The page features a large, abstract graphic composed of several overlapping rectangular blocks. A large red block is on the left side, partially overlapping a grey block above it and another grey block below it. A black block is at the bottom right. The text 'B' and the title are positioned to the right of the red block.

# B

## Appendix B – Wetland and Stream Data Forms



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Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/19/22  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W001-W  
 Investigator(s): Benjamin Burdette and Jake Irven Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): toe of slope Local relief (concave, convex, none): concave Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.709150 Long: 89.515632 Datum: NAD83  
 Soil Map Unit Name: Loring silt loam, 6 to 12 percent slopes, eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: PEM wetland DP1-W1	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)      _____ Aquatic Fauna (B13) _____ High Water Table (A2)      _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3)      _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1)      _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2)      _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3)      _____ Recent Iron Reduction in Tilled Soils (C6) <input checked="" type="checkbox"/> Algal Mat or Crust (B4)      _____ Thin Muck Surface (C7) _____ Iron Deposits (B5)      _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	_____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) <input checked="" type="checkbox"/> Sphagnum Moss (D8) <b>(LRR T, U)</b>

<b>Field Observations:</b> Surface Water Present? Yes <u>X</u> No _____ Depth (inches): <u>1</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W001-W 1

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Sapling/Shrub Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Herb Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Panicum miliaceum</u>	<u>75</u>	<u>Yes</u>	<u>UPL</u>
2. <u>Lindernia dubia</u>	<u>15</u>	<u>No</u>	<u>OBL</u>
3. <u>Ammannia coccinea</u>	<u>10</u>	<u>No</u>	<u>OBL</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>100</u> = Total Cover		
50% of total cover: _____	<u>50</u>	20% of total cover: _____	<u>20</u>

Woody Vine Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>25</u>	x 1 = <u>25</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>75</u>	x 5 = <u>375</u>
Column Totals: <u>100</u> (A)	<u>400</u> (B)
Prevalence Index = B/A = <u>4.00</u>	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

   2 - Dominance Test is >50%

   3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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 X      No \_\_\_\_\_

Remarks: (If observed, list morphological adaptations below.)  
 Heavily disturbed vegetation



Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/19/2022  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W001-UPL  
 Investigator(s): Benjamin Burdette and Jake Irvin Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope (%): 2-5  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.709270 Long: 89.515670 Datum: NAD83  
 Soil Map Unit Name: Loring silt loam, 5 to 8 percent slopes, eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks: Upland point corresponding to W1. In a cotton field. DP2-UP	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W001-UPL

<u>Tree Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>100</u> x 5 = <u>500</u> Column Totals: <u>100</u> (A) <u>500</u> (B) Prevalence Index = B/A = <u>5.00</u>
50% of total cover: _____		20% of total cover: _____		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>30</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		
<u>Herb Stratum</u> (Plot size: <u>30</u> )				
1. <u>Gossypium hirsutum</u>	<u>100</u>	<u>Yes</u>	<u>UPL</u>	<b>Hydrophytic Vegetation Indicators:</b> <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>50</u>		20% of total cover: <u>20</u>		
<u>Woody Vine Stratum</u> (Plot size: <u>30</u> )				<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		
<b>Hydrophytic Vegetation Present?</b> Yes _____      No <u>X</u>				

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W001-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 6/4	100					Loamy/Clayey	silty loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8)  
(LRR S, T, U)

- Thin Dark Surface (S9) (LRR S, T, U)
- Barrier Islands 1 cm Muck (S12)  
(MLRA 153B, 153D)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Floodplain Soils (F20)  
(MLRA 149A, 153C, 153D)
- Very Shallow Dark Surface (F22)  
(MLRA 138, 152A in FL, 154)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Coast Prairie Redox (A16)  
(outside MLRA 150A)
- Reduced Vertic (F18)  
(outside MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (LRR P, T)
- Anomalous Bright Floodplain Soils (F20)  
(MLRA 153B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)  
(outside MLRA 138, 152A in FL, 154)
- Barrier Islands Low Chroma Matrix (TS7)  
(MLRA 153B, 153D)
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: None

Depth (inches): 0

Hydric Soil Present? Yes  No

Remarks:



Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/19/22  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W002-W  
 Investigator(s): Benjamin Burdette and Jake Irven Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): toe of slope Local relief (concave, convex, none): concave Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.708679 Long: 89.515838 Datum: NAD83  
 Soil Map Unit Name: Loring silt loam, 6 to 12 percent slopes, eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: PEM wetland DP25-W2	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1)      _____ Aquatic Fauna (B13) _____ High Water Table (A2)      _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3)      _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1)      _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2)      _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3)      _____ Recent Iron Reduction in Tilled Soils (C6) <input checked="" type="checkbox"/> Algal Mat or Crust (B4)      _____ Thin Muck Surface (C7) _____ Iron Deposits (B5)      _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) <input checked="" type="checkbox"/> Sphagnum Moss (D8) <b>(LRR T, U)</b>
--	---

<b>Field Observations:</b> Surface Water Present? Yes <u>X</u> No _____ Depth (inches): <u>1</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W002-W

<u>Tree Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>25</u></td> <td>x 1 = <u>25</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>75</u></td> <td>x 5 = <u>375</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>400</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>25</u>	x 1 = <u>25</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>75</u>	x 5 = <u>375</u>	Column Totals: <u>100</u> (A)	<u>400</u> (B)	Prevalence Index = B/A = <u>4.00</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>25</u>	x 1 = <u>25</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>75</u>	x 5 = <u>375</u>																			
Column Totals: <u>100</u> (A)	<u>400</u> (B)																			
Prevalence Index = B/A = <u>4.00</u>																				
50% of total cover: _____ 20% of total cover: _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
_____ = Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
<u>Herb Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Panicum miliaceum</u>	<u>75</u>	<u>Yes</u>	<u>UPL</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> <u>X</u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																
2. <u>Lindernia dubia</u>	<u>15</u>	<u>No</u>	<u>OBL</u>																	
3. <u>Ammannia coccinea</u>	<u>10</u>	<u>No</u>	<u>OBL</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
_____ = Total Cover																				
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>																				
<u>Woody Vine Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____ = Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____																				

Remarks: (If observed, list morphological adaptations below.)  
 Heavily disturbed vegetation

**SOIL**

Sampling Point: W002-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 5/1	90	10YR 5/6	10	C	m	Loamy/Clayey	Prominent redox concentrations
2-20	10YR 5/2	90	10YR 5/6	10	C	M	Loamy/Clayey	Prominent redox concentrations

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Barrier Islands 1 cm Muck (S12) (MLRA 153B, 153D)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Floodplain Soils (F20) (MLRA 149A, 153C, 153D)
- Very Shallow Dark Surface (F22) (MLRA 138, 152A in FL, 154)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Coast Prairie Redox (A16) (outside MLRA 150A)
- Reduced Vertic (F18) (outside MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (LRR P, T)
- Anomalous Bright Floodplain Soils (F20) (MLRA 153B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) (outside MLRA 138, 152A in FL, 154)
- Barrier Islands Low Chroma Matrix (TS7) (MLRA 153B, 153D)
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: None

Depth (inches): 0

Hydric Soil Present? Yes X No   

**Remarks:**

Water perched on clay layer

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/19/2022  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W002-UPL  
 Investigator(s): Benjamin Burdette and Jake Irvin Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope (%): 2-5  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.709270 Long: 89.515670 Datum: NAD83  
 Soil Map Unit Name: Loring silt loam, 5 to 8 percent slopes, eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>		Yes _____ No <u>X</u>
Wetland Hydrology Present? Yes _____ No <u>X</u>		Yes _____ No <u>X</u>

Remarks:  
 Upland point corresponding to W2. In a cotton field.  
 DP26-UP

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<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"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum Moss (D8) <b>(LRR T, U)</b>

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W002-UPL

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

Sapling/Shrub Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

Herb Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Gossypium hirsutum</u>	<u>100</u>	<u>Yes</u>	<u>UPL</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>100</u> = Total Cover		
	50% of total cover: <u>50</u>	20% of total cover: <u>20</u>	

Woody Vine Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>100</u>	x 5 = <u>500</u>
Column Totals: <u>100</u> (A)	<u>500</u> (B)
Prevalence Index = B/A = <u>5.00</u>	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

   2 - Dominance Test is >50%

   3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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	<u>  </u>	No	<u>X</u>
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Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W002-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 6/4	100					Loamy/Clayey	silty loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: None

Depth (inches): 0

Hydric Soil Present? Yes  No

Remarks:

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/20/22  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W003-W  
 Investigator(s): Benjamin Burdette and Jake Irven Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0-7  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.713460 Long: 89.517745 Datum: NAD83  
 Soil Map Unit Name: Loring silt loam, 2 to 5 percent slopes, severely eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: PEM wetland in cotton field DP3-W2	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1)      _____ Aquatic Fauna (B13) _____ High Water Table (A2)      _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3)      _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1)      _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2)      _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3)      _____ Recent Iron Reduction in Tilled Soils (C6) <input checked="" type="checkbox"/> Algal Mat or Crust (B4)      _____ Thin Muck Surface (C7) _____ Iron Deposits (B5)      _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input checked="" type="checkbox"/> Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes <u>X</u> No _____ Depth (inches): <u>1</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W003-W

<u>Tree Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
50% of total cover: _____ 20% of total cover: _____				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>30</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
<u>Herb Stratum</u> (Plot size: <u>30</u> )				
1. <u>Panicum</u>	<u>80</u>	<u>Yes</u>	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>40</u> 20% of total cover: <u>16</u>				
<u>Woody Vine Stratum</u> (Plot size: <u>30</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				

**Hydrophytic Vegetation Indicators:**  
 \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation  
 \_\_\_ 2 - Dominance Test is >50%  
 \_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators 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 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: (If observed, list morphological adaptations below.)  
 Heavily disturbed vegetation



**SOIL**

Sampling Point: W003-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 4/1	95	10YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
4-16	10YR 5/1	80	10YR 4/6	20	C	M	Loamy/Clayey	Prominent redox concentrations
16-20	7.5YR 5/6	100					Loamy/Clayey	silt loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: None

Depth (inches): 0

Hydric Soil Present? Yes X No     

Remarks:

Water perched on clay layer

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/19/2022  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W003-UPL  
 Investigator(s): Benjamin Burdette and Jake Irvin Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.713706 Long: -89.517908 Datum: NAD83  
 Soil Map Unit Name: Loring silt loam, 5 to 8 percent slopes, eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks: Upland point corresponding to W3. In a cotton field. DP4-UP	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) _____ _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	Secondary Indicators (minimum of two required) _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W003-UPL

<u>Tree Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>100</u></td> <td>x 5 = <u>500</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>500</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>5.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>100</u>	x 5 = <u>500</u>	Column Totals: <u>100</u> (A)	<u>500</u> (B)	Prevalence Index = B/A = <u>5.00</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>100</u>	x 5 = <u>500</u>																			
Column Totals: <u>100</u> (A)	<u>500</u> (B)																			
Prevalence Index = B/A = <u>5.00</u>																				
50% of total cover: _____ 20% of total cover: _____																				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>30</u> )																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
_____ = Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
<u>Herb Stratum</u> (Plot size: <u>30</u> )																				
1. <u>Gossypium hirsutum</u>	<u>100</u>	<u>Yes</u>	<u>UPL</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
_____ = Total Cover																				
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>																				
<u>Woody Vine Stratum</u> (Plot size: <u>30</u> )																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____ = Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:60%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width:20%; text-align: center;">Yes _____</td> <td style="width:20%; text-align: center;">No <u>X</u></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	Yes _____	No <u>X</u>														
<b>Hydrophytic Vegetation Present?</b>	Yes _____	No <u>X</u>																		

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W003-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 5/4	100					Loamy/Clayey	silty loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Barrier Islands 1 cm Muck (S12) (MLRA 153B, 153D)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Floodplain Soils (F20) (MLRA 149A, 153C, 153D)
- Very Shallow Dark Surface (F22) (MLRA 138, 152A in FL, 154)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Coast Prairie Redox (A16) (outside MLRA 150A)
- Reduced Vertic (F18) (outside MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (LRR P, T)
- Anomalous Bright Floodplain Soils (F20) (MLRA 153B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) (outside MLRA 138, 152A in FL, 154)
- Barrier Islands Low Chroma Matrix (TS7) (MLRA 153B, 153D)
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: None

Depth (inches): 0

Hydric Soil Present? Yes  No

Remarks:

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/20/22  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W004-W  
 Investigator(s): Benjamin Burdette and Jake Irven Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2-5  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.715515 Long: 89.511929 Datum: NAD83  
 Soil Map Unit Name: see remarks NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u>	No _____	<b>Is the Sampled Area within a Wetland?</b>	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:  
 PFO wetland

Soils: Adler silt loam, 0 to 2 percent slopes, occasionally flooded; Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase DP5-W4

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
_____ Surface Water (A1)                      _____ Aquatic Fauna (B13) _____ High Water Table (A2)                      _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3)                                      _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) <u>X</u> Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2)                                      _____ Presence of Reduced Iron (C4) <u>X</u> Drift Deposits (B3)    _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4)                                      _____ Thin Muck Surface (C7) _____ Iron Deposits (B5)                                      _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	_____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <u>X</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) <u>X</u> FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W004-W

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1. <u>Platanus occidentalis</u>	<u>50</u>	Yes	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83.3%</u> (A/B)
2. <u>Salix nigra</u>	<u>25</u>	Yes	OBL	
3. <u>Liquidambar styraciflua</u>	<u>20</u>	Yes	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>95</u> =Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>25</u> x 1 = <u>25</u> FACW species <u>55</u> x 2 = <u>110</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>7</u> x 4 = <u>28</u> UPL species <u>15</u> x 5 = <u>75</u> Column Totals: <u>202</u> (A) <u>538</u> (B) Prevalence Index = B/A = <u>2.66</u>
50% of total cover: <u>48</u>		20% of total cover: <u>19</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30</u> )				
1. <u>Carya tomentosa</u>	<u>10</u>	Yes	UPL	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>Platanus occidentalis</u>	<u>5</u>	Yes	FACW	
3. <u>Sassafras albidum</u>	<u>2</u>	No	FACU	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>17</u> =Total Cover			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: <u>9</u>		20% of total cover: <u>4</u>		
<b>Herb Stratum</b> (Plot size: <u>30</u> )				
1. <u>Toxicodendron radicans</u>	<u>5</u>	No	FAC	<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.
2. <u>Microstegium vimineum</u>	<u>75</u>	Yes	FAC	
3. <u>Rubus allegheniensis</u>	<u>5</u>	No	UPL	
4. <u>Parthenocissus quinquefolia</u>	<u>5</u>	No	FACU	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	<u>90</u> =Total Cover			<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
50% of total cover: <u>45</u>		20% of total cover: <u>18</u>		
<b>Woody Vine Stratum</b> (Plot size: <u>30</u> )				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
	_____ =Total Cover			
50% of total cover: _____		20% of total cover: _____		

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W004-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 5/2	98	10YR 4/6	2	C	PL	Loamy/Clayey	
2-20	10YR 5/2	90	10YR 5/6	10	C	M	Loamy/Clayey	Prominent redox concentrations

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)	<input type="checkbox"/> 1 cm Muck (A9) (LRR O)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Barrier Islands 1 cm Muck (S12)	<input type="checkbox"/> 2 cm Muck (A10) (LRR S)	
<input type="checkbox"/> Black Histic (A3)	<b>(MLRA 153B, 153D)</b>	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)	<b>(outside MLRA 150A)</b>	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<b>(outside MLRA 150A, 150B)</b>	
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, T)	
<input type="checkbox"/> Muck Presence (A8) (LRR U)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Anomalous Bright Floodplain Soils (F20)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)	<input type="checkbox"/> Redox Depressions (F8)	<b>(MLRA 153B)</b>	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Marl (F10) (LRR U)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)	<b>(outside MLRA 138, 152A in FL, 154)</b>	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)	<input type="checkbox"/> Barrier Islands Low Chroma Matrix (TS7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)	<b>(MLRA 153B, 153D)</b>	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)		
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)	<input type="checkbox"/> Anomalous Bright Floodplain Soils (F20)		
<input type="checkbox"/> Polyvalue Below Surface (S8)	<b>(MLRA 149A, 153C, 153D)</b>		
<b>(LRR S, T, U)</b>	<input type="checkbox"/> Very Shallow Dark Surface (F22)		
	<b>(MLRA 138, 152A in FL, 154)</b>		

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

<b>Restrictive Layer (if observed):</b> Type: <u>                                None                                </u> Depth (inches): <u>                                0                                </u>	<b>Hydric Soil Present?</b> Yes <u>  X  </u> No <u>      </u>
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Remarks:

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/20/2022  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W004-UPL  
 Investigator(s): Benjamin Burdette and Jake Irvin Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2-5  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 36.715366 Long: -89.511957 Datum: NAD83  
 Soil Map Unit Name: Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
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Remarks:  
 Upland point corresponding to W4. In forest adjacent to agricultural field.  
 DP6-UP

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



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

Sampling Point: W004-UPL

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u><i>Ulmus americana</i></u>	<u>75</u>	<u>Yes</u>	<u>FAC</u>
2. <u><i>Carya tomentosa</i></u>	<u>10</u>	<u>No</u>	<u>UPL</u>
3. <u><i>Platanus occidentalis</i></u>	<u>5</u>	<u>No</u>	<u>FACW</u>
4. <u><i>Celtis spp.</i></u>	<u>5</u>	<u>No</u>	<u></u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	<u>95</u> =Total Cover		
	50% of total cover: <u>48</u>	20% of total cover: <u>19</u>	

Sapling/Shrub Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u><i>Liquidambar styraciflua</i></u>	<u>2</u>	<u>No</u>	<u>FAC</u>
2. <u><i>Ulmus americana</i></u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
3. <u><i>Carya tomentosa</i></u>	<u>5</u>	<u>Yes</u>	<u>UPL</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	<u>17</u> =Total Cover		
	50% of total cover: <u>9</u>	20% of total cover: <u>4</u>	

Herb Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u><i>Persicaria virginiana</i></u>	<u>10</u>	<u>Yes</u>	_____
2. <u><i>Lonicera japonica</i></u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>15</u> =Total Cover		
	50% of total cover: <u>8</u>	20% of total cover: <u>3</u>	

Woody Vine Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	_____ =Total Cover		
	50% of total cover: _____	20% of total cover: _____	

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>87</u>	x 3 = <u>261</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species <u>15</u>	x 5 = <u>75</u>
Column Totals: <u>112</u> (A)	<u>366</u> (B)
Prevalence Index = B/A = <u>3.27</u>	

**Hydrophytic Vegetation Indicators:**

     1 - Rapid Test for Hydrophytic Vegetation

     2 - Dominance Test is >50%

     3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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 X

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W004-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 5/3	100					Loamy/Clayey	silty loam
16-20	10YR 5/3	95					Loamy/Clayey	silty loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: None

Depth (inches): 0

Hydric Soil Present? Yes  No

Remarks:

16-20 2nd soil color: 10YR 5/2 5% silty loam

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/20/22  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W005-W  
 Investigator(s): Benjamin Burdette and Jake Irven Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): concave Slope (%): 2-5  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.714182 Long: 89.512744 Datum: NAD83  
 Soil Map Unit Name: see remarks NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
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Remarks:  
 PFO wetland

Soils: Adler silt loam, 0 to 2 percent slopes, occasionally flooded; Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase DP7-W5

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input checked="" type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<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 checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum Moss (D8) (LRR T, U)

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W005-W

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1. <u><i>Liriodendron tulipifera</i></u>	<u>10</u>	No	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>85.7%</u> (A/B)
2. <u><i>Ulmus americana</i></u>	<u>20</u>	Yes	FAC	
3. <u><i>Celtis spp.</i></u>	<u>5</u>	No		
4. <u><i>Catalpa speciosa</i></u>	<u>5</u>	No	FACU	
5. <u><i>Quercus nigra</i></u>	<u>10</u>	No	FAC	
6. <u><i>Salix nigra</i></u>	<u>15</u>	Yes	OBL	
7. _____				
8. _____				
<u>65</u> =Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>15</u> x 1 = <u>15</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>75</u> x 3 = <u>225</u> FACU species <u>25</u> x 4 = <u>100</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>115</u> (A) <u>340</u> (B) Prevalence Index = B/A = <u>2.96</u>
50% of total cover: <u>33</u>		20% of total cover: <u>13</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30</u> )				
1. <u><i>Ulmus americana</i></u>	<u>20</u>	Yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u><i>Catalpa speciosa</i></u>	<u>10</u>	Yes	FACU	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
<u>30</u> =Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: <u>15</u>		20% of total cover: <u>6</u>		
<b>Herb Stratum</b> (Plot size: <u>30</u> )				
1. <u><i>Microstegium vimineum</i></u>	<u>10</u>	Yes	FAC	<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.
2. <u><i>Persicaria virginiana</i></u>	<u>5</u>	Yes	FAC	
3. <u><i>Toxicodendron radicans</i></u>	<u>10</u>	Yes	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
<u>25</u> =Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
50% of total cover: <u>13</u>		20% of total cover: <u>5</u>		
<b>Woody Vine Stratum</b> (Plot size: <u>30</u> )				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ =Total Cover				
50% of total cover: _____		20% of total cover: _____		

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W005-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 5/1	95	10YR 4/6	5	C	M	Loamy/Clayey	silty loam
6-20	10YR 5/2	90	10YR 4/6	10	C	M	Loamy/Clayey	silty loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: None

Depth (inches): 0

Hydric Soil Present? Yes X No   

Remarks:

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/20/2022  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W005-UPL  
 Investigator(s): Benjamin Burdette and Jake Irvin Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope (%): 2-5  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.714509 Long: -89.512629 Datum: NAD83  
 Soil Map Unit Name: Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
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Remarks:  
 Upland point corresponding to W5. In forest adjacent to agricultural field.  
 DP8-UP

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 No hydrology

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

Sampling Point: W005-UPL

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1. <u><i>Ulmus americana</i></u>	<u>15</u>	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>14.3%</u> (A/B)
2. <u><i>Carya tomentosa</i></u>	<u>20</u>	Yes	UPL	
3. <u><i>Juglans nigra</i></u>	<u>10</u>	Yes	UPL	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>45</u> =Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>15</u> x 3 = <u>45</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>30</u> x 5 = <u>150</u> Column Totals: <u>55</u> (A) <u>235</u> (B) Prevalence Index = B/A = <u>4.27</u>
50% of total cover: <u>23</u>		20% of total cover: <u>9</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30</u> )				
1. <u><i>Catalpa speciosa</i></u>	<u>5</u>	Yes	FACU	<b>Hydrophytic Vegetation Indicators:</b> <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>5</u> =Total Cover			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: <u>3</u>		20% of total cover: <u>1</u>		
<b>Herb Stratum</b> (Plot size: <u>30</u> )				
1. <u><i>Persicaria virginiana</i></u>	<u>5</u>	Yes		<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.
2. <u><i>Smilax spp.</i></u>	<u>5</u>	Yes		
3. <u><i>Parthenocissus quinquefolia</i></u>	<u>5</u>	Yes	FACU	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	<u>15</u> =Total Cover			<b>Hydrophytic Vegetation Present?</b> Yes _____    No <u>X</u>
50% of total cover: <u>8</u>		20% of total cover: <u>3</u>		
<b>Woody Vine Stratum</b> (Plot size: <u>30</u> )				
1. _____				<b>Hydrophytic Vegetation Present?</b> Yes _____    No <u>X</u>
2. _____				
3. _____				
4. _____				
5. _____				
	_____ =Total Cover			
50% of total cover: _____		20% of total cover: _____		

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W005-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 6/3	100					Loamy/Clayey	silty loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Barrier Islands 1 cm Muck (S12) (MLRA 153B, 153D)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Floodplain Soils (F20) (MLRA 149A, 153C, 153D)
- Very Shallow Dark Surface (F22) (MLRA 138, 152A in FL, 154)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Coast Prairie Redox (A16) (outside MLRA 150A)
- Reduced Vertic (F18) (outside MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (LRR P, T)
- Anomalous Bright Floodplain Soils (F20) (MLRA 153B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) (outside MLRA 138, 152A in FL, 154)
- Barrier Islands Low Chroma Matrix (TS7) (MLRA 153B, 153D)
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_ None \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_ 0 \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X \_\_\_\_\_

Remarks:

16-20 2nd soil color: 10YR 5/2 5% silty loam



Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/21/22  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W006-W  
 Investigator(s): Benjamin Burdette and Jake Irven Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.717049 Long: 89.520187 Datum: NAD83  
 Soil Map Unit Name: Memphis silt loam, 8 to 12 percent slopes, severely eroded, northern phase NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
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Remarks:  
 PEM wetland in corn field; has riser  
 DP9-W6

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) <u>X</u> Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) <u>X</u> Sparsely Vegetated Concave Surface (B8) <u>X</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) <u>_____</u> Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W006-W

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____		
<b>Herb Stratum</b> (Plot size: <u>30</u> )				
1.	<u><i>Panicum miliaceum</i></u>	<u>5</u>	<u>Yes</u>	<u>UPL</u>
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	_____ = Total Cover			
	50% of total cover: <u>3</u>	20% of total cover: <u>1</u>		
<b>Woody Vine Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____		

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>5</u>	x 5 = <u>25</u>
Column Totals: <u>5</u> (A)	<u>25</u> (B)
Prevalence Index = B/A = <u>5.00</u>	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

   2 - Dominance Test is >50%

   3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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 X      No \_\_\_\_\_

Remarks: (If observed, list morphological adaptations below.)  
Heavily disturbed vegetation

**SOIL**

Sampling Point: W006-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 5/2	90	10YR 4/6	10	C	M	Loamy/Clayey	silty loam
2-18	10YR 5/3	90	10YR 4/4	10	C	M	Loamy/Clayey	silty loam
18-20	10YR 5/1	85	10YR 4/6	15	C	M	Loamy/Clayey	silty loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type:                     None                      
 Depth (inches):                     0                    

Hydric Soil Present?      Yes   X      No       

Remarks:

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/21/2022  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W006-UPL  
 Investigator(s): Benjamin Burdette and Jake Irvin Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope (%): 2-5  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.717124 Long: -89.520186 Datum: NAD83  
 Soil Map Unit Name: Memphis silt loam, 8 to 12 percent slopes, severely eroded, northern phase NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks:  
 Upland point corresponding to W6. In agricultural corn field.  
 DP10-UP

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
___ Surface Water (A1)                      ___ Aquatic Fauna (B13) ___ High Water Table (A2)                ___ Marl Deposits (B15) <b>(LRR U)</b> ___ Saturation (A3)                            ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1)                        ___ Oxidized Rhizospheres on Living Roots (C3) ___ Sediment Deposits (B2)                ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3)                      ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4)                 ___ Thin Muck Surface (C7) ___ Iron Deposits (B5)                        ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ FAC-Neutral Test (D5) ___ Sphagnum Moss (D8) <b>(LRR T, U)</b>

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 No hydrology

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

Sampling Point: W006-UPL

<u>Tree Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
50% of total cover: _____		20% of total cover: _____		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		
<u>Herb Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Zea mays</u>	<u>95</u>	<u>Yes</u>	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>48</u>		20% of total cover: <u>19</u>		
<u>Woody Vine Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		

**Hydrophytic Vegetation Indicators:**  
 \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation  
 \_\_\_ 2 - Dominance Test is >50%  
 \_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators 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 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 X

Remarks: (If observed, list morphological adaptations below.)



Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/21/22  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W007-W  
 Investigator(s): Benjamin Burdette and Jake Irven Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.714611 Long: -89.525137 Datum: NAD83  
 Soil Map Unit Name: Adler silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: PEM portion of Wetland 7; in agricultural cotton field DP13-W7	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) <u>X</u> Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <u>X</u> Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <u>X</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W007-W

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

Sapling/Shrub Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

Herb Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Panicum</u>	<u>80</u>	<u>Yes</u>	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>80</u> = Total Cover		
	50% of total cover: <u>40</u>	20% of total cover: <u>16</u>	

Woody Vine Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>0</u> (A)	<u>0</u> (B)
Prevalence Index = B/A = _____	

**Hydrophytic Vegetation Indicators:**

\_\_\_\_ 1 - Rapid Test for Hydrophytic Vegetation

\_\_\_\_ 2 - Dominance Test is >50%

\_\_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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 X No \_\_\_\_\_

Remarks: (If observed, list morphological adaptations below.)  
Heavily disturbed vegetation



**SOIL**

Sampling Point: W007-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 4/1	95	10YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
4-16	10YR 5/1	80	10YR 4/6	20	C	M	Loamy/Clayey	Prominent redox concentrations
16-20	7.5YR 5/6	100					Loamy/Clayey	silt loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**

- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_ None \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_ 0 \_\_\_\_\_

Hydric Soil Present?    Yes X    No \_\_\_\_\_

Remarks:

Water perched on clay layer

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/21/2022  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W007-UPL  
 Investigator(s): Benjamin Burdette and Jake Irvin Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.714550 Long: -89.525023 Datum: NAD83  
 Soil Map Unit Name: Adler silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks: Upland point corresponding to PEM portion of W7. In a cotton field. UP14-UP	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W007-UPL

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____		
<b>Herb Stratum</b> (Plot size: <u>30</u> )				
1.	<u>Gossypium hirsutum</u>	<u>100</u>	<u>Yes</u>	<u>UPL</u>
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	_____ = Total Cover			
	50% of total cover: <u>50</u>	20% of total cover: <u>20</u>		
<b>Woody Vine Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____		

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>100</u>	x 5 = <u>500</u>
Column Totals: <u>100</u> (A)	<u>500</u> (B)
Prevalence Index = B/A = <u>5.00</u>	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

   2 - Dominance Test is >50%

   3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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 X

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W007-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 5/4	100					Loamy/Clayey	silty loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: None

Depth (inches): 0

Hydric Soil Present? Yes  No

Remarks:

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/21/22  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W007-W  
 Investigator(s): Benjamin Burdette and Jake Irven Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.714722 Long: -89.525196 Datum: NAD83  
 Soil Map Unit Name: Adler silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: PUBHh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
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Remarks:  
 PFO part of wetland 7; adjacent to agricultural field  
 DP11-W7

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
_____ Surface Water (A1)                      _____ Aquatic Fauna (B13) _____ High Water Table (A2)                _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3)                            _____ Hydrogen Sulfide Odor (C1) <u>X</u> _____ Water Marks (B1)                      _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2)                _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3)                        _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4)                    _____ Thin Muck Surface (C7) _____ Iron Deposits (B5)                        _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) <u>X</u> _____ Water-Stained Leaves (B9)	_____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <u>X</u> _____ Drainage Patterns (B10) <u>X</u> _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W007-W

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Liquidambar styraciflua</u>	<u>65</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Ulmus americana</u>	<u>10</u>	<u>No</u>	<u>FAC</u>
3. <u>Celtis spp.</u>	<u>5</u>	<u>No</u>	
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
	<u>80</u> =Total Cover		
50% of total cover: <u>40</u>		20% of total cover: <u>16</u>	

Sapling/Shrub Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Liquidambar styraciflua</u>	<u>35</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Ulmus americana</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
3. <u>Quercus velutina</u>	<u>2</u>	<u>No</u>	<u>UPL</u>
4. <u>Quercus laurifolia</u>	<u>2</u>	<u>No</u>	<u>FACW</u>
5. _____			
6. _____			
7. _____			
8. _____			
	<u>44</u> =Total Cover		
50% of total cover: <u>22</u>		20% of total cover: <u>9</u>	

Herb Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Toxicodendron radicans</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
2. <u>Campsis radicans</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
3. <u>Microstegium vimineum</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
4. <u>Setaria spp.</u>	<u>10</u>	<u>Yes</u>	
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
12. _____			
	<u>30</u> =Total Cover		
50% of total cover: <u>15</u>		20% of total cover: <u>6</u>	

Woody Vine Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ =Total Cover		
50% of 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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>2</u>	x 2 = <u>4</u>
FAC species <u>135</u>	x 3 = <u>405</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>2</u>	x 5 = <u>10</u>
Column Totals: <u>139</u> (A)	<u>419</u> (B)
Prevalence Index = B/A = <u>3.01</u>	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

   3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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 X No   

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W007-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 5/2	90	10YR 5/6	10	C	M	Loamy/Clayey	silty loam
6-20	10YR 6/2	90	10YR 5/6	10	C	M	Loamy/Clayey	silty loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Barrier Islands 1 cm Muck (S12) (MLRA 153B, 153D)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Floodplain Soils (F20) (MLRA 149A, 153C, 153D)
- Very Shallow Dark Surface (F22) (MLRA 138, 152A in FL, 154)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Coast Prairie Redox (A16) (outside MLRA 150A)
- Reduced Vertic (F18) (outside MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (LRR P, T)
- Anomalous Bright Floodplain Soils (F20) (MLRA 153B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) (outside MLRA 138, 152A in FL, 154)
- Barrier Islands Low Chroma Matrix (TS7) (MLRA 153B, 153D)
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: None

Depth (inches): 0

Hydric Soil Present? Yes X No   

Remarks:

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/21/2022  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W007-UPL  
 Investigator(s): Benjamin Burdette and Jake Irvin Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.714823 Long: -89.525050 Datum: NAD83  
 Soil Map Unit Name: Memphis silt loam, 8 to 12 percent slopes, severely eroded, northern phase NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		

Remarks:  
 Upland point corresponding to W7 PFO  
 DP12-UP

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1)                      _____ Aquatic Fauna (B13) _____ High Water Table (A2)                      _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3)                                      _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1)                                      _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2)                                      _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3)                                      _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4)                                      _____ Thin Muck Surface (C7) _____ Iron Deposits (B5)                                      _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 No hydrology



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

Sampling Point: W007-UPL

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1. <u>Celtis spp.</u>	<u>75</u>	Yes	UPL	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>10</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)
2. <u>Liquidambar styraciflua</u>	<u>20</u>	Yes	FAC	
3. <u>Fraxinus americana</u>	<u>5</u>	No	FACU	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>100</u> =Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>45</u> x 3 = <u>135</u> FACU species <u>15</u> x 4 = <u>60</u> UPL species <u>87</u> x 5 = <u>435</u> Column Totals: <u>147</u> (A) <u>630</u> (B) Prevalence Index = B/A = <u>4.29</u>
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30</u> )				
1. <u>Celtis spp.</u>	<u>5</u>	Yes	UPL	<b>Hydrophytic Vegetation Indicators:</b> <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 <sup>1</sup> <u>   </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>Ulmus americana</u>	<u>5</u>	Yes	FAC	
3. <u>Liquidambar styraciflua</u>	<u>5</u>	Yes	FAC	
4. <u>Carya tomentosa</u>	<u>5</u>	Yes	UPL	
5. <u>Quercus muehlenbergii</u>	<u>2</u>	No	UPL	
6. _____				
7. _____				
8. _____				
	<u>22</u> =Total Cover			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: <u>11</u> 20% of total cover: <u>5</u>				
<b>Herb Stratum</b> (Plot size: <u>30</u> )				
1. <u>Toxicodendron radicans</u>	<u>20</u>	Yes		<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.
2. <u>Campsis radicans</u>	<u>10</u>	Yes	FAC	
3. <u>Lonicera japonica</u>	<u>10</u>	Yes	FACU	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	<u>40</u> =Total Cover			<b>Hydrophytic Vegetation Present?</b> Yes _____    No <u>X</u>
50% of total cover: <u>20</u> 20% of total cover: <u>8</u>				
<b>Woody Vine Stratum</b> (Plot size: <u>30</u> )				
1. <u>Vitis rotundifolia</u>	<u>5</u>	Yes	FAC	
2. _____				
3. _____				
4. _____				
5. _____				
	<u>5</u> =Total Cover			
50% of total cover: <u>3</u> 20% of total cover: <u>1</u>				

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W007-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 5/3	95	10YR 5/4	5	C	M	Loamy/Clayey	silty loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**

- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_ None \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_ 0 \_\_\_\_\_

Hydric Soil Present?    Yes \_\_\_\_\_ No X \_\_\_\_\_

Remarks:

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/21/22  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W008-W  
 Investigator(s): Benjamin Burdette and Jake Irven Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): toe of slope Local relief (concave, convex, none): concave Slope (%): 2-5  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.721286 Long: -89.519715 Datum: NAD83  
 Soil Map Unit Name: Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: PFO wetland; fringe to pond (OW1) DP15-W8	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) <u>X</u> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <u>X</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) <u>X</u> Geomorphic Position (D2) _____ Shallow Aquitard (D3) <u>X</u> FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W008-W

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Salix nigra</u>	<u>50</u>	<u>Yes</u>	<u>OBL</u>
2. <u>Liquidambar styraciflua</u>	<u>10</u>	<u>No</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	<u>60</u> =Total Cover		
	50% of total cover: <u>30</u>	20% of total cover: <u>12</u>	

Sapling/Shrub Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Salix nigra</u>	<u>5</u>	<u>Yes</u>	<u>OBL</u>
2. <u>Ulmus americana</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	<u>10</u> =Total Cover		
	50% of total cover: <u>5</u>	20% of total cover: <u>2</u>	

Herb Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Bignonia capreolata</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Parthenocissus quinquefolia</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
3. <u>Panicum spp.</u>	<u>5</u>	<u>No</u>	_____
4. <u>Toxicodendron radicans</u>	<u>2</u>	<u>No</u>	<u>FAC</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>27</u> =Total Cover		
	50% of total cover: <u>14</u>	20% of total cover: <u>6</u>	

Woody Vine Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	_____ =Total Cover		
	50% of total cover: _____	20% of total cover: _____	

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

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

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>55</u>	x 1 = <u>55</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>32</u>	x 3 = <u>96</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>92</u> (A)	<u>171</u> (B)
Prevalence Index = B/A = <u>1.86</u>	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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 X      No \_\_\_\_\_

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W008-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	10YR 5/3	70	10YR 6/2	5	D	M		silt
14-20	10YR 5/3	50	10YR 6/2	30	D	M		silt

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)

- Thin Dark Surface (S9) (LRR S, T, U)
- Barrier Islands 1 cm Muck (S12) (MLRA 153B, 153D)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Floodplain Soils (F20) (MLRA 149A, 153C, 153D)
- Very Shallow Dark Surface (F22) (MLRA 138, 152A in FL, 154)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Coast Prairie Redox (A16) (outside MLRA 150A)
- Reduced Vertic (F18) (outside MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (LRR P, T)
- Anomalous Bright Floodplain Soils (F20) (MLRA 153B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) (outside MLRA 138, 152A in FL, 154)
- Barrier Islands Low Chroma Matrix (TS7) (MLRA 153B, 153D)
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_ None \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_ 0 \_\_\_\_\_

Hydric Soil Present?      Yes X      No \_\_\_\_\_

Remarks:

0-14 additional redox layer: 10YR 5/8 20% D, L  
 14-20 additional redox layer: 10YR 6/8 20%, C, M

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/21/2022  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W008-UPL  
 Investigator(s): Benjamin Burdette and Jake Irvin Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope (%): 2-5  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.721339 Long: -89.519722 Datum: NAD83  
 Soil Map Unit Name: Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks: Upland point corresponding to W8; In cornfield DP16-UP	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W008-UPL

<u>Tree Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>100</u> x 5 = <u>500</u> Column Totals: <u>100</u> (A) <u>500</u> (B) Prevalence Index = B/A = <u>5.00</u>
50% of total cover: _____ 20% of total cover: _____				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>30</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
<u>Herb Stratum</u> (Plot size: <u>30</u> )				
1. <u>Zea mays</u>	<u>100</u>	<u>Yes</u>	<u>UPL</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				
<u>Woody Vine Stratum</u> (Plot size: <u>30</u> )				<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Remarks: (If observed, list morphological adaptations below.)				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>

**SOIL**

Sampling Point: W008-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-15	10YR 5/6	80	10YR 4/4	10	D	M		
15-20	10YR 6/4	80	10YR 5/8	20	C	M	Prominent redox concentrations	

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)	<input type="checkbox"/> 1 cm Muck (A9) (LRR O)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Barrier Islands 1 cm Muck (S12)	<input type="checkbox"/> 2 cm Muck (A10) (LRR S)
<input type="checkbox"/> Black Histic (A3)	<b>(MLRA 153B, 153D)</b>	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)	<b>(outside MLRA 150A)</b>
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)	<input type="checkbox"/> Depleted Matrix (F3)	<b>(outside MLRA 150A, 150B)</b>
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, T)
<input type="checkbox"/> Muck Presence (A8) (LRR U)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Anomalous Bright Floodplain Soils (F20)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)	<input type="checkbox"/> Redox Depressions (F8)	<b>(MLRA 153B)</b>
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Marl (F10) (LRR U)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)	<b>(outside MLRA 138, 152A in FL, 154)</b>
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)	<input type="checkbox"/> Barrier Islands Low Chroma Matrix (TS7)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)	<b>(MLRA 153B, 153D)</b>
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)	
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)	<input type="checkbox"/> Anomalous Bright Floodplain Soils (F20)	
<input type="checkbox"/> Polyvalue Below Surface (S8)	<b>(MLRA 149A, 153C, 153D)</b>	
<b>(LRR S, T, U)</b>	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
	<b>(MLRA 138, 152A in FL, 154)</b>	

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

<b>Restrictive Layer (if observed):</b> Type: _____ None _____ Depth (inches): _____ 0 _____	<b>Hydric Soil Present?</b> Yes _____ No <u>X</u> _____
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Remarks:  
 0-15 additional redox layer color: 10YR 5/8 10% PL



Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/21/22  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W009-W  
 Investigator(s): Benjamin Burdette and Jake Irven Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): easement Local relief (concave, convex, none): concave Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.724564 Long: -89.521448 Datum: NAD83  
 Soil Map Unit Name: Memphis silt loam, 20 to 40 percent slopes, northern phase NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: PFO and PSS wetland DP17-W9	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) <u>X</u> Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) <u>X</u> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <u>X</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) <u>X</u> FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W009-W

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1.	_____	_____	_____	
2.	_____	_____	_____	
3.	_____	_____	_____	
4.	_____	_____	_____	
5.	_____	_____	_____	
6.	_____	_____	_____	
7.	_____	_____	_____	
8.	_____	_____	_____	
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30</u> )				
1.	<u>Salix nigra</u>	5	Yes	OBL
2.	<u>Liquidambar styraciflua</u>	10	Yes	FAC
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
7.	_____	_____	_____	_____
8.	_____	_____	_____	_____
	_____ = Total Cover			
	50% of total cover: <u>8</u>	20% of total cover: <u>3</u>		
<b>Herb Stratum</b> (Plot size: <u>30</u> )				
1.	<u>Juncus effusus</u>	10	No	OBL
2.	<u>Persicaria lapathifolia</u>	80	Yes	FACW
3.	<u>Carex spp.</u>	10	No	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
7.	_____	_____	_____	_____
8.	_____	_____	_____	_____
9.	_____	_____	_____	_____
10.	_____	_____	_____	_____
11.	_____	_____	_____	_____
12.	_____	_____	_____	_____
	_____ = Total Cover			
	50% of total cover: <u>50</u>	20% of total cover: <u>20</u>		
<b>Woody Vine Stratum</b> (Plot size: <u>30</u> )				
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
	_____ = Total Cover			
	50% of 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: 3 (B)

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

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>15</u>	x 1 = <u>15</u>
FACW species <u>80</u>	x 2 = <u>160</u>
FAC species <u>10</u>	x 3 = <u>30</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>105</u> (A)	<u>205</u> (B)
Prevalence Index = B/A = <u>1.95</u>	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W009-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 5/1	90	10YR 5/8	10		PL	Loamy/Clayey	silt loam
12-20	10YR 6/3	90	10YR 5/6	10	C	M	Loamy/Clayey	silt loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)	<input type="checkbox"/> 1 cm Muck (A9) (LRR O)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Barrier Islands 1 cm Muck (S12)	<input type="checkbox"/> 2 cm Muck (A10) (LRR S)	
<input type="checkbox"/> Black Histic (A3)	<b>(MLRA 153B, 153D)</b>	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)	<b>(outside MLRA 150A)</b>	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<b>(outside MLRA 150A, 150B)</b>	
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, T)	
<input type="checkbox"/> Muck Presence (A8) (LRR U)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Anomalous Bright Floodplain Soils (F20)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)	<input type="checkbox"/> Redox Depressions (F8)	<b>(MLRA 153B)</b>	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Marl (F10) (LRR U)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)	<b>(outside MLRA 138, 152A in FL, 154)</b>	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)	<input type="checkbox"/> Barrier Islands Low Chroma Matrix (TS7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)	<b>(MLRA 153B, 153D)</b>	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)		
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)	<input type="checkbox"/> Anomalous Bright Floodplain Soils (F20)		
<input type="checkbox"/> Polyvalue Below Surface (S8)	<b>(MLRA 149A, 153C, 153D)</b>		
<b>(LRR S, T, U)</b>	<input type="checkbox"/> Very Shallow Dark Surface (F22)		
	<b>(MLRA 138, 152A in FL, 154)</b>		

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

<b>Restrictive Layer (if observed):</b> Type: <u>                                None                                </u> Depth (inches): <u>                                0                                </u>	<b>Hydric Soil Present?</b> Yes <u>  X  </u> No <u>      </u>
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Remarks:

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/21/2022  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W009-UPL  
 Investigator(s): Benjamin Burdette and Jake Irvin Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): hillside, easement Local relief (concave, convex, none): convex Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.724527 Long: -89.521545 Datum: NAD83  
 Soil Map Unit Name: Loring silt loam, 5 to 8 percent slopes, severely eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks: Upland point corresponding to W9 DP18-UP	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W009-UPL

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

Sapling/Shrub Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Liquidambar styraciflua</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	<u>10</u> = Total Cover		
	50% of total cover: <u>5</u>	20% of total cover: <u>2</u>	

Herb Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Solidago</u>	<u>90</u>	<u>Yes</u>	<u>UPL</u>
2. <u>Passiflora</u>	<u>5</u>	<u>No</u>	_____
3. <u>Vernonia noveboracensis</u>	<u>5</u>	<u>No</u>	<u>FACW</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>100</u> = Total Cover		
	50% of total cover: <u>50</u>	20% of total cover: <u>20</u>	

Woody Vine Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>10</u>	x 3 = <u>30</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>90</u>	x 5 = <u>450</u>
Column Totals: <u>105</u> (A)	<u>490</u> (B)
Prevalence Index = B/A = <u>4.67</u>	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

   2 - Dominance Test is >50%

   3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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
	_____	<u>X</u>

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W009-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 5/3	95	10YR 5/4	5	C	M	Loamy/Clayey	silty loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)	<input type="checkbox"/> 1 cm Muck (A9) (LRR O)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Barrier Islands 1 cm Muck (S12)	<input type="checkbox"/> 2 cm Muck (A10) (LRR S)
<input type="checkbox"/> Black Histic (A3)	<b>(MLRA 153B, 153D)</b>	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)	<b>(outside MLRA 150A)</b>
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)	<input type="checkbox"/> Depleted Matrix (F3)	<b>(outside MLRA 150A, 150B)</b>
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, T)
<input type="checkbox"/> Muck Presence (A8) (LRR U)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Anomalous Bright Floodplain Soils (F20)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)	<input type="checkbox"/> Redox Depressions (F8)	<b>(MLRA 153B)</b>
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Marl (F10) (LRR U)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)	<b>(outside MLRA 138, 152A in FL, 154)</b>
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)	<input type="checkbox"/> Barrier Islands Low Chroma Matrix (TS7)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)	<b>(MLRA 153B, 153D)</b>
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)	
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)	<input type="checkbox"/> Anomalous Bright Floodplain Soils (F20)	
<input type="checkbox"/> Polyvalue Below Surface (S8)	<b>(MLRA 149A, 153C, 153D)</b>	
<b>(LRR S, T, U)</b>	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
	<b>(MLRA 138, 152A in FL, 154)</b>	

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

<b>Restrictive Layer (if observed):</b> Type: _____ None _____ Depth (inches): _____ 0 _____	<b>Hydric Soil Present?</b> Yes _____ No <u>X</u> _____
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Remarks:

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/22/22  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W010-W  
 Investigator(s): Benjamin Burdette and Jake Irven Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): depressional basin Local relief (concave, convex, none): concave Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.731440 Long: -89.517327 Datum: NAD83  
 Soil Map Unit Name: Memphis silt loam, 8 to 12 percent slopes, severely eroded, northern phase NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: PEM wetland; water collects here but dry at time of survey DP19-W10	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <u>X</u> Surface Soil Cracks (B6) <u>X</u> Sparsely Vegetated Concave Surface (B8) <u>X</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) <u>X</u> Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) <u>_____</u> Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W010-W

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

Sapling/Shrub Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

Herb Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Cyperus rotundus</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Coleataenia rigidula</u>	<u>5</u>	<u>No</u>	<u>FACW</u>
3. <u>Crotalaria</u>	<u>5</u>	<u>No</u>	
4. <u>Glycine max</u>	<u>10</u>	<u>Yes</u>	<u>UPL</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>30</u> = Total Cover		
	50% of total cover: <u>15</u>	20% of total cover: <u>6</u>	

Woody Vine Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>10</u>	x 3 = <u>30</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>10</u>	x 5 = <u>50</u>
Column Totals: <u>25</u> (A)	<u>90</u> (B)
Prevalence Index = B/A = <u>3.60</u>	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

   2 - Dominance Test is >50%

   3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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 X      No   

Remarks: (If observed, list morphological adaptations below.)



**SOIL**

Sampling Point: W010-W

<b>Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)</b>							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-10	10YR 4/4	80	10YR 5/3	20			fine silt
10-20	10YR 5/4	50	10YR 4/6	50			fine silt

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)	<input type="checkbox"/> 1 cm Muck (A9) (LRR O)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Barrier Islands 1 cm Muck (S12)	<input type="checkbox"/> 2 cm Muck (A10) (LRR S)
<input type="checkbox"/> Black Histic (A3)	<b>(MLRA 153B, 153D)</b>	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)	<b>(outside MLRA 150A)</b>
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)	<input type="checkbox"/> Depleted Matrix (F3)	<b>(outside MLRA 150A, 150B)</b>
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, T)
<input type="checkbox"/> Muck Presence (A8) (LRR U)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Anomalous Bright Floodplain Soils (F20)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)	<input type="checkbox"/> Redox Depressions (F8)	<b>(MLRA 153B)</b>
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Marl (F10) (LRR U)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)	<b>(outside MLRA 138, 152A in FL, 154)</b>
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)	<input type="checkbox"/> Barrier Islands Low Chroma Matrix (TS7)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)	<b>(MLRA 153B, 153D)</b>
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)	
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)	<input type="checkbox"/> Anomalous Bright Floodplain Soils (F20)	
<input type="checkbox"/> Polyvalue Below Surface (S8)	<b>(MLRA 149A, 153C, 153D)</b>	
<b>(LRR S, T, U)</b>	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
	<b>(MLRA 138, 152A in FL, 154)</b>	

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

<b>Restrictive Layer (if observed):</b>		<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____	None	
Depth (inches): _____ 0		

Remarks:  
Silt deposits on top; disturbed soils from agriculture

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/22/2022  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W010-UPL  
 Investigator(s): Benjamin Burdette and Jake Irvin Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): hillslope; soybean field Local relief (concave, convex, none): concave Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.731524 Long: -89.517282 Datum: NAD83  
 Soil Map Unit Name: Memphis silt loam, 8 to 12 percent slopes, severely eroded, northern phase NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		
Remarks: Upland point corresponding to W10 DP20-UP			

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <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"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W010-UPL

<u>Tree Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>100</u> x 5 = <u>500</u> Column Totals: <u>100</u> (A) <u>500</u> (B) Prevalence Index = B/A = <u>5.00</u>
50% of total cover: _____		20% of total cover: _____		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>30</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		
<u>Herb Stratum</u> (Plot size: <u>30</u> )				
1. <u>Glycine max</u>	<u>100</u>	<u>Yes</u>	<u>UPL</u>	<b>Hydrophytic Vegetation Indicators:</b> <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>50</u>		20% of total cover: <u>20</u>		
<u>Woody Vine Stratum</u> (Plot size: <u>30</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		
<b>Hydrophytic Vegetation Present?</b> Yes _____      No <u>X</u>				

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W010-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 6/6	40	10YR 5/6	50	C	M		

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8)  
**(LRR S, T, U)**

- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12)  
**(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20)  
**(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22)  
**(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16)  
**(outside MLRA 150A)**
- Reduced Vertic (F18)  
**(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20)  
**(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)  
**(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7)  
**(MLRA 153B, 153D)**
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_ None \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_ 0 \_\_\_\_\_

**Hydric Soil Present?**      Yes \_\_\_\_\_ No X \_\_\_\_\_

Remarks:

Dual matrix: 1-YR 6/6 10%

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/22/22  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W011-W  
 Investigator(s): Benjamin Burdette and Jake Irven Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): depressional basin Local relief (concave, convex, none): concave Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.730896 Long: -89.518312 Datum: NAD83  
 Soil Map Unit Name: Adler silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: PEM wetland; water collects here but dry at time of survey DP21-W11	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <u>X</u> Surface Soil Cracks (B6) <u>X</u> Sparsely Vegetated Concave Surface (B8) <u>X</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) <u>X</u> Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W011-W

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

Sapling/Shrub Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

Herb Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Cyperus rotundus</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Coleataenia rigidula</u>	<u>5</u>	<u>No</u>	<u>FACW</u>
3. <u>Crotalaria</u>	<u>5</u>	<u>No</u>	
4. <u>Glycine max</u>	<u>10</u>	<u>Yes</u>	<u>UPL</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>30</u> = Total Cover		
	50% of total cover: <u>15</u>	20% of total cover: <u>6</u>	

Woody Vine Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	_____ = Total Cover		
	50% of total cover: _____	20% of total cover: _____	

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>10</u>	x 3 = <u>30</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>10</u>	x 5 = <u>50</u>
Column Totals: <u>25</u> (A)	<u>90</u> (B)
Prevalence Index = B/A = <u>3.60</u>	

**Hydrophytic Vegetation Indicators:**

     1 - Rapid Test for Hydrophytic Vegetation

     2 - Dominance Test is >50%

     3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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 X      No \_\_\_\_\_

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W011-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-10	10YR 4/4	80	10YR 5/3	20			fine silt
10-20	10YR 5/4	50	10YR 4/6	50			fine silt

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Barrier Islands 1 cm Muck (S12) (MLRA 153B, 153D)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Floodplain Soils (F20) (MLRA 149A, 153C, 153D)
- Very Shallow Dark Surface (F22) (MLRA 138, 152A in FL, 154)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Coast Prairie Redox (A16) (outside MLRA 150A)
- Reduced Vertic (F18) (outside MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (LRR P, T)
- Anomalous Bright Floodplain Soils (F20) (MLRA 153B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) (outside MLRA 138, 152A in FL, 154)
- Barrier Islands Low Chroma Matrix (TS7) (MLRA 153B, 153D)
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: None

Depth (inches): 0

Hydric Soil Present? Yes X No     

**Remarks:**

Silt deposits on top; disturbed soils from agriculture

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/22/2022  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W011-UPL  
 Investigator(s): Benjamin Burdette and Jake Irvin Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): hillslope; soybean field Local relief (concave, convex, none): concave Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.730974 Long: -89.518225 Datum: NAD83  
 Soil Map Unit Name: Adler silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks: Upland point corresponding to W11 DP22-UP	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <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"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



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

Sampling Point: W011-UPL

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	
<b>Herb Stratum</b> (Plot size: <u>30</u> )				
1.	<u>Glycine max</u>	<u>100</u>	<u>Yes</u>	<u>UPL</u>
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	_____ = Total Cover			
	50% of total cover: <u>50</u>		20% of total cover: <u>20</u>	
<b>Woody Vine Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>100</u>	x 5 = <u>500</u>
Column Totals: <u>100</u> (A)	<u>500</u> (B)
Prevalence Index = B/A = <u>5.00</u>	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

   2 - Dominance Test is >50%

   3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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   X

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W011-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 6/6	40	10YR 5/6	50	C	M		

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8)  
**(LRR S, T, U)**

- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12)  
**(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20)  
**(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22)  
**(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16)  
**(outside MLRA 150A)**
- Reduced Vertic (F18)  
**(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20)  
**(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)  
**(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7)  
**(MLRA 153B, 153D)**
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_ None \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_ 0 \_\_\_\_\_

**Hydric Soil Present?**      Yes \_\_\_\_\_ No X \_\_\_\_\_

Remarks:  
 Dual matrix: 1-YR 6/6 10%

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/22/22  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W012-W  
 Investigator(s): Benjamin Burdette and Jake Irven Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.727288 Long: -89.521802 Datum: NAD83  
 Soil Map Unit Name: Adler silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b>	Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____		
Wetland Hydrology Present?	Yes <u>X</u> No _____		
Remarks: PEM wetland DP23-W12			

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1)                      _____ Aquatic Fauna (B13) _____ High Water Table (A2)                      _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3)                                      _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1)                                      _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2)                                      _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3)                                      _____ Recent Iron Reduction in Tilled Soils (C6) <u>X</u> Algal Mat or Crust (B4)                                      _____ Thin Muck Surface (C7) _____ Iron Deposits (B5)                                      _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <u>X</u> Surface Soil Cracks (B6) <u>X</u> Sparsely Vegetated Concave Surface (B8) <u>X</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) <u>X</u> FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W012-W

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
	=Total Cover			
	50% of total cover: _____	20% of total cover: _____		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
	=Total Cover			
	50% of total cover: _____	20% of total cover: _____		
<b>Herb Stratum</b> (Plot size: <u>30</u> )				
1.	<u>Cyperus rotundus</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2.	<u>Coleataenia rigidula</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>
3.	<u>Mollugo verticillata</u>	<u>2</u>	<u>No</u>	<u>FAC</u>
4.	<u>Sida spinosa</u>	<u>2</u>	<u>No</u>	<u>FACU</u>
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	<u>14</u> =Total Cover			
	50% of total cover: <u>7</u>	20% of total cover: <u>3</u>		
<b>Woody Vine Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
	=Total Cover			
	50% of total cover: _____	20% of total cover: _____		

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>7</u>	x 3 = <u>21</u>
FACU species <u>2</u>	x 4 = <u>8</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>14</u> (A)	<u>39</u> (B)
Prevalence Index = B/A = <u>2.79</u>	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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 X      No

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W012-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 5/2	90	10YR 4/4	10	C	M	Loamy/Clayey	silt loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: None

Depth (inches): 0

Hydric Soil Present? Yes X No   

Remarks:

Project/Site: SR Ripley II City/County: Ripley/Lauderdale Sampling Date: 9/22/2022  
 Applicant/Owner: Silicon Ranch Corporation State: TN Sampling Point: W012-UPL  
 Investigator(s): Benjamin Burdette and Jake Irvin Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P, MLRA 134 Lat: 35.727298 Long: -89.521721 Datum: NAD83  
 Soil Map Unit Name: Adler silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		
Remarks: Upland point corresponding to W12 DP24-UP			

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <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"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: W012-UPL

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	
<b>Herb Stratum</b> (Plot size: <u>30</u> )				
1.	<u>Glycine max</u>	<u>100</u>	<u>Yes</u>	<u>UPL</u>
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	_____ = Total Cover			
	50% of total cover: <u>50</u>		20% of total cover: <u>20</u>	
<b>Woody Vine Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>100</u>	x 5 = <u>500</u>
Column Totals: <u>100</u> (A)	<u>500</u> (B)
Prevalence Index = B/A = <u>5.00</u>	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

   2 - Dominance Test is >50%

   3 - Prevalence Index is ≤3.0<sup>1</sup>

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

<sup>1</sup>Indicators 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 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 X

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: W012-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 5/3	95	10YR 5/4	5	C	M	Loamy/Clayey	silt loam

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

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8)  
**(LRR S, T, U)**

- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12)  
**(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20)  
**(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22)  
**(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16)  
**(outside MLRA 150A)**
- Reduced Vertic (F18)  
**(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20)  
**(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)  
**(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7)  
**(MLRA 153B, 153D)**
- Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_ None \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_ 0 \_\_\_\_\_

Hydric Soil Present?    Yes \_\_\_\_\_ No X \_\_\_\_\_

Remarks:



**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

**Metric 1. Wetland area (max 6 pts).** Estimate the area of wetland and select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.

