

SOIL

Sampling Point: 190402-1230

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

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

Hydric Soil Indicators:

- | | |
|--------------------------------------------------------------------------|------------------------------------------------------------------------|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> 2 cm Muck (A10) (LRR N) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147) |

Indicators for Problematic Hydric Soils³:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

No hydric soil indicators present.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: EHP 418 City/County: Monroe Co. Sampling Date: 9/2/2019
 Applicant/Owner: Eureka Midstream, LLC State: OH Sampling Point: 1904027400
 Investigator(s): E. McClung Section, Township, Range: Ohio Twp
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 12%
 Subregion (LRR or MLRA): QRA-1 Lat: 39.709135 Long: -80.854813 Datum: NAD83
 Soil Map Unit Name: GKG - Gilpin-Upper silt loams 35-70% slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? No Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? No (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 <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | |
| Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | |
| Remarks: <u>Sampling point documents wetland habitat on a hillslope</u> | |

HYDROLOGY

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) | | Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe) | Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: <u>No wetland hydrology.</u> | | |

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 190402-1900

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|----------------------------------|------------------|-------------------|------------------|
| 1. <i>Celtis occidentalis</i> | 28 | ✓ | FACU |
| 2. <i>Aesculus flava</i> | 20 | ✓ | FACU |
| 3. <i>Liquidambar nigra</i> | 5 | | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |

50% of total cover: 24.5 53 = Total Cover
20% of total cover: 10.6

| Sapling/Shrub Stratum (Plot size: 15' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|-------------------------------------------|------------------|-------------------|------------------|
| 1. <i>Rosa multiflora</i> | 15 | ✓ | FACU |
| 2. <i>Lilodera benzoin</i> | 12 | ✓ | FAC |
| 3. <i>Lonicera morrowii</i> | 8 | | FACU |
| 4. <i>Celtis occidentalis</i> | 6 | | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |

50% of total cover: 20.5 41 = Total Cover
20% of total cover: 8.2

| Herb Stratum (Plot size:) | Absolute % Cover | Dominant Species? | Indicator Status |
|---------------------------------|------------------|-------------------|------------------|
| 1. POACEAE* | 20 | ✓ | FAC* |
| 2. <i>Geranium carolinianum</i> | 12 | ✓ | VPL |
| 3. <i>Plantago lanceolata</i> | 10 | ✓ | VPL |
| 4. <i>Galium mollugo</i> | 5 | | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |

50% of total cover: 23.5 47 = Total Cover
20% of total cover: 9.4

| Woody Vine Stratum (Plot size: 15' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|----------------------------------------|------------------|-------------------|------------------|
| 1. <i>Vitis sp*</i> | 7 | ✓ | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |

50% of total cover: 7 = Total Cover
20% of total cover:

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 37.5% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0¹
- 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four 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 vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes No ✓

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

* Grass not identified to species; assigned FAC and vitis

No indicator of hydrophytic vegetation present.

SOIL

Sampling Point: 190402-1400

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

[illegible]

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

- | | | |
|--------------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Dark Surface (S7) | <input type="checkbox"/> 2 cm Muck (A10) (MLRA 147) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) | <input type="checkbox"/> Coast Prairie Redox (A16) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) | <input type="checkbox"/> (MLRA 147, 148) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> (MLRA 136, 147) |
| <input type="checkbox"/> 2 cm Muck (A10) (LRR N) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147) | |
- ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No indicators of hydric soil.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: ETP 418 City/County: Monroe Co. Sampling Date: 4/2/19
 Applicant/Owner: Erreka Midstream, LLC State: OH Sampling Point: 190802-1630
 Investigator(s): E. McCune Section, Township, Range: 04.0 Township
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 20
 Subregion (LRR or MLRA): _____ Lat: 39.708212 Long: -80.846090 Datum: NAD83
 Soil Map Unit Name: Ma - Made 199d NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> | |
| Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> | |
| Remarks: <u>Sampling point documents planted pine forest habitat on a hillslope</u> | |

HYDROLOGY

| | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) | | Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ | | Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: <u>No indicators of hydrology.</u> | | |

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 190402-1630

| Tree Stratum (Plot size: <u>30' x 30'</u>) | | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: | |
|-----------------------------------------------------|--------------------------|------------------|-------------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| 1. | <u>Pinus strobus</u> | <u>65</u> | <input checked="" type="checkbox"/> | <u>FACU</u> | | Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) |
| 2. | | | | | Total Number of Dominant Species Across All Strata: <u>2</u> (B) | |
| 3. | | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B) | |
| 4. | | | | | Prevalence Index worksheet: | |
| 5. | | | | | | Total % Cover of: _____ Multiply by: _____ |
| 6. | | | | | | OBL species _____ x 1 = _____ |
| 7. | | | | | | FACW species _____ x 2 = _____ |
| 8. | | | | | | FAC species _____ x 3 = _____ |
| 9. | | | | | FACU species _____ x 4 = _____ | |
| 10. | | | | | UPL species _____ x 5 = _____ | |
| 11. | | | | | Column Totals: _____ (A) _____ (B) | |
| 50% of total cover: _____ 20% of total cover: _____ | | | | | Prevalence Index = B/A = _____ | |
| Sapling/Shrub Stratum (Plot size: _____) | | | | | Hydrophytic Vegetation Indicators: | |
| 1. | <u>Fagus grandifolia</u> | <u>5</u> | <input checked="" type="checkbox"/> | <u>FACU</u> | | 1 - Rapid Test for Hydrophytic Vegetation |
| 2. | | | | | | 2 - Dominance Test is >50% |
| 3. | | | | | | 3 - Prevalence Index is ≤3.0 ¹ |
| 4. | | | | | | 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| 5. | | | | | Problematic Hydrophytic Vegetation ¹ (Explain) | |
| 6. | | | | | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | |
| 7. | | | | | | |
| 8. | | | | | | |
| 9. | | | | | | |
| 10. | | | | | | |
| 11. | | | | | Definitions of Four Vegetation Strata: | |
| 50% of total cover: _____ 20% of total cover: _____ | | | | | Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. | |
| Herb Stratum (Plot size: <u>5' x 5'</u>) | | | | | Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. | |
| 1. | <u>N/A</u> | | | | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. | |
| 2. | | | | | Woody vine – All woody vines greater than 3.28 ft in height. | |
| 3. | | | | | Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> | |
| 4. | | | | | | |
| 5. | | | | | | |
| 6. | | | | | | |
| 7. | | | | | | |
| 8. | | | | | | |
| 9. | | | | | | |
| 10. | | | | | | |
| 11. | | | | | | |
| 50% of total cover: _____ 20% of total cover: _____ | | | | | | |
| Woody Vine Stratum (Plot size: <u>15' x 15'</u>) | | | | | | |
| 1. | <u>N/A</u> | | | | | |
| 2. | | | | | | |
| 3. | | | | | | |
| 4. | | | | | | |
| 5. | | | | | | |
| 6. | | | | | | |
| 7. | | | | | | |
| 8. | | | | | | |
| 9. | | | | | | |
| 10. | | | | | | |
| 11. | | | | | | |
| 50% of total cover: _____ 20% of total cover: _____ | | | | | | |

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

Planted white pine dominant

SOIL

Sampling Point 190402-1630

[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: ATP 418 City/County: Monroe Co. Sampling Date: 4/2/19
 Applicant/Owner: Eureka Midstream, LLC State: OH Sampling Point: 190402-1540
 Investigator(s): Evan McClung Section, Township, Range: Ohio Township
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): concave Slope (%): 18%
 Subregion (LRR or MLRA): LRR-N Lat: 39.708113 Long: -80.848802 Datum: NAD83
 Soil Map Unit Name: GkE2-Gilpin-Upland complex, 18-35% slopes, incl. erodes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? No Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? No (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 <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| Remarks: <u>Sampling point documents PEM habitat in three wetlands: W-140402-1540, -1545 and -1555. The wetlands have developed within an existing pipeline ROW.</u> | |

