Wetland and Surface Water Delineation Report

Prepared for the:

US 30 Corridor Improvements - Western Section
North Versailles and North Huntingdon Townships
Allegheny and Westmoreland Counties, Pennsylvania

Prepared for:

pennsylvania
DEPARTMENT OF TRANSPORTATION

Engineering District 12-0
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Uniontown, PA 15401

Prepared by:

MARKOSKY

3689 Route 711
Ligonier, PA 15658

April 2023

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INTRODUCTION

Representatives from the Markosky Engineering Group, Inc. conducted an aquatic resource investigation for the US 30 Corridor Improvements - Western Section project on 9/5/19, 9/17/19, 12/6/19, and 4/12/23. Recent design refinements have reduced the study area that was initially used for aquatic resource delineations earlier in project development. As a result, some of the aquatic resources that were originally surveyed in 2019 now fall outside of the revised project study area and are not included in this revision. The original resource names were retained in this update, resulting in inconsistent numbering in the wetland and surface water identification finding sections of this report.

The project involves full depth reconstruction of approximately 2.6 miles of the existing roadway. The project limits extend from the Leger Road/Carpenter Lane intersection in Westmoreland County to the SR 0048 intersection in Allegheny County. The roadway will be slightly widened throughout the project area to add curb gutter and median areas. Along with the full depth reconstruction and minor widening, a median barrier will be added to the roadway in an effort to eliminate left turn traffic movements which are primarily unrestricted through this portion of the corridor. Several intersection improvements are proposed for the project to allow for controlled left turn movements in the corridor. "Jug handle" type intersections are proposed approximately every 0.7 miles through the length of this corridor to allow traffic access to opposite sides of the roadway and provide turn-around opportunities. Improvements to the existing roadway drainage network will also be implemented to adequately move water away from the roadway. The total disturbed area for the project is approximately 54 acres. Project mapping in Appendix A of this report includes a Project Location Map, National Wetland Inventory Maps, and Aquatic Resource Maps. The Aquatic Resource Maps include Markosky's aquatic resource findings, mapped soil units, sample points, and photograph locations.

An analysis of the Pennsylvania Natural Heritage Program (PNHP) Pennsylvania Natural Diversity Inventory (PNDI) on-line environmental review tool on 4/19/23 (PNDI-692744) indicates no potential project conflicts and no further review is required.

The project area is located within the Jacks Run and Brush Creek watersheds. According to 25 Pa Code § 93.9v (Water Quality Standards – Drainage List V), Jacks Run is managed for High Quality-Trout Stocking (HQ-TSF) and Brush Creek is managed for Trout Stocking (TSF). Neither Jacks Run nor Brush Creek are listed as either Stocked Trout Water or Wild Trout Waters by the Pennsylvania Fish and Boat Commission (PFBC).

BACKGROUND INFORMATION FINDINGS

NATIONAL WETLAND INVENTORY (NWI)

A review of the United States Fish and Wildlife Service's Wetlands Mapper, NWI-V2 mapping determined that two NWI wetland systems are present within the project study area and are depicted on the National Wetland Inventory Maps in Appendix A. Both of these resources are identified as a riverine, unknown perennial, unconsolidated bottom, permanently flooded (R5UBH) type wetlands.

WEB SOIL SURVEY

Review of the USDA Web Soil Survey database for Allegheny and Westmoreland Counties, Pennsylvania identified seventeen (17) soil map units within the study area. Table 1 identifies the soil map units within the project study area for Allegheny County (one of which is identified as hydric soils), and Table 2 identifies the soil map units within the project study area for Westmoreland County (two of which are identified as hydric soils). Project study area soil map unit boundaries can be found on the Aquatic Resource Maps in Appendix A.

TABLE 1: Allegheny County Soils
Project Area Soil Map Units

Soil Map Symbol	Soil Map Unit Name	Hydric Soil	Hydric Rating
ErC	Ernest silt loam, 8 to 15 percent slopes	Yes	5
GlC	Gilpin silt loam, 8 to 15 percent slopes	No	-
GSF	Gilpin, Weikert, Culleoka channery silt loams and 25 to 80 percent slopes	No	-
SmF	Strip mines, 25 to 75 percent slopes	No	-
UCB	Urban land-Culleoka complex, gently sloping	No	-
UCD	Urban land-Culleoka complex, moderately steep	No	-
UCE	Urban land-Culleoka complex, steep	No	-

TABLE 2: Westmoreland County Soils
Project Area Soil Map Units

Soil Map Symbol	Soil Map Unit Name	Hydric Soil	Hydric Rating
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	Yes	1
ErC	Ernest silt loam, 8 to 15 percent slopes	Yes	5
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	No	-
GcD	Gilpin channery silt loam, 15 to 25 percent slopes	No	-
UeB	Urban land-Culleoka complex, 0 to 8 percent slopes	No	-
UeD	Urban land-Culleoka complex, 8 to 25 percent slopes	No	-
UgB	Urban land-Gilpin complex, 0 to 8 percent slopes	No	-
UgD	Urban land-Gilpin complex, 8 to 25 percent slopes	No	-

Soil Map Symbol	Soil Map Unit Name	Hydric Soil	Hydric Rating
UhD	Urban land-Guernsey complex, 8 to 25 percent slopes	No	-
UwD	Urban land-Wharton complex, 8 to 25 percent slopes	No	-
WrC	Wharton silt loam, 8 to 15 percent slopes	No	-

WETLAND IDENTIFICATION AND DELINEATION METHODOLOGY

The wetland identification and delineation was conducted in accordance with the methodology described in the US Army Corps of Engineers (USACE) *Corps of Engineers Wetland Delineation Manual* (Technical Report Y-87-1) and the USACE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (Version 2.0). The wetlands were classified utilizing the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979).

WETLAND IDENTIFICATION FINDINGS

Utilizing the methodology described above, four (4) palustrine wetlands were identified and delineated within the project study area. All four (4) of these wetlands are classified as palustrine emergent (PEM) wetlands. The location of all wetlands within the project area can be found on the Aquatic Resource Maps included in Appendix A of this report. Refer to Appendix B for dataforms containing detailed information about each resource and refer to Appendix C to review photos of each resource.

WL3 is classified as a PEM wetland located entirely within the project area and is approximately 0.03 acres in size. The primary wetland hydrology indicator observed within this wetland is saturation. Wetland hydrology is present within WL3.

Dominant vegetation observed within this wetland includes quaking aspen (*Populus tremuloides*, FAC) and jewelweed (*Impatiens capensis*, FACW). The vegetation observed within this wetland meets the Dominance Test. Hydrophytic vegetation is dominant within this wetland.

The soil test pit identified two soil horizons. The first soil horizon from 0-8 inches had a matrix color of 2.5Y 3/1 (80%) with redox features the color of 10YR 4/6 (20%) and a clay loam texture. The second soil horizon from 8-18 inches had a matrix color of 10YR 4/1 (90%) with redox features a color of 10YR 4/4 (10%) and a clay loam texture. The soil matrix colors and features indicate this is a hydric soil. Hydric soil indicators observed within this wetland meet the description of *Indicator F3: Depleted Matrix.*

WL4 is classified as a PEM wetland located entirely within the project study area and is approximately 0.09 acres in size. WL4 contained an upland inclusion of approximately 0.01 acres. The primary wetland hydrology indicator observed within this wetland is surface water with drainage patterns as a secondary indicator. Wetland hydrology is present within WL4.

Dominant vegetation observed within this wetland includes silky dogwood (*Cornus amomum*, FACW) and broadleaf cattail (*Typha latifolia*, OBL). The vegetation observed within this wetland meets the Rapid Test for Hydrophytic Vegetation. Hydrophytic vegetation is dominant within this wetland.

The soil test pit identified two soil horizons. The first soil horizon from 0-2 inches had a matrix color of 5Y 3/1 (80%) with redox features the color of 7.5YR 4/4 (20%) and a silt loam texture. The second soil horizon from 2-18 inches had a matrix color of 10YR 5/1 (70%) with redox features the color of 10YR 5/6 (30%) and a clay loam texture. The soil matrix colors and features indicate this is a hydric soil. Hydric soil indicators observed within this wetland meet the description of *Indicator F3: Depleted Matrix.*

WL5 is classified as a PEM wetland located entirely within the project study area and is approximately 0.002 acres in size. The primary wetland hydrology indicator observed within this wetland is saturation. Wetland hydrology is present within WL5.

Dominant vegetation observed within this wetland include broadleaf cattail. The vegetation observed within this wetland meets the Rapid Test for Hydrophytic Vegetation. Hydrophytic vegetation is dominant within this wetland.

The soil test pit identified one soil horizon. The soil horizon from 0-16 inches had a matrix color of 10YR 2/2 (95%) with redox features the color of 5YR 4/6 (5%) and a silt loam texture. The soil matrix colors and features indicate this is a hydric soil. Hydric soil indicators observed within this wetland meet the description of *Indicator F6: Redox Dark Surface*. A restrictive layer of rock was reached at 16 inches.

WL6 is classified as a PEM wetland located entirely within the project study area and is approximately 0.04 acres in size. Primary wetland hydrology indicators observed within this wetland include surface water and saturation with drainage patterns as a secondary indicator. Wetland hydrology is present within WL6.

Dominant vegetation observed within this wetland includes silky willow (*Salix sericea*, OBL) and broadleaf cattail. The vegetation observed within this wetland meets the Rapid Test for Hydrophytic Vegetation. Hydrophytic vegetation is dominant within this wetland.

The soil test pit identified one soil horizon. The soil horizon from 0-14 inches had a matrix color of 10YR 5/1 (80%) with redox features the color of 7.5YR 4/4 (20%) and a clay loam texture. The soil matrix colors and features indicate this is a hydric soil. Hydric soil indicators observed within this wetland meet the description of *Indicator F3: Depleted Matrix*. A restrictive layer of rock was reached at 14 inches.

SURFACE WATER IDENTIFICATION AND DELINEATION METHODOLOGY

The project study area surface waters were classified as either ephemeral, intermittent, or perennial according to the definitions set forth in 25 PA Code § 87.1. Field investigations were undertaken to document the physical characteristics of the evaluated surface waters and the presence or absence of fish species. A cursory characterization of the existing macroinvertebrate community was conducted by physically turning suitable in-stream substrates and identifying the benthic macroinvertebrates observed to the level of order. All macroinvertebrates were identified in the field using *Freshwater Macroinvertebrates of North America* (Peckarsky, et al, 1990). A detailed macroinvertebrate survey was not conducted for the project.

SURFACE WATER IDENTIFICATION FINDINGS

Utilizing the methodology described above, seven (7) jurisdictional watercourses were identified and investigated within the project study area. One (1) of these resources is classified as perennial, one (1) is classified as intermittent, and five (5) are classified as ephemeral. The location of all streams within the project area can be found on the Aquatic Resource Maps included in Appendix A of this report. Refer to Appendix B for dataforms containing detailed information about each resource and refer to Appendix C to review photos of each resource.