6pts	>50 acres (west TN)	>25 acres (middle TN)	>10 acres (east TN *)	
5pts	25 - <50 acres (west TN)	10- 25 acres (middle TN)	7-<10 acres (east TN*)	
4pts	10 - <25 acres (west TN)	7-< 25acres (middle TN)	3-<7 acres (east TN*)	
3pts	3 - <10 acres(west TN)	3< 7 acres (middle TN)	1-<3 acres (east TN)	
2pts	0.3 - <3 acres (west TN)	0.5- <3 acres (middle TN)	0.5-<1 acres (east TN)	
1pt	0.1 - <0.3 acres(west TN)	<0.5 acres (middle TN)	<0.5 acres (east TN)	<b>1</b>

\*More applicable to West Tennessee; use with discretion in Middle Tennessee, Consult TDEC-DWR Natural Resources Unit for use in East Tennessee.

Table 2. Metric to English conversion table with visual estimation sizes.							
acres	ft <sup>2</sup>	yd <sup>2</sup>	ft on side	yd on side	ha	m <sup>2</sup>	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

**Metric 1 Total** 1

**Metric 2. Upland buffers and intensity of surrounding land uses (Max 14 points).** Wetlands without upland "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded and often have lower wildlife habitat resource value.

**2a. Average Buffer Width (ABW).** Calculate the average buffer width and select only one score. To calculate ABW, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: ABW of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows:  $ABW = (50m + 25m + 10m + 0m)/4 = 21.25m$ . Intensive land uses are not buffers, e.g. active row cropping, paved areas, housing developments, etc.

7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	
0pts	VERY NARROW. <10m (<32ft) around perimeter.	0

2a Avg.=  
0.00

**2b. Intensity of predominant surrounding land use(s)** Select one, or choose up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone.

7pts	VERY LOW. 2 <sup>nd</sup> growth or older forest, prairie, barren, wildlife area, etc.	
5pts	LOW. Old fallow field, shrub land, early successional young forest, etc.	
3pts	MODERATELY HIGH. Residential, pasture, orchard, park, conservation tillage, mowed field, etc.	
1pt	HIGH. urban, industrial, row cropping, mining, construction, etc.	1

2b Avg.=  
1.00

SR Ripley II

Metric 2 Total 1.00

W001

**Metric 3. Hydrology (Max 30 points).** This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. **A wetland can receive no more than 30 points for Metric 3 even though it is possible to score more than 30 points.**

<b>3a. Sources of Water.</b> Select all that apply and sum the score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		
5pts	High pH groundwater (7.5-9.0)	
3pts	Other groundwater	
1pts	Precipitation	1
3pts	Seasonal surface water	
5pts	Perennial surface water (lake or stream)	
<b>3b. Connectivity.</b> Select all that apply and sum score		
1pt	<b>100 year floodplain.</b> "Floodplain" is defined as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	1
1pt	<b>Between stream/lake and other human land use.</b> This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water buffering it. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	
1pt	<b>Part of a larger wetland or upland complex.</b> This question asks whether the wetland is in physical proximity to, or a part of, other nearby wetland or upland habitat areas.	
1pt	<b>Part of riparian corridor.</b>	
<b>3c. Maximum water depth.</b> Select only one and assign score. The evaluator <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		
3 pts	>0.7m (27.6in)	
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	1
<b>3d. Duration of inundation/saturation.</b> Select one or double check and average the scores if duration is uncertain. The use of ACOE 1987 Manual secondary indicators is necessary and expected in order to properly answer this question.		
4pts	Semi-permanently to permanently inundated or saturated	
3pts	Regularly inundated or saturated	
2pts	Seasonally inundated	
1pt	Seasonally saturated in the upper 30cm (12in) of soil	1

SR Ripley II

3d Avg.= 1.00

W001

**3e. Modifications to natural hydrologic regime.** Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the evaluator to assess the “intactness” of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

Once the evaluator has listed all possible past and ongoing disturbances, the evaluator should check the most appropriate category to describe the present state of the wetland. In instances where the evaluator believes that a wetland falls between two categories, or where the evaluator is uncertain as to which category is appropriate, it is appropriate to choose more than one and average the score.

The evaluator may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

**Check all that are observed present in or near the wetland.**

<input checked="" type="checkbox"/>	ditch(es), in or near the wetland		point source discharges to the (non-stormwater)
	tile(s), in or near the wetland		filling/grading activities in or near the wetland
	dike(s), in or near the wetland		road beds/RR beds in or near the wetland
	weir(s), in or near the wetland		dredging activities in or near the wetland
	stormwater inputs (addition of water)	<input checked="" type="checkbox"/>	other (specify) <b>agricultural fields</b>

Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime.	<u>YES</u> Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.	<u>NO</u> Assign a score of 12 since there are no or no apparent modifications.	<u>NOT SURE</u> Choose "recovered" and assign a score of 9.5.
<b>Select one or double check adjoining numbers and average the score.</b>			<b>score</b>
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the evaluator.		
7pts	RECOVERED. The wetland appears to have recovered from past modifications.		
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.		
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.		<b>1</b>

3e Avg=  
1.00

SR Ripley II

**Metric 3 Total** 5.00

W001

**Metric 4. Habitat Alteration and Development (Max 20 points).** While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. These disturbances are termed "habitat alteration." In many instances, items checked as hydrologic disturbances in Question 3e will present as alterations to a wetland's habitat or disruptions in its development (successional state). In some instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. To determine the appropriate metric scores, the evaluator should carefully determine the actual cause of the disturbance to the wetland.

<p><b>4a. Substrate/Soil Disturbance.</b> Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.</p>	<p>Examples of substrate/soil disturbance include (circle all that apply):</p> <p><input type="checkbox"/> filling and grading</p> <p><input checked="" type="checkbox"/> plowing</p> <p><input type="checkbox"/> grazing (hooves)</p> <p><input checked="" type="checkbox"/> vehicle use (off-road vehicles, construction vehicles)</p> <p><input type="checkbox"/> sedimentation</p> <p><input type="checkbox"/> dredging, and other mechanical disturbances to the soil</p>
--	--

<p>Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils</p>	<p><u>YES</u></p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p><u>NO</u></p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p><u>NOT SURE</u></p> <p>Choose "recovered" and assign a score of 3.5.</p>
--	--	--	---

<b>Select one or double check adjoining numbers and average the score.</b>		
4pts	NONE OR NONE APPARENT. There are no disturbances or no disturbances apparent to the evaluator.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	<b>1</b>

4a Avg.=  
1.00

**4b. Habitat development.** Select only one and assign score. This question asks the evaluator to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically and/or hydrogeomorphically similar wetlands. This question presumes knowledge of the types of wetlands and the range in quality typical of the region or access to data from reference standard examples. If unsure, score as GOOD or MODERATELY GOOD.

7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears <u>not</u> to be a good example of its type or class because of past or present disturbances, successional state, etc.	<b>1</b>

4b Avg.=  
1.00

**4c. Habitat alteration.** This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. **The evaluator may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

**Check all that are observed present in or near the wetland**

<input type="checkbox"/>	Mowing	<input type="checkbox"/>	Herbaceous layer/aquatic bed removal
<input type="checkbox"/>	Grazing (cattle, horses, etc.)	<input type="checkbox"/>	Sedimentation
<input type="checkbox"/>	Clearcutting	<input type="checkbox"/>	Dredging
<input type="checkbox"/>	Selective cutting	<input checked="" type="checkbox"/>	Row-crop or orchard farming
<input type="checkbox"/>	Woody debris removal	<input type="checkbox"/>	Nutrient enrichment, e.g. nuisance algae
<input type="checkbox"/>	Toxic pollutants	<input type="checkbox"/>	Other (specify):
<input type="checkbox"/>	Shrub/sapling removal	<input type="checkbox"/>	Other (specify):

Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat.	<u>YES</u>	<u>NO</u>	<u>NOT SURE</u>
	Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.	Assign a score of 9 since there are no or no apparent modifications.	Choose "recovered" and assign a score of 6.

Select one score or double check adjoining numbers and average the score.		Score
9pts	NONE OR NONE APPARENT. There are no past or current alterations that are apparent to the evaluator.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	<b>1</b>

4c Avg. = 1.00

Metric 4 Total 3

**Metric 5. Special wetland communities.** Assign points in left column if the wetland meets the associated criteria below. Refer to Narrative Rating for guidance. If wetland scores over 30 points within Metric 5 further determination needed to assess if the wetland exhibits outstanding ecological or recreational values as discussed in the Narrative Rating Section.

5pts - >10m sq sphagnum or other moss or other vernal pools	5 pts - Superior fish, waterfowl, bat, or amphibian breeding habitat
Ecological community with global rank (NatureServe): G1 (10pts), G2 (5pts), G2/G3 (3pts) or uncommon ecological resource in the ecoregion (habitat and/or species diversity, geology, wetland type, distribution/ occurrence) (10 pts)	5 pts - Wetland contains and is a buffer for a headwater stream or wetland contributes significantly to the water quality of 303(d) listed stream and/or to surface or and/or to ground water
10 pts - Older-aged mature forested wetland avg. DBH >= 30 inches	10 pts - Supports species Deemed in Need of Management by TWRA or TN Special Concern by TDEC

Metric 5 Total 0

<b>Metric 6. Vegetation, Interspersion, and Microtopography (Max 20 points).</b>	Score
<b>6a. Wetland Vegetation Communities</b> Check each community present both vertically and horizontally within the wetland with an area of at least 0.1 hectares or 1000m <sup>2</sup> (0.2471 acres). Assign a score of 0 to 3 using Table 3 for 1-4 or Table 5 for 5-6. Sum the scores for the classes present.	
<b>1)Aquatic Bed</b> Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed ( <i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	
<b>2)Emergent</b> Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, and fens.	3
<b>3)Shrub</b> Includes areas of wetlands dominated by woody vegetation less than 1m (3ft.) - 6m (20 ft) tall with a dbh of <3in. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	
<b>4)Forested</b> Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are "vernal pools".	
<b>5)Mudflats</b> The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB <sub>3</sub> ) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	
<b>6)Open water</b> The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas that are 1) inundated, 2) un-vegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 4 for narrative description of "low," "moderate," and "high" quality.

Cover Scale	Description
0	The vegetation community is either 1) absent from wetland or 2) Comprises less than 0.1 ha (.2471 acres) of contiguous area within the wetland
1	Vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation and is of low quality
2	Thee vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	The vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation

Table 4. Use this table in conjunction with Table 3 to determine what is a "low", "moderate," or "high" quality community.

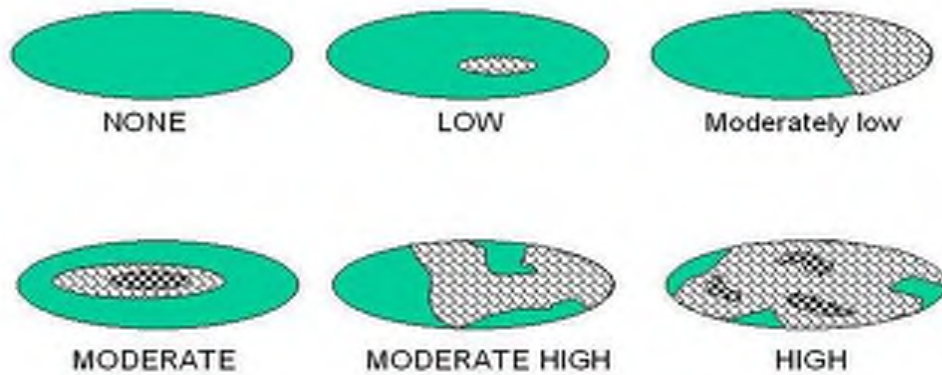
Narrative	Description
Low	Low species richness and a predominance of invasive, non-native, or disturbance tolerant "weedy" species.
Moderate	Native species are the dominant component of the vegetation, although non-native or disturbance tolerant "weedy" species can also be present, and species richness is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species.
High	A predominance of native species, with non-native species absent or virtually absent, and high species diversity and/or the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

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

<b>6b. Horizontal (plan view) interspersion.</b> Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		Score
5pts	HIGH Wetland has a high degree of interspersion	
4pts	MODERATELY HIGH Wetland has a moderately high degree of interspersion	
3pts	MODERATE Wetland has a moderate degree of interspersion	
2pts	MODERATELY LOW Wetland has a moderately low degree of interspersion	
1pt	LOW Wetland has a low degree of interspersion.	1
0pt	NONE Wetland has no plan view interspersion	





**Figure 1. Hypothetical Wetlands for estimating degree of interspersion**

<b>6c. Coverage of Invasive Plant Species.</b> Refer to Tennessee Exotic Pest Plant Council ( <a href="http://www.tneppc.org/">http://www.tneppc.org/</a> ) for official list. Select only one and assign score.		Score
-5pts	Extensive >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	
-1pts	Sparse 5-25% areal cover of invasive species	
0pt	Nearly absent. <5% areal cover of invasive species	
1pt	Absent	1
<b>6d. Microtopography.</b> Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		Score
Vegetated hummocks and tussocks		
Coarse woody debris >15cm (6in) in diameter		
Standing dead trees >25cm (10in) diameter at breast height		
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction		1

Table 6. Cover scale for microtopographic habitat features

Microtopographic habitat quality	Narrative description
0	Feature is absent or functionally absent from the wetland
1	Feature is present in the wetland in very small amounts or if more common, of low quality
2	Feature is 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 the highest quality

## NON-HGM TRAM Summary Worksheet

<b>Non-HGM Quantitative Rating</b>	Metric 1: Size	1
	Metric 2: Buffers and surrounding land use	1
	Metric 3: Hydrology	5
	Metric 4: Habitat	3
	Metric 5: Special Wetland Communities	0
	Metric 6: Plant communities, interspersed, microtopography	6
	<b>TOTAL SCORE</b>	16

SR Ripley II

W001 <b>Rank = Low</b>
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**"Wetland Conditions with an overall score of 100-75 are considered Exceptional Tennessee Waters. Wetlands with a score of 74-45 are considered to have moderate resource value, and wetland with a score of 44 and below have a low resource value."  
(TRAM 2015, pg 2)**

**Quantitative Rating  
Tennessee Rapid Assessment Method**

**Metric 1. Wetland area (max 6 pts).** Estimate the area of wetland and select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.

6pts	>50 acres (west TN)	>25 acres (middle TN)	>10 acres (east TN *)	
5pts	25 - <50 acres (west TN)	10- 25 acres (middle TN)	7-<10 acres (east TN*)	
4pts	10 - <25 acres (west TN)	7-< 25acres (middle TN)	3-<7 acres (east TN*)	
3pts	3 - <10 acres(west TN)	3< 7 acres (middle TN)	1-<3 acres (east TN)	
2pts	0.3 - <3 acres (west TN)	0.5- <3 acres (middle TN)	0.5-<1 acres (east TN)	
1pt	0.1 - <0.3 acres(west TN)	<0.5 acres (middle TN)	<0.5 acres (east TN)	<b>1</b>

\*More applicable to West Tennessee; use with discretion in Middle Tennessee, Consult TDEC-DWR Natural Resources Unit for use in East Tennessee.

Table 2. Metric to English conversion table with visual estimation sizes.							
acres	ft <sup>2</sup>	yd <sup>2</sup>	ft on side	yd on side	ha	m <sup>2</sup>	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

**Metric 1 Total** 1

**Metric 2. Upland buffers and intensity of surrounding land uses (Max 14 points).** Wetlands without upland "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded and often have lower wildlife habitat resource value.

**2a. Average Buffer Width (ABW).** Calculate the average buffer width and select only one score. To calculate ABW, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: ABW of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows:  $ABW = (50m + 25m + 10m + 0m)/4 = 21.25m$ . Intensive land uses are not buffers, e.g. active row cropping, paved areas, housing developments, etc.

7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	
0pts	VERY NARROW. <10m (<32ft) around perimeter.	0

2a Avg.=  
0.00

**2b. Intensity of predominant surrounding land use(s)** Select one, or choose up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone.

7pts	VERY LOW. 2 <sup>nd</sup> growth or older forest, prairie, barren, wildlife area, etc.	
5pts	LOW. Old fallow field, shrub land, early successional young forest, etc.	
3pts	MODERATELY HIGH. Residential, pasture, orchard, park, conservation tillage, mowed field, etc.	
1pt	HIGH. urban, industrial, row cropping, mining, construction, etc.	1

2b Avg.=  
1.00

SR Ripley II

Metric 2 Total 1.00

W002

**Metric 3. Hydrology (Max 30 points).** This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. **A wetland can receive no more than 30 points for Metric 3 even though it is possible to score more than 30 points.**

<b>3a. Sources of Water.</b> Select all that apply and sum the score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		
5pts	High pH groundwater (7.5-9.0)	
3pts	Other groundwater	
1pts	Precipitation	1
3pts	Seasonal surface water	
5pts	Perennial surface water (lake or stream)	
<b>3b. Connectivity.</b> Select all that apply and sum score		
1pt	<b>100 year floodplain.</b> "Floodplain" is defined as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	1
1pt	<b>Between stream/lake and other human land use.</b> This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water buffering it. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	
1pt	<b>Part of a larger wetland or upland complex.</b> This question asks whether the wetland is in physical proximity to, or a part of, other nearby wetland or upland habitat areas.	
1pt	<b>Part of riparian corridor.</b>	
<b>3c. Maximum water depth.</b> Select only one and assign score. The evaluator <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		
3 pts	>0.7m (27.6in)	
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	1
<b>3d. Duration of inundation/saturation.</b> Select one or double check and average the scores if duration is uncertain. The use of ACOE 1987 Manual secondary indicators is necessary and expected in order to properly answer this question.		
4pts	Semi-permanently to permanently inundated or saturated	
3pts	Regularly inundated or saturated	
2pts	Seasonally inundated	
1pt	Seasonally saturated in the upper 30cm (12in) of soil	1

SR Ripley II

3d Avg.= 1.00

W002

**3e. Modifications to natural hydrologic regime.** Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the evaluator to assess the “intactness” of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

Once the evaluator has listed all possible past and ongoing disturbances, the evaluator should check the most appropriate category to describe the present state of the wetland. In instances where the evaluator believes that a wetland falls between two categories, or where the evaluator is uncertain as to which category is appropriate, it is appropriate to choose more than one and average the score.

The evaluator may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

**Check all that are observed present in or near the wetland.**

<input type="checkbox"/>	ditch(es), in or near the wetland	<input type="checkbox"/>	point source discharges to the (non-stormwater)
<input type="checkbox"/>	tile(s), in or near the wetland	<input type="checkbox"/>	filling/grading activities in or near the wetland
<input type="checkbox"/>	dike(s), in or near the wetland	<input type="checkbox"/>	road beds/RR beds in or near the wetland
<input type="checkbox"/>	weir(s), in or near the wetland	<input type="checkbox"/>	dredging activities in or near the wetland
<input type="checkbox"/>	stormwater inputs (addition of water)	<input checked="" type="checkbox"/>	other (specify) <b>agricultural field</b>

Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime.	<u>YES</u>	<u>NO</u>	<u>NOT SURE</u>
	Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.	Assign a score of 12 since there are no or no apparent modifications.	Choose "recovered" and assign a score of 9.5.

Select one or double check adjoining numbers and average the score.		score
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the evaluator.	
7pts	RECOVERED. The wetland appears to have recovered from past modifications.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.	
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.	<b>1</b>

3e Avg=  
1.00

SR Ripley II

Metric 3 Total 5.00

W002

**Metric 4. Habitat Alteration and Development (Max 20 points).** While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. These disturbances are termed "habitat alteration." In many instances, items checked as hydrologic disturbances in Question 3e will present as alterations to a wetland's habitat or disruptions in its development (successional state). In some instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. To determine the appropriate metric scores, the evaluator should carefully determine the actual cause of the disturbance to the wetland.

<p><b>4a. Substrate/Soil Disturbance.</b> Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.</p>	<p>Examples of substrate/soil disturbance include (circle all that apply):</p> <p><input type="checkbox"/> filling and grading</p> <p><input checked="" type="checkbox"/> plowing</p> <p><input type="checkbox"/> grazing (hooves)</p> <p><input checked="" type="checkbox"/> vehicle use (off-road vehicles, construction vehicles)</p> <p><input type="checkbox"/> sedimentation</p> <p><input type="checkbox"/> dredging, and other mechanical disturbances to the soil</p>
--	--

<p>Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils</p>	<p><u>YES</u></p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p><u>NO</u></p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p><u>NOT SURE</u></p> <p>Choose "recovered" and assign a score of 3.5.</p>
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<b>Select one or double check adjoining numbers and average the score.</b>		
4pts	NONE OR NONE APPARENT. There are no disturbances or no disturbances apparent to the evaluator.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	<b>1</b>

4a Avg.=  
1.00

<b>4b. Habitat development.</b> Select only one and assign score. This question asks the evaluator to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically and/or hydrogeomorphically similar wetlands. This question presumes knowledge of the types of wetlands and the range in quality typical of the region or access to data from reference standard examples. If unsure, score as GOOD or MODERATELY GOOD.		
7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears <u>not</u> to be a good example of its type or class because of past or present disturbances, successional state, etc.	<b>1</b>

4b Avg.=  
1.00

SR Ripley II

W002

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

**4c. Habitat alteration.** This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. **The evaluator may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

**Check all that are observed present in or near the wetland**

<input type="checkbox"/>	Mowing	<input type="checkbox"/>	Herbaceous layer/aquatic bed removal
<input type="checkbox"/>	Grazing (cattle, horses, etc.)	<input type="checkbox"/>	Sedimentation
<input type="checkbox"/>	Clearcutting	<input type="checkbox"/>	Dredging
<input type="checkbox"/>	Selective cutting	<input checked="" type="checkbox"/>	Row-crop or orchard farming
<input type="checkbox"/>	Woody debris removal	<input type="checkbox"/>	Nutrient enrichment, e.g. nuisance algae
<input type="checkbox"/>	Toxic pollutants	<input type="checkbox"/>	Other (specify):
<input type="checkbox"/>	Shrub/sapling removal	<input type="checkbox"/>	Other (specify):

Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat.	<u>YES</u>	<u>NO</u>	<u>NOT SURE</u>
	Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.	Assign a score of 9 since there are no or no apparent modifications.	Choose "recovered" and assign a score of 6.

Select one score or double check adjoining numbers and average the score.		Score
9pts	NONE OR NONE APPARENT. There are no past or current alterations that are apparent to the evaluator.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	<b>1</b>

4c Avg. = 1.00

Metric 4 Total 3



**Metric 5. Special wetland communities.** Assign points in left column if the wetland meets the associated criteria below. Refer to Narrative Rating for guidance. If wetland scores over 30 points within Metric 5 further determination needed to assess if the wetland exhibits outstanding ecological or recreational values as discussed in the Narrative Rating Section.

5pts - >10m sq sphagnum or other moss or other vernal pools	5 pts - Superior fish, waterfowl, bat, or amphibian breeding habitat
Ecological community with global rank (NatureServe): G1 (10pts), G2 (5pts), G2/G3 (3pts) or uncommon ecological resource in the ecoregion (habitat and/or species diversity, geology, wetland type, distribution/ occurrence) (10 pts)	5 pts - Wetland contains and is a buffer for a headwater stream or wetland contributes significantly to the water quality of 303(d) listed stream and/or to surface or and/or to ground water
10 pts - Older-aged mature forested wetland avg. DBH >= 30 inches	10 pts - Supports species Deemed in Need of Management by TWRA or TN Special Concern by TDEC

Metric 5 Total 0

<b>Metric 6. Vegetation, Interspersion, and Microtopography (Max 20 points).</b>	Score
<b>6a. Wetland Vegetation Communities</b> Check each community present both vertically and horizontally within the wetland with an area of at least 0.1 hectares or 1000m <sup>2</sup> (0.2471 acres). Assign a score of 0 to 3 using Table 3 for 1-4 or Table 5 for 5-6. Sum the scores for the classes present.	
<b>1)Aquatic Bed</b> Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed ( <i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	
<b>2)Emergent</b> Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, and fens.	3
<b>3)Shrub</b> Includes areas of wetlands dominated by woody vegetation less than 1m (3ft.) - 6m (20 ft) tall with a dbh of <3in. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	
<b>4)Forested</b> Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are "vernal pools".	
<b>5)Mudflats</b> The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB <sub>3</sub> ) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	
<b>6)Open water</b> The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas that are 1) inundated, 2) un-vegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 4 for narrative description of "low," "moderate," and "high" quality.

Cover Scale	Description
0	The vegetation community is either 1) absent from wetland or 2) Comprises less than 0.1 ha (.2471 acres) of contiguous area within the wetland
1	Vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation and is of low quality
2	Thee vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	The vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation

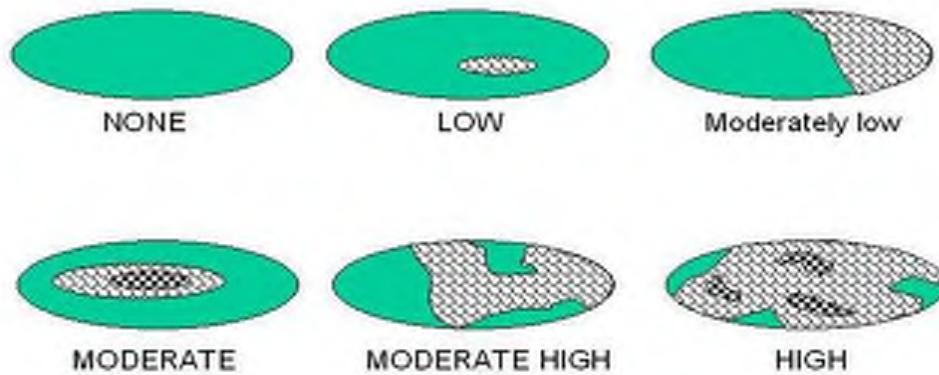
Table 4. Use this table in conjunction with Table 3 to determine what is a "low", "moderate," or "high" quality community.

Narrative	Description
Low	Low species richness and a predominance of invasive, non-native, or disturbance tolerant "weedy" species.
Moderate	Native species are the dominant component of the vegetation, although non-native or disturbance tolerant "weedy" species can also be present, and species richness is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species.
High	A predominance of native species, with non-native species absent or virtually absent, and high species diversity and/or the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

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

<b>6b. Horizontal (plan view) interspersion.</b> Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		Score
5pts	HIGH Wetland has a high degree of interspersion	
4pts	MODERATELY HIGH Wetland has a moderately high degree of interspersion	
3pts	MODERATE Wetland has a moderate degree of interspersion	
2pts	MODERATELY LOW Wetland has a moderately low degree of interspersion	
1pt	LOW Wetland has a low degree of interspersion.	1
0pt	NONE Wetland has no plan view interspersion	



**Figure 1. Hypothetical Wetlands for estimating degree of interspersion**

<b>6c. Coverage of Invasive Plant Species.</b> Refer to Tennessee Exotic Pest Plant Council ( <a href="http://www.tneppc.org/">http://www.tneppc.org/</a> ) for official list. Select only one and assign score.		Score
-5pts	Extensive >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	
-1pts	Sparse 5-25% areal cover of invasive species	
0pt	Nearly absent. <5% areal cover of invasive species	
1pt	Absent	1
<b>6d. Microtopography.</b> Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		Score
Vegetated hummocks and tussocks		
Coarse woody debris >15cm (6in) in diameter		
Standing dead trees >25cm (10in) diameter at breast height		
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction		1

Table 6. Cover scale for microtopographic habitat features

Microtopographic habitat quality	Narrative description
0	Feature is absent or functionally absent from the wetland
1	Feature is present in the wetland in very small amounts or if more common, of low quality
2	Feature is 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 the highest quality

## NON-HGM TRAM Summary Worksheet

<b>Non-HGM Quantitative Rating</b>	Metric 1: Size	1
	Metric 2: Buffers and surrounding land use	1
	Metric 3: Hydrology	5
	Metric 4: Habitat	3
	Metric 5: Special Wetland Communities	0
	Metric 6: Plant communities, interspersed, microtopography	6
	<b>TOTAL SCORE</b>	16

SR Ripley II

W002

**Rank = Low**

**"Wetland Conditions with an overall score of 100-75 are considered Exceptional Tennessee Waters. Wetlands with a score of 74-45 are considered to have moderate resource value, and wetland with a score of 44 and below have a low resource value."  
(TRAM 2015, pg 2)**

**Quantitative Rating  
Tennessee Rapid Assessment Method**

**Metric 1. Wetland area (max 6 pts).** Estimate the area of wetland and select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.