HYDROLOGY

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| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) | | Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u> </u> | | Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: <u>Wetland hydrology is present.</u> | | |

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 190402-1540

| Tree Stratum (Plot size: <u>entire wetland</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: | | | | | | | | | | | | | | | | |
|-----------------------------------------------------------------|---------------------|-------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------|-------------------|-------------|--------------------|-------------|-------------------|-------------|--------------------|-------------|-------------------|-------------|----------------------|---------------------|--------------------------------|--|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) | | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>3</u> (B) | | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) | | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = _____</td> </tr> </table> | 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 = _____ | |
| 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 = _____ | | | | | | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| _____ = Total Cover | | | | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) | | | | | | | | | | | | | | | | |
| 50% of total cover: _____ 20% of total cover: _____ | | | | | | | | | | | | | | | | | | | | |
| _____ = Total Cover | | | | | | | | | | | | | | | | | | | | |
| _____ = Total Cover | | | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub Stratum (Plot size: <u>entire wetland</u>) | | | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | Definitions of Four 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 vine – All woody vines greater than 3.28 ft in height. | | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| Herb Stratum (Plot size: <u>5' C</u>) | | | | | | | | | | | | | | | | | | | | |
| 1. <u>Typha angustifolia</u> | <u>40</u> | | <u>OBL</u> | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ | | | | | | | | | | | | | | | | |
| 2. <u>Carex vulpinoidea</u> | <u>50</u> | | <u>OBL</u> | | | | | | | | | | | | | | | | | |
| 3. <u>Juncus effusus</u> | <u>10</u> | | <u>FACU</u> | | | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | Remarks: (Include photo numbers here or on a separate sheet.) <div style="font-size: 2em; text-align: center;">Vegetation meets Dominance Test.</div> | | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| Woody Vine Stratum (Plot size: <u>entire wetland</u>) | | | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | |

Sampling Point: 190402-
1540

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

Indicators for Problematic Hydric Soils¹:

- | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) (LRR N) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147) | <input type="checkbox"/> 2 cm Muck (A10) (MLRA 147) <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Hydric Soil Present? Yes No

Remarks:

F3, indicator for hydric soils

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: EHP 418-000 City/County: Wayne County Sampling Date: 7/24/2019
 Applicant/Owner: Euroka Midstream State: Ohio Sampling Point: SP 90724 0945
 Investigator(s): S. Zelenka Section, Township, Range: Ohio Twp
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%) 15-20
 Subregion (LRR or MLRA): LRN Lat: 39 76416 Long: -80.85674 Datum: NAD83
 Soil Map Unit Name: Glfc7-Gilpin Upshur silt loams, 35-70% slopes NWI classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)
 Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | | | | |
|---------------------------------|------------------------------|----------------------------------------|---------------------------------------|------------------------------|----------------------------------------|
| Hydrophytic Vegetation Present? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| Hydric Soil Present? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | | | |
| Wetland Hydrology Present? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | | | |

Remarks:

Sample point located in dense, young deciduous forest on a steep south-facing hillslope above SR 7. Adjacent to an existing pipeline ROW. Representative of surrounding upland forest habitat.

HYDROLOGY

| Wetland Hydrology Indicators: | | Secondary Indicators (minimum of two required) |
|------------------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------|
| <u>Primary Indicators (minimum of one is required, check all that apply)</u> | | |
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Moss Trim Lines (B16) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Iron Deposits (B5) | | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | | <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Aquatic Fauna (B13) | | <input type="checkbox"/> Microtopographic Relief (D4) |
| | | <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

| | | | | | | |
|------------------------|------------------------------|----------------------------------------|-----------------------------------|----------------------------|------------------------------|----------------------------------------|
| Surface Water Present? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | Depth (inches): <u> </u> | Wetland Hydrology Present? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| Water Table Present? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | Depth (inches): <u> </u> | | | |
| Saturation Present? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | Depth (inches): <u> </u> | | | |

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

Remarks:

No primary or secondary wetland hydrology indicators present. Does not satisfy wetland hydrology criteria.

| Tree Stratum | | | | (Plot size: <u>30'R</u>) | |
|-----------------------------|------------------|-------------------------------------|------------------|---------------------------|--|
| | Absolute % Cover | Dominant Species? | Indicator Status | | |
| 1. <u>Ulmus rubra</u> | <u>25</u> | <input checked="" type="checkbox"/> | <u>FAC</u> | | |
| 2. <u>Aesculus alabra</u> | <u>20</u> | <input checked="" type="checkbox"/> | <u>FACU</u> | | |
| 3. <u>Fagus grandifolia</u> | <u>3</u> | | <u>FACU</u> | | |
| 4. _____ | | | | | |
| 5. _____ | | | | | |
| 6. _____ | | | | | |
| 7. _____ | | | | | |
| | <u>48</u> | = Total Cover | | | |

| Sapling/Shrub Stratum | | | | (Plot size: <u>15'R</u>) | |
|---------------------------|------------------|-------------------------------------|------------------|---------------------------|--|
| | Absolute % Cover | Dominant Species? | Indicator Status | | |
| 1. <u>Aesculus alabra</u> | <u>10</u> | | <u>FACU</u> | | |
| 2. <u>Carya ovata</u> | <u>6</u> | | <u>FACU</u> | | |
| 3. <u>Lindera benzoin</u> | <u>40</u> | <input checked="" type="checkbox"/> | <u>FAC</u> | | |
| 4. <u>Rosa multiflora</u> | <u>8</u> | | <u>FACU</u> | | |
| 5. _____ | | | | | |
| 6. _____ | | | | | |
| 7. _____ | | | | | |
| 8. _____ | | | | | |
| 9. _____ | | | | | |
| 10. _____ | | | | | |
| | <u>64</u> | = Total Cover | | | |

| Herb Stratum | | | | (Plot size: <u>5'R</u>) | |
|---------------------------------------|------------------|-------------------------------------|------------------|--------------------------|--|
| | Absolute % Cover | Dominant Species? | Indicator Status | | |
| 1. <u>Pilea pumila</u> | <u>7</u> | | <u>FAIW</u> | | |
| 2. <u>Parthenocissus quinquefolia</u> | <u>2</u> | | <u>FACU</u> | | |
| 3. <u>Rosa multiflora</u> | <u>5</u> | | <u>FACU</u> | | |
| 4. <u>Alliaria petiolata</u> | <u>9</u> | <input checked="" type="checkbox"/> | <u>FACU</u> | | |
| 5. <u>Viburnum acerifolium</u> | <u>8</u> | <input checked="" type="checkbox"/> | <u>FAC</u> | | |
| 6. <u>Lindera benzoin</u> | <u>4</u> | | <u>FAC</u> | | |
| 7. <u>Asarum canadense</u> | <u>8</u> | <input checked="" type="checkbox"/> | <u>FACU</u> | | |
| 8. <u>V</u> | | | | | |
| 9. _____ | | | | | |
| 10. _____ | | | | | |
| 11. _____ | | | | | |
| 12. _____ | | | | | |
| | <u>43</u> | = Total Cover | | | |

| Woody Vine Stratum | | | | (Plot size: <u>30'R</u>) | |
|---------------------------------------|------------------|-------------------------------------|------------------|---------------------------|--|
| | Absolute % Cover | Dominant Species? | Indicator Status | | |
| 1. <u>Vitis lobata</u> | <u>10</u> | <input checked="" type="checkbox"/> | <u>FACU</u> | | |
| 2. <u>Lonicera japonica</u> | <u>2</u> | | <u>FACU</u> | | |
| 3. <u>Parthenocissus quinquefolia</u> | <u>2</u> | | <u>FACU</u> | | |
| 4. _____ | | | | | |
| 5. _____ | | | | | |
| 6. _____ | | | | | |
| | <u>14</u> | = Total Cover | | | |

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)Total Number of Dominant Species Across All Strata: 7 (B)Percent of Dominant Species That Are OBL, FACW, or FAC: 42.9% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- _____ 1 - Rapid Test for Hydrophytic Vegetation
- _____ 2 - Dominance Test is >50%
- _____ 3 - Prevalence Index is ≤3.0¹
- _____ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- _____ Problematic Hydrophytic Vegetation¹ (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.