UNT 1 to Jacks Run (101382) is a perennial stream located on the western side of the project area. UNT 1 to Jacks Run flows in a southern direction through the project area. The bank width for UNT 1 to Jacks Run is approximately 18-feet and the channel depths are 5-feet (left descending bank) and 6-feet (right descending bank) respectively. UNT 1 to Jacks Run had a water depth of 2-inches and a water width of 3-feet at the time of investigation. The substrate in the stream consists of a mixture of cobble (60%), boulders (30%), and silt (10%) with 30% embeddedness. No macroinvertebrate orders were observed during the field view. The lack of macroinvertebrates could be attributed to assumed poor water quality by urbanization within the project area. No fin fish species were observed.

UNT 2 to Jacks Run (101382) is an intermittent stream located on the western side of the project area. UNT 2 to Jacks Run flows in a southeastern direction through the project area to its confluence with UNT 1 to Jacks Run. The bank width for UNT 2 to Jacks Run is approximately 2-feet and the channel depth is 3-feet. UNT 2 to Jacks Run had a water depth of 1-inch and a water width of 8-inches at the time of investigation. The substrate in the stream consists of a mixture of muck (40%), detritus (20%), gravel (20%), and silt (20%) with 5% embeddedness. No macroinvertebrate orders were observed during the field view due to the presence of abandoned mine drainage. No fin fish species were observed.

UNT 6 to Jacks Run (101382) is an ephemeral channel located on the western side of the project area. UNT 6 to Jacks Run flows in a southeastern direction through the project study area to its confluence with UNT 7 to Jacks Run. The bank width for UNT 6 to Jacks Run is approximately 8-feet and the channel depths are 4-feet (left descending bank) and 8-feet (right descending bank) respectively. UNT 6 to Jacks Run contained pooled water approximately 30 yards downstream of the project area boundary at time of investigation. The substrate in the channel consists of a mixture of detritus (25%), gravel (25%), sand (20%), cobble (15%), and silt (15%) with 10% embeddedness. No macroinvertebrate orders were observed during the field view. No fin fish species were observed.

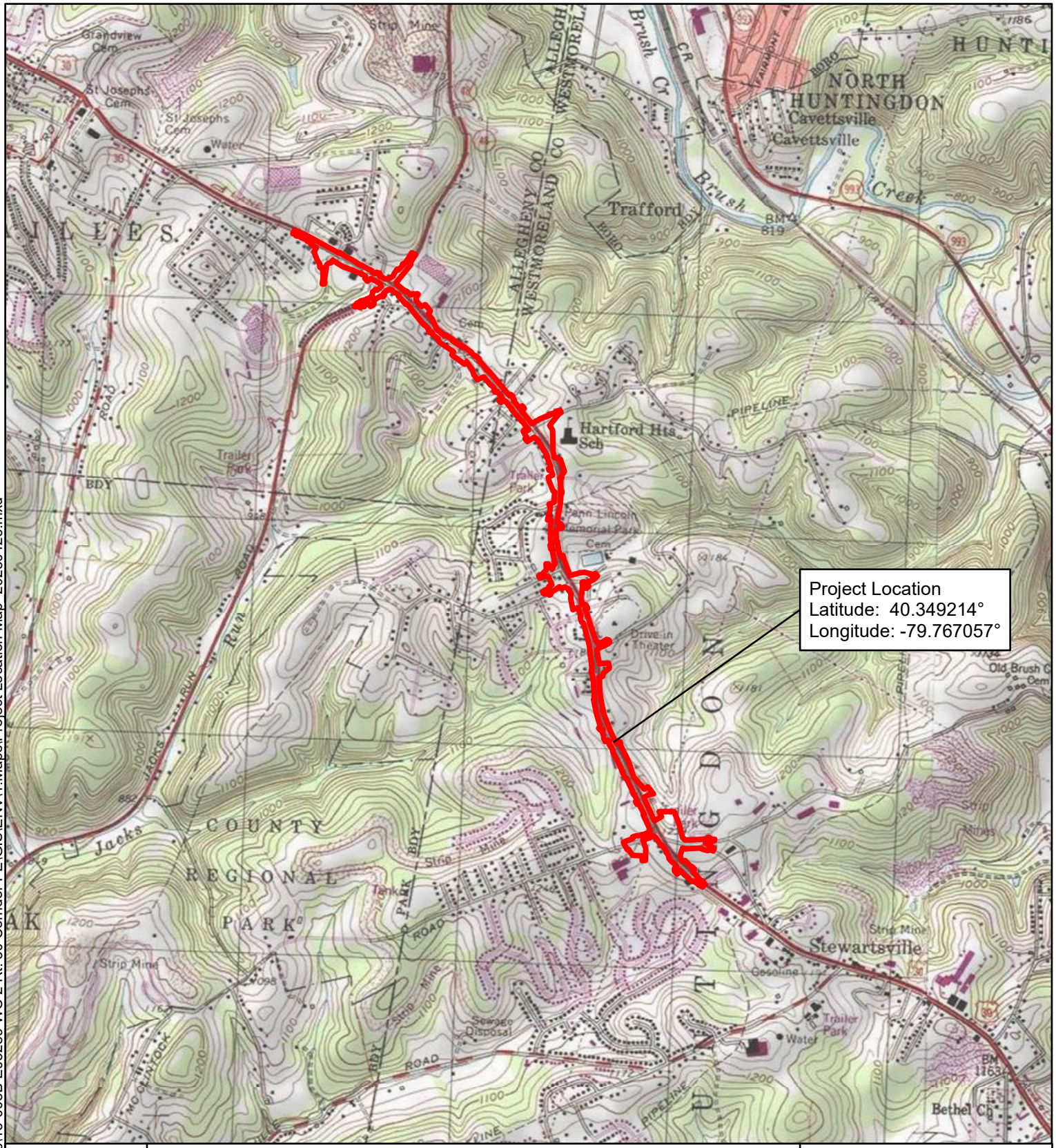
UNT 7 to Jacks Run (101382) is an ephemeral channel located on the western side of the project area. UNT 7 to Jacks Run flows in a southwestern direction through the project area. The bank width for UNT 7 to Jacks Run is approximately 6-feet and the channel depth is 6-feet. UNT 7 to Jacks Run did not have water present during the time of investigation. The substrate in the channel consists of a mixture of cobble (80%), boulders (10%), and detritus (10%) with 20% embeddedness. No macroinvertebrate orders were observed during the field view. No fin fish species were observed.

UNT 1 to Brush Creek (21275) is an ephemeral channel located on the eastern side of the project area. UNT 1 to Brush Creek flows in a northern direction through the project area. The bank width for UNT 1 to Brush Creek is approximately 3-feet and the channel depth is 2-feet. UNT 1 to Brush Creek did not have water present at the time of investigation. The substrate in the channel consists of a mixture of gravel (40%), cobble (20%), sand (15%), silt (15%), boulders (5%), and detritus (5%) with 20% embeddedness. No macroinvertebrate orders were observed during the field view. No fin fish species were observed.

UNT 2 to Brush Creek (21275) is an ephemeral channel located on the eastern side of the project area. UNT 2 to Brush Creek flows in a northeastern direction through the project area and flows into Wetland WL-4. The bank width for UNT 2 to Brush Creek is approximately 12-feet and the channel depths are 6-feet (left descending bank) and 4-feet (right descending bank) respectively. UNT 2 to Brush Creek did not have water present at the time of investigation. The substrate in the channel consists of a mixture of cobble (40%), detritus (20%), gravel (20%), and sand (20%) with 10% embeddedness. No macroinvertebrate orders were observed during the field view. No fin fish species were observed.

UNT 3 to Brush Creek (21275) is an ephemeral channel located on the eastern side of the project area. UNT 3 to Brush Creek flows in a northeastern direction on the eastern edge of the project area. The bank width for UNT 3 to Brush Creek is approximately 3-feet and the channel depth is 2-feet. UNT 3 to Brush Creek had a water depth of 2-inches and a water width of 2-feet at the time of investigation. The substrate in the channel consists of a mixture of cobble (30%), boulders (20%), clay (20%), gravel (20%), and sand (10%) with 20% embeddedness. No macroinvertebrate orders were observed during the field view. No fin fish species were observed.

APPENDIX A
Project Mapping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Longitude: -79.767057°
Project Study Area
US 30 Corridor Improvements - Western Section
Pennsylvania Department of Transportation
North Versailles and North Huntingdon Townships
Allegheny and Westmoreland Counties, Pennsylvania
USGS Mckeesport Quadrangle Mapping
Project Location Map
Topography Source: National Geographic Society (NGS)
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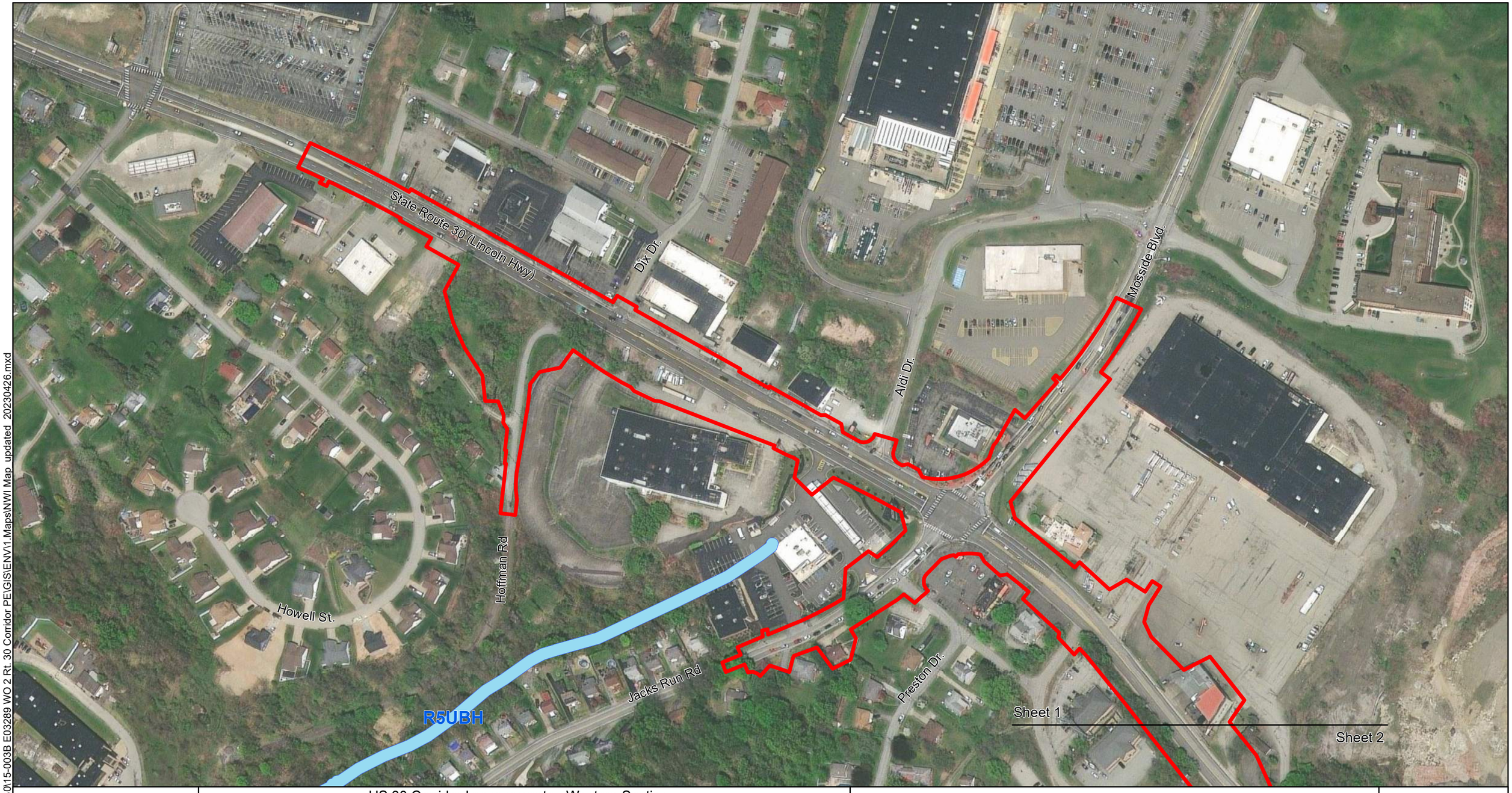
Date: 4/27/2023