6pts	>50 acres (west TN)	>25 acres (middle TN)	>10 acres (east TN *)	
5pts	25 - <50 acres (west TN)	10- 25 acres (middle TN)	7-<10 acres (east TN*)	
4pts	10 - <25 acres (west TN)	7-< 25acres (middle TN)	3-<7 acres (east TN*)	
3pts	3 - <10 acres(west TN)	3< 7 acres (middle TN)	1-<3 acres (east TN)	
2pts	0.3 - <3 acres (west TN)	0.5- <3 acres (middle TN)	0.5-<1 acres (east TN)	
1pt	0.1 - <0.3 acres(west TN)	<0.5 acres (middle TN)	<0.5 acres (east TN)	<b>1</b>

\*More applicable to West Tennessee; use with discretion in Middle Tennessee, Consult TDEC-DWR Natural Resources Unit for use in East Tennessee.

Table 2. Metric to English conversion table with visual estimation sizes.							
acres	ft <sup>2</sup>	yd <sup>2</sup>	ft on side	yd on side	ha	m <sup>2</sup>	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

**Metric 1 Total** 1

**Metric 2. Upland buffers and intensity of surrounding land uses (Max 14 points).** Wetlands without upland "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded and often have lower wildlife habitat resource value.

**2a. Average Buffer Width (ABW).** Calculate the average buffer width and select only one score. To calculate ABW, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: ABW of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows:  $ABW = (50m + 25m + 10m + 0m)/4 = 21.25m$ . Intensive land uses are not buffers, e.g. active row cropping, paved areas, housing developments, etc.

7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	
0pts	VERY NARROW. <10m (<32ft) around perimeter.	0

2a Avg.=  
0.00

**2b. Intensity of predominant surrounding land use(s)** Select one, or choose up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone.

7pts	VERY LOW. 2 <sup>nd</sup> growth or older forest, prairie, barren, wildlife area, etc.	
5pts	LOW. Old fallow field, shrub land, early successional young forest, etc.	
3pts	MODERATELY HIGH. Residential, pasture, orchard, park, conservation tillage, mowed field, etc.	
1pt	HIGH. urban, industrial, row cropping, mining, construction, etc.	1

2b Avg.=  
1.00

SR Ripley II

Metric 2 Total 1.00

W003

**Metric 3. Hydrology (Max 30 points).** This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. **A wetland can receive no more than 30 points for Metric 3 even though it is possible to score more than 30 points.**

<b>3a. Sources of Water.</b> Select all that apply and sum the score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		
5pts	High pH groundwater (7.5-9.0)	
3pts	Other groundwater	
1pts	Precipitation	1
3pts	Seasonal surface water	
5pts	Perennial surface water (lake or stream)	
<b>3b. Connectivity.</b> Select all that apply and sum score		
1pt	<b>100 year floodplain.</b> "Floodplain" is defined as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	
1pt	<b>Between stream/lake and other human land use.</b> This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water buffering it. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	
1pt	<b>Part of a larger wetland or upland complex.</b> This question asks whether the wetland is in physical proximity to, or a part of, other nearby wetland or upland habitat areas.	
1pt	<b>Part of riparian corridor.</b>	0
<b>3c. Maximum water depth.</b> Select only one and assign score. The evaluator <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		
3 pts	>0.7m (27.6in)	
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	1
<b>3d. Duration of inundation/saturation.</b> Select one or double check and average the scores if duration is uncertain. The use of ACOE 1987 Manual secondary indicators is necessary and expected in order to properly answer this question.		
4pts	Semi-permanently to permanently inundated or saturated	
3pts	Regularly inundated or saturated	
2pts	Seasonally inundated	
1pt	Seasonally saturated in the upper 30cm (12in) of soil	1

SR Ripley II

3d Avg.= 1.00

W003

**3e. Modifications to natural hydrologic regime.** Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the evaluator to assess the "intactness" of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

Once the evaluator has listed all possible past and ongoing disturbances, the evaluator should check the most appropriate category to describe the present state of the wetland. In instances where the evaluator believes that a wetland falls between two categories, or where the evaluator is uncertain as to which category is appropriate, it is appropriate to choose more than one and average the score.

The evaluator may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

**Check all that are observed present in or near the wetland.**

	ditch(es), in or near the wetland		point source discharges to the (non-stormwater)
	tile(s), in or near the wetland		filling/grading activities in or near the wetland
	dike(s), in or near the wetland	X	road beds/RR beds in or near the wetland
	weir(s), in or near the wetland		dredging activities in or near the wetland
	stormwater inputs (addition of water)	X	other (specify) <b>agricultural field</b>

Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime.	<u>YES</u> Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.	<u>NO</u> Assign a score of 12 since there are no or no apparent modifications.	<u>NOT SURE</u> Choose "recovered" and assign a score of 9.5.
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Select one or double check adjoining numbers and average the score.		score
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the evaluator.	
7pts	RECOVERED. The wetland appears to have recovered from past modifications.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.	
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.	<b>1</b>

3e Avg=  
1.00

SR Ripley II

Metric 3 Total 4.00

W003



**Metric 4. Habitat Alteration and Development (Max 20 points).** While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. These disturbances are termed "habitat alteration." In many instances, items checked as hydrologic disturbances in Question 3e will present as alterations to a wetland's habitat or disruptions in its development (successional state). In some instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. To determine the appropriate metric scores, the evaluator should carefully determine the actual cause of the disturbance to the wetland.

<p><b>4a. Substrate/Soil Disturbance.</b> Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.</p>	<p>Examples of substrate/soil disturbance include (circle all that apply):</p> <p><input type="checkbox"/> filling and grading</p> <p><input checked="" type="checkbox"/> plowing</p> <p><input type="checkbox"/> grazing (hooves)</p> <p><input checked="" type="checkbox"/> vehicle use (off-road vehicles, construction vehicles)</p> <p><input type="checkbox"/> sedimentation</p> <p><input type="checkbox"/> dredging, and other mechanical disturbances to the soil</p>
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<p>Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils</p>	<p><u>YES</u></p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p><u>NO</u></p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p><u>NOT SURE</u></p> <p>Choose "recovered" and assign a score of 3.5.</p>
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<b>Select one or double check adjoining numbers and average the score.</b>		
4pts	NONE OR NONE APPARENT. There are no disturbances or no disturbances apparent to the evaluator.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	<b>1</b>

4a Avg.=  
1.00

**4b. Habitat development.** Select only one and assign score. This question asks the evaluator to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically and/or hydrogeomorphically similar wetlands. This question presumes knowledge of the types of wetlands and the range in quality typical of the region or access to data from reference standard examples. If unsure, score as GOOD or MODERATELY GOOD.

7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears <u>not</u> to be a good example of its type or class because of past or present disturbances, successional state, etc.	<b>1</b>

4b Avg.=  
1.00

**4c. Habitat alteration.** This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. **The evaluator may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

**Check all that are observed present in or near the wetland**

<input type="checkbox"/>	Mowing	<input type="checkbox"/>	Herbaceous layer/aquatic bed removal
<input type="checkbox"/>	Grazing (cattle, horses, etc.)	<input type="checkbox"/>	Sedimentation
<input type="checkbox"/>	Clearcutting	<input type="checkbox"/>	Dredging
<input type="checkbox"/>	Selective cutting	<input checked="" type="checkbox"/>	Row-crop or orchard farming
<input type="checkbox"/>	Woody debris removal	<input type="checkbox"/>	Nutrient enrichment, e.g. nuisance algae
<input type="checkbox"/>	Toxic pollutants	<input type="checkbox"/>	Other (specify):
<input type="checkbox"/>	Shrub/sapling removal	<input type="checkbox"/>	Other (specify):

Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat.	<u>YES</u>	<u>NO</u>	<u>NOT SURE</u>
	Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.	Assign a score of 9 since there are no or no apparent modifications.	Choose "recovered" and assign a score of 6.

Select one score or double check adjoining numbers and average the score.		Score
9pts	NONE OR NONE APPARENT. There are no past or current alterations that are apparent to the evaluator.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	<b>1</b>

4c Avg. = 1.00

Metric 4 Total 3

**Metric 5. Special wetland communities.** Assign points in left column if the wetland meets the associated criteria below. Refer to Narrative Rating for guidance. If wetland scores over 30 points within Metric 5 further determination needed to assess if the wetland exhibits outstanding ecological or recreational values as discussed in the Narrative Rating Section.

5pts - >10m sq sphagnum or other moss or other vernal pools	5 pts - Superior fish, waterfowl, bat, or amphibian breeding habitat
Ecological community with global rank (NatureServe): G1 (10pts), G2 (5pts), G2/G3 (3pts) or uncommon ecological resource in the ecoregion (habitat and/or species diversity, geology, wetland type, distribution/ occurrence) (10 pts)	5 pts - Wetland contains and is a buffer for a headwater stream or wetland contributes significantly to the water quality of 303(d) listed stream and/or to surface or and/or to ground water
10 pts - Older-aged mature forested wetland avg. DBH >= 30 inches	10 pts - Supports species Deemed in Need of Management by TWRA or TN Special Concern by TDEC

Metric 5 Total 0

**Metric 6. Vegetation, Interspersion, and Microtopography (Max 20 points).**

	Score
<b>6a. Wetland Vegetation Communities</b> Check each community present both vertically and horizontally within the wetland with an area of at least 0.1 hectares or 1000m <sup>2</sup> (0.2471 acres). Assign a score of 0 to 3 using Table 3 for 1-4 or Table 5 for 5-6. Sum the scores for the classes present.	
<b>1)Aquatic Bed</b> Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed ( <i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	0
<b>2)Emergent</b> Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, and fens.	0
<b>3)Shrub</b> Includes areas of wetlands dominated by woody vegetation less than 1m (3ft.) - 6m (20 ft) tall with a dbh of <3in. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	0
<b>4)Forested</b> Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are "vernal pools".	0
<b>5)Mudflats</b> The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB <sub>3</sub> ) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	0
<b>6)Open water</b> The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas that are 1) inundated, 2) un-vegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	0

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 4 for narrative description of "low," "moderate," and "high" quality.

Cover Scale	Description
0	The vegetation community is either 1) absent from wetland or 2) Comprises less than 0.1 ha (.2471 acres) of contiguous area within the wetland
1	Vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation and is of low quality
2	Thee vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	The vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation

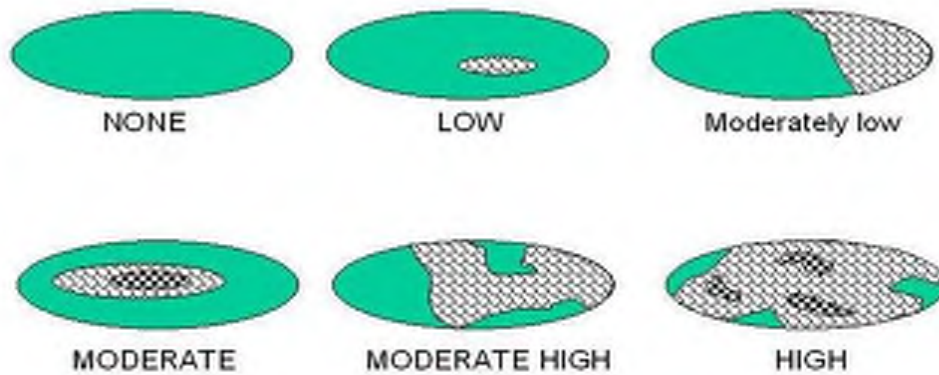
Table 4. Use this table in conjunction with Table 3 to determine what is a "low," "moderate," or "high" quality community.

Narrative	Description
Low	Low species richness and a predominance of invasive, non-native, or disturbance tolerant "weedy" species.
Moderate	Native species are the dominant component of the vegetation, although non-native or disturbance tolerant "weedy" species can also be present, and species richness is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species.
High	A predominance of native species, with non-native species absent or virtually absent, and high species diversity and/or the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

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

<b>6b. Horizontal (plan view) interspersion.</b> Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		Score
5pts	HIGH Wetland has a high degree of interspersion	
4pts	MODERATELY HIGH Wetland has a moderately high degree of interspersion	
3pts	MODERATE Wetland has a moderate degree of interspersion	
2pts	MODERATELY LOW Wetland has a moderately low degree of interspersion	
1pt	LOW Wetland has a low degree of interspersion.	1
0pt	NONE Wetland has no plan view interspersion	



**Figure 1. Hypothetical Wetlands for estimating degree of interspersions**

<b>6c. Coverage of Invasive Plant Species.</b> Refer to Tennessee Exotic Pest Plant Council ( <a href="http://www.tneppc.org/">http://www.tneppc.org/</a> ) for official list. Select only one and assign score.		Score
-5pts	Extensive >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	
-1pts	Sparse 5-25% areal cover of invasive species	
0pt	Nearly absent. <5% areal cover of invasive species	
1pt	Absent	1
<b>6d. Microtopography.</b> Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		Score
Vegetated hummocks and tussocks		
Coarse woody debris >15cm (6in) in diameter		
Standing dead trees >25cm (10in) diameter at breast height		
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction		1

Table 6. Cover scale for microtopographic habitat features

Microtopographic habitat quality	Narrative description
0	Feature is absent or functionally absent from the wetland
1	Feature is present in the wetland in very small amounts or if more common, of low quality
2	Feature is 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 the highest quality

## NON-HGM TRAM Summary Worksheet

<b>Non-HGM Quantitative Rating</b>	Metric 1: Size	1
	Metric 2: Buffers and surrounding land use	1
	Metric 3: Hydrology	4
	Metric 4: Habitat	3
	Metric 5: Special Wetland Communities	0
	Metric 6: Plant communities, interspersed, microtopography	3
	<b>TOTAL SCORE</b>	12

SR Ripley II

W003

**Rank = Low**

**"Wetland Conditions with an overall score of 100-75 are considered Exceptional Tennessee Waters. Wetlands with a score of 74-45 are considered to have moderate resource value, and wetland with a score of 44 and below have a low resource value."**  
**(TRAM 2015, pg 2)**

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

**Metric 1. Wetland area (max 6 pts).** Estimate the area of wetland and select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.

6pts	>50 acres (west TN)	>25 acres (middle TN)	>10 acres (east TN *)	
5pts	25 - <50 acres (west TN)	10- 25 acres (middle TN)	7-<10 acres (east TN*)	
4pts	10 - <25 acres (west TN)	7-< 25acres (middle TN)	3-<7 acres (east TN*)	
3pts	3 - <10 acres(west TN)	3< 7 acres (middle TN)	1-<3 acres (east TN)	
2pts	0.3 - <3 acres (west TN)	0.5- <3 acres (middle TN)	0.5-<1 acres (east TN)	<b>2</b>
1pt	0.1 - <0.3 acres(west TN)	<0.5 acres (middle TN)	<0.5 acres (east TN)	

\*More applicable to West Tennessee; use with discretion in Middle Tennessee, Consult TDEC-DWR Natural Resources Unit for use in East Tennessee.

Table 2. Metric to English conversion table with visual estimation sizes.							
acres	ft <sup>2</sup>	yd <sup>2</sup>	ft on side	yd on side	ha	m <sup>2</sup>	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

**Metric 1 Total** 2

**Metric 2. Upland buffers and intensity of surrounding land uses (Max 14 points).** Wetlands without upland "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded and often have lower wildlife habitat resource value.

**2a. Average Buffer Width (ABW).** Calculate the average buffer width and select only one score. To calculate ABW, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: ABW of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows:  $ABW = (50m + 25m + 10m + 0m)/4 = 21.25m$ . Intensive land uses are not buffers, e.g. active row cropping, paved areas, housing developments, etc.

7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	2
0pts	VERY NARROW. <10m (<32ft) around perimeter.	

2a Avg.=  
2.00

**2b. Intensity of predominant surrounding land use(s)** Select one, or choose up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone.

7pts	VERY LOW. 2 <sup>nd</sup> growth or older forest, prairie, barren, wildlife area, etc.	
5pts	LOW. Old fallow field, shrub land, early successional young forest, etc.	
3pts	MODERATELY HIGH. Residential, pasture, orchard, park, conservation tillage, mowed field, etc.	
1pt	HIGH. urban, industrial, row cropping, mining, construction, etc.	2

2b Avg.=  
2.00

SR Ripley II

Metric 2 Total 4.00

W004



**Metric 3. Hydrology (Max 30 points).** This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. **A wetland can receive no more than 30 points for Metric 3 even though it is possible to score more than 30 points.**

<b>3a. Sources of Water.</b> Select all that apply and sum the score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		
5pts	High pH groundwater (7.5-9.0)	
3pts	Other groundwater	
1pts	Precipitation	1
3pts	Seasonal surface water	
5pts	Perennial surface water (lake or stream)	
<b>3b. Connectivity.</b> Select all that apply and sum score		
1pt	<b>100 year floodplain.</b> "Floodplain" is defined as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	
1pt	<b>Between stream/lake and other human land use.</b> This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water buffering it. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	1
1pt	<b>Part of a larger wetland or upland complex.</b> This question asks whether the wetland is in physical proximity to, or a part of, other nearby wetland or upland habitat areas.	
1pt	<b>Part of riparian corridor.</b>	
<b>3c. Maximum water depth.</b> Select only one and assign score. The evaluator <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		
3 pts	>0.7m (27.6in)	
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	1
<b>3d. Duration of inundation/saturation.</b> Select one or double check and average the scores if duration is uncertain. The use of ACOE 1987 Manual secondary indicators is necessary and expected in order to properly answer this question.		
4pts	Semi-permanently to permanently inundated or saturated	
3pts	Regularly inundated or saturated	
2pts	Seasonally inundated	
1pt	Seasonally saturated in the upper 30cm (12in) of soil	1

SR Ripley II

3d Avg.= 1.00

W004

**3e. Modifications to natural hydrologic regime.** Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the evaluator to assess the “intactness” of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

Once the evaluator has listed all possible past and ongoing disturbances, the evaluator should check the most appropriate category to describe the present state of the wetland. In instances where the evaluator believes that a wetland falls between two categories, or where the evaluator is uncertain as to which category is appropriate, it is appropriate to choose more than one and average the score.

The evaluator may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

**Check all that are observed present in or near the wetland.**

<input checked="" type="checkbox"/>	ditch(es), in or near the wetland	<input type="checkbox"/>	point source discharges to the (non-stormwater)
<input type="checkbox"/>	tile(s), in or near the wetland	<input type="checkbox"/>	filling/grading activities in or near the wetland
<input type="checkbox"/>	dike(s), in or near the wetland	<input type="checkbox"/>	road beds/RR beds in or near the wetland
<input type="checkbox"/>	weir(s), in or near the wetland	<input type="checkbox"/>	dredging activities in or near the wetland
<input type="checkbox"/>	stormwater inputs (addition of water)	<input checked="" type="checkbox"/>	other (specify) adjacent to agricultural field

Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime.	<u>YES</u> Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.	<u>NO</u> Assign a score of 12 since there are no or no apparent modifications.	<u>NOT SURE</u> Choose "recovered" and assign a score of 9.5.
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Select one or double check adjoining numbers and average the score.		score
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the evaluator.	
7pts	RECOVERED. The wetland appears to have recovered from past modifications.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.	4
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.	

3e Avg=  
4.00

SR Ripley II

Metric 3 Total 8.00

W004

**Metric 4. Habitat Alteration and Development (Max 20 points).** While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. These disturbances are termed "habitat alteration." In many instances, items checked as hydrologic disturbances in Question 3e will present as alterations to a wetland's habitat or disruptions in its development (successional state). In some instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. To determine the appropriate metric scores, the evaluator should carefully determine the actual cause of the disturbance to the wetland.

<p><b>4a. Substrate/Soil Disturbance.</b> Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.</p>	<p>Examples of substrate/soil disturbance include (circle all that apply):</p> <p><input type="checkbox"/> filling and grading</p> <p><input checked="" type="checkbox"/> plowing</p> <p><input type="checkbox"/> grazing (hooves)</p> <p><input checked="" type="checkbox"/> vehicle use (off-road vehicles, construction vehicles)</p> <p><input type="checkbox"/> sedimentation</p> <p><input type="checkbox"/> dredging, and other mechanical disturbances to the soil</p>
--	--

<p>Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils</p>	<p><u>YES</u></p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p><u>NO</u></p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p><u>NOT SURE</u></p> <p>Choose "recovered" and assign a score of 3.5.</p>
--	--	--	---

<b>Select one or double check adjoining numbers and average the score.</b>		
4pts	NONE OR NONE APPARENT. There are no disturbances or no disturbances apparent to the evaluator.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	2
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	

4a Avg. =  
2.00

**4b. Habitat development.** Select only one and assign score. This question asks the evaluator to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically and/or hydrogeomorphically similar wetlands. This question presumes knowledge of the types of wetlands and the range in quality typical of the region or access to data from reference standard examples. If unsure, score as GOOD or MODERATELY GOOD.

7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	4
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears <u>not</u> to be a good example of its type or class because of past or present disturbances, successional state, etc.	

4b Avg. =  
4.00

**4c. Habitat alteration.** This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. **The evaluator may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

**Check all that are observed present in or near the wetland**

<input type="checkbox"/>	Mowing	<input type="checkbox"/>	Herbaceous layer/aquatic bed removal
<input type="checkbox"/>	Grazing (cattle, horses, etc.)	<input type="checkbox"/>	Sedimentation
<input type="checkbox"/>	Clearcutting	<input type="checkbox"/>	Dredging
<input type="checkbox"/>	Selective cutting	<input checked="" type="checkbox"/>	Row-crop or orchard farming
<input type="checkbox"/>	Woody debris removal	<input type="checkbox"/>	Nutrient enrichment, e.g. nuisance algae
<input type="checkbox"/>	Toxic pollutants	<input type="checkbox"/>	Other (specify):
<input type="checkbox"/>	Shrub/sapling removal	<input type="checkbox"/>	Other (specify):

Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat.	<u>YES</u>	<u>NO</u>	<u>NOT SURE</u>
	Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.	Assign a score of 9 since there are no or no apparent modifications.	Choose "recovered" and assign a score of 6.

Select one score or double check adjoining numbers and average the score.		Score
9pts	NONE OR NONE APPARENT. There are no past or current alterations that are apparent to the evaluator.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	3
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	

4c Avg. =  
3.00

Metric 4 Total 9

**Metric 5. Special wetland communities.** Assign points in left column if the wetland meets the associated criteria below. Refer to Narrative Rating for guidance. If wetland scores over 30 points within Metric 5 further determination needed to assess if the wetland exhibits outstanding ecological or recreational values as discussed in the Narrative Rating Section.

5pts - >10m sq sphagnum or other moss or other vernal pools	5 pts - Superior fish, waterfowl, bat, or amphibian breeding habitat
Ecological community with global rank (NatureServe): G1 (10pts), G2 (5pts), G2/G3 (3pts) or uncommon ecological resource in the ecoregion (habitat and/or species diversity, geology, wetland type, distribution/ occurrence) (10 pts)	5 pts - Wetland contains and is a buffer for a headwater stream or wetland contributes significantly to the water quality of 303(d) listed stream and/or to surface or and/or to ground water
10 pts - Older-aged mature forested wetland avg. DBH >= 30 inches	10 pts - Supports species Deemed in Need of Management by TWRA or TN Special Concern by TDEC

Metric 5 Total 0

**Metric 6. Vegetation, Interspersion, and Microtopography (Max 20 points).**

	Score
<b>6a. Wetland Vegetation Communities</b> Check each community present both vertically and horizontally within the wetland with an area of at least 0.1 hectares or 1000m <sup>2</sup> (0.2471 acres). Assign a score of 0 to 3 using Table 3 for 1-4 or Table 5 for 5-6. Sum the scores for the classes present.	
<b>1)Aquatic Bed</b> Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed ( <i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	0
<b>2)Emergent</b> Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, and fens.	
<b>3)Shrub</b> Includes areas of wetlands dominated by woody vegetation less than 1m (3ft.) - 6m (20 ft) tall with a dbh of <3in. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	0
<b>4)Forested</b> Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are "vernal pools".	2
<b>5)Mudflats</b> The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB <sub>3</sub> ) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	0
<b>6)Open water</b> The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas that are 1) inundated, 2) un-vegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	0

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 4 for narrative description of "low," "moderate," and "high" quality.

Cover Scale	Description
0	The vegetation community is either 1) absent from wetland or 2) Comprises less than 0.1 ha (.2471 acres) of contiguous area within the wetland
1	Vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation and is of low quality
2	Thee vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	The vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation

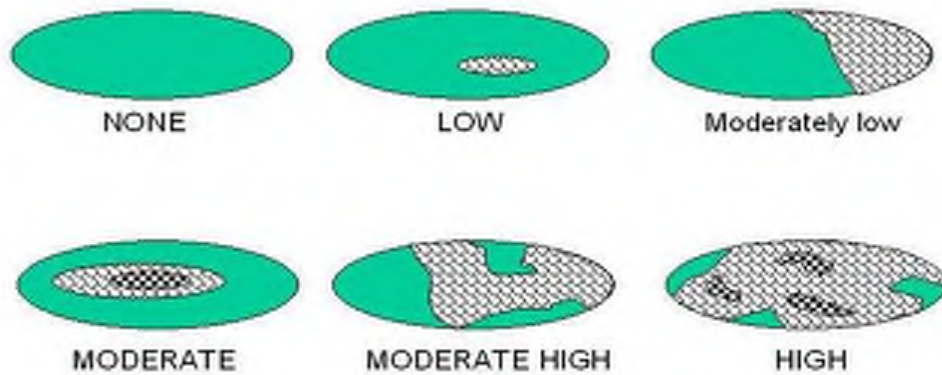
Table 4. Use this table in conjunction with Table 3 to determine what is a "low", "moderate," or "high" quality community.

Narrative	Description
Low	Low species richness and a predominance of invasive, non-native, or disturbance tolerant "weedy" species.
Moderate	Native species are the dominant component of the vegetation, although non-native or disturbance tolerant "weedy" species can also be present, and species richness is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species.
High	A predominance of native species, with non-native species absent or virtually absent, and high species diversity and/or the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

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

<b>6b. Horizontal (plan view) interspersion.</b> Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		Score
5pts	HIGH Wetland has a high degree of interspersion	
4pts	MODERATELY HIGH Wetland has a moderately high degree of interspersion	
3pts	MODERATE Wetland has a moderate degree of interspersion	3
2pts	MODERATELY LOW Wetland has a moderately low degree of interspersion	
1pt	LOW Wetland has a low degree of interspersion.	
0pt	NONE Wetland has no plan view interspersion	



**Figure 1. Hypothetical Wetlands for estimating degree of interspersion**

<b>6c. Coverage of Invasive Plant Species.</b> Refer to Tennessee Exotic Pest Plant Council ( <a href="http://www.tneppc.org/">http://www.tneppc.org/</a> ) for official list. Select only one and assign score.		Score
-5pts	Extensive >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	-3
-1pts	Sparse 5-25% areal cover of invasive species	
0pt	Nearly absent. <5% areal cover of invasive species	
1pt	Absent	
<b>6d. Microtopography.</b> Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		Score
Vegetated hummocks and tussocks		
Coarse woody debris >15cm (6in) in diameter		2
Standing dead trees >25cm (10in) diameter at breast height		2
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction		

Table 6. Cover scale for microtopographic habitat features

Microtopographic habitat quality	Narrative description
0	Feature is absent or functionally absent from the wetland
1	Feature is present in the wetland in very small amounts or if more common, of low quality
2	Feature is 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 the highest quality

## NON-HGM TRAM Summary Worksheet

<b>Non-HGM Quantitative Rating</b>	Metric 1: Size	2
	Metric 2: Buffers and surrounding land use	4
	Metric 3: Hydrology	8
	Metric 4: Habitat	9
	Metric 5: Special Wetland Communities	0
	Metric 6: Plant communities, interspersed, microtopography	6
	<b>TOTAL SCORE</b>	29

SR Ripley II

W004

**Rank = Low**

**"Wetland Conditions with an overall score of 100-75 are considered Exceptional Tennessee Waters. Wetlands with a score of 74-45 are considered to have moderate resource value, and wetland with a score of 44 and below have a low resource value."  
(TRAM 2015, pg 2)**



**Quantitative Rating  
Tennessee Rapid Assessment Method**

**Metric 1. Wetland area (max 6 pts).** Estimate the area of wetland and select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.

6pts	>50 acres (west TN)	>25 acres (middle TN)	>10 acres (east TN *)	
5pts	25 - <50 acres (west TN)	10- 25 acres (middle TN)	7-<10 acres (east TN*)	
4pts	10 - <25 acres (west TN)	7-< 25acres (middle TN)	3-<7 acres (east TN*)	
3pts	3 - <10 acres(west TN)	3< 7 acres (middle TN)	1-<3 acres (east TN)	
2pts	0.3 - <3 acres (west TN)	0.5- <3 acres (middle TN)	0.5-<1 acres (east TN)	
1pt	0.1 - <0.3 acres(west TN)	<0.5 acres (middle TN)	<0.5 acres (east TN)	<b>1</b>

\*More applicable to West Tennessee; use with discretion in Middle Tennessee, Consult TDEC-DWR Natural Resources Unit for use in East Tennessee.