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 ☒

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

Vegetation does not meet the criteria for any hydrophytic vegetation indicators.

SOIL

Sampling Point: SP 190724 0945

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

[illegible]

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

- | | | |
|-------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Dark Surface (S7) | <input type="checkbox"/> 2 cm Muck (A10) (MLRA 147) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) | <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> (MLRA 136, 147) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> 2 cm Muck (A10) (LRR N) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147,148) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147) | |

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric

| | | | |
|---------------|-----|----|-------------------------------------|
| Soil Present? | Yes | No | <input checked="" type="checkbox"/> |
|---------------|-----|----|-------------------------------------|

Soil Description Remarks:

Soil does not meet the criteria for any hydric soil indicators.

SITE NAME/LOCATION

EHP 418 Pipeline

SR-190402-1440

SITE NUMBER

RIVER BASIN

Ohio River

DRAINAGE AREA (mi²)0.07 mi²

LENGTH OF STREAM REACH (ft)

200

LAT.

39.7116

LONG.

-80.9572

RIVER CODE

RIVER MILE

DATE 4/2/19

SCORER

ETA

COMMENTS

Intermittent UNT to Ohio River

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL
 ☐ RECOVERED
 ☐ RECOVERING
 ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

| TYPE | PERCENT | TYPE | PERCENT |
|---------------------------------------------------------|---------|---------------------------------------------------------|---------|
| <input checked="" type="checkbox"/> BLDR SLABS [16 pts] | 20 | <input checked="" type="checkbox"/> SILT [3 pt] | 25 |
| <input type="checkbox"/> BOULDER (>256 mm) [16 pts] | 5 | <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts] | 10 |
| <input type="checkbox"/> BEDROCK [16 pt] | | <input type="checkbox"/> FINE DETRITUS [3 pts] | |
| <input type="checkbox"/> COBBLE (65-256 mm) [12 pts] | 25 | <input type="checkbox"/> CLAY or HARDPAN [0 pt] | |
| <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts] | 15 | <input type="checkbox"/> MUCK [0 pts] | |
| <input type="checkbox"/> SAND (<2 mm) [6 pts] | 10 | <input type="checkbox"/> ARTIFICIAL [3 pts] | |

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock

(A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

19

TOTAL NUMBER OF SUBSTRATE TYPES:

7

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

| | |
|----------------------------------------------------|------------------------------------------------------------|
| <input type="checkbox"/> > 30 centimeters [20 pts] | <input type="checkbox"/> > 5 cm - 10 cm [15 pts] |
| <input type="checkbox"/> > 22.5 - 30 cm [30 pts] | <input checked="" type="checkbox"/> < 5 cm [5 pts] |
| <input type="checkbox"/> > 10 - 22.5 cm [25 pts] | <input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts] |

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

4 cm

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

| | |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <input type="checkbox"/> > 4.0 meters (> 13') [30 pts] | <input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] |
| <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] | <input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts] |
| <input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] | |

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

2.8 m

HHEI Metric Points

Substrate Max = 40

26

A + B

Pool Depth Max = 30

5

Bankfull Width Max=30

20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L R (Per Bank)

☐ ☐ Wide >10m☐ ☐ Moderate 5-10m☒ ☒ Narrow <5m☐ ☐ None

COMMENTS

L R (Most Predominant per Bank)

☐ ☐ Mature Forest, Wetland☒ ☒ Immature Forest, Shrub or Old Field☐ ☐ Residential, Park, New Field☐ ☐ Fenced Pasture

L R

☐ ☐ Conservation Tillage☐ ☐ Urban or Industrial☐ ☐ Open Pasture, Row Crop☐ ☐ Mining or Construction

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

☒ Stream Flowing☐ Subsurface flow with isolated pools (Interstitial)☐ Moist Channel, isolated pools, no flow (Intermittent)☐ Dry channel, no water (Ephemeral)

COMMENTS

Some flow

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None☐ 0.5☐ 1.0☐ 1.5☒ 2.0☐ 2.5☐ 3.0☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft)☐ Flat to Moderate☐ Moderate (2 ft/100 ft)☒ Moderate to Severe☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Ohio River Distance from Evaluated Stream 0.6 mi.
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: New Martinsville NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
 County: Monroe Township / City: Ohio Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 3/31/19 Quantity: 0.11 in.
 Photograph Information: See report
 Elevated Turbidity? (Y/N): N Canopy (% open): 50%
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____
 Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
 Is the sampling reach representative of the stream (Y/N) _____ If not, please explain: _____

Additional comments/description of pollution impacts: _____

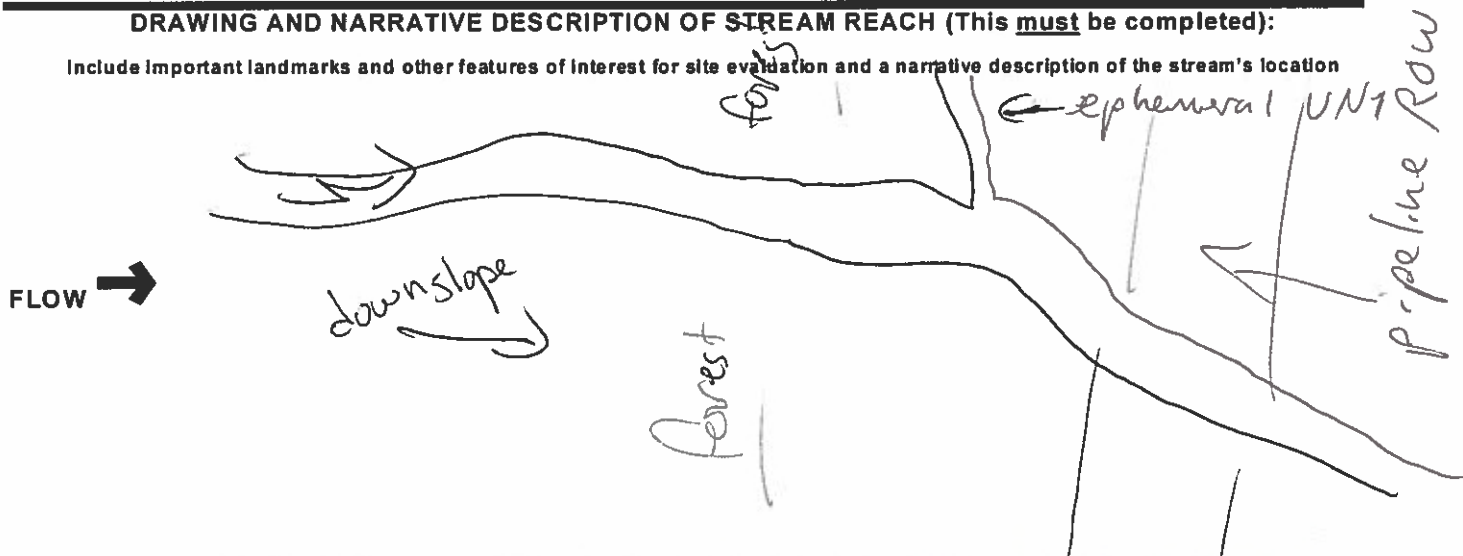
BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____
 Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____
 Comments Regarding Biology: stream supports habitat for amphibians and macro invertebrates

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION

ETP 419 Pipeline

STR 190402-1500

SITE NUMBER

RIVER BASIN

Ohio River

DRAINAGE AREA (mi²)0.06 mi²

LENGTH OF STREAM REACH (ft)

200

LAT.

LONG.