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US 30 Corridor Improvements - Western Section
Pennsylvania Department of Transportation (District 12-0)
North Versailles and North Huntingdon Townships and Irwin Borough
Westmoreland and Allegheny Counties, Pennsylvania
USGS Mckeesport and Irwin Quadrangle Mapping
National Wetland Inventory (NWI) Map

Aerial Photography Source: World Imagery (ESRI)

0 100 200 400 600 800 1,000 Feet

Project Study Area

National Wetland Inventory

Sheet 1 of 7

N W E S

Date: 4/27/2023

Document Path: G:\15-003 Route 30\15-003B E03289 WO 2 Rt. 30 Corridor PE\GIS\ENV\1.Maps\NWI Map updated 20230426.mxd

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US 30 Corridor Improvements - Western Section
Pennsylvania Department of Transportation (District 12-0)
North Versailles and North Huntingdon Townships and Irwin Borough
Westmoreland and Allegheny Counties, Pennsylvania
USGS Mckeesport and Irwin Quadrangle Mapping
National Wetland Inventory (NWI) Map

Aerial Photography Source: World Imagery (ESRI)

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Project Study Area

National Wetland Inventory

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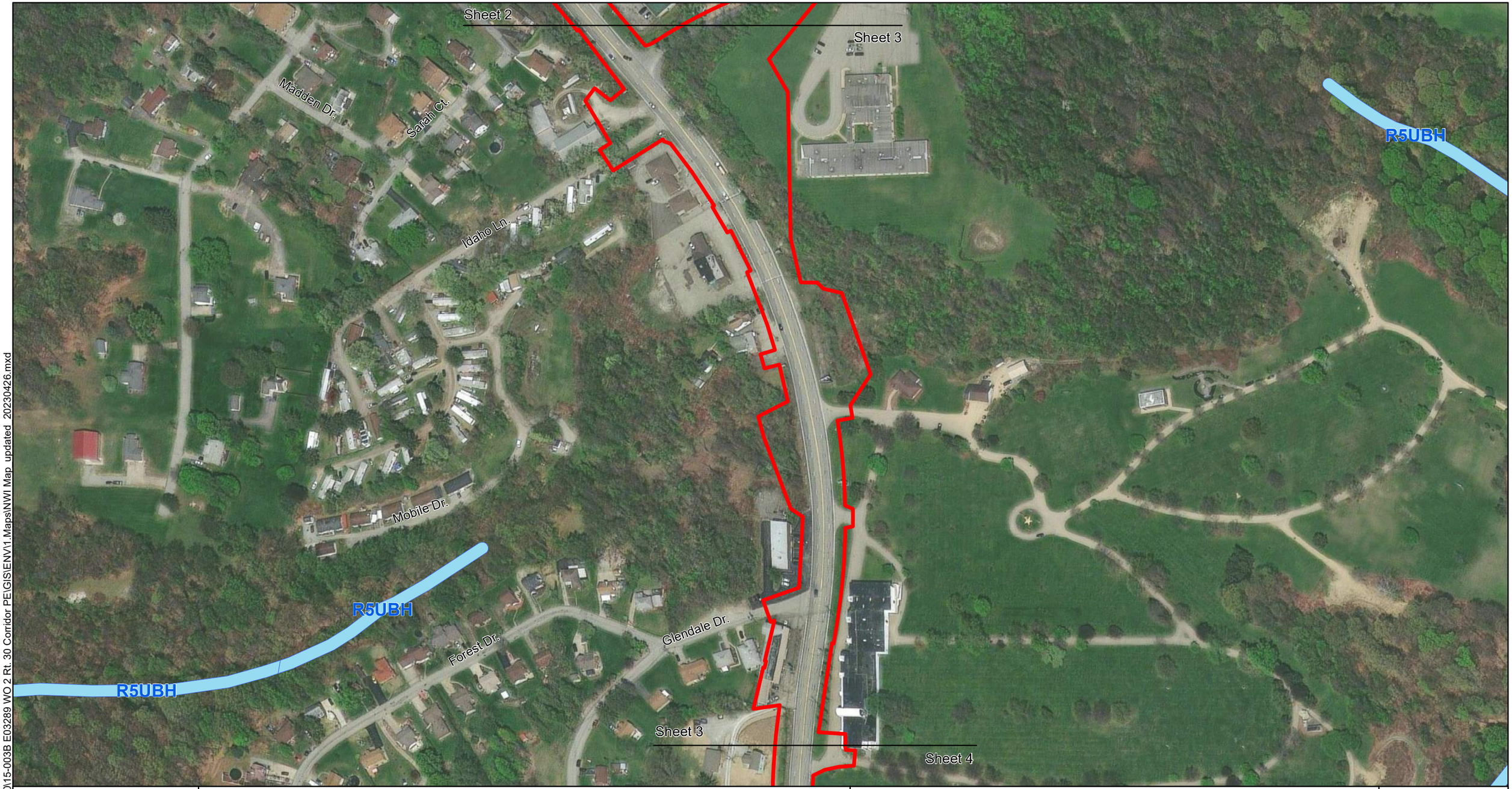
Date: 4/27/2023



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US 30 Corridor Improvements - Western Section
Pennsylvania Department of Transportation (District 12-0)
North Versailles and North Huntingdon Townships and Irwin Borough
Westmoreland and Allegheny Counties, Pennsylvania
USGS Mckeesport and Irwin Quadrangle Mapping
National Wetland Inventory (NWI) Map

Aerial Photography Source: World Imagery (ESRI)

0 100 200 400 600 800 1,000 Feet

Project Study Area

National Wetland Inventory

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Westmoreland and Allegheny Counties, Pennsylvania
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Aerial Photography Source: World Imagery (ESRI)

0 100 200 400 600 800 1,000 Feet

Project Study Area

National Wetland Inventory

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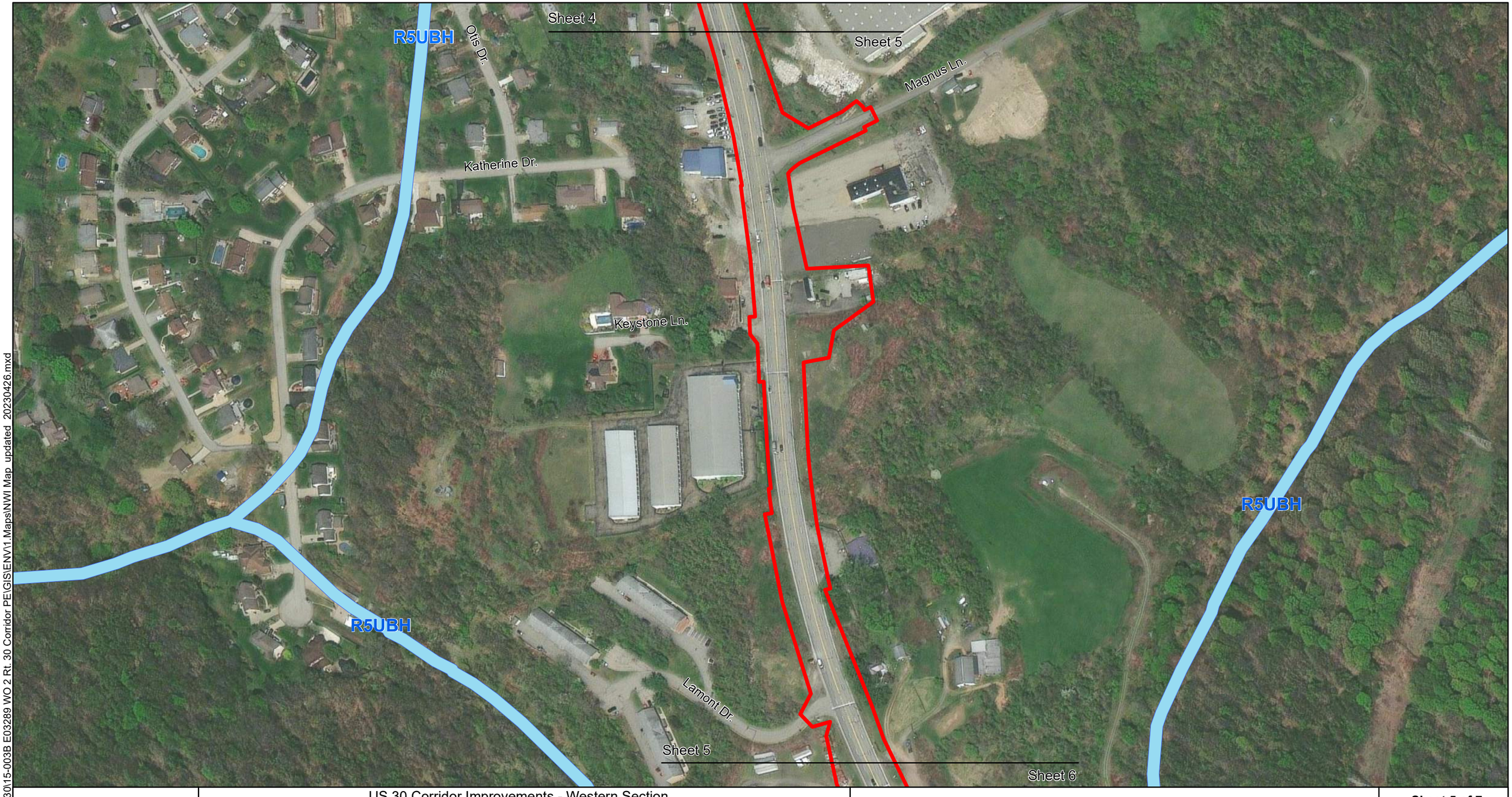