Table 2. Metric to English conversion table with visual estimation sizes.							
acres	ft <sup>2</sup>	yd <sup>2</sup>	ft on side	yd on side	ha	m <sup>2</sup>	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

**Metric 1 Total** 1

**Metric 2. Upland buffers and intensity of surrounding land uses (Max 14 points).** Wetlands without upland "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded and often have lower wildlife habitat resource value.

**2a. Average Buffer Width (ABW).** Calculate the average buffer width and select only one score. To calculate ABW, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: ABW of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows:  $ABW = (50m + 25m + 10m + 0m)/4 = 21.25m$ . Intensive land uses are not buffers, e.g. active row cropping, paved areas, housing developments, etc.

7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	1
0pts	VERY NARROW. <10m (<32ft) around perimeter.	

2a Avg.=  
1.00

**2b. Intensity of predominant surrounding land use(s)** Select one, or choose up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone.

7pts	VERY LOW. 2 <sup>nd</sup> growth or older forest, prairie, barren, wildlife area, etc.	
5pts	LOW. Old fallow field, shrub land, early successional young forest, etc.	
3pts	MODERATELY HIGH. Residential, pasture, orchard, park, conservation tillage, mowed field, etc.	3
1pt	HIGH. urban, industrial, row cropping, mining, construction, etc.	

2b Avg.=  
3.00

SR Ripley II

Metric 2 Total 4.00

W005

**Metric 3. Hydrology (Max 30 points).** This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. **A wetland can receive no more than 30 points for Metric 3 even though it is possible to score more than 30 points.**

<b>3a. Sources of Water.</b> Select all that apply and sum the score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		
5pts	High pH groundwater (7.5-9.0)	
3pts	Other groundwater	
1pts	Precipitation	2
3pts	Seasonal surface water	
5pts	Perennial surface water (lake or stream)	
<b>3b. Connectivity.</b> Select all that apply and sum score		
1pt	<b>100 year floodplain.</b> "Floodplain" is defined as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	
1pt	<b>Between stream/lake and other human land use.</b> This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water buffering it. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	1
1pt	<b>Part of a larger wetland or upland complex.</b> This question asks whether the wetland is in physical proximity to, or a part of, other nearby wetland or upland habitat areas.	
1pt	<b>Part of riparian corridor.</b>	
<b>3c. Maximum water depth.</b> Select only one and assign score. The evaluator <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		
3 pts	>0.7m (27.6in)	
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	1
<b>3d. Duration of inundation/saturation.</b> Select one or double check and average the scores if duration is uncertain. The use of ACOE 1987 Manual secondary indicators is necessary and expected in order to properly answer this question.		
4pts	Semi-permanently to permanently inundated or saturated	
3pts	Regularly inundated or saturated	
2pts	Seasonally inundated	
1pt	Seasonally saturated in the upper 30cm (12in) of soil	1

SR Ripley II

3d Avg.= 1.00

W005

**3e. Modifications to natural hydrologic regime.** Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the evaluator to assess the “intactness” of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

Once the evaluator has listed all possible past and ongoing disturbances, the evaluator should check the most appropriate category to describe the present state of the wetland. In instances where the evaluator believes that a wetland falls between two categories, or where the evaluator is uncertain as to which category is appropriate, it is appropriate to choose more than one and average the score.

The evaluator may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

**Check all that are observed present in or near the wetland.**

<input checked="" type="checkbox"/>	ditch(es), in or near the wetland		point source discharges to the (non-stormwater)
	tile(s), in or near the wetland		filling/grading activities in or near the wetland
	dike(s), in or near the wetland		road beds/RR beds in or near the wetland
	weir(s), in or near the wetland		dredging activities in or near the wetland
	stormwater inputs (addition of water)	<input checked="" type="checkbox"/>	other (specify) adjacent to agricultural field

Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime.	<u>YES</u> Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.	<u>NO</u> Assign a score of 12 since there are no or no apparent modifications.	<u>NOT SURE</u> Choose "recovered" and assign a score of 9.5.
<b>Select one or double check adjoining numbers and average the score.</b>			<b>score</b>
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the evaluator.		
7pts	RECOVERED. The wetland appears to have recovered from past modifications.		
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.		5
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.		

3e Avg=  
5.00

SR Ripley II

**Metric 3 Total** 10.00

W005

**Metric 4. Habitat Alteration and Development (Max 20 points).** While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. These disturbances are termed "habitat alteration." In many instances, items checked as hydrologic disturbances in Question 3e will present as alterations to a wetland's habitat or disruptions in its development (successional state). In some instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. To determine the appropriate metric scores, the evaluator should carefully determine the actual cause of the disturbance to the wetland.

<p><b>4a. Substrate/Soil Disturbance.</b> Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.</p>	<p>Examples of substrate/soil disturbance include (circle all that apply):</p> <p><input type="checkbox"/> filling and grading</p> <p><input checked="" type="checkbox"/> plowing</p> <p><input type="checkbox"/> grazing (hooves)</p> <p><input checked="" type="checkbox"/> vehicle use (off-road vehicles, construction vehicles)</p> <p><input type="checkbox"/> sedimentation</p> <p><input type="checkbox"/> dredging, and other mechanical disturbances to the soil</p>
--	--

<p>Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils</p>	<p><u>YES</u></p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p><u>NO</u></p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p><u>NOT SURE</u></p> <p>Choose "recovered" and assign a score of 3.5.</p>
--	--	--	---

<b>Select one or double check adjoining numbers and average the score.</b>		
4pts	NONE OR NONE APPARENT. There are no disturbances or no disturbances apparent to the evaluator.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	2.5
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	

4a Avg. =  
2.50

<b>4b. Habitat development.</b> Select only one and assign score. This question asks the evaluator to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically and/or hydrogeomorphically similar wetlands. This question presumes knowledge of the types of wetlands and the range in quality typical of the region or access to data from reference standard examples. If unsure, score as GOOD or MODERATELY GOOD.		
7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	4
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears <u>not</u> to be a good example of its type or class because of past or present disturbances, successional state, etc.	

4b Avg. =  
4.00

SR Ripley II

W005

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

**4c. Habitat alteration.** This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. **The evaluator may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

**Check all that are observed present in or near the wetland**

<input type="checkbox"/>	Mowing	<input type="checkbox"/>	Herbaceous layer/aquatic bed removal
<input type="checkbox"/>	Grazing (cattle, horses, etc.)	<input type="checkbox"/>	Sedimentation
<input type="checkbox"/>	Clearcutting	<input type="checkbox"/>	Dredging
<input type="checkbox"/>	Selective cutting	<input checked="" type="checkbox"/>	Row-crop or orchard farming
<input type="checkbox"/>	Woody debris removal	<input type="checkbox"/>	Nutrient enrichment, e.g. nuisance algae
<input type="checkbox"/>	Toxic pollutants	<input type="checkbox"/>	Other (specify):
<input type="checkbox"/>	Shrub/sapling removal	<input type="checkbox"/>	Other (specify):

Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat.	<u>YES</u>	<u>NO</u>	<u>NOT SURE</u>
	Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.	Assign a score of 9 since there are no or no apparent modifications.	Choose "recovered" and assign a score of 6.

Select one score or double check adjoining numbers and average the score.		Score
9pts	NONE OR NONE APPARENT. There are no past or current alterations that are apparent to the evaluator.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	4.5
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	

4c Avg. =  
4.50

Metric 4 Total 11

**Metric 5. Special wetland communities.** Assign points in left column if the wetland meets the associated criteria below. Refer to Narrative Rating for guidance. If wetland scores over 30 points within Metric 5 further determination needed to assess if the wetland exhibits outstanding ecological or recreational values as discussed in the Narrative Rating Section.

5pts - >10m sq sphagnum or other moss or other vernal pools	5 pts - Superior fish, waterfowl, bat, or amphibian breeding habitat
Ecological community with global rank (NatureServe): G1 (10pts), G2 (5pts), G2/G3 (3pts) or uncommon ecological resource in the ecoregion (habitat and/or species diversity, geology, wetland type, distribution/ occurrence) (10 pts)	5 pts - Wetland contains and is a buffer for a headwater stream or wetland contributes significantly to the water quality of 303(d) listed stream and/or to surface or and/or to ground water
10 pts - Older-aged mature forested wetland avg. DBH >= 30 inches	10 pts - Supports species Deemed in Need of Management by TWRA or TN Special Concern by TDEC

Metric 5 Total 0

<b>Metric 6. Vegetation, Interspersion, and Microtopography (Max 20 points).</b>	Score
<b>6a. Wetland Vegetation Communities</b> Check each community present both vertically and horizontally within the wetland with an area of at least 0.1 hectares or 1000m <sup>2</sup> (0.2471 acres). Assign a score of 0 to 3 using Table 3 for 1-4 or Table 5 for 5-6. Sum the scores for the classes present.	
<b>1)Aquatic Bed</b> Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed ( <i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	0
<b>2)Emergent</b> Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, and fens.	
<b>3)Shrub</b> Includes areas of wetlands dominated by woody vegetation less than 1m (3ft.) - 6m (20 ft) tall with a dbh of <3in. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	0
<b>4)Forested</b> Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are "vernal pools".	2.5
<b>5)Mudflats</b> The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB <sub>3</sub> ) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	0
<b>6)Open water</b> The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas that are 1) inundated, 2) un-vegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	0

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 4 for narrative description of "low," "moderate," and "high" quality.

Cover Scale	Description
0	The vegetation community is either 1) absent from wetland or 2) Comprises less than 0.1 ha (.2471 acres) of contiguous area within the wetland
1	Vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation and is of low quality
2	Thee vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	The vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation

Table 4. Use this table in conjunction with Table 3 to determine what is a "low", "moderate," or "high" quality community.

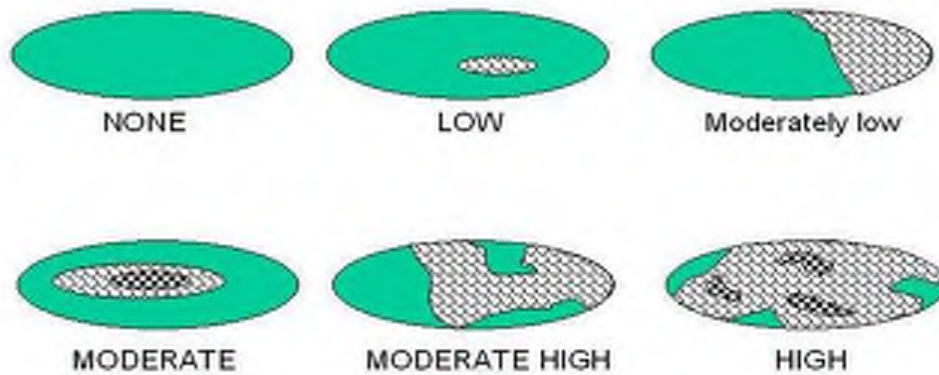
Narrative	Description
Low	Low species richness and a predominance of invasive, non-native, or disturbance tolerant "weedy" species.
Moderate	Native species are the dominant component of the vegetation, although non-native or disturbance tolerant "weedy" species can also be present, and species richness is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species.
High	A predominance of native species, with non-native species absent or virtually absent, and high species diversity and/or the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

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

6b. Horizontal (plan view) interspersion. Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		Score
5pts	HIGH Wetland has a high degree of interspersion	
4pts	MODERATELY HIGH Wetland has a moderately high degree of interspersion	
3pts	MODERATE Wetland has a moderate degree of interspersion	3
2pts	MODERATELY LOW Wetland has a moderately low degree of interspersion	
1pt	LOW Wetland has a low degree of interspersion.	
0pt	NONE Wetland has no plan view interspersion	





**Figure 1. Hypothetical Wetlands for estimating degree of interspersion**

<b>6c. Coverage of Invasive Plant Species.</b> Refer to Tennessee Exotic Pest Plant Council ( <a href="http://www.tneppc.org/">http://www.tneppc.org/</a> ) for official list. Select only one and assign score.		Score
-5pts	Extensive >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	
-1pts	Sparse 5-25% areal cover of invasive species	-2
0pt	Nearly absent. <5% areal cover of invasive species	
1pt	Absent	
<b>6d. Microtopography.</b> Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		Score
Vegetated hummocks and tussocks		
Coarse woody debris >15cm (6in) in diameter		1
Standing dead trees >25cm (10in) diameter at breast height		1
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction		

Table 6. Cover scale for microtopographic habitat features

Microtopographic habitat quality	Narrative description
0	Feature is absent or functionally absent from the wetland
1	Feature is present in the wetland in very small amounts or if more common, of low quality
2	Feature is 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 the highest quality

## NON-HGM TRAM Summary Worksheet

<b>Non-HGM Quantitative Rating</b>	Metric 1: Size	1
	Metric 2: Buffers and surrounding land use	4
	Metric 3: Hydrology	10
	Metric 4: Habitat	11
	Metric 5: Special Wetland Communities	0
	Metric 6: Plant communities, interspersed, microtopography	5.5
	<b>TOTAL SCORE</b>	32

SR Ripley II

W005

**Rank = Low**

**"Wetland Conditions with an overall score of 100-75 are considered Exceptional Tennessee Waters. Wetlands with a score of 74-45 are considered to have moderate resource value, and wetland with a score of 44 and below have a low resource value."**  
**(TRAM 2015, pg 2)**

**Quantitative Rating  
Tennessee Rapid Assessment Method**

**Metric 1. Wetland area (max 6 pts).** Estimate the area of wetland and select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.

6pts	>50 acres (west TN)	>25 acres (middle TN)	>10 acres (east TN *)	
5pts	25 - <50 acres (west TN)	10- 25 acres (middle TN)	7-<10 acres (east TN*)	
4pts	10 - <25 acres (west TN)	7-< 25acres (middle TN)	3-<7 acres (east TN*)	
3pts	3 - <10 acres(west TN)	3< 7 acres (middle TN)	1-<3 acres (east TN)	
2pts	0.3 - <3 acres (west TN)	0.5- <3 acres (middle TN)	0.5-<1 acres (east TN)	
1pt	0.1 - <0.3 acres(west TN)	<0.5 acres (middle TN)	<0.5 acres (east TN)	<b>1</b>

\*More applicable to West Tennessee; use with discretion in Middle Tennessee, Consult TDEC-DWR Natural Resources Unit for use in East Tennessee.

Table 2. Metric to English conversion table with visual estimation sizes.							
acres	ft <sup>2</sup>	yd <sup>2</sup>	ft on side	yd on side	ha	m <sup>2</sup>	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

**Metric 1 Total** 1

**Metric 2. Upland buffers and intensity of surrounding land uses (Max 14 points).** Wetlands without upland "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded and often have lower wildlife habitat resource value.

**2a. Average Buffer Width (ABW).** Calculate the average buffer width and select only one score. To calculate ABW, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: ABW of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows:  $ABW = (50m + 25m + 10m + 0m)/4 = 21.25m$ . Intensive land uses are not buffers, e.g. active row cropping, paved areas, housing developments, etc.

7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	
0pts	VERY NARROW. <10m (<32ft) around perimeter.	0

2a Avg.=  
0.00

**2b. Intensity of predominant surrounding land use(s)** Select one, or choose up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone.

7pts	VERY LOW. 2 <sup>nd</sup> growth or older forest, prairie, barren, wildlife area, etc.	
5pts	LOW. Old fallow field, shrub land, early successional young forest, etc.	
3pts	MODERATELY HIGH. Residential, pasture, orchard, park, conservation tillage, mowed field, etc.	
1pt	HIGH. urban, industrial, row cropping, mining, construction, etc.	1

2b Avg.=  
1.00

SR Ripley II

Metric 2 Total 1.00

W006

**Metric 3. Hydrology (Max 30 points).** This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. **A wetland can receive no more than 30 points for Metric 3 even though it is possible to score more than 30 points.**

<b>3a. Sources of Water.</b> Select all that apply and sum the score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		
5pts	High pH groundwater (7.5-9.0)	
3pts	Other groundwater	3
1pts	Precipitation	
3pts	Seasonal surface water	
5pts	Perennial surface water (lake or stream)	
<b>3b. Connectivity.</b> Select all that apply and sum score		
1pt	<b>100 year floodplain.</b> "Floodplain" is defined as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	0
1pt	<b>Between stream/lake and other human land use.</b> This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water buffering it. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	0
1pt	<b>Part of a larger wetland or upland complex.</b> This question asks whether the wetland is in physical proximity to, or a part of, other nearby wetland or upland habitat areas.	0
1pt	<b>Part of riparian corridor.</b>	0
<b>3c. Maximum water depth.</b> Select only one and assign score. The evaluator <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		
3 pts	>0.7m (27.6in)	
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	1
<b>3d. Duration of inundation/saturation.</b> Select one or double check and average the scores if duration is uncertain. The use of ACOE 1987 Manual secondary indicators is necessary and expected in order to properly answer this question.		
4pts	Semi-permanently to permanently inundated or saturated	
3pts	Regularly inundated or saturated	
2pts	Seasonally inundated	3
1pt	Seasonally saturated in the upper 30cm (12in) of soil	

SR Ripley II

3d Avg.= 2.50

W006

**3e. Modifications to natural hydrologic regime.** Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the evaluator to assess the “intactness” of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

Once the evaluator has listed all possible past and ongoing disturbances, the evaluator should check the most appropriate category to describe the present state of the wetland. In instances where the evaluator believes that a wetland falls between two categories, or where the evaluator is uncertain as to which category is appropriate, it is appropriate to choose more than one and average the score.

The evaluator may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

**Check all that are observed present in or near the wetland.**

<input checked="" type="checkbox"/>	ditch(es), in or near the wetland		point source discharges to the (non-stormwater)
	tile(s), in or near the wetland		filling/grading activities in or near the wetland
	dike(s), in or near the wetland		road beds/RR beds in or near the wetland
	weir(s), in or near the wetland		dredging activities in or near the wetland
	stormwater inputs (addition of water)	<input checked="" type="checkbox"/>	other (specify) <b>agricultural field</b>

Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime.	<u>YES</u> Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.	<u>NO</u> Assign a score of 12 since there are no or no apparent modifications.	<u>NOT SURE</u> Choose "recovered" and assign a score of 9.5.
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Select one or double check adjoining numbers and average the score.		score
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the evaluator.	
7pts	RECOVERED. The wetland appears to have recovered from past modifications.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.	
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.	<b>1</b>

3e Avg=  
1.00

SR Ripley II

Metric 3 Total 7.50

W006

**Metric 4. Habitat Alteration and Development (Max 20 points).** While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. These disturbances are termed "habitat alteration." In many instances, items checked as hydrologic disturbances in Question 3e will present as alterations to a wetland's habitat or disruptions in its development (successional state). In some instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. To determine the appropriate metric scores, the evaluator should carefully determine the actual cause of the disturbance to the wetland.

<p><b>4a. Substrate/Soil Disturbance.</b> Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.</p>	<p>Examples of substrate/soil disturbance include (circle all that apply):</p> <p><input type="checkbox"/> filling and grading</p> <p><input checked="" type="checkbox"/> plowing</p> <p><input type="checkbox"/> grazing (hooves)</p> <p><input checked="" type="checkbox"/> vehicle use (off-road vehicles, construction vehicles)</p> <p><input type="checkbox"/> sedimentation</p> <p><input type="checkbox"/> dredging, and other mechanical disturbances to the soil</p>
--	--

<p>Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils</p>	<p><u>YES</u></p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p><u>NO</u></p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p><u>NOT SURE</u></p> <p>Choose "recovered" and assign a score of 3.5.</p>
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<b>Select one or double check adjoining numbers and average the score.</b>		
4pts	NONE OR NONE APPARENT. There are no disturbances or no disturbances apparent to the evaluator.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	<b>1</b>

4a Avg.=  
1.00

<b>4b. Habitat development.</b> Select only one and assign score. This question asks the evaluator to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically and/or hydrogeomorphically similar wetlands. This question presumes knowledge of the types of wetlands and the range in quality typical of the region or access to data from reference standard examples. If unsure, score as GOOD or MODERATELY GOOD.		
7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears <u>not</u> to be a good example of its type or class because of past or present disturbances, successional state, etc.	<b>1</b>

4b Avg.=  
1.00

**4c. Habitat alteration.** This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. **The evaluator may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

**Check all that are observed present in or near the wetland**

<input type="checkbox"/>	Mowing	<input type="checkbox"/>	Herbaceous layer/aquatic bed removal
<input type="checkbox"/>	Grazing (cattle, horses, etc.)	<input type="checkbox"/>	Sedimentation
<input type="checkbox"/>	Clearcutting	<input type="checkbox"/>	Dredging
<input type="checkbox"/>	Selective cutting	<input checked="" type="checkbox"/>	Row-crop or orchard farming
<input type="checkbox"/>	Woody debris removal	<input type="checkbox"/>	Nutrient enrichment, e.g. nuisance algae
<input type="checkbox"/>	Toxic pollutants	<input type="checkbox"/>	Other (specify):
<input type="checkbox"/>	Shrub/sapling removal	<input type="checkbox"/>	Other (specify):

Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat.	<u>YES</u>	<u>NO</u>	<u>NOT SURE</u>
	Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.	Assign a score of 9 since there are no or no apparent modifications.	Choose "recovered" and assign a score of 6.

Select one score or double check adjoining numbers and average the score.		Score
9pts	NONE OR NONE APPARENT. There are no past or current alterations that are apparent to the evaluator.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	<b>1</b>

4c Avg. = 1.00

Metric 4 Total 3



**Metric 5. Special wetland communities.** Assign points in left column if the wetland meets the associated criteria below. Refer to Narrative Rating for guidance. If wetland scores over 30 points within Metric 5 further determination needed to assess if the wetland exhibits outstanding ecological or recreational values as discussed in the Narrative Rating Section.

5pts - >10m sq sphagnum or other moss or other vernal pools	5 pts - Superior fish, waterfowl, bat, or amphibian breeding habitat
Ecological community with global rank (NatureServe): G1 (10pts), G2 (5pts), G2/G3 (3pts) or uncommon ecological resource in the ecoregion (habitat and/or species diversity, geology, wetland type, distribution/ occurrence) (10 pts)	5 pts - Wetland contains and is a buffer for a headwater stream or wetland contributes significantly to the water quality of 303(d) listed stream and/or to surface or and/or to ground water
10 pts - Older-aged mature forested wetland avg. DBH >= 30 inches	10 pts - Supports species Deemed in Need of Management by TWRA or TN Special Concern by TDEC

Metric 5 Total 0

**Metric 6. Vegetation, Interspersion, and Microtopography (Max 20 points).**

	Score
<b>6a. Wetland Vegetation Communities</b> Check each community present both vertically and horizontally within the wetland with an area of at least 0.1 hectares or 1000m <sup>2</sup> (0.2471 acres). Assign a score of 0 to 3 using Table 3 for 1-4 or Table 5 for 5-6. Sum the scores for the classes present.	
<b>1)Aquatic Bed</b> Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed ( <i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	0
<b>2)Emergent</b> Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, and fens.	
<b>3)Shrub</b> Includes areas of wetlands dominated by woody vegetation less than 1m (3ft.) - 6m (20 ft) tall with a dbh of <3in. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	0
<b>4)Forested</b> Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are "vernal pools".	0
<b>5)Mudflats</b> The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB <sub>3</sub> ) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	0
<b>6)Open water</b> The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas that are 1) inundated, 2) un-vegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	0

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 4 for narrative description of "low," "moderate," and "high" quality.

Cover Scale	Description
0	The vegetation community is either 1) absent from wetland or 2) Comprises less than 0.1 ha (.2471 acres) of contiguous area within the wetland
1	Vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation and is of low quality
2	Thee vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	The vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation

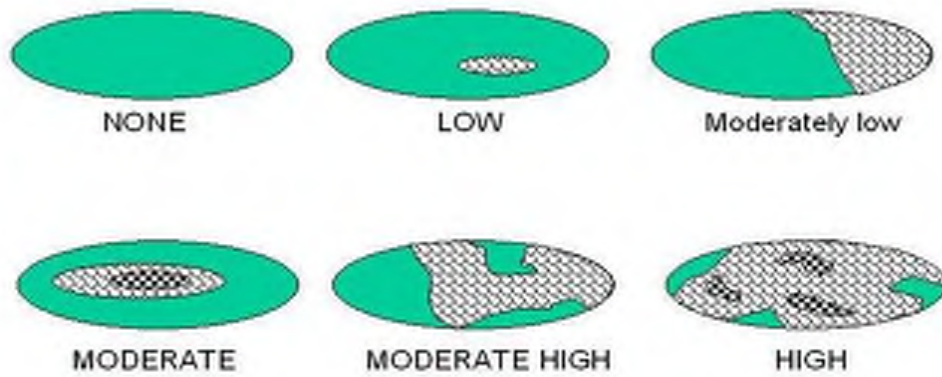
Table 4. Use this table in conjunction with Table 3 to determine what is a "low", "moderate," or "high" quality community.

Narrative	Description
Low	Low species richness and a predominance of invasive, non-native, or disturbance tolerant "weedy" species.
Moderate	Native species are the dominant component of the vegetation, although non-native or disturbance tolerant "weedy" species can also be present, and species richness is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species.
High	A predominance of native species, with non-native species absent or virtually absent, and high species diversity and/or the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

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

<b>6b. Horizontal (plan view) interspersion.</b> Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		Score
5pts	HIGH Wetland has a high degree of interspersion	
4pts	MODERATELY HIGH Wetland has a moderately high degree of interspersion	
3pts	MODERATE Wetland has a moderate degree of interspersion	
2pts	MODERATELY LOW Wetland has a moderately low degree of interspersion	
1pt	LOW Wetland has a low degree of interspersion.	1
0pt	NONE Wetland has no plan view interspersion	



**Figure 1. Hypothetical Wetlands for estimating degree of interspersion**

<b>6c. Coverage of Invasive Plant Species.</b> Refer to Tennessee Exotic Pest Plant Council ( <a href="http://www.tneppc.org/">http://www.tneppc.org/</a> ) for official list. Select only one and assign score.		Score
-5pts	Extensive >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	
-1pts	Sparse 5-25% areal cover of invasive species	
0pt	Nearly absent. <5% areal cover of invasive species	0
1pt	Absent	
<b>6d. Microtopography.</b> Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		Score
Vegetated hummocks and tussocks		
Coarse woody debris >15cm (6in) in diameter		
Standing dead trees >25cm (10in) diameter at breast height		
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction		1

Table 6. Cover scale for microtopographic habitat features

Microtopographic habitat quality	Narrative description
0	Feature is absent or functionally absent from the wetland
1	Feature is present in the wetland in very small amounts or if more common, of low quality
2	Feature is 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 the highest quality

## NON-HGM TRAM Summary Worksheet

<b>Non-HGM Quantitative Rating</b>	Metric 1: Size	1
	Metric 2: Buffers and surrounding land use	1
	Metric 3: Hydrology	7.5
	Metric 4: Habitat	3
	Metric 5: Special Wetland Communities	0
	Metric 6: Plant communities, interspersed, microtopography	2
	<b>TOTAL SCORE</b>	15

SR Ripley II

W006

**Rank = Low**

**"Wetland Conditions with an overall score of 100-75 are considered Exceptional Tennessee Waters. Wetlands with a score of 74-45 are considered to have moderate resource value, and wetland with a score of 44 and below have a low resource value."**  
**(TRAM 2015, pg 2)**

**Quantitative Rating  
Tennessee Rapid Assessment Method**

**Metric 1. Wetland area (max 6 pts).** Estimate the area of wetland and select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.

6pts	>50 acres (west TN)	>25 acres (middle TN)	>10 acres (east TN *)	
5pts	25 - <50 acres (west TN)	10- 25 acres (middle TN)	7-<10 acres (east TN*)	
4pts	10 - <25 acres (west TN)	7-< 25acres (middle TN)	3-<7 acres (east TN*)	
3pts	3 - <10 acres(west TN)	3< 7 acres (middle TN)	1-<3 acres (east TN)	
2pts	0.3 - <3 acres (west TN)	0.5- <3 acres (middle TN)	0.5-<1 acres (east TN)	<b>2</b>
1pt	0.1 - <0.3 acres(west TN)	<0.5 acres (middle TN)	<0.5 acres (east TN)	

\*More applicable to West Tennessee; use with discretion in Middle Tennessee, Consult TDEC-DWR Natural Resources Unit for use in East Tennessee.

Table 2. Metric to English conversion table with visual estimation sizes.							
acres	ft <sup>2</sup>	yd <sup>2</sup>	ft on side	yd on side	ha	m <sup>2</sup>	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

**Metric 1 Total** 2

**Metric 2. Upland buffers and intensity of surrounding land uses (Max 14 points).** Wetlands without upland "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded and often have lower wildlife habitat resource value.

**2a. Average Buffer Width (ABW).** Calculate the average buffer width and select only one score. To calculate ABW, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: ABW of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows:  $ABW = (50m + 25m + 10m + 0m)/4 = 21.25m$ . Intensive land uses are not buffers, e.g. active row cropping, paved areas, housing developments, etc.