RIVER CODE

RIVER MILE

DATE

4/2/19

SCORER

ETM

COMMENTS

Intermittent UNT to Ohio River

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL☒ RECOVERED☐ RECOVERING☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE

☐ BLDR SLABS [16 pts]
☐ BOULDER (>256 mm) [16 pts]
☐ BEDROCK [16 pt]
☒ COBBLE (65-256 mm) [12 pts]
☐ GRAVEL (2-64 mm) [9 pts]
☐ SAND (<2 mm) [6 pts]

PERCENT

 20
 10
 5

TYPE

☒ SILT [3 pt]
☐ LEAF PACK/WOODY DEBRIS [3 pts]
☐ FINE DETRITUS [3 pts]
☐ CLAY or HARDPAN [0 pt]
☐ MUCK [0 pts]
☐ ARTIFICIAL [3 pts]

PERCENT

40
 15
 10

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock

(A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

6

HHEI Metric Points

Substrate Max = 40

21

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]

☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

3 cm

Pool Depth Max = 30

5

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]

☒ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.2 m

Bankfull Width Max=30

15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

NOTE: River Left (L) and Right (R) as looking downstream

RIPARIAN WIDTH

L R

(Per Bank)

☐

Wide >10m

☐

Moderate 5-10m

☒

Narrow <5m

☐

None

COMMENTS

FLOODPLAIN QUALITY

L R

(Most Predominant per Bank)

☐

Mature Forest, Wetland

☐

Immature Forest, Shrub or Old Field

☐

Residential, Park, New Field

☐

Fenced Pasture

L R

Conservation Tillage

☐

Urban or Industrial

☐

Open Pasture, Row Crop

☐

Mining or Construction

- FLOW REGIME** (At Time of Evaluation) (Check ONLY one box):

☒

Stream Flowing

☐

Subsurface flow with isolated pools (Interstitial)

☐

Moist Channel, isolated pools, no flow (Intermittent)

☐

Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):☐

None

☐

1.0

☒

2.0

☐

3.0

☐

0.5

☐

1.5

☐

2.5

☐

>3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft)☐ Flat to Moderate☐ Moderate (2 ft/100 ft)☒ Moderate to Severe☐ Severe (10 ft/100 ft)

STR 190402 - 1500

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Ohio River Distance from Evaluated Stream 0.6 mi.
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: New Martinsville, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
 County: Monroe Township / City: Ohio Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____
 Photograph Information: See report
 Elevated Turbidity? (Y/N): N Canopy (% open): _____
 Were samples collected for water chemistry? (Y/N): _____ (Note lab sample no. or id. and attach results) Lab Number: _____
 Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
 Is the sampling reach representative of the stream (Y/N) _____ If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
 Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____
 Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____
 Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION

STR-190402-15101339 SITE NUMBER

RIVER BASIN

DRAINAGE AREA (mi²)

LENGTH OF STREAM REACH (ft)

LAT. 39.7079

LONG. -86.2500

RIVER CODE

RIVER MILE

DATE 4/2/19

SCORER

COMMENTS

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions

STREAM CHANNEL

☐ NONE / NATURAL CHANNEL☐ RECOVERED☒ RECOVERING☐ RECENT OR NO RECOVERY

MODIFICATIONS:

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE

☐☐☐☐☒☐

BLDR SLABS [16 pts]

BOULDER (>256 mm) [16 pts]

BEDROCK [16 pt]

COBBLE (65-256 mm) [12 pts]

GRAVEL (2-64 mm) [9 pts]

SAND (<2 mm) [6 pts]

PERCENT

15

TYPE

☒☐☐☐☐☐

SILT [3 pt]

LEAF PACK/WOODY DEBRIS [3 pts]

FINE DETRITUS [3 pts]

CLAY or HARDPAN [0 pt]

MUCK [0 pts]

ARTIFICIAL [3 pts]

PERCENT

60

10

5

10

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock

(A)

12

(B)

5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
PointsSubstrate
Max = 40

17

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

☐

> 30 centimeters [20 pts]

☐

> 22.5 - 30 cm [30 pts]

☐

> 10 - 22.5 cm [25 pts]

☐

> 5 cm - 10 cm [15 pts]

☐

< 5 cm [5 pts]

☒

NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

Pool Depth
Max = 30

0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐

> 4.0 meters (> 13') [30 pts]

☐

> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]

☐

> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]

☐

> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]

☒

≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.5

Bankfull
Width
Max=30

5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

L R

☐☐

(Per Bank)

Wide >10m

☐

Moderate 5-10m

☒

Narrow <5m

☐

None

☐

None

COMMENTS

FLOODPLAIN QUALITY

L R

☐☐

(Most Predominant per Bank)

Mature Forest, Wetland

☐

Immature Forest, Shrub or Old

☐

Field

☒

Residential, Park, New Field

☐

Fenced Pasture

L R

☐☐

Conservation Tillage

☐

Urban or Industrial

☐

Open Pasture, Row

☐

Crop

☐

Mining or Construction

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

☐

Stream Flowing

☐

Subsurface flow with isolated pools (Interstitial)

☐

Moist Channel, isolated pools, no flow (Intermittent)

☒

Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐

None

☐

0.5

☐

1.0

☐

1.5

☒

2.0

☐

2.5

☐

3.0

☐

>3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft)☐ Flat to Moderate☐ Moderate (2 ft/100 ft)☒ Moderate to Severe☐ Severe (10 ft/100 ft)

SR - 90402-1510, 1330, + 1620

ADDITIONAL STREAM INFORMATION (This information must also be completed):

QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Ohio River Distance from Evaluated Stream 0.6 mi.
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: New Martinsville, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Monroe Township / City: Ohio Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 3/31/19 Quantity: 0.11 inches

Photograph Information: see report

Elevated Turbidity? (Y/N): N Canopy (% open): _____

Were samples collected for water chemistry? (Y/N): _____ (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) _____ If not, please explain: No flow

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

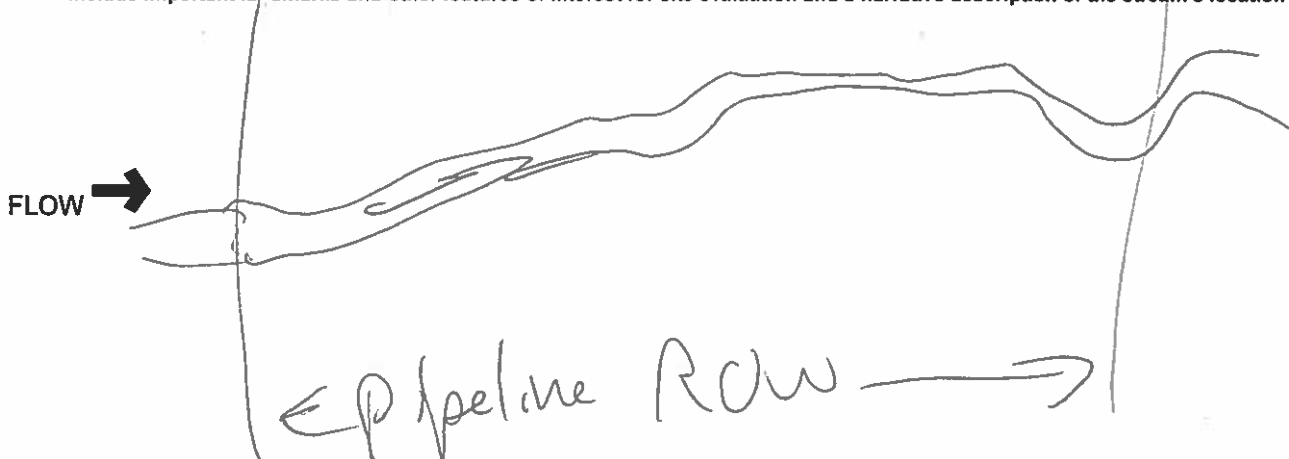
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____
Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):