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US 30 Corridor Improvements - Western Section
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North Versailles and North Huntingdon Townships and Irwin Borough
Westmoreland and Allegheny Counties, Pennsylvania
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National Wetland Inventory (NWI) Map

Aerial Photography Source: World Imagery (ESRI)

0 100 200 400 600 800 1,000 Feet

Project Study Area

National Wetland Inventory

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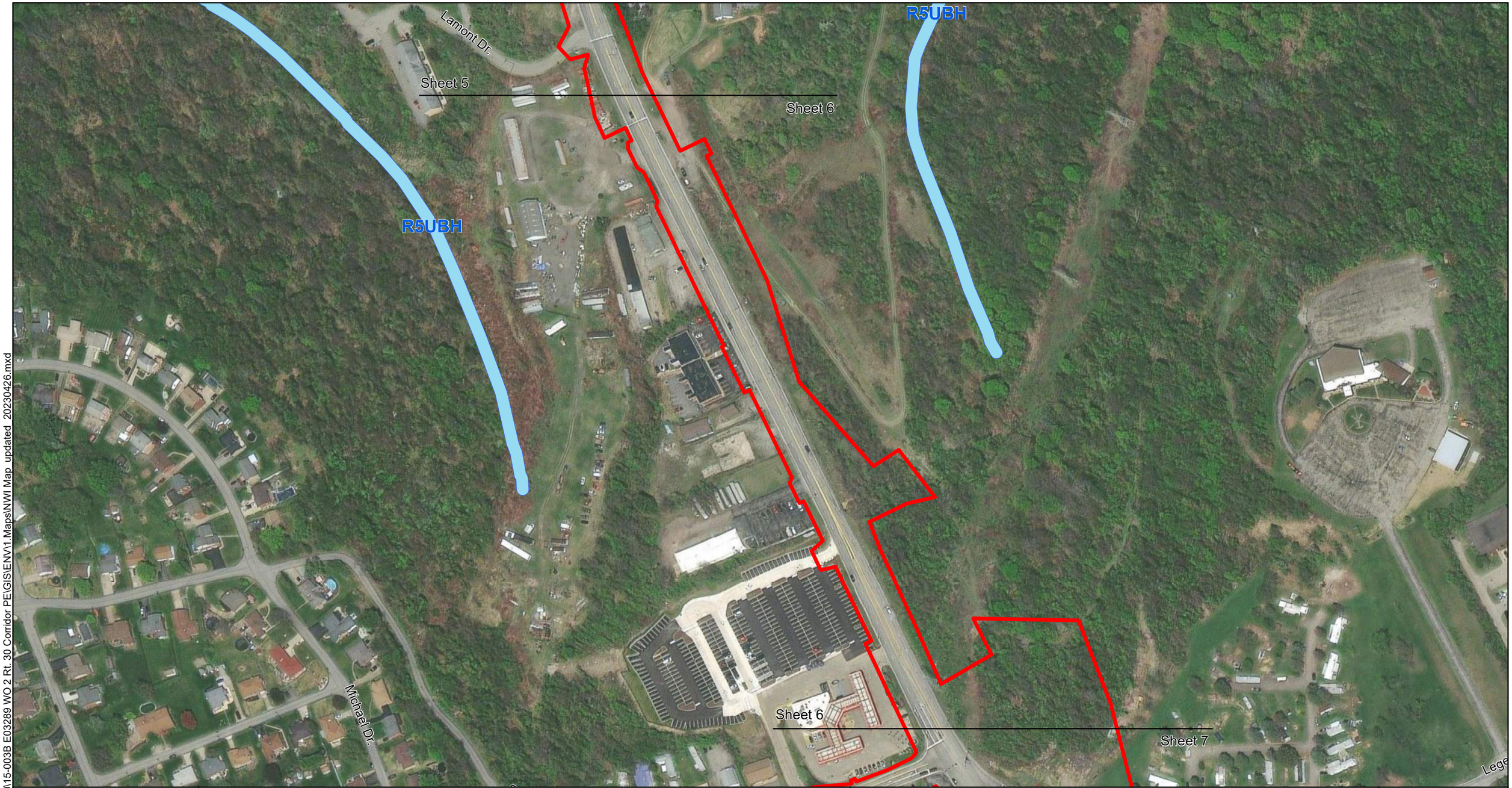
N W E S

Date: 4/27/2023



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US 30 Corridor Improvements - Western Section
Pennsylvania Department of Transportation (District 12-0)
North Versailles and North Huntingdon Townships and Irwin Borough
Westmoreland and Allegheny Counties, Pennsylvania
USGS Mckeesport and Irwin Quadrangle Mapping
National Wetland Inventory (NWI) Map

Aerial Photography Source: World Imagery (ESRI)

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Project Study Area

National Wetland Inventory

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Westmoreland and Allegheny Counties, Pennsylvania
USGS Mckeesport and Irwin Quadrangle Mapping
National Wetland Inventory (NWI) Map

Aerial Photography Source: World Imagery (ESRI)

0 100 200 400 600 800 1,000 Feet

Project Study Area

National Wetland Inventory

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N W E S

Date: 4/27/2023

UNT 1 to Jacks Run (Perennial)(HQ-TSF)
Latitude: 40.36913°
Longitude: -79.78342°

UNT 2 to Jacks Run (Intermittent)(HQ-TSF)
Latitude: 40.36901°
Longitude: -79.78354°

State Route 30 (Lincoln Hwy)
Dix Dr.
Aldi Dr.
Mosside Blvd.
Howell St.
Hoffman Road
Jacks Run Rd
Preston Dr.
Sheet 1
Sheet 2

UCB
UCE
CkB
DoC
UCD
CuD
SmF
DoB
CuC
GSF
GvC
GQF
ErC
GIC
WhB

US 30 Corridor Improvements - Western Section
Pennsylvania Department of Transportation (District 12-0)
North Versailles and North Huntingdon Townships and Irwin Borough
Westmoreland and Allegheny Counties, Pennsylvania
USGS Mckeesport and Irwin Quadrangle Mapping
Aquatic Resource Map

Aerial Photography Source: World Imagery (ESRI)

0 100 200 400 600 800 1,000 Feet

- Stream
- Wetland
- Stream Sample Point
- Wetland Sample Point
- Upland Sample Point
- Photo Location
- Soils
- Topography
- County Boundary
- Project Study Area

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N W E S

Date: 4/27/2023

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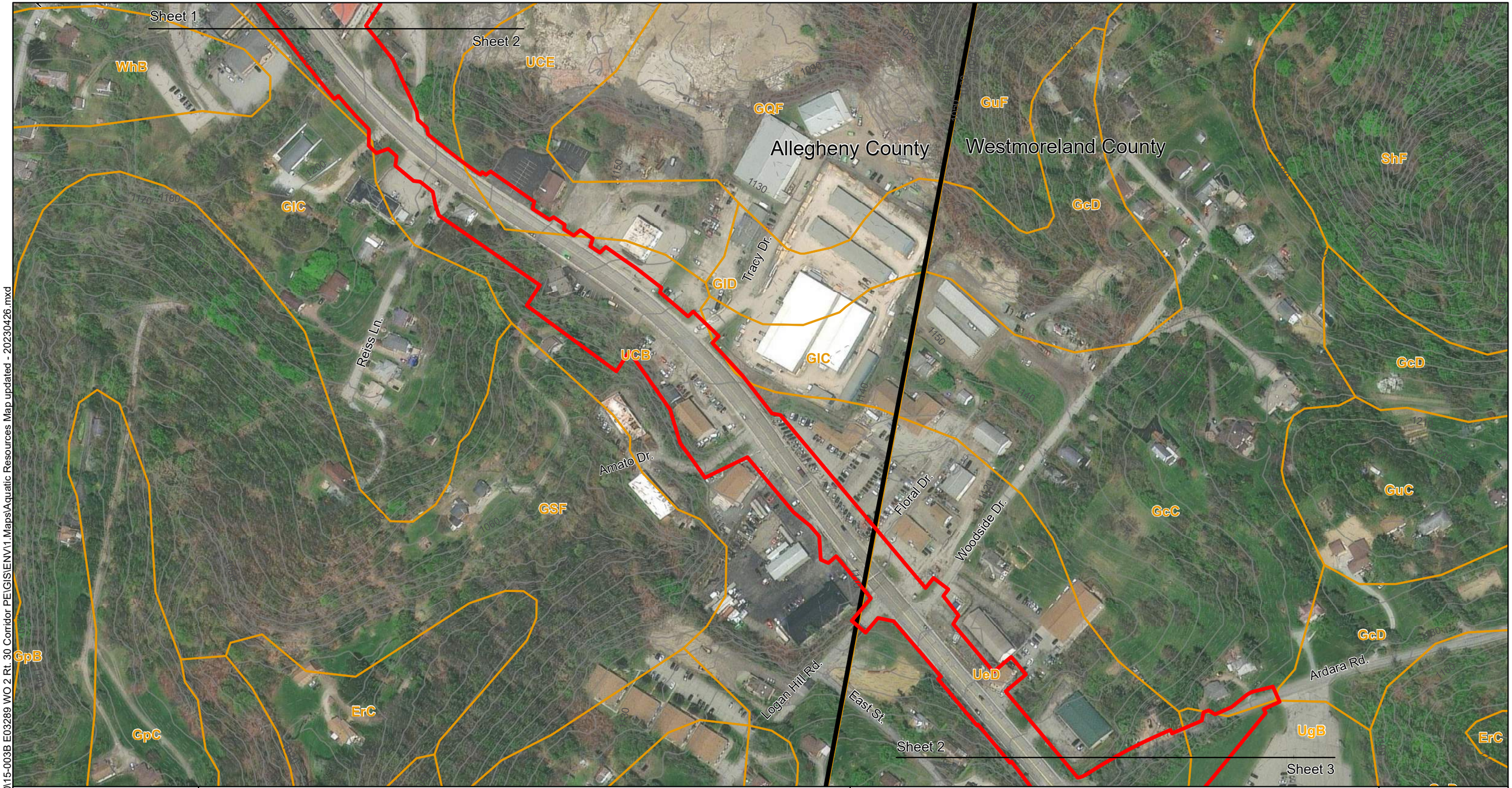