7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	4
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	
0pts	VERY NARROW. <10m (<32ft) around perimeter.	

2a Avg.=  
4.00

**2b. Intensity of predominant surrounding land use(s)** Select one, or choose up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone.

7pts	VERY LOW. 2 <sup>nd</sup> growth or older forest, prairie, barren, wildlife area, etc.	
5pts	LOW. Old fallow field, shrub land, early successional young forest, etc.	
3pts	MODERATELY HIGH. Residential, pasture, orchard, park, conservation tillage, mowed field, etc.	3
1pt	HIGH. urban, industrial, row cropping, mining, construction, etc.	

2b Avg.=  
3.00

SR Ripley II

Metric 2 Total 7.00

W007

**Metric 3. Hydrology (Max 30 points).** This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. **A wetland can receive no more than 30 points for Metric 3 even though it is possible to score more than 30 points.**

<b>3a. Sources of Water.</b> Select all that apply and sum the score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		
5pts	High pH groundwater (7.5-9.0)	5
3pts	Other groundwater	
1pts	Precipitation	
3pts	Seasonal surface water	
5pts	Perennial surface water (lake or stream)	
<b>3b. Connectivity.</b> Select all that apply and sum score		
1pt	<b>100 year floodplain.</b> "Floodplain" is defined as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	1
1pt	<b>Between stream/lake and other human land use.</b> This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water buffering it. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	0
1pt	<b>Part of a larger wetland or upland complex.</b> This question asks whether the wetland is in physical proximity to, or a other nearby wetland or upland habitat areas.	0
1pt	<b>Part of riparian corridor.</b>	0
<b>3c. Maximum water depth.</b> Select only one and assign score. The evaluator <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		
3 pts	>0.7m (27.6in)	3
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	
<b>3d. Duration of inundation/saturation.</b> Select one or double check and average the scores if duration is uncertain. The use of ACOE 1987 Manual secondary indicators is necessary and expected in order to properly answer this question.		
4pts	Semi-permanently to permanently inundated or saturated	
3pts	Regularly inundated or saturated	4
2pts	Seasonally inundated	
1pt	Seasonally saturated in the upper 30cm (12in) of soil	

SR Ripley II

3d Avg.= 4.00

W007

**3e. Modifications to natural hydrologic regime.** Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the evaluator to assess the “intactness” of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

Once the evaluator has listed all possible past and ongoing disturbances, the evaluator should check the most appropriate category to describe the present state of the wetland. In instances where the evaluator believes that a wetland falls between two categories, or where the evaluator is uncertain as to which category is appropriate, it is appropriate to choose more than one and average the score.

The evaluator may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

**Check all that are observed present in or near the wetland.**

<input checked="" type="checkbox"/>	ditch(es), in or near the wetland	<input type="checkbox"/>	point source discharges to the (non-stormwater)
<input type="checkbox"/>	tile(s), in or near the wetland	<input type="checkbox"/>	filling/grading activities in or near the wetland
<input type="checkbox"/>	dike(s), in or near the wetland	<input type="checkbox"/>	road beds/RR beds in or near the wetland
<input type="checkbox"/>	weir(s), in or near the wetland	<input type="checkbox"/>	dredging activities in or near the wetland
<input type="checkbox"/>	stormwater inputs (addition of water)	<input checked="" type="checkbox"/>	other (specify) <b>adjacent to agricultural field</b>

Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime.	<u>YES</u> Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.	<u>NO</u> Assign a score of 12 since there are no or no apparent modifications.	<u>NOT SURE</u> Choose "recovered" and assign a score of 9.5.
<b>Select one or double check adjoining numbers and average the score.</b>			<b>score</b>
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the evaluator.		
7pts	RECOVERED. The wetland appears to have recovered from past modifications.		
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.		5
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.		

3e Avg=  
5.00

SR Ripley II

**Metric 3 Total** 18.00

W007



**Metric 4. Habitat Alteration and Development (Max 20 points).** While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. These disturbances are termed "habitat alteration." In many instances, items checked as hydrologic disturbances in Question 3e will present as alterations to a wetland's habitat or disruptions in its development (successional state). In some instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. To determine the appropriate metric scores, the evaluator should carefully determine the actual cause of the disturbance to the wetland.

<p><b>4a. Substrate/Soil Disturbance.</b> Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.</p>	<p>Examples of substrate/soil disturbance include (circle all that apply):</p> <p><input type="checkbox"/> filling and grading</p> <p><input checked="" type="checkbox"/> plowing</p> <p><input type="checkbox"/> grazing (hooves)</p> <p><input checked="" type="checkbox"/> vehicle use (off-road vehicles, construction vehicles)</p> <p><input type="checkbox"/> sedimentation</p> <p><input type="checkbox"/> dredging, and other mechanical disturbances to the soil</p>
--	--

<p>Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils</p>	<p><u>YES</u></p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p><u>NO</u></p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p><u>NOT SURE</u></p> <p>Choose "recovered" and assign a score of 3.5.</p>
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<b>Select one or double check adjoining numbers and average the score.</b>		
4pts	NONE OR NONE APPARENT. There are no disturbances or no disturbances apparent to the evaluator.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	2.5
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	

4a Avg. =  
2.50

<b>4b. Habitat development.</b> Select only one and assign score. This question asks the evaluator to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically and/or hydrogeomorphically similar wetlands. This question presumes knowledge of the types of wetlands and the range in quality typical of the region or access to data from reference standard examples. If unsure, score as GOOD or MODERATELY GOOD.		
7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	5
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears <u>not</u> to be a good example of its type or class because of past or present disturbances, successional state, etc.	

4b Avg. =  
5.00

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W007

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

**4c. Habitat alteration.** This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. **The evaluator may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

**Check all that are observed present in or near the wetland**

<input type="checkbox"/>	Mowing	<input type="checkbox"/>	Herbaceous layer/aquatic bed removal
<input type="checkbox"/>	Grazing (cattle, horses, etc.)	<input type="checkbox"/>	Sedimentation
<input type="checkbox"/>	Clearcutting	<input type="checkbox"/>	Dredging
<input type="checkbox"/>	Selective cutting	<input checked="" type="checkbox"/>	Row-crop or orchard farming
<input type="checkbox"/>	Woody debris removal	<input type="checkbox"/>	Nutrient enrichment, e.g. nuisance algae
<input type="checkbox"/>	Toxic pollutants	<input type="checkbox"/>	Other (specify):
<input type="checkbox"/>	Shrub/sapling removal	<input type="checkbox"/>	Other (specify):

Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat.	<u>YES</u>	<u>NO</u>	<u>NOT SURE</u>
	Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.	Assign a score of 9 since there are no or no apparent modifications.	Choose "recovered" and assign a score of 6.

Select one score or double check adjoining numbers and average the score.		Score
9pts	NONE OR NONE APPARENT. There are no past or current alterations that are apparent to the evaluator.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	4.5
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	

4c Avg. =  
4.50

Metric 4 Total 12

**Metric 5. Special wetland communities.** Assign points in left column if the wetland meets the associated criteria below. Refer to Narrative Rating for guidance. If wetland scores over 30 points within Metric 5 further determination needed to assess if the wetland exhibits outstanding ecological or recreational values as discussed in the Narrative Rating Section.

5pts - >10m sq sphagnum or other moss or other vernal pools	5	5 pts - Superior fish, waterfowl, bat, or amphibian breeding habitat
Ecological community with global rank (NatureServe): G1 (10pts), G2 (5pts), G2/G3 (3pts) or uncommon ecological resource in the ecoregion (habitat and/or species diversity, geology, wetland type, distribution/ occurrence) (10 pts)		5 pts - Wetland contains and is a buffer for a headwater stream or wetland contributes significantly to the water quality of 303(d) listed stream and/or to surface or and/or to ground water
10 pts - Older-aged mature forested wetland avg. DBH >= 30 inches		10 pts - Supports species Deemed in Need of Management by TWRA or TN Special Concern by TDEC

Metric 5 Total 5

**Metric 6. Vegetation, Interspersion, and Microtopography (Max 20 points).**

	Score
<b>6a. Wetland Vegetation Communities</b> Check each community present both vertically and horizontally within the wetland with an area of at least 0.1 hectares or 1000m <sup>2</sup> (0.2471 acres). Assign a score of 0 to 3 using Table 3 for 1-4 or Table 5 for 5-6. Sum the scores for the classes present.	
<b>1)Aquatic Bed</b> Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed ( <i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	0
<b>2)Emergent</b> Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, and fens.	
<b>3)Shrub</b> Includes areas of wetlands dominated by woody vegetation less than 1m (3ft.) - 6m (20 ft) tall with a dbh of <3in. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	0
<b>4)Forested</b> Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are "vernal pools".	4
<b>5)Mudflats</b> The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB <sub>3</sub> ) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	0
<b>6)Open water</b> The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas that are 1) inundated, 2) un-vegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	0

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 4 for narrative description of "low," "moderate," and "high" quality.

Cover Scale	Description
0	The vegetation community is either 1) absent from wetland or 2) Comprises less than 0.1 ha (.2471 acres) of contiguous area within the wetland
1	Vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation and is of low quality
2	Thee vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	The vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation

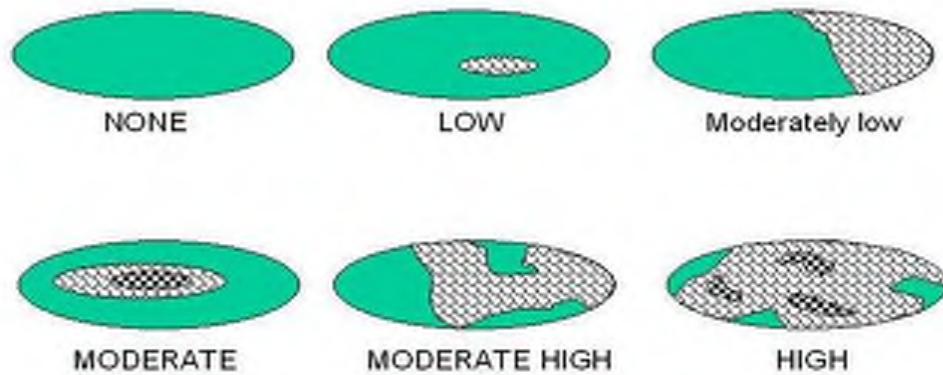
Table 4. Use this table in conjunction with Table 3 to determine what is a "low", "moderate," or "high" quality community.

Narrative	Description
Low	Low species richness and a predominance of invasive, non-native, or disturbance tolerant "weedy" species.
Moderate	Native species are the dominant component of the vegetation, although non-native or disturbance tolerant "weedy" species can also be present, and species richness is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species.
High	A predominance of native species, with non-native species absent or virtually absent, and high species diversity and/or the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

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

6b. Horizontal (plan view) interspersion. Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		Score
5pts	HIGH Wetland has a high degree of interspersion	
4pts	MODERATELY HIGH Wetland has a moderately high degree of interspersion	4
3pts	MODERATE Wetland has a moderate degree of interspersion	
2pts	MODERATELY LOW Wetland has a moderately low degree of interspersion	
1pt	LOW Wetland has a low degree of interspersion.	
0pt	NONE Wetland has no plan view interspersion	



**Figure 1. Hypothetical Wetlands for estimating degree of interspersion**

<b>6c. Coverage of Invasive Plant Species.</b> Refer to Tennessee Exotic Pest Plant Council ( <a href="http://www.tneppc.org/">http://www.tneppc.org/</a> ) for official list. Select only one and assign score.		Score
-5pts	Extensive >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	
-1pts	Sparse 5-25% areal cover of invasive species	-1
0pt	Nearly absent. <5% areal cover of invasive species	
1pt	Absent	
<b>6d. Microtopography.</b> Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		Score
Vegetated hummocks and tussocks		
Coarse woody debris >15cm (6in) in diameter		3
Standing dead trees >25cm (10in) diameter at breast height		3
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction		.5

Table 6. Cover scale for microtopographic habitat features

Microtopographic habitat quality	Narrative description
0	Feature is absent or functionally absent from the wetland
1	Feature is present in the wetland in very small amounts or if more common, of low quality
2	Feature is 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 the highest quality

## NON-HGM TRAM Summary Worksheet

<b>Non-HGM Quantitative Rating</b>	Metric 1: Size	2
	Metric 2: Buffers and surrounding land use	7
	Metric 3: Hydrology	18
	Metric 4: Habitat	12
	Metric 5: Special Wetland Communities	5
	Metric 6: Plant communities, interspersion, microtopography	13.5
	<b>TOTAL SCORE</b>	58

SR Ripley II

W007
<b>Rank = Moderate</b>

**"Wetland Conditions with an overall score of 100-75 are considered Exceptional Tennessee Waters. Wetlands with a score of 74-45 are considered to have moderate resource value, and wetland with a score of 44 and below have a low resource value."**  
**(TRAM 2015, pg 2)**

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

**Metric 1. Wetland area (max 6 pts).** Estimate the area of wetland and select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.

6pts	>50 acres (west TN)	>25 acres (middle TN)	>10 acres (east TN *)	
5pts	25 - <50 acres (west TN)	10- 25 acres (middle TN)	7-<10 acres (east TN*)	
4pts	10 - <25 acres (west TN)	7-< 25acres (middle TN)	3-<7 acres (east TN*)	
3pts	3 - <10 acres(west TN)	3< 7 acres (middle TN)	1-<3 acres (east TN)	<b>3</b>
2pts	0.3 - <3 acres (west TN)	0.5- <3 acres (middle TN)	0.5-<1 acres (east TN)	
1pt	0.1 - <0.3 acres(west TN)	<0.5 acres (middle TN)	<0.5 acres (east TN)	

\*More applicable to West Tennessee; use with discretion in Middle Tennessee, Consult TDEC-DWR Natural Resources Unit for use in East Tennessee.

Table 2. Metric to English conversion table with visual estimation sizes.							
acres	ft <sup>2</sup>	yd <sup>2</sup>	ft on side	yd on side	ha	m <sup>2</sup>	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

**Metric 1 Total**     **3**

**Metric 2. Upland buffers and intensity of surrounding land uses (Max 14 points).** Wetlands without upland "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded and often have lower wildlife habitat resource value.

**2a. Average Buffer Width (ABW).** Calculate the average buffer width and select only one score. To calculate ABW, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: ABW of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows:  $ABW = (50m + 25m + 10m + 0m)/4 = 21.25m$ . Intensive land uses are not buffers, e.g. active row cropping, paved areas, housing developments, etc.

7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	1
0pts	VERY NARROW. <10m (<32ft) around perimeter.	

2a Avg.=  
1.00

**2b. Intensity of predominant surrounding land use(s)** Select one, or choose up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone.

7pts	VERY LOW. 2 <sup>nd</sup> growth or older forest, prairie, barren, wildlife area, etc.	
5pts	LOW. Old fallow field, shrub land, early successional young forest, etc.	
3pts	MODERATELY HIGH. Residential, pasture, orchard, park, conservation tillage, mowed field, etc.	
1pt	HIGH. urban, industrial, row cropping, mining, construction, etc.	1

2b Avg.=  
1.00

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Metric 2 Total 2.00

W008



**Metric 3. Hydrology (Max 30 points).** This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. **A wetland can receive no more than 30 points for Metric 3 even though it is possible to score more than 30 points.**

<b>3a. Sources of Water.</b> Select all that apply and sum the score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		
5pts	High pH groundwater (7.5-9.0)	5
3pts	Other groundwater	
1pts	Precipitation	
3pts	Seasonal surface water	
5pts	Perennial surface water (lake or stream)	
<b>3b. Connectivity.</b> Select all that apply and sum score		
1pt	<b>100 year floodplain.</b> "Floodplain" is defined as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	0
1pt	<b>Between stream/lake and other human land use.</b> This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water buffering it. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	1
1pt	<b>Part of a larger wetland or upland complex.</b> This question asks whether the wetland is in physical proximity to, or a part of, other nearby wetland or upland habitat areas.	0
1pt	<b>Part of riparian corridor.</b>	0
<b>3c. Maximum water depth.</b> Select only one and assign score. The evaluator <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		
3 pts	>0.7m (27.6in)	3
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	
<b>3d. Duration of inundation/saturation.</b> Select one or double check and average the scores if duration is uncertain. The use of ACOE 1987 Manual secondary indicators is necessary and expected in order to properly answer this question.		
4pts	Semi-permanently to permanently inundated or saturated	
3pts	Regularly inundated or saturated	4
2pts	Seasonally inundated	
1pt	Seasonally saturated in the upper 30cm (12in) of soil	

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3d Avg.= 4.00

W008

**3e. Modifications to natural hydrologic regime.** Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the evaluator to assess the "intactness" of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

Once the evaluator has listed all possible past and ongoing disturbances, the evaluator should check the most appropriate category to describe the present state of the wetland. In instances where the evaluator believes that a wetland falls between two categories, or where the evaluator is uncertain as to which category is appropriate, it is appropriate to choose more than one and average the score.

The evaluator may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

**Check all that are observed present in or near the wetland.**

<input checked="" type="checkbox"/>	ditch(es), in or near the wetland		point source discharges to the (non-stormwater)
	tile(s), in or near the wetland		filling/grading activities in or near the wetland
	dike(s), in or near the wetland		road beds/RR beds in or near the wetland
	weir(s), in or near the wetland		dredging activities in or near the wetland
	stormwater inputs (addition of water)	<input checked="" type="checkbox"/>	other (specify) <b>agricultural field</b>

Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime.	<u>YES</u> Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.	<u>NO</u> Assign a score of 12 since there are no or no apparent modifications.	<u>NOT SURE</u> Choose "recovered" and assign a score of 9.5.
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Select one or double check adjoining numbers and average the score.		score
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the evaluator.	
7pts	RECOVERED. The wetland appears to have recovered from past modifications.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.	
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.	<b>1</b>

3e Avg=  
1.00

SR Ripley II

Metric 3 Total 14.00

W008

**Metric 4. Habitat Alteration and Development (Max 20 points).** While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. These disturbances are termed "habitat alteration." In many instances, items checked as hydrologic disturbances in Question 3e will present as alterations to a wetland's habitat or disruptions in its development (successional state). In some instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. To determine the appropriate metric scores, the evaluator should carefully determine the actual cause of the disturbance to the wetland.

<p><b>4a. Substrate/Soil Disturbance.</b> Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.</p>	<p>Examples of substrate/soil disturbance include (circle all that apply):</p> <p><input type="checkbox"/> filling and grading</p> <p><input checked="" type="checkbox"/> plowing</p> <p><input type="checkbox"/> grazing (hooves)</p> <p><input checked="" type="checkbox"/> vehicle use (off-road vehicles, construction vehicles)</p> <p><input type="checkbox"/> sedimentation</p> <p><input type="checkbox"/> dredging, and other mechanical disturbances to the soil</p>
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<p>Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils</p>	<p><u>YES</u></p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p><u>NO</u></p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p><u>NOT SURE</u></p> <p>Choose "recovered" and assign a score of 3.5.</p>
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<b>Select one or double check adjoining numbers and average the score.</b>		
4pts	NONE OR NONE APPARENT. There are no disturbances or no disturbances apparent to the evaluator.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	<b>1</b>

4a Avg.=  
1.00

<b>4b. Habitat development.</b> Select only one and assign score. This question asks the evaluator to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically and/or hydrogeomorphically similar wetlands. This question presumes knowledge of the types of wetlands and the range in quality typical of the region or access to data from reference standard examples. If unsure, score as GOOD or MODERATELY GOOD.		
7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	<b>3</b>
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears <u>not</u> to be a good example of its type or class because of past or present disturbances, successional state, etc.	

4b Avg.=  
3.00

SR Ripley II

W008

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

**4c. Habitat alteration.** This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. **The evaluator may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

**Check all that are observed present in or near the wetland**

<input type="checkbox"/>	Mowing	<input type="checkbox"/>	Herbaceous layer/aquatic bed removal
<input type="checkbox"/>	Grazing (cattle, horses, etc.)	<input type="checkbox"/>	Sedimentation
<input type="checkbox"/>	Clearcutting	<input type="checkbox"/>	Dredging
<input type="checkbox"/>	Selective cutting	<input checked="" type="checkbox"/>	Row-crop or orchard farming
<input type="checkbox"/>	Woody debris removal	<input type="checkbox"/>	Nutrient enrichment, e.g. nuisance algae
<input type="checkbox"/>	Toxic pollutants	<input type="checkbox"/>	Other (specify):
<input type="checkbox"/>	Shrub/sapling removal	<input type="checkbox"/>	Other (specify):

Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat.	<u>YES</u>	<u>NO</u>	<u>NOT SURE</u>
	Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.	Assign a score of 9 since there are no or no apparent modifications.	Choose "recovered" and assign a score of 6.

Select one score or double check adjoining numbers and average the score.		Score
9pts	NONE OR NONE APPARENT. There are no past or current alterations that are apparent to the evaluator.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	<b>1</b>

4c Avg. = 1.00

Metric 4 Total 5

**Metric 5. Special wetland communities.** Assign points in left column if the wetland meets the associated criteria below. Refer to Narrative Rating for guidance. If wetland scores over 30 points within Metric 5 further determination needed to assess if the wetland exhibits outstanding ecological or recreational values as discussed in the Narrative Rating Section.

5pts - >10m sq sphagnum or other moss or other vernal pools	5	5 pts - Superior fish, waterfowl, bat, or amphibian breeding habitat
Ecological community with global rank (NatureServe): G1 (10pts), G2 (5pts), G2/G3 (3pts) or uncommon ecological resource in the ecoregion (habitat and/or species diversity, geology, wetland type, distribution/ occurrence) (10 pts)		5 pts - Wetland contains and is a buffer for a headwater stream or wetland contributes significantly to the water quality of 303(d) listed stream and/or to surface or and/or to ground water
10 pts - Older-aged mature forested wetland avg. DBH >= 30 inches		10 pts - Supports species Deemed in Need of Management by TWRA or TN Special Concern by TDEC

Metric 5 Total 5

**Metric 6. Vegetation, Interspersion, and Microtopography (Max 20 points).**

	Score
<b>6a. Wetland Vegetation Communities</b> Check each community present both vertically and horizontally within the wetland with an area of at least 0.1 hectares or 1000m <sup>2</sup> (0.2471 acres). Assign a score of 0 to 3 using Table 3 for 1-4 or Table 5 for 5-6. Sum the scores for the classes present.	
<b>1)Aquatic Bed</b> Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed ( <i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	0
<b>2)Emergent</b> Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, and fens.	
<b>3)Shrub</b> Includes areas of wetlands dominated by woody vegetation less than 1m (3ft.) - 6m (20 ft) tall with a dbh of <3in. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	0
<b>4)Forested</b> Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are "vernal pools".	4
<b>5)Mudflats</b> The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB <sub>3</sub> ) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	0
<b>6)Open water</b> The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas that are 1) inundated, 2) un-vegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	0

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 4 for narrative description of "low," "moderate," and "high" quality.

Cover Scale	Description
0	The vegetation community is either 1) absent from wetland or 2) Comprises less than 0.1 ha (.2471 acres) of contiguous area within the wetland
1	Vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation and is of low quality
2	Thee vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	The vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation

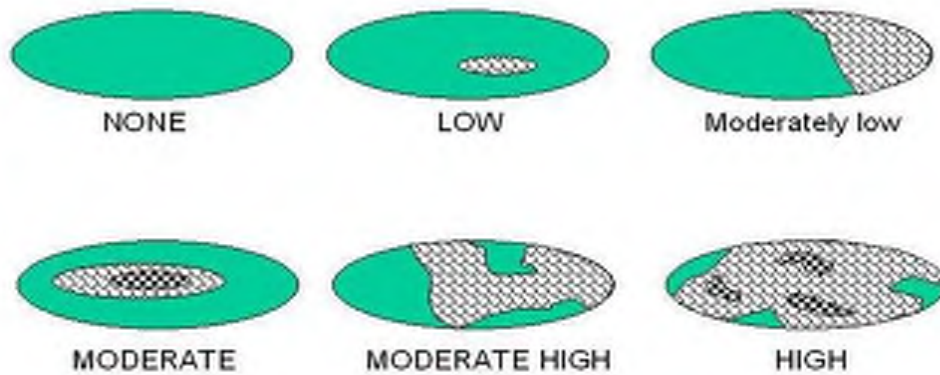
Table 4. Use this table in conjunction with Table 3 to determine what is a "low", "moderate," or "high" quality community.

Narrative	Description
Low	Low species richness and a predominance of invasive, non-native, or disturbance tolerant "weedy" species.
Moderate	Native species are the dominant component of the vegetation, although non-native or disturbance tolerant "weedy" species can also be present, and species richness is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species.
High	A predominance of native species, with non-native species absent or virtually absent, and high species diversity and/or the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

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

<b>6b. Horizontal (plan view) interspersion.</b> Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		Score
5pts	HIGH Wetland has a high degree of interspersion	
4pts	MODERATELY HIGH Wetland has a moderately high degree of interspersion	
3pts	MODERATE Wetland has a moderate degree of interspersion	3
2pts	MODERATELY LOW Wetland has a moderately low degree of interspersion	
1pt	LOW Wetland has a low degree of interspersion.	
0pt	NONE Wetland has no plan view interspersion	



**Figure 1. Hypothetical Wetlands for estimating degree of interspersion**

<b>6c. Coverage of Invasive Plant Species.</b> Refer to Tennessee Exotic Pest Plant Council ( <a href="http://www.tneppc.org/">http://www.tneppc.org/</a> ) for official list. Select only one and assign score.		Score
-5pts	Extensive >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	
-1pts	Sparse 5-25% areal cover of invasive species	-1
0pt	Nearly absent. <5% areal cover of invasive species	
1pt	Absent	
<b>6d. Microtopography.</b> Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		Score
Vegetated hummocks and tussocks		
Coarse woody debris >15cm (6in) in diameter		
Standing dead trees >25cm (10in) diameter at breast height		
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction		2

Table 6. Cover scale for microtopographic habitat features

Microtopographic habitat quality	Narrative description
0	Feature is absent or functionally absent from the wetland
1	Feature is present in the wetland in very small amounts or if more common, of low quality
2	Feature is 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 the highest quality

## NON-HGM TRAM Summary Worksheet

<b>Non-HGM Quantitative Rating</b>	Metric 1: Size	3
	Metric 2: Buffers and surrounding land use	2
	Metric 3: Hydrology	14
	Metric 4: Habitat	5
	Metric 5: Special Wetland Communities	5
	Metric 6: Plant communities, interspersed, microtopography	8
	<b>TOTAL SCORE</b>	37

SR Ripley II

W008

**Rank = Low**

**"Wetland Conditions with an overall score of 100-75 are considered Exceptional Tennessee Waters. Wetlands with a score of 74-45 are considered to have moderate resource value, and wetland with a score of 44 and below have a low resource value."**  
**(TRAM 2015, pg 2)**



**Quantitative Rating  
Tennessee Rapid Assessment Method**

**Metric 1. Wetland area (max 6 pts).** Estimate the area of wetland and select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.

6pts	>50 acres (west TN)	>25 acres (middle TN)	>10 acres (east TN *)	
5pts	25 - <50 acres (west TN)	10- 25 acres (middle TN)	7-<10 acres (east TN*)	
4pts	10 - <25 acres (west TN)	7-< 25acres (middle TN)	3-<7 acres (east TN*)	
3pts	3 - <10 acres(west TN)	3< 7 acres (middle TN)	1-<3 acres (east TN)	
2pts	0.3 - <3 acres (west TN)	0.5- <3 acres (middle TN)	0.5-<1 acres (east TN)	<b>2</b>
1pt	0.1 - <0.3 acres(west TN)	<0.5 acres (middle TN)	<0.5 acres (east TN)	

\*More applicable to West Tennessee; use with discretion in Middle Tennessee, Consult TDEC-DWR Natural Resources Unit for use in East Tennessee.

Table 2. Metric to English conversion table with visual estimation sizes.							
acres	ft <sup>2</sup>	yd <sup>2</sup>	ft on side	yd on side	ha	m <sup>2</sup>	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

**Metric 1 Total** 2

**Metric 2. Upland buffers and intensity of surrounding land uses (Max 14 points).** Wetlands without upland "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded and often have lower wildlife habitat resource value.

**2a. Average Buffer Width (ABW).** Calculate the average buffer width and select only one score. To calculate ABW, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: ABW of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows:  $ABW = (50m + 25m + 10m + 0m)/4 = 21.25m$ . Intensive land uses are not buffers, e.g. active row cropping, paved areas, housing developments, etc.

7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	4
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	
0pts	VERY NARROW. <10m (<32ft) around perimeter.	

2a Avg.=  
4.00

**2b. Intensity of predominant surrounding land use(s)** Select one, or choose up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone.

7pts	VERY LOW. 2 <sup>nd</sup> growth or older forest, prairie, barren, wildlife area, etc.	
5pts	LOW. Old fallow field, shrub land, early successional young forest, etc.	
3pts	MODERATELY HIGH. Residential, pasture, orchard, park, conservation tillage, mowed field, etc.	3
1pt	HIGH. urban, industrial, row cropping, mining, construction, etc.	