298

SITE NAME/LOCATION CHP 416

SR 190402-1545, 1600 SITE NUMBER 1605

RIVER BASIN Ohio River

DRAINAGE AREA (mi²) 0.06

LENGTH OF STREAM REACH (ft) 200

LAT. 39.7088

LONG. -80.8475

RIVER CODE

RIVER MILE

DATE 4/2/19

SCORER ETM

COMMENTS 3 intermittent UNTs to Ohio River

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL

☐ NONE / NATURAL CHANNEL

☐ RECOVERED

☒ RECOVERING

☐ RECENT OR NO RECOVERY

MODIFICATIONS:

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE

☐ BLDR SLABS [16 pts]
☐ BOULDER (>256 mm) [16 pts]
☐ BEDROCK [16 pts]
☐ COBBLE (65-256 mm) [12 pts]
☒ GRAVEL (2-64 mm) [9 pts]
☐ SAND (<2 mm) [6 pts]

PERCENT

10
15
5

TYPE

☒ SILT [3 pt]
☐ LEAF PACK/WOODY DEBRIS [3 pts]
☐ FINE DETRITUS [3 pts]
☐ CLAY or HARDPAN [0 pt]
☐ MUCK [0 pts]
☐ ARTIFICIAL [3 pts]

PERCENT

55
20
5

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock

(A) 12

(B) 6

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate
Max = 40

18

A + B

Pool Depth
Max = 30

5

Bankfull
Width
Max=30

5

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]

☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

5cm

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]

☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.5m

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

L R

☐ ☐

☐ ☐

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ADDITIONAL STREAM INFORMATION (This information must also be completed):

QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Ohio River Distance from Evaluated Stream 0.5 mi.
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH/COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: New Martinsville NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Monroe Township / City: Ohio Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 3/31/19 Quantity: 0.11 in.
Photograph Information: See report
Elevated Turbidity? (Y/N): N Canopy (% open): 70
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____
Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
Is the sampling reach representative of the stream (Y/N) _____ If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____
Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):

35

SITE NAME/LOCATION EHP 418-000 / Monroe County, Ohio
SITE NUMBER 102502114 RIVER BASIN Central Ohio DRAINAGE AREA (mi²) <0.01
LENGTH OF STREAM REACH (ft) 300 LAT. 39.70394 LONG. -80.85603 RIVER CODE 05301 RIVER MILE N/A
DATE 7/24/2019 SCORER S. Zelenka COMMENTS STR-190724-1000 (ephemeral)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

| TYPE | PERCENT | TYPE | PERCENT |
|--------------------------------------------------------------|---------|---------------------------------------------------------|---------|
| <input type="checkbox"/> BLDG SLABS [16 pts] | | <input checked="" type="checkbox"/> SILT [3 pts] | 70 |
| <input type="checkbox"/> BOULDER (>256 mm) [16 pts] | | <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts] | |
| <input type="checkbox"/> BEDROCK [16 pts] | | <input type="checkbox"/> FINE DETRITUS [3 pts] | |
| <input type="checkbox"/> COBBLE (85-256 mm) [12 pts] | 10 | <input type="checkbox"/> CLAY or HARDPAN [0 pt] | |
| <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts] | 20 | <input type="checkbox"/> MUCK [0 pts] | |
| <input type="checkbox"/> SAND (<2 mm) [6 pts] | | <input type="checkbox"/> ARTIFICIAL [3 pts] | |

Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock 10 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12

TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40

15

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

| | |
|----------------------------------------------------|------------------------------------------------------------|
| <input type="checkbox"/> > 30 centimeters [20 pts] | <input type="checkbox"/> > 5 cm - 10 cm [15 pts] |
| <input type="checkbox"/> > 22.5 - 30 cm [30 pts] | <input checked="" type="checkbox"/> < 5 cm [5 pts] |
| <input type="checkbox"/> > 10 - 22.5 cm [25 pts] | <input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts] |

Pool Depth Max = 30

5

COMMENTS heavy rain 24-48 hours prior MAXIMUM POOL DEPTH (centimeters): 2

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

| | |
|---------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <input type="checkbox"/> > 4.0 meters (> 13') [30 pts] | <input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] |
| <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] | <input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts] |
| <input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] | |

Bankfull Width Max=30

15

COMMENTS bank is narrower @ pipeline ROW AVERAGE BANKFULL WIDTH (meters):

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

| RIPARIAN WIDTH | | FLOODPLAIN QUALITY | |
|------------------------------------------------|--------------------------|--------------------------------------------------------------|-------------------------------------|
| L | R | L | R |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| (Per Bank) | | (Most Predominant per Bank) | |
| <input type="checkbox"/> Wide >10m | | <input type="checkbox"/> Mature Forest, Wetland | |
| <input type="checkbox"/> Moderate 5-10m | | <input type="checkbox"/> Immature Forest, Shrub or Old Field | |
| <input checked="" type="checkbox"/> Narrow <5m | | <input type="checkbox"/> Residential, Park, New Field | |
| <input type="checkbox"/> None | | <input type="checkbox"/> Fenced Pasture | |
| | | <input type="checkbox"/> Conservation Tillage | |
| | | <input type="checkbox"/> Urban or Industrial | |
| | | <input type="checkbox"/> Open Pasture, Row Crop | |
| | | <input type="checkbox"/> Mining or Construction | |

COMMENTS forest upstream + downstream / + pipeline ROW crossing

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

| | |
|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <input type="checkbox"/> Stream Flowing | <input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent) |
| <input type="checkbox"/> Subsurface flow with isolated pools (Interstitial) | <input checked="" type="checkbox"/> Dry channel, no water (Ephemeral) |

COMMENTS small pools from recent heavy rains

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

| | | | |
|-------------------------------|-----------------------------------------|------------------------------|------------------------------|
| <input type="checkbox"/> None | <input checked="" type="checkbox"/> 1.0 | <input type="checkbox"/> 2.0 | <input type="checkbox"/> 3.0 |
| <input type="checkbox"/> 0.5 | <input type="checkbox"/> 1.5 | <input type="checkbox"/> 2.5 | <input type="checkbox"/> >3 |

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☒ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score N/A (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Ohio River Distance from Evaluated Stream 2100 FT
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: New Martinsville NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Monroe County Township / City: Ohio Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): yes Date of last precipitation: 7/22/2019 Quantity: 1.0/in.
Photograph Information: See Attachment C of Wet memo
Elevated Turbidity? (Y/N): NO Canopy (% open): 100% w/ PLROW 30% up/downstream
Were samples collected for water chemistry? (Y/N): NO (Note lab sample no. or id. and attach results) Lab Number: N/A
Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
Is the sampling reach representative of the stream (Y/N) yes If not, please explain: _____
N/A

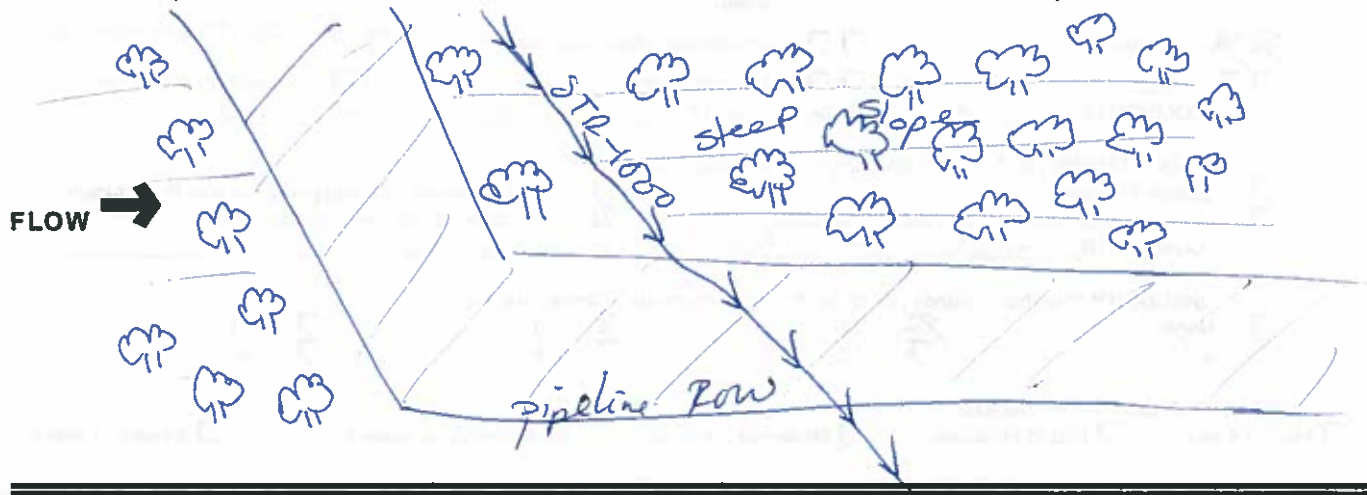
Additional comments/description of pollution impacts: _____
N/A