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Aquatic Resource Map

Aerial Photography Source: World Imagery (ESRI)

0 100 200 400 600 800 1,000 Feet

- Stream
- Wetland
- Stream Sample Point
- Wetland Sample Point
- Upland Sample Point
- Photo Location
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- Topography
- County Boundary
- Project Study Area

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N W E S

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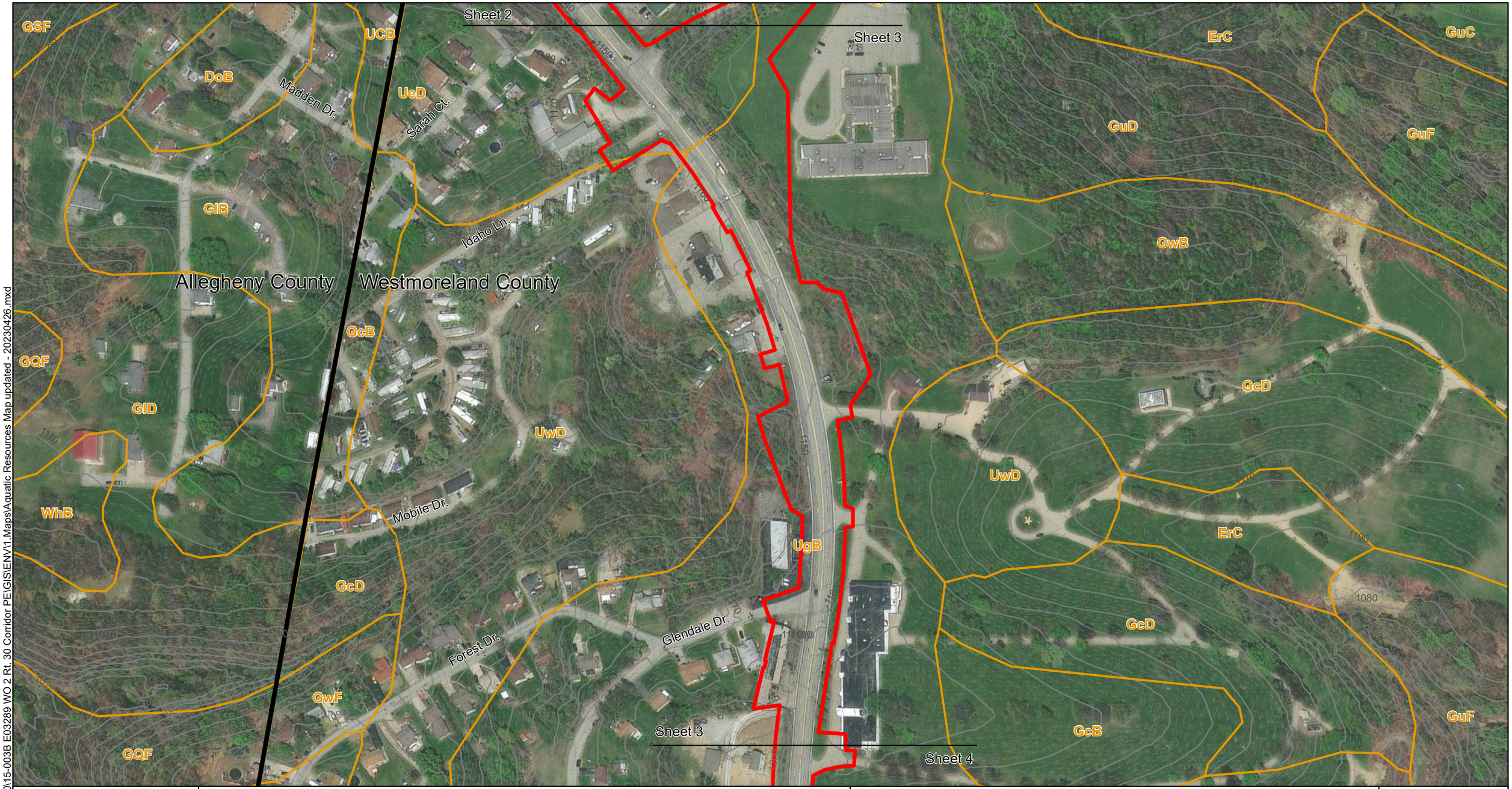

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Aerial Photography Source: World Imagery (ESRI)

0 100 200 400 600 800 1,000 Feet

- Stream
- Wetland
- Stream Sample Point
- Wetland Sample Point
- Upland Sample Point
- Photo Location
- Soils
- Topography
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N W E S

Date: 4/27/2023

Sheet 3

Sheet 4

Wetland WL6 (PEM)
Latitude: 40.35625°
Longitude: -79.76893°

UNT 6 to Jacks Run (Ephemeral)(HQ-TSF)
Latitude: 40.35527°
Longitude: -79.77068°

UNT 7 to Jacks Run (Ephemeral)(HQ-TSF)
Latitude: 40.35184°
Longitude: -79.76970°

Sheet 4

Sheet 5

Hartford Dr.
Glendale Dr.
Edwin Dr.
Old Jacks Run Rd.
Ken Way
Otis Dr.
Peterson Rd.
Blue Dell Ln.
Fall Ln.
Vangura Ln.

GQF
GwF
GID
GcD
UwD
GcB
GuF
ErC
UgB
WhC
WrC
GlB

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Aerial Photography Source: World Imagery (ESRI)

0 100 200 400 600 800 1,000 Feet

Stream
Wetland
Stream Sample Point
Wetland Sample Point
Upland Sample Point
Photo Location
Soils
Topography
County Boundary
Project Study Area

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Sheet 5

Sheet 6

Otis Dr.

Katherine Dr.

Keystone Ln.

Magnus Ln.

Lamont Dr.

GcD

UwD

UgB

WrC

WrD

ErC

LxF

GuF

12

11

Wetland WL5 (PEM)
Latitude: 40.35313°
Longitude: -79.76785°

Document Path: G:\15-003 Route 30\15-003B E03289 WO 2 Rt. 30 Corridor PE\GIS\ENV\1.Maps\Aquatic Resources Map updated - 20230426.mxd

MARKOSKY

US 30 Corridor Improvements - Western Section
Pennsylvania Department of Transportation (District 12-0)
North Versailles and North Huntingdon Townships and Irwin Borough
Westmoreland and Allegheny Counties, Pennsylvania
USGS Mckeesport and Irwin Quadrangle Mapping
Aquatic Resource Map

Aerial Photography Source: World Imagery (ESRI)

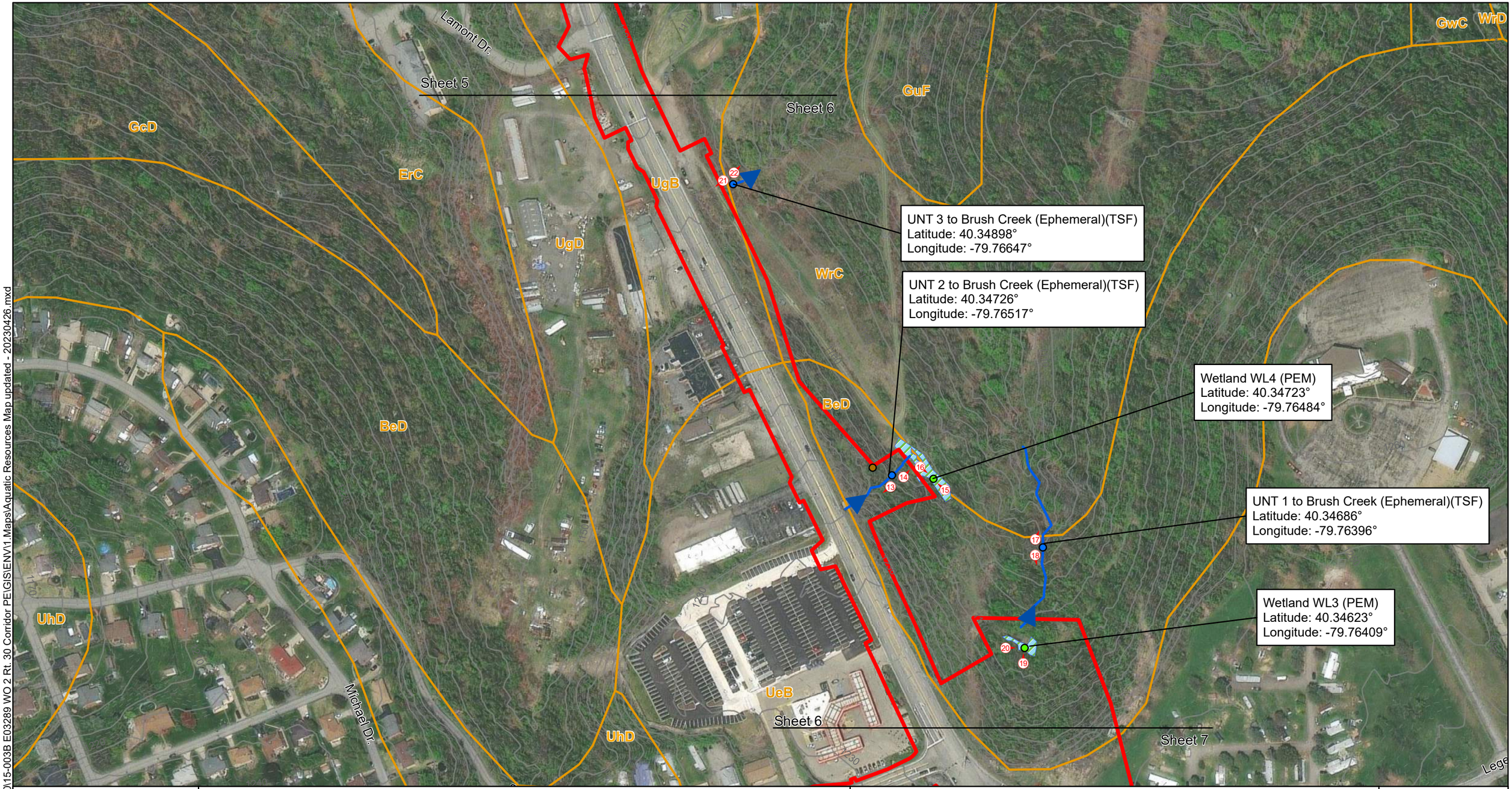
0 100 200 400 600 800 1,000 Feet

Stream
Wetland
Stream Sample Point
Wetland Sample Point
Upland Sample Point
Photo Location
Soils
Topography
County Boundary
Project Study Area