2b Avg.=  
3.00

SR Ripley II

Metric 2 Total 7.00

W009

**Metric 3. Hydrology (Max 30 points).** This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. **A wetland can receive no more than 30 points for Metric 3 even though it is possible to score more than 30 points.**

<b>3a. Sources of Water.</b> Select all that apply and sum the score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		
5pts	High pH groundwater (7.5-9.0)	
3pts	Other groundwater	
1pts	Precipitation	1
3pts	Seasonal surface water	
5pts	Perennial surface water (lake or stream)	
<b>3b. Connectivity.</b> Select all that apply and sum score		
1pt	<b>100 year floodplain.</b> "Floodplain" is defined as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	0
1pt	<b>Between stream/lake and other human land use.</b> This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water buffering it. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	1
1pt	<b>Part of a larger wetland or upland complex.</b> This question asks whether the wetland is in physical proximity to, or a part of, other nearby wetland or upland habitat areas.	0
1pt	<b>Part of riparian corridor.</b>	0
<b>3c. Maximum water depth.</b> Select only one and assign score. The evaluator <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		
3 pts	>0.7m (27.6in)	
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	1
<b>3d. Duration of inundation/saturation.</b> Select one or double check and average the scores if duration is uncertain. The use of ACOE 1987 Manual secondary indicators is necessary and expected in order to properly answer this question.		
4pts	Semi-permanently to permanently inundated or saturated	
3pts	Regularly inundated or saturated	
2pts	Seasonally inundated	
1pt	Seasonally saturated in the upper 30cm (12in) of soil	1

SR Ripley II

3d Avg.= 1.00

W009

**3e. Modifications to natural hydrologic regime.** Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the evaluator to assess the "intactness" of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

Once the evaluator has listed all possible past and ongoing disturbances, the evaluator should check the most appropriate category to describe the present state of the wetland. In instances where the evaluator believes that a wetland falls between two categories, or where the evaluator is uncertain as to which category is appropriate, it is appropriate to choose more than one and average the score.

The evaluator may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

**Check all that are observed present in or near the wetland.**

<input checked="" type="checkbox"/>	ditch(es), in or near the wetland	<input type="checkbox"/>	point source discharges to the (non-stormwater)
<input type="checkbox"/>	tile(s), in or near the wetland	<input checked="" type="checkbox"/>	filling/grading activities in or near the wetland
<input type="checkbox"/>	dike(s), in or near the wetland	<input type="checkbox"/>	road beds/RR beds in or near the wetland
<input type="checkbox"/>	weir(s), in or near the wetland	<input type="checkbox"/>	dredging activities in or near the wetland
<input type="checkbox"/>	stormwater inputs (addition of water)	<input type="checkbox"/>	other (specify) <b>agricultural field</b>

Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime.	<u>YES</u> Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.	<u>NO</u> Assign a score of 12 since there are no or no apparent modifications.	<u>NOT SURE</u> Choose "recovered" and assign a score of 9.5.
<b>Select one or double check adjoining numbers and average the score.</b>			<b>score</b>
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the evaluator.		
7pts	RECOVERED. The wetland appears to have recovered from past modifications.		
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.		3
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.		

3e Avg=  
3.00

SR Ripley II

**Metric 3 Total** 7.00

W009

**Metric 4. Habitat Alteration and Development (Max 20 points).** While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. These disturbances are termed "habitat alteration." In many instances, items checked as hydrologic disturbances in Question 3e will present as alterations to a wetland's habitat or disruptions in its development (successional state). In some instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. To determine the appropriate metric scores, the evaluator should carefully determine the actual cause of the disturbance to the wetland.

<p><b>4a. Substrate/Soil Disturbance.</b> Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.</p>	<p>Examples of substrate/soil disturbance include (circle all that apply):</p> <p><input type="checkbox"/> filling and grading</p> <p><input type="checkbox"/> plowing</p> <p><input type="checkbox"/> grazing (hooves)</p> <p><input checked="" type="checkbox"/> vehicle use (off-road vehicles, construction vehicles)</p> <p><input type="checkbox"/> sedimentation</p> <p><input checked="" type="checkbox"/> dredging, and other mechanical disturbances to the soil</p>
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<p>Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils</p>	<p><u>YES</u></p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p><u>NO</u></p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p><u>NOT SURE</u></p> <p>Choose "recovered" and assign a score of 3.5.</p>
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<b>Select one or double check adjoining numbers and average the score.</b>		
4pts	NONE OR NONE APPARENT. There are no disturbances or no disturbances apparent to the evaluator.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	<b>2</b>
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	

4a Avg.=  
2.00

<b>4b. Habitat development.</b> Select only one and assign score. This question asks the evaluator to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically and/or hydrogeomorphically similar wetlands. This question presumes knowledge of the types of wetlands and the range in quality typical of the region or access to data from reference standard examples. If unsure, score as GOOD or MODERATELY GOOD.		
7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	<b>3</b>
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears <u>not</u> to be a good example of its type or class because of past or present disturbances, successional state, etc.	

4b Avg.=  
3.00

SR Ripley II

W009

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

**4c. Habitat alteration.** This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. **The evaluator may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

**Check all that are observed present in or near the wetland**

<input type="checkbox"/>	Mowing	<input type="checkbox"/>	Herbaceous layer/aquatic bed removal
<input type="checkbox"/>	Grazing (cattle, horses, etc.)	<input type="checkbox"/>	Sedimentation
<input type="checkbox"/>	Clearcutting	<input type="checkbox"/>	Dredging
<input type="checkbox"/>	Selective cutting	<input checked="" type="checkbox"/>	Row-crop or orchard farming
<input type="checkbox"/>	Woody debris removal	<input type="checkbox"/>	Nutrient enrichment, e.g. nuisance algae
<input type="checkbox"/>	Toxic pollutants	<input type="checkbox"/>	Other (specify):
<input type="checkbox"/>	Shrub/sapling removal	<input type="checkbox"/>	Other (specify):

Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat.	<u>YES</u>	<u>NO</u>	<u>NOT SURE</u>
	Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.	Assign a score of 9 since there are no or no apparent modifications.	Choose "recovered" and assign a score of 6.

Select one score or double check adjoining numbers and average the score.		Score
9pts	NONE OR NONE APPARENT. There are no past or current alterations that are apparent to the evaluator.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	3
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	

4c Avg. =  
3.00

Metric 4 Total 8

**Metric 5. Special wetland communities.** Assign points in left column if the wetland meets the associated criteria below. Refer to Narrative Rating for guidance. If wetland scores over 30 points within Metric 5 further determination needed to assess if the wetland exhibits outstanding ecological or recreational values as discussed in the Narrative Rating Section.

5pts - >10m sq sphagnum or other moss or other vernal pools	2	5 pts - Superior fish, waterfowl, bat, or amphibian breeding habitat
Ecological community with global rank (NatureServe): G1 (10pts), G2 (5pts), G2/G3 (3pts) or uncommon ecological resource in the ecoregion (habitat and/or species diversity, geology, wetland type, distribution/ occurrence) (10 pts)		5 pts - Wetland contains and is a buffer for a headwater stream or wetland contributes significantly to the water quality of 303(d) listed stream and/or to surface or and/or to ground water
10 pts - Older-aged mature forested wetland avg. DBH >= 30 inches		10 pts - Supports species Deemed in Need of Management by TWRA or TN Special Concern by TDEC

Metric 5 Total 2

**Metric 6. Vegetation, Interspersion, and Microtopography (Max 20 points).**

	Score
<b>6a. Wetland Vegetation Communities</b> Check each community present both vertically and horizontally within the wetland with an area of at least 0.1 hectares or 1000m <sup>2</sup> (0.2471 acres). Assign a score of 0 to 3 using Table 3 for 1-4 or Table 5 for 5-6. Sum the scores for the classes present.	
<b>1)Aquatic Bed</b> Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed ( <i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	0
<b>2)Emergent</b> Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, and fens.	0
<b>3)Shrub</b> Includes areas of wetlands dominated by woody vegetation less than 1m (3ft.) - 6m (20 ft) tall with a dbh of <3in. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	1
<b>4)Forested</b> Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are "vernal pools".	1
<b>5)Mudflats</b> The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB <sub>3</sub> ) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	0
<b>6)Open water</b> The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas that are 1) inundated, 2) un-vegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	0

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 4 for narrative description of "low," "moderate," and "high" quality.

Cover Scale	Description
0	The vegetation community is either 1) absent from wetland or 2) Comprises less than 0.1 ha (.2471 acres) of contiguous area within the wetland
1	Vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation and is of low quality
2	Thee vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	The vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation

Table 4. Use this table in conjunction with Table 3 to determine what is a "low," "moderate," or "high" quality community.

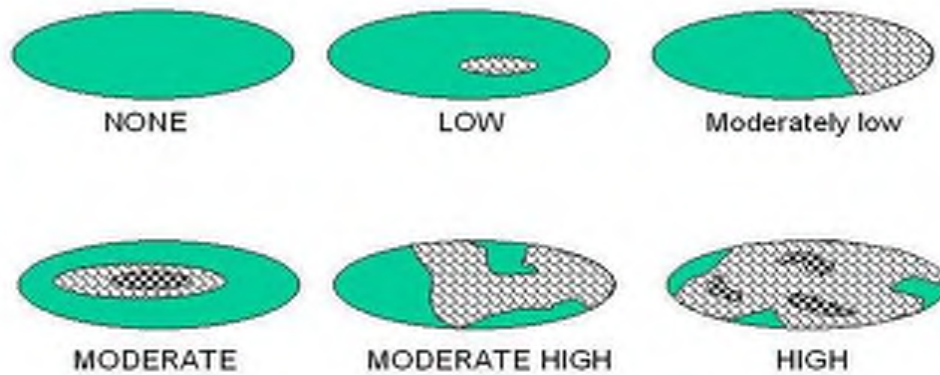
Narrative	Description
Low	Low species richness and a predominance of invasive, non-native, or disturbance tolerant "weedy" species.
Moderate	Native species are the dominant component of the vegetation, although non-native or disturbance tolerant "weedy" species can also be present, and species richness is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species.
High	A predominance of native species, with non-native species absent or virtually absent, and high species diversity and/or the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

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

6b. Horizontal (plan view) interspersion. Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		Score
5pts	HIGH Wetland has a high degree of interspersion	
4pts	MODERATELY HIGH Wetland has a moderately high degree of interspersion	
3pts	MODERATE Wetland has a moderate degree of interspersion	
2pts	MODERATELY LOW Wetland has a moderately low degree of interspersion	2
1pt	LOW Wetland has a low degree of interspersion.	
0pt	NONE Wetland has no plan view interspersion	





**Figure 1. Hypothetical Wetlands for estimating degree of interspersion**

<b>6c. Coverage of Invasive Plant Species.</b> Refer to Tennessee Exotic Pest Plant Council ( <a href="http://www.tneppc.org/">http://www.tneppc.org/</a> ) for official list. Select only one and assign score.		Score
-5pts	Extensive >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	-3
-1pts	Sparse 5-25% areal cover of invasive species	
0pt	Nearly absent. <5% areal cover of invasive species	
1pt	Absent	
<b>6d. Microtopography.</b> Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		Score
Vegetated hummocks and tussocks		
Coarse woody debris >15cm (6in) in diameter		
Standing dead trees >25cm (10in) diameter at breast height		
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction		

Table 6. Cover scale for microtopographic habitat features

Microtopographic habitat quality	Narrative description
0	Feature is absent or functionally absent from the wetland
1	Feature is present in the wetland in very small amounts or if more common, of low quality
2	Feature is 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 the highest quality

## NON-HGM TRAM Summary Worksheet

<b>Non-HGM Quantitative Rating</b>	Metric 1: Size	2
	Metric 2: Buffers and surrounding land use	7
	Metric 3: Hydrology	7
	Metric 4: Habitat	8
	Metric 5: Special Wetland Communities	2
	Metric 6: Plant communities, interspersed, microtopography	1
	<b>TOTAL SCORE</b>	27

SR Ripley II

W009
<b>Rank = Low</b>

**"Wetland Conditions with an overall score of 100-75 are considered Exceptional Tennessee Waters. Wetlands with a score of 74-45 are considered to have moderate resource value, and wetland with a score of 44 and below have a low resource value."**  
**(TRAM 2015, pg 2)**

**Quantitative Rating  
Tennessee Rapid Assessment Method**

**Metric 1. Wetland area (max 6 pts).** Estimate the area of wetland and select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.

6pts	>50 acres (west TN)	>25 acres (middle TN)	>10 acres (east TN *)	
5pts	25 - <50 acres (west TN)	10- 25 acres (middle TN)	7-<10 acres (east TN*)	
4pts	10 - <25 acres (west TN)	7-< 25acres (middle TN)	3-<7 acres (east TN*)	
3pts	3 - <10 acres(west TN)	3< 7 acres (middle TN)	1-<3 acres (east TN)	
2pts	0.3 - <3 acres (west TN)	0.5- <3 acres (middle TN)	0.5-<1 acres (east TN)	
1pt	0.1 - <0.3 acres(west TN)	<0.5 acres (middle TN)	<0.5 acres (east TN)	<b>1</b>

\*More applicable to West Tennessee; use with discretion in Middle Tennessee, Consult TDEC-DWR Natural Resources Unit for use in East Tennessee.

Table 2. Metric to English conversion table with visual estimation sizes.							
acres	ft <sup>2</sup>	yd <sup>2</sup>	ft on side	yd on side	ha	m <sup>2</sup>	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

**Metric 1 Total** 1

**Metric 2. Upland buffers and intensity of surrounding land uses (Max 14 points).** Wetlands without upland "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded and often have lower wildlife habitat resource value.

**2a. Average Buffer Width (ABW).** Calculate the average buffer width and select only one score. To calculate ABW, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: ABW of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows:  $ABW = (50m + 25m + 10m + 0m)/4 = 21.25m$ . Intensive land uses are not buffers, e.g. active row cropping, paved areas, housing developments, etc.

7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	
0pts	VERY NARROW. <10m (<32ft) around perimeter.	0

2a Avg.=  
0.00

**2b. Intensity of predominant surrounding land use(s)** Select one, or choose up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone.

7pts	VERY LOW. 2 <sup>nd</sup> growth or older forest, prairie, barren, wildlife area, etc.	
5pts	LOW. Old fallow field, shrub land, early successional young forest, etc.	
3pts	MODERATELY HIGH. Residential, pasture, orchard, park, conservation tillage, mowed field, etc.	
1pt	HIGH. urban, industrial, row cropping, mining, construction, etc.	1

2b Avg.=  
1.00

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Metric 2 Total 1.00

W010

**Metric 3. Hydrology (Max 30 points).** This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. **A wetland can receive no more than 30 points for Metric 3 even though it is possible to score more than 30 points.**

<b>3a. Sources of Water.</b> Select all that apply and sum the score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		
5pts	High pH groundwater (7.5-9.0)	
3pts	Other groundwater	
1pts	Precipitation	1
3pts	Seasonal surface water	
5pts	Perennial surface water (lake or stream)	
<b>3b. Connectivity.</b> Select all that apply and sum score		
1pt	<b>100 year floodplain.</b> "Floodplain" is defined as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	0
1pt	<b>Between stream/lake and other human land use.</b> This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water buffering it. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	0
1pt	<b>Part of a larger wetland or upland complex.</b> This question asks whether the wetland is in physical proximity to, or a part of, other nearby wetland or upland habitat areas.	0
1pt	<b>Part of riparian corridor.</b>	0
<b>3c. Maximum water depth.</b> Select only one and assign score. The evaluator <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		
3 pts	>0.7m (27.6in)	
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	0
<b>3d. Duration of inundation/saturation.</b> Select one or double check and average the scores if duration is uncertain. The use of ACOE 1987 Manual secondary indicators is necessary and expected in order to properly answer this question.		
4pts	Semi-permanently to permanently inundated or saturated	
3pts	Regularly inundated or saturated	
2pts	Seasonally inundated	
1pt	Seasonally saturated in the upper 30cm (12in) of soil	1

SR Ripley II

3d Avg.= 1.00

W010

**3e. Modifications to natural hydrologic regime.** Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the evaluator to assess the “intactness” of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

Once the evaluator has listed all possible past and ongoing disturbances, the evaluator should check the most appropriate category to describe the present state of the wetland. In instances where the evaluator believes that a wetland falls between two categories, or where the evaluator is uncertain as to which category is appropriate, it is appropriate to choose more than one and average the score.

The evaluator may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

**Check all that are observed present in or near the wetland.**

<input checked="" type="checkbox"/>	ditch(es), in or near the wetland		point source discharges to the (non-stormwater)
	tile(s), in or near the wetland	<input checked="" type="checkbox"/>	filling/grading activities in or near the wetland
	dike(s), in or near the wetland		road beds/RR beds in or near the wetland
	weir(s), in or near the wetland		dredging activities in or near the wetland
	stormwater inputs (addition of water)	<input checked="" type="checkbox"/>	other (specify) <b>agricultural field</b>

Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime.	<u>YES</u> Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.	<u>NO</u> Assign a score of 12 since there are no or no apparent modifications.	<u>NOT SURE</u> Choose "recovered" and assign a score of 9.5.
<b>Select one or double check adjoining numbers and average the score.</b>			<b>score</b>
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the evaluator.		
7pts	RECOVERED. The wetland appears to have recovered from past modifications.		
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.		
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.		<b>1</b>

3e Avg=  
1.00

SR Ripley II

**Metric 3 Total** 3.00

W010

**Metric 4. Habitat Alteration and Development (Max 20 points).** While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. These disturbances are termed "habitat alteration." In many instances, items checked as hydrologic disturbances in Question 3e will present as alterations to a wetland's habitat or disruptions in its development (successional state). In some instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. To determine the appropriate metric scores, the evaluator should carefully determine the actual cause of the disturbance to the wetland.

<p><b>4a. Substrate/Soil Disturbance.</b> Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.</p>	<p>Examples of substrate/soil disturbance include (circle all that apply):</p> <p><input type="checkbox"/> filling and grading</p> <p><input type="checkbox"/> plowing</p> <p><input type="checkbox"/> grazing (hooves)</p> <p><input checked="" type="checkbox"/> vehicle use (off-road vehicles, construction vehicles)</p> <p><input type="checkbox"/> sedimentation</p> <p><input checked="" type="checkbox"/> dredging, and other mechanical disturbances to the soil</p>
--	--

<p>Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils</p>	<p><u>YES</u></p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p><u>NO</u></p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p><u>NOT SURE</u></p> <p>Choose "recovered" and assign a score of 3.5.</p>
--	--	--	---

<b>Select one or double check adjoining numbers and average the score.</b>		
4pts	NONE OR NONE APPARENT. There are no disturbances or no disturbances apparent to the evaluator.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	<b>1</b>

4a Avg.=  
1.00

<b>4b. Habitat development.</b> Select only one and assign score. This question asks the evaluator to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically and/or hydrogeomorphically similar wetlands. This question presumes knowledge of the types of wetlands and the range in quality typical of the region or access to data from reference standard examples. If unsure, score as GOOD or MODERATELY GOOD.		
7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears <u>not</u> to be a good example of its type or class because of past or present disturbances, successional state, etc.	<b>1</b>

4b Avg.=  
1.00

SR Ripley II

W010

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

**4c. Habitat alteration.** This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. **The evaluator may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

**Check all that are observed present in or near the wetland**

<input type="checkbox"/>	Mowing	<input type="checkbox"/>	Herbaceous layer/aquatic bed removal
<input type="checkbox"/>	Grazing (cattle, horses, etc.)	<input type="checkbox"/>	Sedimentation
<input type="checkbox"/>	Clearcutting	<input type="checkbox"/>	Dredging
<input type="checkbox"/>	Selective cutting	<input checked="" type="checkbox"/>	Row-crop or orchard farming
<input type="checkbox"/>	Woody debris removal	<input type="checkbox"/>	Nutrient enrichment, e.g. nuisance algae
<input type="checkbox"/>	Toxic pollutants	<input type="checkbox"/>	Other (specify):
<input type="checkbox"/>	Shrub/sapling removal	<input type="checkbox"/>	Other (specify):

Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat.	<u>YES</u>	<u>NO</u>	<u>NOT SURE</u>
	Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.	Assign a score of 9 since there are no or no apparent modifications.	Choose "recovered" and assign a score of 6.

Select one score or double check adjoining numbers and average the score.		Score
9pts	NONE OR NONE APPARENT. There are no past or current alterations that are apparent to the evaluator.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	1
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	

4c Avg. =  
1.00

Metric 4 Total 3



**Metric 5. Special wetland communities.** Assign points in left column if the wetland meets the associated criteria below. Refer to Narrative Rating for guidance. If wetland scores over 30 points within Metric 5 further determination needed to assess if the wetland exhibits outstanding ecological or recreational values as discussed in the Narrative Rating Section.

5pts - >10m sq sphagnum or other moss or other vernal pools	5 pts - Superior fish, waterfowl, bat, or amphibian breeding habitat
Ecological community with global rank (NatureServe): G1 (10pts), G2 (5pts), G2/G3 (3pts) or uncommon ecological resource in the ecoregion (habitat and/or species diversity, geology, wetland type, distribution/ occurrence) (10 pts)	5 pts - Wetland contains and is a buffer for a headwater stream or wetland contributes significantly to the water quality of 303(d) listed stream and/or to surface or and/or to ground water
10 pts - Older-aged mature forested wetland avg. DBH >= 30 inches	10 pts - Supports species Deemed in Need of Management by TWRA or TN Special Concern by TDEC

Metric 5 Total 0

**Metric 6. Vegetation, Interspersion, and Microtopography (Max 20 points).**

	Score
<b>6a. Wetland Vegetation Communities</b> Check each community present both vertically and horizontally within the wetland with an area of at least 0.1 hectares or 1000m <sup>2</sup> (0.2471 acres). Assign a score of 0 to 3 using Table 3 for 1-4 or Table 5 for 5-6. Sum the scores for the classes present.	
<b>1)Aquatic Bed</b> Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed ( <i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	0
<b>2)Emergent</b> Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, and fens.	0
<b>3)Shrub</b> Includes areas of wetlands dominated by woody vegetation less than 1m (3ft.) - 6m (20 ft) tall with a dbh of <3in. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	0
<b>4)Forested</b> Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are "vernal pools".	0
<b>5)Mudflats</b> The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB <sub>3</sub> ) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	0
<b>6)Open water</b> The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas that are 1) inundated, 2) un-vegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	0

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 4 for narrative description of "low," "moderate," and "high" quality.

Cover Scale	Description
0	The vegetation community is either 1) absent from wetland or 2) Comprises less than 0.1 ha (.2471 acres) of contiguous area within the wetland
1	Vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation and is of low quality
2	Thee vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	The vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation

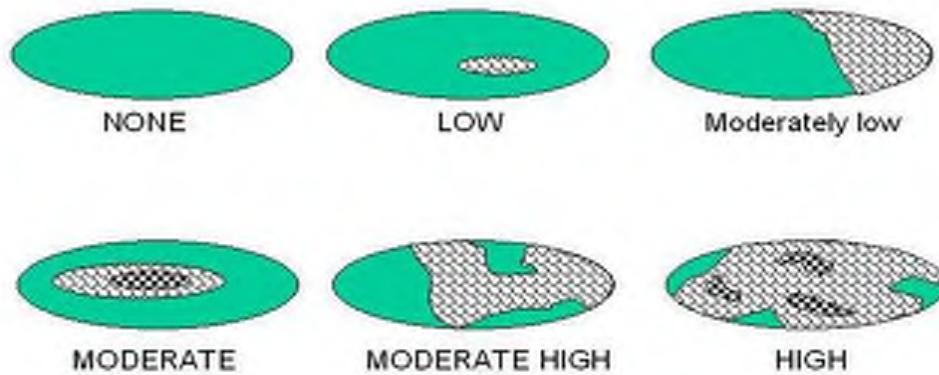
Table 4. Use this table in conjunction with Table 3 to determine what is a "low", "moderate," or "high" quality community.

Narrative	Description
Low	Low species richness and a predominance of invasive, non-native, or disturbance tolerant "weedy" species.
Moderate	Native species are the dominant component of the vegetation, although non-native or disturbance tolerant "weedy" species can also be present, and species richness is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species.
High	A predominance of native species, with non-native species absent or virtually absent, and high species diversity and/or the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

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

<b>6b. Horizontal (plan view) interspersion.</b> Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		Score
5pts	HIGH Wetland has a high degree of interspersion	
4pts	MODERATELY HIGH Wetland has a moderately high degree of interspersion	
3pts	MODERATE Wetland has a moderate degree of interspersion	
2pts	MODERATELY LOW Wetland has a moderately low degree of interspersion	
1pt	LOW Wetland has a low degree of interspersion.	1
0pt	NONE Wetland has no plan view interspersion	



**Figure 1. Hypothetical Wetlands for estimating degree of interspersion**

<b>6c. Coverage of Invasive Plant Species.</b> Refer to Tennessee Exotic Pest Plant Council ( <a href="http://www.tneppc.org/">http://www.tneppc.org/</a> ) for official list. Select only one and assign score.		Score
-5pts	Extensive >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	
-1pts	Sparse 5-25% areal cover of invasive species	
0pt	Nearly absent. <5% areal cover of invasive species	0
1pt	Absent	
<b>6d. Microtopography.</b> Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		Score
Vegetated hummocks and tussocks		0
Coarse woody debris >15cm (6in) in diameter		
Standing dead trees >25cm (10in) diameter at breast height		
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction		

Table 6. Cover scale for microtopographic habitat features

Microtopographic habitat quality	Narrative description
0	Feature is absent or functionally absent from the wetland
1	Feature is present in the wetland in very small amounts or if more common, of low quality
2	Feature is 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 the highest quality

## NON-HGM TRAM Summary Worksheet

<b>Non-HGM Quantitative Rating</b>	Metric 1: Size	1
	Metric 2: Buffers and surrounding land use	1
	Metric 3: Hydrology	3
	Metric 4: Habitat	3
	Metric 5: Special Wetland Communities	0
	Metric 6: Plant communities, interspersed, microtopography	1
	<b>TOTAL SCORE</b>	9

SR Ripley II

W010

**Rank = Low**

**"Wetland Conditions with an overall score of 100-75 are considered Exceptional Tennessee Waters. Wetlands with a score of 74-45 are considered to have moderate resource value, and wetland with a score of 44 and below have a low resource value."**  
**(TRAM 2015, pg 2)**

**Quantitative Rating  
Tennessee Rapid Assessment Method**

**Metric 1. Wetland area (max 6 pts).** Estimate the area of wetland and select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.

6pts	>50 acres (west TN)	>25 acres (middle TN)	>10 acres (east TN *)	
5pts	25 - <50 acres (west TN)	10- 25 acres (middle TN)	7-<10 acres (east TN*)	
4pts	10 - <25 acres (west TN)	7-< 25acres (middle TN)	3-<7 acres (east TN*)	
3pts	3 - <10 acres(west TN)	3< 7 acres (middle TN)	1-<3 acres (east TN)	
2pts	0.3 - <3 acres (west TN)	0.5- <3 acres (middle TN)	0.5-<1 acres (east TN)	
1pt	0.1 - <0.3 acres(west TN)	<0.5 acres (middle TN)	<0.5 acres (east TN)	<b>1</b>

\*More applicable to West Tennessee; use with discretion in Middle Tennessee, Consult TDEC-DWR Natural Resources Unit for use in East Tennessee.

Table 2. Metric to English conversion table with visual estimation sizes.							
acres	ft <sup>2</sup>	yd <sup>2</sup>	ft on side	yd on side	ha	m <sup>2</sup>	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

**Metric 1 Total** 1

**Metric 2. Upland buffers and intensity of surrounding land uses (Max 14 points).** Wetlands without upland "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded and often have lower wildlife habitat resource value.

**2a. Average Buffer Width (ABW).** Calculate the average buffer width and select only one score. To calculate ABW, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: ABW of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows:  $ABW = (50m + 25m + 10m + 0m)/4 = 21.25m$ . Intensive land uses are not buffers, e.g. active row cropping, paved areas, housing developments, etc.

7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	
0pts	VERY NARROW. <10m (<32ft) around perimeter.	0

2a Avg.=  
0.00

**2b. Intensity of predominant surrounding land use(s)** Select one, or choose up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone.

7pts	VERY LOW. 2 <sup>nd</sup> growth or older forest, prairie, barren, wildlife area, etc.	
5pts	LOW. Old fallow field, shrub land, early successional young forest, etc.	
3pts	MODERATELY HIGH. Residential, pasture, orchard, park, conservation tillage, mowed field, etc.	
1pt	HIGH. urban, industrial, row cropping, mining, construction, etc.	1

2b Avg.=  
1.00

SR Ripley II

Metric 2 Total 1.00

W011

**Metric 3. Hydrology (Max 30 points).** This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. **A wetland can receive no more than 30 points for Metric 3 even though it is possible to score more than 30 points.**

<b>3a. Sources of Water.</b> Select all that apply and sum the score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		
5pts	High pH groundwater (7.5-9.0)	
3pts	Other groundwater	
1pts	Precipitation	1
3pts	Seasonal surface water	
5pts	Perennial surface water (lake or stream)	
<b>3b. Connectivity.</b> Select all that apply and sum score		
1pt	<b>100 year floodplain.</b> "Floodplain" is defined as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	0
1pt	<b>Between stream/lake and other human land use.</b> This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water buffering it. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	0
1pt	<b>Part of a larger wetland or upland complex.</b> This question asks whether the wetland is in physical proximity to, or a other nearby wetland or upland habitat areas.	0
1pt	<b>Part of riparian corridor.</b>	0
<b>3c. Maximum water depth.</b> Select only one and assign score. The evaluator <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		
3 pts	>0.7m (27.6in)	
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	0
<b>3d. Duration of inundation/saturation.</b> Select one or double check and average the scores if duration is uncertain. The use of ACOE 1987 Manual secondary indicators is necessary and expected in order to properly answer this question.		
4pts	Semi-permanently to permanently inundated or saturated	
3pts	Regularly inundated or saturated	
2pts	Seasonally inundated	
1pt	Seasonally saturated in the upper 30cm (12in) of soil	1

SR Ripley II

3d Avg.= 1.00

W011

**3e. Modifications to natural hydrologic regime.** Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the evaluator to assess the "intactness" of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

Once the evaluator has listed all possible past and ongoing disturbances, the evaluator should check the most appropriate category to describe the present state of the wetland. In instances where the evaluator believes that a wetland falls between two categories, or where the evaluator is uncertain as to which category is appropriate, it is appropriate to choose more than one and average the score.