BIOTIC EVALUATION

Performed? (Y/N): yes (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) NO Voucher? (Y/N) NO Salamanders Observed? (Y/N) NO Voucher? (Y/N) NO
Frogs or Tadpoles Observed? (Y/N) NO Voucher? (Y/N) NO Aquatic Macroinvertebrates Observed? (Y/N) N/A Voucher? (Y/N) NO
Comments Regarding Biology: None observed

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):

81

SITE NAME/LOCATION EHP 418-000 / Monroe County, Ohio
SITE NUMBER 102502114 RIVER BASIN Central Ohio trib DRAINAGE AREA (mi²) 0.25
LENGTH OF STREAM REACH (ft) 300 LAT. 39.7053 LONG. -80.8554 RIVER CODE 050301 RIVER MILE N/A
DATE 7/24/2019 SCORER S. Zelonka COMMENTS STR 190724 1020 (perennial)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions

STREAM CHANNEL
MODIFICATIONS:☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

| TYPE | PERCENT | TYPE | PERCENT |
|-----------------------------------------------------------------|-----------|---------------------------------------------------------|-----------|
| <input type="checkbox"/> BLDR SLABS [16 pts] | | <input type="checkbox"/> SILT [3 pt] | <u>20</u> |
| <input type="checkbox"/> BOULDER (>256 mm) [16 pts] | <u>5</u> | <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts] | |
| <input type="checkbox"/> BEDROCK [16 pt] | <u>5</u> | <input type="checkbox"/> FINE DETRITUS [3 pts] | |
| <input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts] | <u>30</u> | <input type="checkbox"/> CLAY or HARDPAN [0 pt] | |
| <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts] | <u>40</u> | <input type="checkbox"/> MUCK [0 pts] | |
| <input type="checkbox"/> SAND (<2 mm) [6 pts] | | <input type="checkbox"/> ARTIFICIAL [3 pts] | |

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock 40 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21TOTAL NUMBER OF SUBSTRATE TYPES: 5HHEI
Metric
PointsSubstrate
Max = 4024

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

| | |
|-------------------------------------------------------------|------------------------------------------------------------|
| <input type="checkbox"/> > 30 centimeters [20 pts] | <input type="checkbox"/> > 5 cm - 10 cm [15 pts] |
| <input checked="" type="checkbox"/> > 22.5 - 30 cm [30 pts] | <input type="checkbox"/> < 5 cm [5 pts] |
| <input type="checkbox"/> > 10 - 22.5 cm [25 pts] | <input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts] |

COMMENTS 16" (recent heavy rains 24-48 hrs) MAXIMUM POOL DEPTH (centimeters): 25Pool Depth
Max = 3030

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):

| | |
|------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <input type="checkbox"/> > 4.0 meters (> 13') [30 pts] | <input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] |
| <input checked="" type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] | <input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts] |
| <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] | |

COMMENTS 10'-12' AVERAGE BANKFULL WIDTH (meters): 3.3Bankfull
Width
Max=3025

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream☆

| RIPARIAN WIDTH | | FLOODPLAIN QUALITY | |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| L | R | L | R |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| (Per Bank) | | (Most Predominant per Bank) | |
| Wide >10m | | Mature Forest, Wetland | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | Immature Forest, Shrub or Old Field | <input type="checkbox"/> |
| Moderate 5-10m | | Residential, Park, New Field | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Fenced Pasture | <input type="checkbox"/> |
| Narrow <5m | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | | |
| None | | | |

COMMENTS young forest + crossed by pipeline ROWFLOW REGIME (At Time of Evaluation) (Check ONLY one box):

| | |
|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Stream Flowing | <input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent) |
| <input type="checkbox"/> Subsurface flow with isolated pools (Interstitial) | <input type="checkbox"/> Dry channel, no water (Ephemeral) |

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

| | | | |
|-------------------------------|------------------------------|-----------------------------------------|------------------------------|
| <input type="checkbox"/> None | <input type="checkbox"/> 1.0 | <input checked="" type="checkbox"/> 2.0 | <input type="checkbox"/> 3.0 |
| <input type="checkbox"/> 0.5 | <input type="checkbox"/> 1.5 | <input type="checkbox"/> 2.5 | <input type="checkbox"/> >3 |

STREAM GRADIENT ESTIMATE

| | | | | |
|-----------------------------------------------|------------------------------------------------------|-------------------------------------------------|---------------------------------------------|------------------------------------------------|
| <input type="checkbox"/> Flat (0.5 ft/100 ft) | <input checked="" type="checkbox"/> Flat to Moderate | <input type="checkbox"/> Moderate (2 ft/100 ft) | <input type="checkbox"/> Moderate to Severe | <input type="checkbox"/> Severe (10 ft/100 ft) |
|-----------------------------------------------|------------------------------------------------------|-------------------------------------------------|---------------------------------------------|------------------------------------------------|

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score N/A (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Chio River Distance from Evaluated Stream 2300 FT
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIONUSGS Quadrangle Name: New Martinsville NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____County: Menard County Township / City: Chio Twp**MISCELLANEOUS**

Base Flow Conditions? (Y/N): yes Date of last precipitation: 7/22/2019 Quantity: 1.11 inches
Photograph Information: See Attachment C of Wet Memo
Elevated Turbidity? (Y/N): NO Canopy (% open): 100% in PLRW / 20% up/down stream
Were samples collected for water chemistry? (Y/N): NO (Note lab sample no. or id. and attach results) Lab Number: N/A
Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
Is the sampling reach representative of the stream (Y/N) yes If not, please explain: _____
N/A

Additional comments/description of pollution impacts: _____
N/A**BIOTIC EVALUATION**