Sheet 5 of 7

N
W E
S

Date: 4/27/2023



Document Path: G:\15-003 Route 30\15-003B E03289 WO 2 Rt. 30 Corridor PE\GIS\ENV\1.Maps\Aquatic Resources Map updated - 20230426.mxd

MARKOSKY

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0 100 200 400 600 800 1,000 Feet

Stream
Wetland
Stream Sample Point
Wetland Sample Point
Upland Sample Point
Photo Location
Soils
Topography
County Boundary
Project Study Area

Sheet 6 of 7

N W E S

Date: 4/27/2023

Document Path: G:\15-003 Route 30\15-003B E03289 WO 2 Rt. 30 Corridor PE\GIS\ENV\1.Maps\Aquatic Resources Map updated - 20230426.mxd

MARKOSKY

US 30 Corridor Improvements - Western Section
Pennsylvania Department of Transportation (District 12-0)
North Versailles and North Huntingdon Townships and Irwin Borough
Westmoreland and Allegheny Counties, Pennsylvania
USGS Mckeesport and Irwin Quadrangle Mapping
Aquatic Resource Map

Aerial Photography Source: World Imagery (ESRI)

0 100 200 400 600 800 1,000 Feet

- Stream
- Wetland
- Stream Sample Point
- Wetland Sample Point
- Upland Sample Point
- Photo Location
- Soils
- Topography
- County Boundary
- Project Study Area

Sheet 7 of 7

N W E S

Date: 4/27/2023

APPENDIX B
Wetland and Stream Data Forms

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: US 30 Corridor Improvements Project | City/County: Westmoreland | Sampling Date: 9.17.19

Applicant/Owner: PennDOT Engineering District 12-0 | State: Pennsylvania | Sampling Point: WL3

Investigator(s): ASB, ALK | Section, Township, Range: North Huntingdon Township

Landform (hillslope, terrace, etc. Depression | Local relief (concave, convex, none): Concave

Slope (%): 8% | Lat 40.34623 | Long: -79.76409

Subregion (LRR or MLRA): LRR: East & Central Farming & Forest Region | Datum: North American Datum 1983 (NAD 83)

Soil Map Unit Name: BeD: Bethesda very channery silt loam, 8 to 25% slopes | NWI classification: PEM

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

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

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes X** **No ____**
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology 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)
- ____ 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)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes ____	No X	Depth (inches) ____ - ____
Water Table Present?	Yes ____	No X	Depth (inches) ____ - ____
Saturation Present? (Including capillary fringe)	Yes X	No ____	Depth (inches) Surface

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides* – quaking aspen	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5 = Total Cover		
50% of Total Cover:	2.5	20% of Total Cover:	1
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
50% of Total Cover:	0	20% of Total Cover:	0
Herb Stratum (Plot size: 5')			
1. *Impatiens capensis* – jewelweed	40	Yes	FACW
2. *Gramineae species* - grass species*	20*	-	-
3. *Solidago gigantea* – late goldenrod	5	No	FACW
4. *Typha latifolia* - broadleaf cattail	5	No	OBL
5. *Rosa multiflora* - multiflora rose	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55 = Total Cover		
50% of Total Cover:	27.5	20% of Total Cover:	11
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6			
	0 = Total Cover		
50% of Total Cover:	0	20% of Total Cover:	0

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% (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
- X 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.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

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

*Since the *Gramineae* species could not be properly identified due to lack of distinguishing characteristics, it was excluded from the Hydrophytic Vegetation Tests.

SOIL

Sampling Point WL3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 3/1	80	10YR 4/6	20	C	M	Clay Loam	-
8-18	10YR 4/1	90	10YR 4/4	10	C	M	Clay Loam	Small Rocks

[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) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
- ____ Thin Dark Surface (S9) (**MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
- ____ Umbric Surface (F13) (**MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
- ____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) (**MLRA 147**)
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ 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:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: US 30 Corridor Improvements Project | City/County: Westmoreland | Sampling Date: 12.6.19

Applicant/Owner: PennDOT Engineering District 12-0 | State: Pennsylvania | Sampling Point: WL4

Investigator(s): ASB, ALK | Section, Township, Range: North Huntington Township

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

Slope (%): 15% | Lat 40.34723° | Long: -79.76484°

Subregion (LRR or MLRA): LRR: East & Central Farming & Forest Region | Datum: North American Datum 1983 (NAD 83)

Soil Map Unit Name: BeD, WrC | NWI classification: PEM

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

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

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes X** **No ____**
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:

*Tram road runs through wetland
*Small upland inclusion present.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X 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)
- ____ 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)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes X	No ____	Depth (inches) 4"
Water Table Present?	Yes ____	No X	Depth (inches) -
Saturation Present? (Including capillary fringe)	Yes ____	No X	Depth (inches) -

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of Total Cover:	0	20% of Total Cover:	0
Sapling/Shrub Stratum (Plot size: 15')			
1. *Cornus amomum* - silky dogwood	5	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5 = Total Cover		
50% of Total Cover:	2.5	20% of Total Cover:	1
Herb Stratum (Plot size: 5')			
1. *Typha latifolia* - broadleaf cattail	40	Yes	OBL
2. *Gramineae species* - grass species*	20*	-	-
3. *Juncus effusus* - soft rush	10	No	FACW
4. *Solidago gigantea* – late goldenrod	10	No	FACW
5. *Rosa multiflora* - multiflora rose	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 = Total Cover		
50% of Total Cover:	32.5	20% of Total Cover:	13
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6			
	0 = Total Cover		
50% of Total Cover:	0	20% of Total Cover:	0

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:

X 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.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

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

*Since the *Gramineae* species could not be properly identified due to lack of distinguishing characteristics, it was excluded from the Hydrophytic Vegetation Tests.

SOIL Sampling Point WL4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	5Y 3/1	80	7.5YR 4/4	20	C	M	Silt Loam	
2-18	10YR 5/1	70	10YR 5/6	30	C	M	Clay Loam	

[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) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
- ____ Thin Dark Surface (S9) (**MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
- ____ Umbric Surface (F13) (**MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
- ____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) (**MLRA 147**)
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ 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:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: US 30 Corridor Improvements Project | City/County: Westmoreland | Sampling Date: 9.17.19

Applicant/Owner: PennDOT Engineering District 12-0 | State: Pennsylvania | Sampling Point: WL5

Investigator(s): ASB, ALK | Section, Township, Range: North Huntingdon Township

Landform (hillslope, terrace, etc. Toe of Slope | Local relief (concave, convex, none): Concave

Slope (%): 2% | Lat 40.35313 | Long: -79.76785

Subregion (LRR or MLRA): LRR: East & Central Farming & Forest Region | Datum: North American Datum 1983 (NAD 83)

Soil Map Unit Name: UgB: Upland land - Gilpin complex, 0 to 8% slopes | NWI classification: PEM

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

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

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes X** **No ____**
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:

Formed along edge of parking lot.

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)
- ____ 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)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes ____	No X	Depth (inches) ____ - ____
Water Table Present?	Yes ____	No X	Depth (inches) ____ - ____
Saturation Present? (Including capillary fringe)	Yes X	No ____	Depth (inches) Surface

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of Total Cover:	0	20% of Total Cover:	0
Sapling/Shrub Stratum (Plot size: 15')			
1. *Populus tremuloides* – quaking aspen	1	No	FAC
2. *Rhus typhina* - staghorn sumac	1	No	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	2 = Total Cover		
50% of Total Cover:	1	20% of Total Cover:	0.4
Herb Stratum (Plot size: 5')			
1. *Typha latifolia* - broadleaf cattail	70	Yes	OBL
2. *Eleocharis palustris* - common spikerush	5	No	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		
50% of Total Cover:	37.5	20% of Total Cover:	15
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6			
	0 = Total Cover		
50% of Total Cover:	0	20% of Total Cover:	0

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:

X 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.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

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

SOIL

Sampling Point WL5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/2	95	5YR 4/6	5	C	M	Silt Loam	

[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) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
- ____ Thin Dark Surface (S9) (**MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
- ____ Umbric Surface (F13) (**MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
- ____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) (**MLRA 147**)
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: Rock

Depth (inches): 16"

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

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: US 30 Corridor Improvements Project | City/County: Westmoreland | Sampling Date: 9.17.19

Applicant/Owner: PennDOT Engineering District 12-0 | State: Pennsylvania | Sampling Point: WL6

Investigator(s): ASB, ALK | Section, Township, Range: North Huntingdon Township

Landform (hillslope, terrace, etc. Depression | Local relief (concave, convex, none): Concave

Slope (%): 10% | Lat 40.35625 | Long: -79.76893

Subregion (LRR or MLRA): LRR: East & Central Farming & Forest Region | Datum: North American Datum 1983 (NAD 83)

Soil Map Unit Name: UwD: Urban land - Upshur complex, 8 to 25% slopes | NWI classification: PEM

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

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

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes X** **No ____**
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X 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)
- ____ 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)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes X	No ____	Depth (inches) 1"
Water Table Present?	Yes ____	No X	Depth (inches) -
Saturation Present? (Including capillary fringe)	Yes X	No ____	Depth (inches) Surface

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point WL6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of Total Cover:	0	20% of Total Cover:	0
Sapling/Shrub Stratum (Plot size: 15')			
1. *Salix sericea* - silky willow	20	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20 = Total Cover		
50% of Total Cover:	10	20% of Total Cover:	4
Herb Stratum (Plot size: 5')			
1. *Typha latifolia* - broadleaf cattail	20	Yes	OBL
2. *Solidago gigantea* – late goldenrod	5	No	FACW
3. *Scirpus cyperinus* – woolgrass	5	No	FACW
4. *Eleocharis palustris* - common spikerush	2	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	32 = Total Cover		
50% of Total Cover:	16	20% of Total Cover:	6.4
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6			
	0 = Total Cover		
50% of Total Cover:	0	20% of Total Cover:	0

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:

X 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.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

Remarks:

SOIL Sampling Point WL6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 5/1	80	7.5YR 4/4	20	C	M	Clay Loam	-

[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) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
- ____ Thin Dark Surface (S9) (**MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
- ____ Umbric Surface (F13) (**MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
- ____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) (**MLRA 147**)
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: Rock

Depth (inches): 14

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

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: US 30 Corridor Improvements Project | City/County: Westmoreland | Sampling Date: 9.17.19

Applicant/Owner: PennDOT Engineering District 12-0 | State: Pennsylvania | Sampling Point: UPL 2

Investigator(s): ASB, ALK | Section, Township, Range: North Huntingdon Township

Landform (hillslope, terrace, etc. Depression | Local relief (concave, convex, none): Concave

Slope (%): 20% | Lat 40.34729° | Long: -79.76533°

Subregion (LRR or MLRA): LRR: East & Central Farming & Forest Region | Datum: North American Datum 1983 (NAD 83)

Soil Map Unit Name: BeD: Bethesda very channery silt loam, 0 to 8% slopes | NWI classification: Upland

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

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

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** ____ **No X**
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

Upland for Wetland WL3 and WL4

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)
- ____ 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)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes ____	No X	Depth (inches) -
Water Table Present?	Yes ____	No X	Depth (inches) -
Saturation Present? (Including 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:

VEGETATION – Use scientific names of plants.

