dominant Species For All Strata</th>
<th>Species</th>
<th>Status</th>
<th>Species</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phalaris arundinacea</td>
<td>FACW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grass sp.</td>
<td>NT</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percent of dominant species from all strata that are OBL, FACW, FAC+, and FAC **100%**

Comments:
DATA FORM
ROUTINE WETLAND DETERMINATION (cont)

HYDROLOGY

Field Observations:
Depth of Surface Water: _________ (in.)
Depth of Free Water in Pit: _________ (in.)
Depth of Saturated Soils: _________ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- Inundated
- Saturated in Upper 12in.
- Drift Lines
- Sediment Deposits
- Drainage Patterns

Secondary Indicators (2 or more required):
- Oxidized Root Channels in Upper 12in.
- Water-Stained Leaves
- Local Soil Survey Data
- FAC-Neutral Test
- Other (Explain)

Comments:

SOILS

Map Unit Name: Hagerstown Silt loam (A6A)
Series/Phase: Lancaster
Taxonomy: 

Profile Description

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Horizon</th>
<th>Matrix Color</th>
<th>Mottle Color</th>
<th>Mottle % Contrast</th>
<th>Texture Concretions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 4</td>
<td>1-4</td>
<td>10YR 3/2</td>
<td>7.5YR 4/1</td>
<td>2%</td>
<td>Silt loam w/ faint 02's</td>
</tr>
<tr>
<td>4 - 7</td>
<td>1-4</td>
<td>7.5YR 4/1</td>
<td>7.5YR 4/1</td>
<td></td>
<td>blocky clay loam-dry</td>
</tr>
<tr>
<td>7 +</td>
<td>1-4</td>
<td>7.5YR 4/1</td>
<td></td>
<td></td>
<td>blocky clay loam-dry</td>
</tr>
</tbody>
</table>

Hydric Soils Indicator:
- Historic Eptisol
- Sulphidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low Chroma

Comments:

WETLAND DETERMINATION

Hydrophytic Vegetation Present: Yes No
Wetland Hydrology Present?: Yes No
Hydric Soils Present?: Yes No

Is the sampling point within a wetland? Yes No

Remarks: Despite hydrophytic vegetation presence, hydrology, soils do not exhibit reducing conditions associated with long periods of inundation.

Approved by the USACOE
DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 ACOE Wetland Delineation Manual)

<table>
<thead>
<tr>
<th>Project/Site:</th>
<th>Cloverleaf + Schwanger Rds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicant/Owner:</td>
<td>Mt. Joy Township</td>
</tr>
<tr>
<td>Investigator:</td>
<td>T. Strochein</td>
</tr>
<tr>
<td>Date:</td>
<td>10-4-85</td>
</tr>
<tr>
<td>County:</td>
<td>Lancaster</td>
</tr>
<tr>
<td>State:</td>
<td>PA</td>
</tr>
</tbody>
</table>

Do normal circumstances exist? | Yes | No |
Is the site significantly disturbed? | Yes | No |
Is the area a potential problem area? | Yes | No |

Community ID: _______________________
Transect ID: _______________________
Plot ID: 5-2

DOMINANT PLANT SPECIES

<table>
<thead>
<tr>
<th>Herbaceous Name</th>
<th>Percent Areal Cover</th>
<th>Indicator</th>
<th>Saplings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phalaris arundinacea</td>
<td>95%</td>
<td>FACW</td>
<td></td>
</tr>
<tr>
<td>Polygonum pennsylvanicum</td>
<td>5%</td>
<td>FACW</td>
<td></td>
</tr>
</tbody>
</table>

Shrub

Trees

Woody Vines

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phalaris arundinacea</td>
<td>FACW</td>
</tr>
</tbody>
</table>

Percent of dominant species from all strata that are OBL, FACW, FAC+, and FAC: **100%**

Comments: ___________________________
**DATA FORM**

**ROUTINE WETLAND DETERMINATION (cont')**

**HYDROLOGY**

<table>
<thead>
<tr>
<th>Field Observations:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth of Surface Water:</td>
<td>(in.)</td>
</tr>
<tr>
<td>Depth of Free Water in Pft:</td>
<td>(in.)</td>
</tr>
<tr>
<td>Depth of Saturated Soils:</td>
<td>(in.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wetland Hydrology Indicators:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Indicators:</td>
<td></td>
</tr>
<tr>
<td>Inundated</td>
<td></td>
</tr>
<tr>
<td>Saturated in Upper 12in.</td>
<td></td>
</tr>
<tr>
<td>Drift Lines</td>
<td></td>
</tr>
<tr>
<td>Sediment Deposits</td>
<td></td>
</tr>
<tr>
<td>Drainage Patterns</td>
<td></td>
</tr>
<tr>
<td>Secondary Indicators (2 or more required):</td>
<td></td>
</tr>
<tr>
<td>Oxidized Root Channels in Upper 12in.</td>
<td></td>
</tr>
<tr>
<td>Water-Stained Leaves</td>
<td></td>
</tr>
<tr>
<td>Local Soil Survey Data</td>
<td></td>
</tr>
<tr>
<td>FAC-Neutral Test</td>
<td></td>
</tr>
<tr>
<td>Other (Explain)</td>
<td></td>
</tr>
</tbody>
</table>

**SOILS**

<table>
<thead>
<tr>
<th>Map Unit Name</th>
<th>County Soil Survey: Lancaster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series/Phase:</td>
<td>Hagerstown Silt Loam (HsH)</td>
</tr>
<tr>
<td>Taxonomy:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Profile Description</th>
<th>Horizon</th>
<th>Matrix Color</th>
<th>Motile Color</th>
<th>Mottle % Contrast</th>
<th>Texture Concretions Structure etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Silt Loam - blocky clay loam - dry (some ill (brick))</td>
</tr>
<tr>
<td>3 - 12</td>
<td></td>
<td>&lt;0.5</td>
<td>Yr</td>
<td>&lt;0.1</td>
<td></td>
</tr>
</tbody>
</table>

**Hydric Soils Indicator:**

- Histosol
- Histic Epiopedon
- Sulficid Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low Chroma

**Comments:**

_a few Mg + Fe concretion but no mottling or low chroma_

**WETLAND DETERMINATION**

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Hydric Soils Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Remarks:**

Dominant vegetation is hydrophytic, but lack of hydric soils indicate are well-drained and does not remain saturated long enough for reducing conditions.

Approved by the USACOE