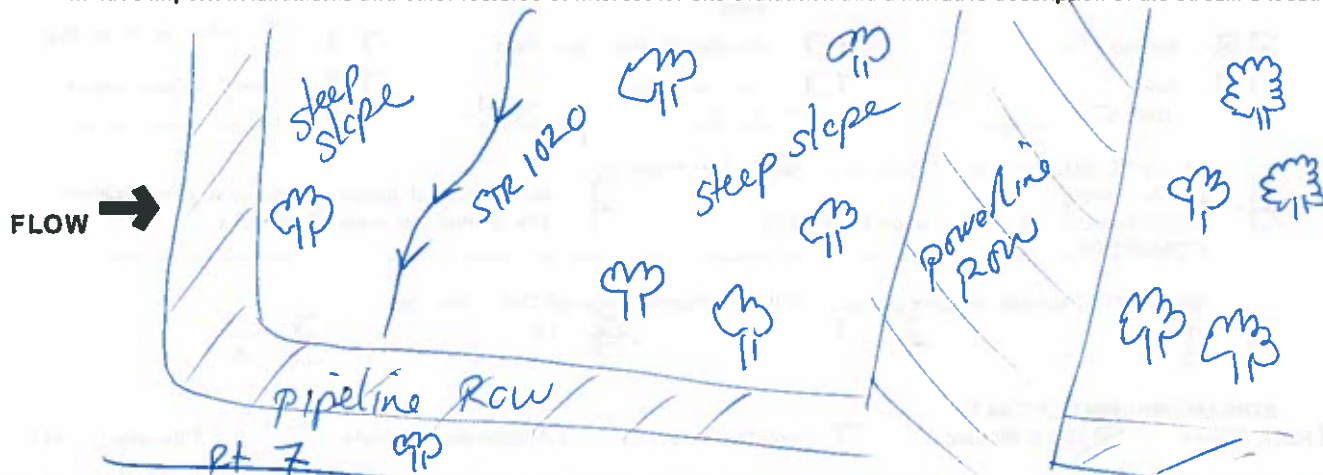
Performed? (Y/N): _____ (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) NO Voucher? (Y/N) NO Salamanders Observed? (Y/N) NO Voucher? (Y/N) NO
Frogs or Tadpoles Observed? (Y/N) yes Voucher? (Y/N) NO Aquatic Macroinvertebrates Observed? (Y/N) yes Voucher? (Y/N) NO

Comments Regarding Biology: _____
frogs (unknown sp.) - II water snider (Gerridae) - III
dragonfly nymph - III caddisfly - III

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION FWP 418 000 / Monroe County, Ohio
 SITE NUMBER 102502114 RIVER BASIN Central Ohio trib DRAINAGE AREA (mi²) <0.01
 LENGTH OF STREAM REACH (ft) 200 LAT. 39.70705 LONG. 80.85152 RIVER CODE 050301 RIVER MILE N/A
 DATE 7/24/2019 SCORER S. Zelenka COMMENTS STR-190724-1000 + 1115 (ephemerals)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions

STREAM CHANNEL
MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

| TYPE | PERCENT | TYPE | PERCENT |
|--------------------------------------------------------------|---------|---------------------------------------------------------|---------|
| <input type="checkbox"/> BLDR SLABS [16 pts] | | <input checked="" type="checkbox"/> SILT [3 pts] | 95 |
| <input type="checkbox"/> BOULDER (>256 mm) [16 pts] | | <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts] | |
| <input type="checkbox"/> BEDROCK [16 pts] | | <input type="checkbox"/> FINE DETRITUS [3 pts] | |
| <input type="checkbox"/> COBBLE (65-256 mm) [12 pts] | | <input type="checkbox"/> CLAY or HARDPAN [0 pts] | |
| <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts] | 5 | <input type="checkbox"/> MUCK [0 pts] | |
| <input type="checkbox"/> SAND (<2 mm) [6 pts] | | <input type="checkbox"/> ARTIFICIAL [3 pts] | |

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
Points

Substrate
Max = 40

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

| | |
|----------------------------------------------------|------------------------------------------------------------|
| <input type="checkbox"/> > 30 centimeters [20 pts] | <input type="checkbox"/> > 5 cm - 10 cm [15 pts] |
| <input type="checkbox"/> > 22.5 - 30 cm [30 pts] | <input checked="" type="checkbox"/> < 5 cm [5 pts] |
| <input type="checkbox"/> > 10 - 22.5 cm [25 pts] | <input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts] |

COMMENTS heavy rain 24-48 hours prior MAXIMUM POOL DEPTH (centimeters):

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

| | |
|---------------------------------------------------------------------|---------------------------------------------------------------------|
| <input type="checkbox"/> > 4.0 meters (> 13') [30 pts] | <input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] |
| <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] | <input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts] |
| <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] | |

COMMENTS bank is narrower within the PL Row AVERAGE BANKFULL WIDTH (meters):

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

| RIPARIAN WIDTH | | FLOODPLAIN QUALITY | |
|----------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| L | R | L | R |
| <input type="checkbox"/> | <input type="checkbox"/> (Per Bank) | <input type="checkbox"/> | (Most Predominant per Bank) |
| <input type="checkbox"/> | Wide >10m | <input type="checkbox"/> | Mature Forest, Wetland |
| <input type="checkbox"/> | Moderate 5-10m | <input type="checkbox"/> | Immature Forest, Shrub or Old Field |
| <input checked="" type="checkbox"/> | Narrow <5m | <input checked="" type="checkbox"/> | Residential, Park, New Field |
| <input type="checkbox"/> | None | <input type="checkbox"/> | Fenced Pasture |
| COMMENTS <u>pipeline Row + powerline Row</u> | | | |

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

| | |
|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <input type="checkbox"/> Stream Flowing | <input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent) |
| <input type="checkbox"/> Subsurface flow with isolated pools (Interstitial) | <input checked="" type="checkbox"/> Dry channel, no water (Ephemeral) |

COMMENTS small pools from recent heavy rains

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

| | | | |
|-------------------------------|-----------------------------------------|------------------------------|------------------------------|
| <input type="checkbox"/> None | <input checked="" type="checkbox"/> 1.0 | <input type="checkbox"/> 2.0 | <input type="checkbox"/> 3.0 |
| <input type="checkbox"/> 0.5 | <input type="checkbox"/> 1.5 | <input type="checkbox"/> 2.5 | <input type="checkbox"/> >3 |

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☒ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score N/A (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Ohio River Distance from Evaluated Stream 2900 FT
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: New Martinsville NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Monroe County Township / City: Ohio Twp

MISCELLANEOUS

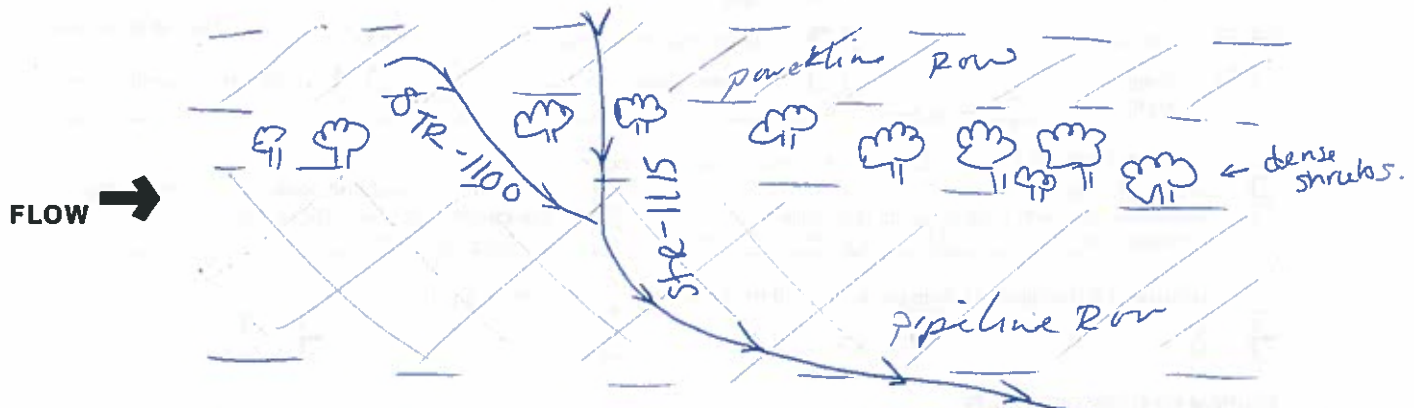
Base Flow Conditions? (Y/N): yes Date of last precipitation: 7/22/2019 Quantity: 1.11 inches
Photograph Information: See Attachment (of WetMemo)
Elevated Turbidity? (Y/N): NO Canopy (% open): 95%
Were samples collected for water chemistry? (Y/N): NO (Note lab sample no. or id. and attach results) Lab Number: N/A
Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
Is the sampling reach representative of the stream (Y/N) yes If not, please explain: _____
N/A
Additional comments/description of pollution impacts: _____
N/A

BIOTIC EVALUATION

Performed? (Y/N): yes (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) NO Voucher? (Y/N) NO Salamanders Observed? (Y/N) NO Voucher? (Y/N) NO
Frogs or Tadpoles Observed? (Y/N) NO Voucher? (Y/N) NO Aquatic Macroinvertebrates Observed? (Y/N) NO Voucher? (Y/N) NO
Comments Regarding Biology: None observed.