Sampling Point UPL 2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Juglans nigra* - black walnut	5	Yes	FACU
2. *Robinia pseudoacacia* – black locust	5	Yes	FACU
3. *Acer platanoides* - Norway maple	3	No	FACU
4.			
5.			
6.			
7.			
	13	= Total Cover	
50% of Total Cover:	6.5	20% of Total Cover:	2.6
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0	= Total Cover	
50% of Total Cover:	0	20% of Total Cover:	0
Herb Stratum (Plot size: 5')			
1. *Eupatorium pulosum* - rough boneset	20	Yes	FACW
2. *Rosa multiflora* - multiflora rose	10	Yes	FACU
3. *Microstegium vimineum* – Japanaese stiltgrass	10	Yes	FAC
4. *Persicaria maculosa* - Lady's Thumb	8	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	48	= Total Cover	
50% of Total Cover:	24	20% of Total Cover:	9.6
Woody Vine Stratum (Plot size: 30')			
1. *Toxicodendron radicans* - posion ivy	2	No	FAC
2. *Ipomoea pandurata* - wild potato vine	2	No	FACU
3.			
4.			
5.			
6			
	4	= Total Cover	
50% of Total Cover:	2	20% of Total Cover:	0.8

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	0 x 1 =	0
FACW species	28 x 2 =	56
FAC species	10 x 3 =	30
FACU species	23 x 4 =	92
UPL species	0 x 5 =	0
Column Totals	61 (A)	178 (B)

Prevalence Index = B/A = 2.918033

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 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.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

Remarks:

SOIL

Sampling Point UPL 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100	-	-	-	-	Silt Loam	Rocks

[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) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
- ____ Thin Dark Surface (S9) (**MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
- ____ Umbric Surface (F13) (**MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
- ____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) (**MLRA 147**)
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: Rock

Depth (inches): 8"

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

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: US 30 Corridor Improvements Project | City/County: Westmoreland | Sampling Date: 9.17.19

Applicant/Owner: PennDOT Engineering District 12-0 | State: Pennsylvania | Sampling Point: UPL 3

Investigator(s): ASB, ALK | Section, Township, Range: North Huntingdon Township

Landform (hillslope, terrace, etc. Slope | Local relief (concave, convex, none): Concave

Slope (%): 30% | Lat 40.35326° | Long: -79.76774°

Subregion (LRR or MLRA): LRR: East & Central Farming & Forest Region | Datum: North American Datum 1983 (NAD 83)

Soil Map Unit Name: UgB - Urban land-Gilpin complex, 0 to 8 percent slopes | NWI classification: Upland

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

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

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No X**
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

Upland for Wetland WL5

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)
- ____ 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)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes ____	No X	Depth (inches) -
Water Table Present?	Yes ____	No X	Depth (inches) -
Saturation Present? (Including 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:

VEGETATION – Use scientific names of plants.

Sampling Point UPL 3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides* – quaking aspen	1	No	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	1 = Total Cover		
50% of Total Cover:	0.5	20% of Total Cover:	0.2
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
50% of Total Cover:	0	20% of Total Cover:	0
Herb Stratum (Plot size: 5')			
1. *Solidago altissima* - tall goldenrod	20	Yes	FACU
2. *Gramineae species* - grass species*	20*	-	-
3. *Erigeron philadelphicus* - Philadelphia fleabane	5	No	FACU
4. *Daucus carota* - Queen Anne's lace	5	No	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
50% of Total Cover:	15	20% of Total Cover:	6
Woody Vine Stratum (Plot size: 30')			
1. *Toxicodendron radicans* - posion ivy	5	Yes	FAC
2.			
3.			
4.			
5.			
6			
	5 = Total Cover		
50% of Total Cover:	2.5	20% of Total Cover:	1

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	0 x 1 =	0
FACW species	0 x 2 =	0
FAC species	5 x 3 =	15
FACU species	25 x 4 =	100
UPL species	5 x 5 =	25
Column Totals	35 (A)	140 (B)

Prevalence Index = B/A = 4

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.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

Remarks:

*Since the *Gramineae* species could not be identified due to the lack of distinguishing characteristics, it was excluded from the hydrophytic vegetation tests

SOIL

Sampling Point UPL 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	100	-	-	-	-	Silt Loam	Rock

[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) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
- ____ Thin Dark Surface (S9) (**MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
- ____ Umbric Surface (F13) (**MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
- ____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) (**MLRA 147**)
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: Rock

Depth (inches): 8"

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

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: US 30 Corridor Improvements Project | City/County: Westmoreland | Sampling Date: 9.17.19

Applicant/Owner: PennDOT Engineering District 12-0 | State: Pennsylvania | Sampling Point: UPL 4

Investigator(s): ASB, ALK | Section, Township, Range: North Huntingdon Township

Landform (hillslope, terrace, etc. Slope | Local relief (concave, convex, none): Concave

Slope (%): 6% | Lat 40.35614° | Long: -79.76848°

Subregion (LRR or MLRA): LRR: East & Central Farming & Forest Region | Datum: North American Datum 1983 (NAD 83)

Soil Map Unit Name: UwD - Urban land-Wharton complex, 8 to 25 percent slopes | NWI classification: Upland

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

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

Are Vegetation N Soil N Hydrology N naturally problematic? (if needed explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No X**
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

Upland for Wetland WL6

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)
- ____ 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)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	Yes ____	No X	Depth (inches) -
Water Table Present?	Yes ____	No X	Depth (inches) -
Saturation Present? (Including 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:

VEGETATION – Use scientific names of plants.

Sampling Point UPL 4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula pendula* - Eurpoean white birch	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		
50% of Total Cover:	5	20% of Total Cover:	2
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
50% of Total Cover:	0	20% of Total Cover:	0
Herb Stratum (Plot size: 5')			
1. *Graminea species* - grass species*	60*	-	-
2. *Solidago altissima* - tall goldenrod	15	Yes	FACU
3. *Erigeron philadelphicus* - Philadelphia fleabane	5	Yes	FACU
4. *Cichorium intybus* - chicory	1	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	21 = Total Cover		
50% of Total Cover:	10.5	20% of Total Cover:	4.2
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6			
	0 = Total Cover		
50% of Total Cover:	0	20% of Total Cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	0 x 1 =	0
FACW species	0 x 2 =	0
FAC species	0 x 3 =	0
FACU species	31 x 4 =	124
UPL species	0 x 5 =	0
Column Totals	31 (A)	124 (B)

Prevalence Index = B/A = 4

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.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

Remarks:

*Since the Graminea species could not be positively identified due to lack of distinguishing charactieristics, it was not used in the Hydrolphytic Vegetation tests.

SOIL

Sampling Point UPL 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators).

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100	-	-	-	-	Silt Loam	
2-12	10YR 3/2	90	10YR 4/3	10	C	M	Silt lLoam	

[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) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) (**MLRA 147, 148)**
- ____ Thin Dark Surface (S9) (**MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) (**LRR N, MLRA 136)**
- ____ Umbric Surface (F13) (**MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) (**MLRA 148**)
- ____ Red Parent Material (F21)(**MLRA127,147**)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) (**MLRA 147**)
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: Rock

Depth (inches): 12"

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

Remarks:

SURFACE WATER SURVEY

STREAM NAME: **UNT 1 to Jacks Run**
PROJECT: **US 30 Corridor Improvements**
DRAINAGE BASIN: **Jacks Run (101382)**
INVESTIGATORS: **ASB, ALK**
DATE: **9.17.19**

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY	% Embeddedness
30%	BOULDERS 10 IN		SAND	30%
60%	COBBLE (2.5-10 IN)	10%	SILT	
	GRAVEL (<2.5 IN)		MUCK	
	DETRITUS		OTHER	

PERENNIAL STREAM: **X** **INTERMITTENT STREAM:** _____ **EPHEMERAL:** _____

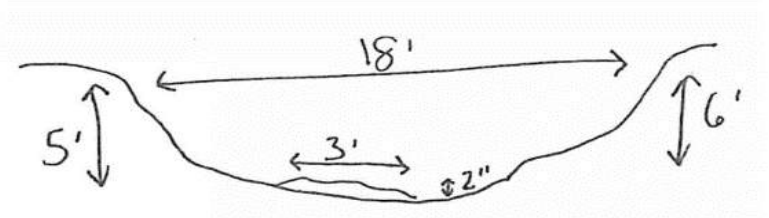
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (Lacewings)		AMPHIPODA (Scud)
	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Beetle)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
X	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH	**18'**	WATER WIDTH	**3'**	NO WATER	**-**
CHANNEL DEPTH	**5-6'**	WATER DEPTH	**2"**		

Notes: Lack of macroinvertebrates may be attributed to assumed poor water quality by urbanization within the project area

SURFACE WATER SURVEY

STREAM NAME: **UNT 2 to Jacks Run**
PROJECT: **US 30 Corridor Improvements**
DRAINAGE BASIN: **Jacks Run (101382)**
INVESTIGATORS: **ASB, ALK**
DATE: **9.17.19**

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY	% Embeddedness
	BOULDERS 10 IN		SAND	5%
	COBBLE (2.5-10 IN)	20%	SILT	
20%	GRAVEL (<2.5 IN)	40%	MUCK	
20%	DETRITUS		OTHER	

PERENNIAL STREAM: _____ **INTERMITTENT STREAM:** **X** **EPHEMERAL:** _____

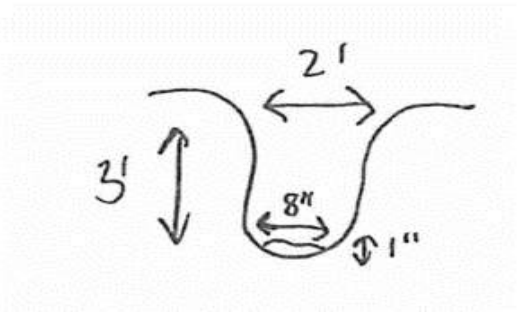
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (Lacewings)		AMPHIPODA (Scud)
	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Beetle)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
X	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH	**2'**	WATER WIDTH	**8"**	NO WATER	**-**
CHANNEL DEPTH	**3'**	WATER DEPTH	**1"**		

Notes: Seep - contains AMD

SURFACE WATER SURVEY

STREAM NAME: **UNT 6 to Jacks Run**
PROJECT: **US 30 Corridor Improvements**
DRAINAGE BASIN: **Jacks Run (101382)**
INVESTIGATORS: **ASB, ALK**
DATE: **9.17.19**

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY	% Embeddedness
	BOULDERS 10 IN	20%	SAND	10%
15%	COBBLE (2.5-10 IN)	15%	SILT	
25%	GRAVEL (<2.5 IN)		MUCK	
25%	DETRITUS		OTHER	

PERENNIAL STREAM: _____ **INTERMITTENT STREAM:** _____ **EPHEMERAL:** **X**

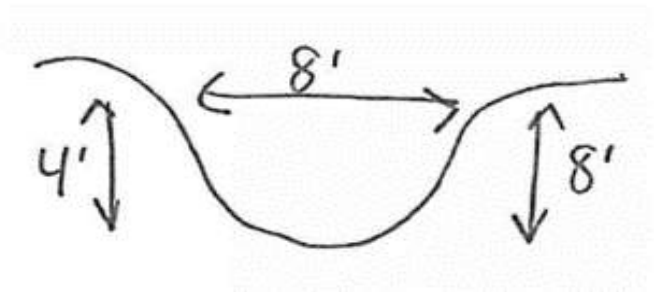
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (Lacewings)		AMPHIPODA (Scud)
	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Beetle)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
X	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH **8'** WATER WIDTH **N/A** NO WATER **Pooled**
CHANNEL DEPTH **4-8'** WATER DEPTH **N/A**

Notes: Water located in channel approx. 30 yards downstream of study area limit.

SURFACE WATER SURVEY

STREAM NAME:	**UNT 7 to Jacks Run**	PROJECT:	**US 30 Corridor Improvements**
DRAINAGE BASIN:	**Jacks Run (101382)**	INVESTIGATORS:	**ASB, JMG**
		DATE:	**9.5.19**

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY	% Embeddedness
10%	BOULDERS 10 IN		SAND	20%
80%	COBBLE (2.5-10 IN)		SILT	
	GRAVEL (<2.5 IN)		MUCK	
10%	DETRITUS		OTHER	

PERENNIAL STREAM: _____ **INTERMITTENT STREAM:** _____ **EPHEMERAL:** **X**

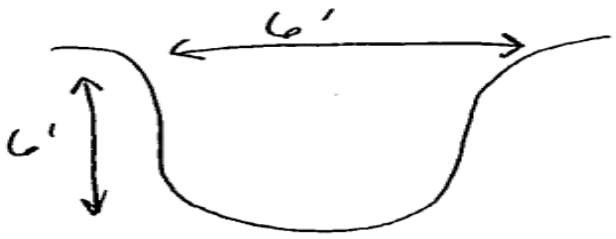
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (Lacewings)		AMPHIPODA (Scud)
	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Beetle)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
X	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH	**6'**	WATER WIDTH	**N/A**	NO WATER	**X**
CHANNEL DEPTH	**6'**	WATER DEPTH	**N/A**		

SURFACE WATER SURVEY

STREAM NAME: **UNT 1 to Brush Creek**
PROJECT: **US 30 Corridor Improvements**
DRAINAGE BASIN: **Brush Creek (21275)**
INVESTIGATORS: **ASB, JMG**
DATE: **9.5.19**

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY	% Embeddedness
5%	BOULDERS 10 IN	15%	SAND	20%
20%	COBBLE (2.5-10 IN)	15%	SILT	
40%	GRAVEL (<2.5 IN)		MUCK	
5%	DETRITUS		OTHER	

PERENNIAL STREAM: _____ **INTERMITTENT STREAM:** _____ **EPHEMERAL:** **X**

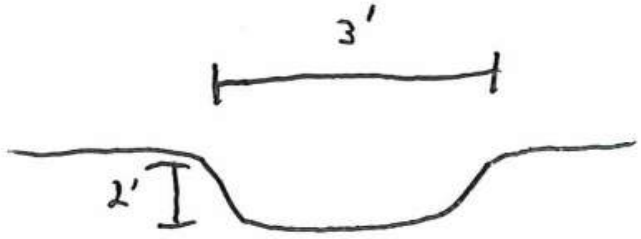
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (Lacewings)		AMPHIPODA (Scud)
	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Beetle)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
X	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH **3'** WATER WIDTH **N/A** NO WATER **X**
CHANNEL DEPTH **2'** WATER DEPTH **N/A**

SURFACE WATER SURVEY

STREAM NAME:	**UNT 2 to Brush Creek**	PROJECT:	**US 30 Corridor Improvements**
DRAINAGE BASIN:	**Brush Creek (21275)**	INVESTIGATORS:	**ASB, ALK**
		DATE:	**9.17.19**

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK		CLAY	% Embeddedness
	BOULDERS 10 IN	20%	SAND	10%
40%	COBBLE (2.5-10 IN)		SILT	
20%	GRAVEL (<2.5 IN)		MUCK	
20%	DETRITUS		OTHER	

PERENNIAL STREAM: _____ **INTERMITTENT STREAM:** _____ **EPHEMERAL:** **X**

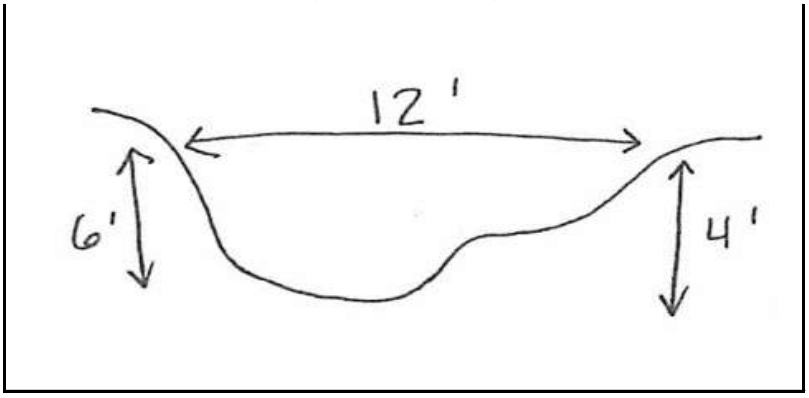
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (Lacewings)		AMPHIPODA (Scud)
	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Beetle)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
X	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH	**12'**	WATER WIDTH	**N/A**	NO WATER	**X**
CHANNEL DEPTH	**6-4'**	WATER DEPTH	**N/A**		

Notes: Garbage accumulated in channel

SURFACE WATER SURVEY

STREAM NAME:	**UNT 3 to Brush Creek**	PROJECT:	**US 30 Corridor Improvements**
DRAINAGE BASIN:	**Brush Creek (21275)**	INVESTIGATORS:	**ASB, ALK**
		DATE:	**12.6.19**

PHYSICAL PARAMETERS:

SUBSTRATE TYPES:

	BEDROCK	20%	CLAY	% Embeddedness
20%	BOULDERS 10 IN	10%	SAND	20%
30%	COBBLE (2.5-10 IN)		SILT	
20%	GRAVEL (<2.5 IN)		MUCK	
	DETRITUS		OTHER	

PERENNIAL STREAM: _____ **INTERMITTENT STREAM:** _____ **EPHEMERAL:** **X**

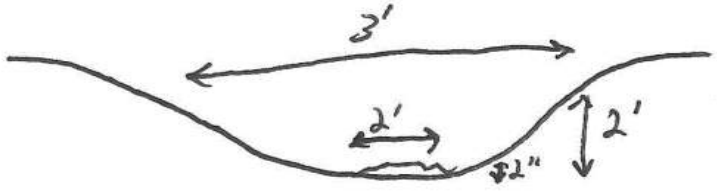
MACROINVERTEBRATES:

	EPHEMEROPTERA (Mayfly)		LEPIDOPTERA (Moth)
	NEUROPTERA (Lacewings)		AMPHIPODA (Scud)
	TRICHOPTERA (Caddisfly)		COLEOPTERA (Water Beetle)
	PLECOPTERA (Stonefly)		MEGALOPTERA (Hellgrammite)
	HEMIPTERA (Leafhoppers)		GASTROPODA (Snail)
	DIPTERA (True Fly)		PLANARIIDAE (Flatworm)
	ODONATA (Dragonfly, Damselfly)		HIRUDINEA (Leech)
	ISOPODA (Sowbug)		BIVALVIA (Molluscs)
	DECAPODA (Crayfish)		HYDRACHNIDIA (Mites)
X	NO MACRONIVERTEBRATES		FIN FISH

CROSS SECTIONAL DIAGRAM

(NOT TO SCALE)

LEFT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)



RIGHT DESCENDING BANK (FT) (include primary and secondary banks in the drawing)

WIDTH (FT)
(TOP OF BANK TO TOP OF BANK)

BANK WIDTH	**3'**	WATER WIDTH	**2'**	NO WATER	**-**
CHANNEL DEPTH	**2'**	WATER DEPTH	**2"**		

Notes: 12 inch CPP discharges to the channel

APPENDIX C
Resource Photographs

Photo 1: UNT 1 to Jacks Run – Facing Upstream (9.17.19)

Photo 2: UNT 1 to Jacks Run – Facing Downstream (9.17.19)

Photo 3: UNT 2 to Jacks Run – Facing Upstream (9.17.19)

Photo 4: UNT 2 to Jacks Run – Facing Downstream (9.17.19)

Photo 5: Wetland WL6 – Facing North (9.17.19)

Photo 6: Wetland WL6 – Facing Southeast (9.17.19)

Photo 7: UNT 6 to Jacks Run – Facing Upstream (9.17.19)

Photo 8: UNT 6 to Jacks Run – Facing Downstream (9.17.19)

Photo 9: UNT 7 to Jacks Run – Facing Upstream (9.5.19)

Photo 10: UNT 7 to Jacks Run – Facing Downstream (9.5.19)

Photo 11: Wetland WL5 – Facing Northeast (9.17.19)

Photo 12: Wetland WL5 – Facing Southwest (9.17.19)

Photo 13: UNT 2 to Brush Creek – Facing Upstream (9.17.19)

Photo 14: UNT 2 to Brush Creek – Facing Downstream (9.17.19)

Photo 15: Wetland WL4 – Facing Northwest (12.6.19)

Photo 16: Wetland WL4 – Facing Southeast (12.6.19)

Photo 17: UNT 1 to Brush Creek – Facing Upstream (9.5.19)

Photo 18: UNT 1 to Brush Creek – Facing Downstream (9.5.19)

Photo 19: Wetland WL3 – Facing North (9.17.19)

Photo 20: Wetland WL3 – Facing East (9.17.19)

Photo 21: UNT 3 to Brush Creek – Facing Upstream (12.6.19)

Photo 22: UNT 3 to Brush Creek – Facing Downstream (12.6.19)