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



| | | |
|----------------------|-----------------------------|---------------------|
| Site: <u>EHP 978</u> | Rater(s): <u>E. McClung</u> | Date: <u>4/2/19</u> |
|----------------------|-----------------------------|---------------------|

| | |
|------------|----------|
| 0 | 0 |
| max 6 pts. | subtotal |

Metric 1. Wetland Area (size).

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☒ <0.1 acres (0.04ha) (0 pts)

*Wetlands W-190402-
1540, 1545, + 1555*

| | |
|-------------|----------|
| 1 | 1 |
| max 14 pts. | subtotal |

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☒ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

maintained pipeline Row

| | |
|-------------|----------|
| 8 | 9 |
| max 30 pts. | subtotal |

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☒ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
- ☐ Recovered (7)
- ☐ Recovering (3)
- ☒ Recent or no recovery (1)

Check all disturbances observed

- ☒ ditch
- ☐ tile
- ☐ dike
- ☐ weir
- ☐ stormwater input

- ☐ point source (nonstormwater)
- ☐ filling/grading
- ☐ road bed/RR track
- ☐ dredging
- ☒ other *Pipeline Row*

| | |
|-------------|----------|
| 4 | 13 |
| max 20 pts. | subtotal |

Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☐ Recovered (3)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☒ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☐ Recovering (3)
- ☒ Recent or no recovery (1)

Check all disturbances observed

- ☒ mowing
- ☐ grazing
- ☒ clearcutting
- ☐ selective cutting
- ☐ woody debris removal
- ☐ toxic pollutants

- ☐ shrub/sapling removal
- ☐ herbaceous/aquatic bed removal
- ☐ sedimentation
- ☐ dredging
- ☐ farming
- ☒ nutrient enrichment

| |
|--------------------|
| 13 |
| subtotal this page |

Site: EHP 418 Rater(s): E. McClung Date: 4/2/19

10
subtotal first page

Wetlands W-190402-1540, -1545, and -1555

-10 8
max 10 pts. subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☒ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

PEM wetlands that have developed in pipeline ROW - poor habitat.

1 4
max 20 pts. subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- 1 ☐ Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ Other

6b. horizontal (plan view) Interspersions.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- 1 ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- 1 ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ Vegetated hummocks/tussocks
- ☐ Coarse woody debris >15cm (6in)
- ☐ Standing dead >25cm (10in) dbh
- ☐ Amphibian breeding pools

Vegetation Community Cover Scale

| | |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 0 | Absent or comprises <0.1ha (0.2471 acres) contiguous area |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality |

Narrative Description of Vegetation Quality

| | |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| low | Low spp diversity and/or predominance of nonnative or disturbance tolerant native species |
| mod | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp |

Mudflat and Open Water Class Quality

| | |
|---|-----------------------------------------|
| 0 | Absent <0.1ha (0.247 acres) |
| 1 | Low 0.1 to <1ha (0.247 to 2.47 acres) |
| 2 | Moderate 1 to <4ha (2.47 to 9.88 acres) |
| 3 | High 4ha (9.88 acres) or more |

Microtopography Cover Scale

| | |
|---|------------------------------------------------------------------------------------------------|
| 0 | Absent |
| 1 | Present very small amounts or if more common of marginal quality |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality |

4

End of Quantitative Rating. Complete Categorization Worksheets.

ATTACHMENT C

PHOTO DOCUMENTATION

RETTEW Associates, Inc.
Photo Documentation

Client:
Equitrans Midstream, LLC

Site Name:
EHP418_000 Pipeline

Site Location:
Ohio Township, Monroe County, OH

Project Number:
102502114

Photo 1

Date Taken:
July 24, 2019

Comments:
View of the upland
forest habitat near
sample point
SP-190724-1000.



Photo 2

Date Taken:
July 24, 2019

Comments:
Downstream view of
ephemeral stream
STR-190724-1000.



RETTEW Associates, Inc.
Photo Documentation

Client:
Equitrans Midstream, LLC

Site Name:
EHP418_000 Pipeline

Site Location:
Ohio Township, Monroe County, OH

Project Number:
102502114

Photo 3

Date Taken:
July 24, 2019

Comments:
Upstream view of
perennial stream
STR-190724-1020
(Stetson Run).



Photo 4

Date Taken:
July 24, 2019

Comments:
Downstream view of
ephemeral stream
STR-190724-1100.



RETTEW Associates, Inc.
Photo Documentation

Client:
Equitrans Midstream, LLC

Site Name:
EHP418_000 Pipeline

Site Location:
Ohio Township, Monroe County, OH

Project Number:
102502114

Photo 5

Date Taken:
July 24, 2019

Comments:
Upstream view of
ephemeral stream
STR-190724-1115.



Photo 6

Date Taken:
April 2, 2019

Comments:
Upstream view of
intermittent stream
STR-190402-1440.



RETTEW Associates, Inc.
Photo Documentation

Client:

Equitrans Midstream, LLC

Site Name:

EHP418_000 Pipeline

Site Location:

Ohio Township, Monroe County, OH

Project Number:

102502114

Photo 7

Date Taken:

April 2, 2019

Comments:

Downstream view of
ephemeral stream
STR-190402-1500.



Photo 8

Date Taken:

April 2, 2019

Comments:

Downstream view of
ephemeral stream
STR-190402-1510.



RETTEW Associates, Inc.
Photo Documentation

Client:
Equitrans Midstream, LLC

Site Name:
EHP418_000 Pipeline

Site Location:
Ohio Township, Monroe County, OH

Project Number:
102502114

Photo 9

Date Taken:
April 2, 2019

Comments:
View of PEM wetland
W-190402-1530.
Ephemeral stream
STR-190402-1530,
which drains into the
wetland, is visible in
the top left corner.



Photo 10

Date Taken:
April 2, 2019

Comments:
View of PEM wetland
W-190402-1545.



RETTEW Associates, Inc.
Photo Documentation

Client:

Equitrans Midstream, LLC

Site Name:

EHP418_000 Pipeline

Site Location:

Ohio Township, Monroe County, OH

Project Number:

102502114

Photo 11

Date Taken:

April 2, 2019

Comments:

Upstream view of
intermittent stream
STR-190402-1545.



Photo 12

Date Taken:

July 24, 2019

Comments:

View of PEM wetland
W-190402-1555.



RETTEW Associates, Inc.
Photo Documentation

Client:
Equitrans Midstream, LLC

Site Name:
EHP418_000 Pipeline

Site Location:
Ohio Township, Monroe County, OH

Project Number:
102502114

Photo 13

Date Taken:
April 2, 2019

Comments:
Upstream view of
intermittent stream
STR-190402-1600.



Photo 14

Date Taken:
April 2, 2019

Comments:
Upstream view of
intermittent stream
STR-190402-1605.



RETTEW Associates, Inc.
Photo Documentation

Client:
Equitrans Midstream, LLC

Site Name:
EHP418_000 Pipeline

Site Location:
Ohio Township, Monroe County, OH

Project Number:
102502114

Photo 15

Date Taken:
July 24, 2019

Comments:
Upstream view of
ephemeral stream
STR-190402-1620.



Photo 16

Date Taken:
July 24, 2019

Comments:
View of the upland
forest habitat near
sample point
SP-190402-1630.



This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

11/19/2019 3:19:06 PM

in

Case No(s). 19-1742-GA-BLN

Summary: Letter of Notification Attachment I (Part 2 of 2) electronically filed by Mr. Michael J. Settineri on behalf of Long Ridge Energy Generation LLC