The evaluator may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

**Check all that are observed present in or near the wetland.**

<input checked="" type="checkbox"/>	ditch(es), in or near the wetland		point source discharges to the (non-stormwater)
	tile(s), in or near the wetland	<input checked="" type="checkbox"/>	filling/grading activities in or near the wetland
	dike(s), in or near the wetland		road beds/RR beds in or near the wetland
	weir(s), in or near the wetland		dredging activities in or near the wetland
	stormwater inputs (addition of water)	<input checked="" type="checkbox"/>	other (specify) <b>agricultural field</b>

Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime.	<u>YES</u> Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.	<u>NO</u> Assign a score of 12 since there are no or no apparent modifications.	<u>NOT SURE</u> Choose "recovered" and assign a score of 9.5.
<b>Select one or double check adjoining numbers and average the score.</b>			<b>score</b>
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the evaluator.		
7pts	RECOVERED. The wetland appears to have recovered from past modifications.		
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.		
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.		<b>1</b>

3e Avg=  
1.00

SR Ripley II

**Metric 3 Total** 3.00

W011



**Metric 4. Habitat Alteration and Development (Max 20 points).** While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. These disturbances are termed "habitat alteration." In many instances, items checked as hydrologic disturbances in Question 3e will present as alterations to a wetland's habitat or disruptions in its development (successional state). In some instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. To determine the appropriate metric scores, the evaluator should carefully determine the actual cause of the disturbance to the wetland.

<p><b>4a. Substrate/Soil Disturbance.</b> Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.</p>	<p>Examples of substrate/soil disturbance include (circle all that apply):</p> <p><input type="checkbox"/> filling and grading</p> <p><input type="checkbox"/> plowing</p> <p><input type="checkbox"/> grazing (hooves)</p> <p><input checked="" type="checkbox"/> vehicle use (off-road vehicles, construction vehicles)</p> <p><input type="checkbox"/> sedimentation</p> <p><input checked="" type="checkbox"/> dredging, and other mechanical disturbances to the soil</p>
--	--

<p>Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils</p>	<p><u>YES</u></p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p><u>NO</u></p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p><u>NOT SURE</u></p> <p>Choose "recovered" and assign a score of 3.5.</p>
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<b>Select one or double check adjoining numbers and average the score.</b>		
4pts	NONE OR NONE APPARENT. There are no disturbances or no disturbances apparent to the evaluator.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	<b>1</b>

4a Avg.=  
1.00

**4b. Habitat development.** Select only one and assign score. This question asks the evaluator to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically and/or hydrogeomorphically similar wetlands. This question presumes knowledge of the types of wetlands and the range in quality typical of the region or access to data from reference standard examples. If unsure, score as GOOD or MODERATELY GOOD.

7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears <u>not</u> to be a good example of its type or class because of past or present disturbances, successional state, etc.	<b>1</b>

4b Avg.=  
1.00

SR Ripley II

W011

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

**4c. Habitat alteration.** This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. **The evaluator may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

**Check all that are observed present in or near the wetland**

<input type="checkbox"/>	Mowing	<input type="checkbox"/>	Herbaceous layer/aquatic bed removal
<input type="checkbox"/>	Grazing (cattle, horses, etc.)	<input type="checkbox"/>	Sedimentation
<input type="checkbox"/>	Clearcutting	<input type="checkbox"/>	Dredging
<input type="checkbox"/>	Selective cutting	<input checked="" type="checkbox"/>	Row-crop or orchard farming
<input type="checkbox"/>	Woody debris removal	<input type="checkbox"/>	Nutrient enrichment, e.g. nuisance algae
<input type="checkbox"/>	Toxic pollutants	<input type="checkbox"/>	Other (specify):
<input type="checkbox"/>	Shrub/sapling removal	<input type="checkbox"/>	Other (specify):

Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat.	<u>YES</u>	<u>NO</u>	<u>NOT SURE</u>
	Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.	Assign a score of 9 since there are no or no apparent modifications.	Choose "recovered" and assign a score of 6.

Select one score or double check adjoining numbers and average the score.		Score
9pts	NONE OR NONE APPARENT. There are no past or current alterations that are apparent to the evaluator.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	1
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	

4c Avg. =  
1.00

Metric 4 Total 3

**Metric 5. Special wetland communities.** Assign points in left column if the wetland meets the associated criteria below. Refer to Narrative Rating for guidance. If wetland scores over 30 points within Metric 5 further determination needed to assess if the wetland exhibits outstanding ecological or recreational values as discussed in the Narrative Rating Section.

5pts - >10m sq sphagnum or other moss or other vernal pools	5 pts - Superior fish, waterfowl, bat, or amphibian breeding habitat
Ecological community with global rank (NatureServe): G1 (10pts), G2 (5pts), G2/G3 (3pts) or uncommon ecological resource in the ecoregion (habitat and/or species diversity, geology, wetland type, distribution/ occurrence) (10 pts)	5 pts - Wetland contains and is a buffer for a headwater stream or wetland contributes significantly to the water quality of 303(d) listed stream and/or to surface or and/or to ground water
10 pts - Older-aged mature forested wetland avg. DBH >= 30 inches	10 pts - Supports species Deemed in Need of Management by TWRA or TN Special Concern by TDEC

Metric 5 Total 0

**Metric 6. Vegetation, Interspersion, and Microtopography (Max 20 points).**

	Score
<b>6a. Wetland Vegetation Communities</b> Check each community present both vertically and horizontally within the wetland with an area of at least 0.1 hectares or 1000m <sup>2</sup> (0.2471 acres). Assign a score of 0 to 3 using Table 3 for 1-4 or Table 5 for 5-6. Sum the scores for the classes present.	
<b>1)Aquatic Bed</b> Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed ( <i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	0
<b>2)Emergent</b> Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, and fens.	0
<b>3)Shrub</b> Includes areas of wetlands dominated by woody vegetation less than 1m (3ft.) - 6m (20 ft) tall with a dbh of <3in. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	0
<b>4)Forested</b> Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are "vernal pools".	0
<b>5)Mudflats</b> The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB <sub>3</sub> ) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	0
<b>6)Open water</b> The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas that are 1) inundated, 2) un-vegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	0

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 4 for narrative description of "low," "moderate," and "high" quality.

Cover Scale	Description
0	The vegetation community is either 1) absent from wetland or 2) Comprises less than 0.1 ha (.2471 acres) of contiguous area within the wetland
1	Vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation and is of low quality
2	Thee vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	The vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation

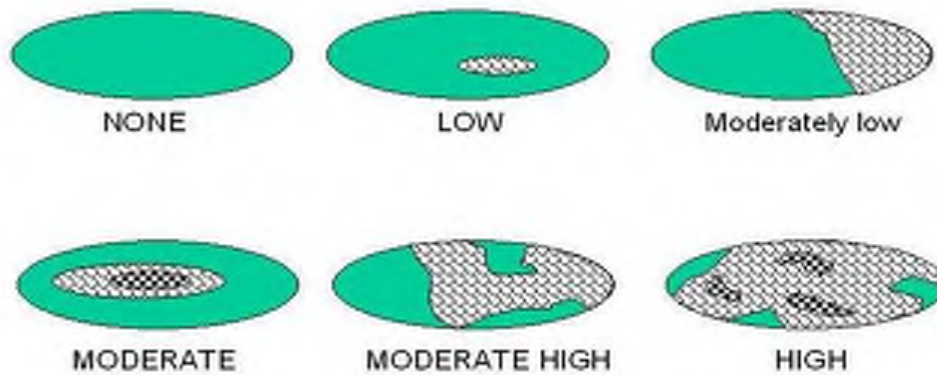
Table 4. Use this table in conjunction with Table 3 to determine what is a "low," "moderate," or "high" quality community.

Narrative	Description
Low	Low species richness and a predominance of invasive, non-native, or disturbance tolerant "weedy" species.
Moderate	Native species are the dominant component of the vegetation, although non-native or disturbance tolerant "weedy" species can also be present, and species richness is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species.
High	A predominance of native species, with non-native species absent or virtually absent, and high species diversity and/or the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

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

6b. Horizontal (plan view) interspersion. Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		Score
5pts	HIGH Wetland has a high degree of interspersion	
4pts	MODERATELY HIGH Wetland has a moderately high degree of interspersion	
3pts	MODERATE Wetland has a moderate degree of interspersion	
2pts	MODERATELY LOW Wetland has a moderately low degree of interspersion	
1pt	LOW Wetland has a low degree of interspersion.	1
0pt	NONE Wetland has no plan view interspersion	



**Figure 1. Hypothetical Wetlands for estimating degree of interspersion**

<b>6c. Coverage of Invasive Plant Species.</b> Refer to Tennessee Exotic Pest Plant Council ( <a href="http://www.tneppc.org/">http://www.tneppc.org/</a> ) for official list. Select only one and assign score.		Score
-5pts	Extensive >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	
-1pts	Sparse 5-25% areal cover of invasive species	
0pt	Nearly absent. <5% areal cover of invasive species	0
1pt	Absent	
<b>6d. Microtopography.</b> Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		Score
Vegetated hummocks and tussocks		0
Coarse woody debris >15cm (6in) in diameter		
Standing dead trees >25cm (10in) diameter at breast height		
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction		

Table 6. Cover scale for microtopographic habitat features

Microtopographic habitat quality	Narrative description
0	Feature is absent or functionally absent from the wetland
1	Feature is present in the wetland in very small amounts or if more common, of low quality
2	Feature is 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 the highest quality

## NON-HGM TRAM Summary Worksheet

<b>Non-HGM Quantitative Rating</b>	Metric 1: Size	1
	Metric 2: Buffers and surrounding land use	1
	Metric 3: Hydrology	3
	Metric 4: Habitat	3
	Metric 5: Special Wetland Communities	0
	Metric 6: Plant communities, interspersed, microtopography	1
	<b>TOTAL SCORE</b>	9

SR Ripley II

W011
<b>Rank = Low</b>

**"Wetland Conditions with an overall score of 100-75 are considered Exceptional Tennessee Waters. Wetlands with a score of 74-45 are considered to have moderate resource value, and wetland with a score of 44 and below have a low resource value."**  
**(TRAM 2015, pg 2)**

**Quantitative Rating  
Tennessee Rapid Assessment Method**

**Metric 1. Wetland area (max 6 pts).** Estimate the area of wetland and select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.

6pts	>50 acres (west TN)	>25 acres (middle TN)	>10 acres (east TN *)	
5pts	25 - <50 acres (west TN)	10- 25 acres (middle TN)	7-<10 acres (east TN*)	
4pts	10 - <25 acres (west TN)	7-< 25acres (middle TN)	3-<7 acres (east TN*)	
3pts	3 - <10 acres(west TN)	3< 7 acres (middle TN)	1-<3 acres (east TN)	
2pts	0.3 - <3 acres (west TN)	0.5- <3 acres (middle TN)	0.5-<1 acres (east TN)	
1pt	0.1 - <0.3 acres(west TN)	<0.5 acres (middle TN)	<0.5 acres (east TN)	<b>1</b>

\*More applicable to West Tennessee; use with discretion in Middle Tennessee, Consult TDEC-DWR Natural Resources Unit for use in East Tennessee.

Table 2. Metric to English conversion table with visual estimation sizes.							
acres	ft <sup>2</sup>	yd <sup>2</sup>	ft on side	yd on side	ha	m <sup>2</sup>	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

**Metric 1 Total** 1

**Metric 2. Upland buffers and intensity of surrounding land uses (Max 14 points).** Wetlands without upland "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded and often have lower wildlife habitat resource value.

**2a. Average Buffer Width (ABW).** Calculate the average buffer width and select only one score. To calculate ABW, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: ABW of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows:  $ABW = (50m + 25m + 10m + 0m)/4 = 21.25m$ . Intensive land uses are not buffers, e.g. active row cropping, paved areas, housing developments, etc.

7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	
0pts	VERY NARROW. <10m (<32ft) around perimeter.	0

2a Avg.=  
0.00

**2b. Intensity of predominant surrounding land use(s)** Select one, or choose up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone.

7pts	VERY LOW. 2 <sup>nd</sup> growth or older forest, prairie, barren, wildlife area, etc.	
5pts	LOW. Old fallow field, shrub land, early successional young forest, etc.	
3pts	MODERATELY HIGH. Residential, pasture, orchard, park, conservation tillage, mowed field, etc.	
1pt	HIGH. urban, industrial, row cropping, mining, construction, etc.	1

2b Avg.=  
1.00

SR Ripley II

Metric 2 Total 1.00

W012



**Metric 3. Hydrology (Max 30 points).** This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. **A wetland can receive no more than 30 points for Metric 3 even though it is possible to score more than 30 points.**

<b>3a. Sources of Water.</b> Select all that apply and sum the score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		
5pts	High pH groundwater (7.5-9.0)	
3pts	Other groundwater	
1pts	Precipitation	1
3pts	Seasonal surface water	
5pts	Perennial surface water (lake or stream)	
<b>3b. Connectivity.</b> Select all that apply and sum score		
1pt	<b>100 year floodplain.</b> "Floodplain" is defined as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	0
1pt	<b>Between stream/lake and other human land use.</b> This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water buffering it. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	1
1pt	<b>Part of a larger wetland or upland complex.</b> This question asks whether the wetland is in physical proximity to, or a part of, other nearby wetland or upland habitat areas.	0
1pt	<b>Part of riparian corridor.</b>	0
<b>3c. Maximum water depth.</b> Select only one and assign score. The evaluator <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		
3 pts	>0.7m (27.6in)	
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	1
<b>3d. Duration of inundation/saturation.</b> Select one or double check and average the scores if duration is uncertain. The use of ACOE 1987 Manual secondary indicators is necessary and expected in order to properly answer this question.		
4pts	Semi-permanently to permanently inundated or saturated	
3pts	Regularly inundated or saturated	
2pts	Seasonally inundated	
1pt	Seasonally saturated in the upper 30cm (12in) of soil	1

SR Ripley II

3d Avg.= 1.00

W012

**3e. Modifications to natural hydrologic regime.** Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the evaluator to assess the "intactness" of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

Once the evaluator has listed all possible past and ongoing disturbances, the evaluator should check the most appropriate category to describe the present state of the wetland. In instances where the evaluator believes that a wetland falls between two categories, or where the evaluator is uncertain as to which category is appropriate, it is appropriate to choose more than one and average the score.

The evaluator may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

**Check all that are observed present in or near the wetland.**

<input checked="" type="checkbox"/>	ditch(es), in or near the wetland		point source discharges to the (non-stormwater)
	tile(s), in or near the wetland	<input checked="" type="checkbox"/>	filling/grading activities in or near the wetland
	dike(s), in or near the wetland		road beds/RR beds in or near the wetland
	weir(s), in or near the wetland		dredging activities in or near the wetland
	stormwater inputs (addition of water)	<input checked="" type="checkbox"/>	other (specify) <b>agricultural field</b>

Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime.	<u>YES</u> Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.	<u>NO</u> Assign a score of 12 since there are no or no apparent modifications.	<u>NOT SURE</u> Choose "recovered" and assign a score of 9.5.
<b>Select one or double check adjoining numbers and average the score.</b>			<b>score</b>
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the evaluator.		
7pts	RECOVERED. The wetland appears to have recovered from past modifications.		
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.		
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.		<b>1</b>

3e Avg=  
1.00

SR Ripley II

**Metric 3 Total** 5.00

W012

**Metric 4. Habitat Alteration and Development (Max 20 points).** While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. These disturbances are termed "habitat alteration." In many instances, items checked as hydrologic disturbances in Question 3e will present as alterations to a wetland's habitat or disruptions in its development (successional state). In some instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. To determine the appropriate metric scores, the evaluator should carefully determine the actual cause of the disturbance to the wetland.

<p><b>4a. Substrate/Soil Disturbance.</b> Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.</p>	<p>Examples of substrate/soil disturbance include (circle all that apply):</p> <p><input type="checkbox"/> filling and grading</p> <p><input checked="" type="checkbox"/> plowing</p> <p><input type="checkbox"/> grazing (hooves)</p> <p><input checked="" type="checkbox"/> vehicle use (off-road vehicles, construction vehicles)</p> <p><input type="checkbox"/> sedimentation</p> <p><input type="checkbox"/> dredging, and other mechanical disturbances to the soil</p>
--	--

<p>Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils</p>	<p><u>YES</u></p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p><u>NO</u></p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p><u>NOT SURE</u></p> <p>Choose "recovered" and assign a score of 3.5.</p>
--	--	--	---

<b>Select one or double check adjoining numbers and average the score.</b>		
4pts	NONE OR NONE APPARENT. There are no disturbances or no disturbances apparent to the evaluator.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	<b>1</b>

4a Avg.=  
1.00

<b>4b. Habitat development.</b> Select only one and assign score. This question asks the evaluator to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically and/or hydrogeomorphically similar wetlands. This question presumes knowledge of the types of wetlands and the range in quality typical of the region or access to data from reference standard examples. If unsure, score as GOOD or MODERATELY GOOD.		
7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears <u>not</u> to be a good example of its type or class because of past or present disturbances, successional state, etc.	<b>1</b>

4b Avg.=  
1.00

SR Ripley II

W012

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

**4c. Habitat alteration.** This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. **The evaluator may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

**Check all that are observed present in or near the wetland**

<input type="checkbox"/>	Mowing	<input type="checkbox"/>	Herbaceous layer/aquatic bed removal
<input type="checkbox"/>	Grazing (cattle, horses, etc.)	<input type="checkbox"/>	Sedimentation
<input type="checkbox"/>	Clearcutting	<input type="checkbox"/>	Dredging
<input type="checkbox"/>	Selective cutting	<input checked="" type="checkbox"/>	Row-crop or orchard farming
<input type="checkbox"/>	Woody debris removal	<input type="checkbox"/>	Nutrient enrichment, e.g. nuisance algae
<input type="checkbox"/>	Toxic pollutants	<input type="checkbox"/>	Other (specify):
<input type="checkbox"/>	Shrub/sapling removal	<input type="checkbox"/>	Other (specify):

Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat.	<u>YES</u>	<u>NO</u>	<u>NOT SURE</u>
	Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.	Assign a score of 9 since there are no or no apparent modifications.	Choose "recovered" and assign a score of 6.

Select one score or double check adjoining numbers and average the score.		Score
9pts	NONE OR NONE APPARENT. There are no past or current alterations that are apparent to the evaluator.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	1
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	

4c Avg. =  
1.00

Metric 4 Total 3

**Metric 5. Special wetland communities.** Assign points in left column if the wetland meets the associated criteria below. Refer to Narrative Rating for guidance. If wetland scores over 30 points within Metric 5 further determination needed to assess if the wetland exhibits outstanding ecological or recreational values as discussed in the Narrative Rating Section.

5pts - >10m sq sphagnum or other moss or other vernal pools	5 pts - Superior fish, waterfowl, bat, or amphibian breeding habitat
Ecological community with global rank (NatureServe): G1 (10pts), G2 (5pts), G2/G3 (3pts) or uncommon ecological resource in the ecoregion (habitat and/or species diversity, geology, wetland type, distribution/ occurrence) (10 pts)	5 pts - Wetland contains and is a buffer for a headwater stream or wetland contributes significantly to the water quality of 303(d) listed stream and/or to surface or and/or to ground water
10 pts - Older-aged mature forested wetland avg. DBH >= 30 inches	10 pts - Supports species Deemed in Need of Management by TWRA or TN Special Concern by TDEC

Metric 5 Total 0

**Metric 6. Vegetation, Interspersion, and Microtopography (Max 20 points).**

6a. Wetland Vegetation Communities Check each community present both vertically and horizontally within the wetland with an area of at least 0.1 hectares or 1000m <sup>2</sup> (0.2471 acres). Assign a score of 0 to 3 using Table 3 for 1-4 or Table 5 for 5-6. Sum the scores for the classes present.	Score
<b>1)Aquatic Bed</b> Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed ( <i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	0
<b>2)Emergent</b> Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, and fens.	1
<b>3)Shrub</b> Includes areas of wetlands dominated by woody vegetation less than 1m (3ft.) - 6m (20 ft) tall with a dbh of <3in. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	0
<b>4)Forested</b> Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are "vernal pools".	0
<b>5)Mudflats</b> The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB <sub>3</sub> ) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	0
<b>6)Open water</b> The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas that are 1) inundated, 2) un-vegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	0

**Quantitative Rating**  
**Tennessee Rapid Assessment Method**

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 4 for narrative description of "low," "moderate," and "high" quality.

Cover Scale	Description
0	The vegetation community is either 1) absent from wetland or 2) Comprises less than 0.1 ha (.2471 acres) of contiguous area within the wetland
1	Vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation and is of low quality
2	Thee vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	The vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation

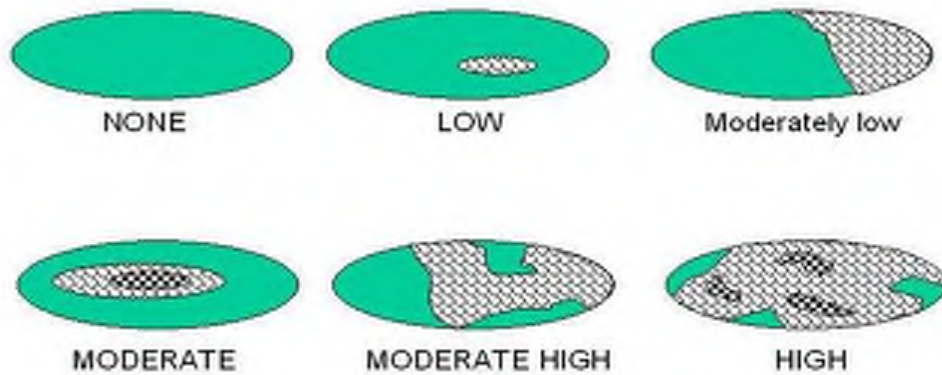
Table 4. Use this table in conjunction with Table 3 to determine what is a "low," "moderate," or "high" quality community.

Narrative	Description
Low	Low species richness and a predominance of invasive, non-native, or disturbance tolerant "weedy" species.
Moderate	Native species are the dominant component of the vegetation, although non-native or disturbance tolerant "weedy" species can also be present, and species richness is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species.
High	A predominance of native species, with non-native species absent or virtually absent, and high species diversity and/or the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

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

<b>6b. Horizontal (plan view) interspersion.</b> Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		Score
5pts	HIGH Wetland has a high degree of interspersion	
4pts	MODERATELY HIGH Wetland has a moderately high degree of interspersion	
3pts	MODERATE Wetland has a moderate degree of interspersion	
2pts	MODERATELY LOW Wetland has a moderately low degree of interspersion	
1pt	LOW Wetland has a low degree of interspersion.	1
0pt	NONE Wetland has no plan view interspersion	



**Figure 1. Hypothetical Wetlands for estimating degree of interspersions**

<b>6c. Coverage of Invasive Plant Species.</b> Refer to Tennessee Exotic Pest Plant Council ( <a href="http://www.tneppc.org/">http://www.tneppc.org/</a> ) for official list. Select only one and assign score.		Score
-5pts	Extensive >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	
-1pts	Sparse 5-25% areal cover of invasive species	
0pt	Nearly absent. <5% areal cover of invasive species	0
1pt	Absent	
<b>6d. Microtopography.</b> Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		Score
Vegetated hummocks and tussocks		0
Coarse woody debris >15cm (6in) in diameter		
Standing dead trees >25cm (10in) diameter at breast height		
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction		

Table 6. Cover scale for microtopographic habitat features

Microtopographic habitat quality	Narrative description
0	Feature is absent or functionally absent from the wetland
1	Feature is present in the wetland in very small amounts or if more common, of low quality
2	Feature is 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 the highest quality

## NON-HGM TRAM Summary Worksheet

<b>Non-HGM Quantitative Rating</b>	Metric 1: Size	1
	Metric 2: Buffers and surrounding land use	1
	Metric 3: Hydrology	5
	Metric 4: Habitat	3
	Metric 5: Special Wetland Communities	0
	Metric 6: Plant communities, interspersed, microtopography	2
	<b>TOTAL SCORE</b>	12

SR Ripley II

W012
<b>Rank = Low</b>

**"Wetland Conditions with an overall score of 100-75 are considered Exceptional Tennessee Waters. Wetlands with a score of 74-45 are considered to have moderate resource value, and wetland with a score of 44 and below have a low resource value."**  
**(TRAM 2015, pg 2)**





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: Hyde Creek		Date/Time: 9/19/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID : SR Ripley II
Site Name/Description: S001		
Site Location: Forested area near agricultural cotton field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested, Agricultural (cotton)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Slight		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 24.00**

**Justification / Notes :**

Evidence of spoil piles, overgrown

R45B5

S1





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/19/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID : SR Ripley II
Site Name/Description: S002		
Site Location: Runs through agricultural field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested, Agricultural (cotton & corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Severe</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 21.50**

**Justification / Notes : S2**

Straightened through field.

Bank Width: 2-6'

Bank height: 2-8'

Blue line on NHD

Substrate: clay/silt

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 9.00)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	1
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	1
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	0
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	1
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	2
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		1.5

<b>C. Biology</b> (Subtotal = 6.50)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0.5
25. Macroinvertebrates (record type & abundance)	0	1	2	3	1
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 21.50**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

25. Macroinvertebrates (record type & abundance): beetles

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID : SR Ripley II
Site Name/Description: S003		
Site Location: Runs through agricultural field along property boundary		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Loring silt loam, 5 to 8 percent slopes, eroded	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested, Agricultural (cotton & corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Moderate		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 16.00**

**Justification / Notes :**

Property ditch line; R6: Ephemeral Jurisdiction; Relic stream; No WWC feeding; Bed and Bank

Bank Width: 1-3'

Bank height: 2-6'

Substrate: mud/silt

S3





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID :
Site Name/Description: S004		SR Ripley II
Site Location: Runs through agricultural field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested, Agricultural (cotton & corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Severe</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 15.00**

**Justification / Notes : S4**

Infield fall of ragweed and horsetail woods clear channel.

Bank Width: 2-6'

Bank height: 2-6'

R6

Well defined channel with OHWM and defined bed and bank







**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: Hyde Creek		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID :
Site Name/Description: S005		SR Ripley II
Site Location: Runs through agricultural field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested, Agricultural (cotton & corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Severe		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 20.00**

**Justification / Notes : S5**

Ragweed in channel infield. Zero veg in channel in forested areas. Severe H.A. due to straightening in field.

Bank Width: 2-8'

Bank height: 2-8'

R4

Silt/mud bottom

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 12.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	1.5
3. In-channel structure: riffle-pool sequences	0	1	2	3	1
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	1
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	1
9. Natural levees	0	1	2	3	1
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	1
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 5.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0.5
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	1.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		1.5

<b>C. Biology</b> (Subtotal = 3.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	1
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 20.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

- 11. Grade controls: culvert
- 15. Water in channel and >48 hours since sig. rain: 1 pool
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_



**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: Hyde Creek		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID : SR Ripley II
Site Name/Description: S006		
Site Location: Starts off-site; flows into riser and flows into forested area off-site		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase; Adler silt loam, 0 to 2 percent slopes, occasionally flooded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested, Agricultural (cotton & corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Severe</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 23.00**

**Justification / Notes :**

Intermittent

Centerline 5 ft

S6





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID :
Site Name/Description: S007		SR Ripley II
Site Location: Starts off-site; flows into S6		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase; Adler silt loam, 0 to 2 percent slopes, occasionally flooded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested, Agricultural (cotton & corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Moderate</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 19.50**

**Justification / Notes :**

Bank height: 1-6 ft  
 Bank width: 2-6 ft  
 Substrate: silt/mud  
 S7

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 9.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	2
3. In-channel structure: riffle-pool sequences	0	1	2	3	1
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0.5
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	1
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 3.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		1.5

<b>C. Biology</b> (Subtotal = 6.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0.5
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points =** 19.50

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID :
Site Name/Description: S008		SR Ripley II
Site Location: Starts with WWC 21; flows from corn field into forested area off-site		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested, Agricultural		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Severe</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 19.25**

**Justification / Notes :**

S8

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 9.00)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	1
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	1
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 3.75)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	1
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0.75

<b>C. Biology</b> (Subtotal = 6.50)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0.5
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 19.25**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

11. Grade controls: culvert

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID : SR Ripley II
Site Name/Description: S009		
Site Location: Cornfield		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase; Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 19.00**

**Justification / Notes :**

Bank height: 1-4 ft

Bank width: 1-6 ft

Substrate: silt/mud

Connects to W8

S9





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID :
Site Name/Description: S010		SR Ripley II
Site Location: Cornfield		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Adler silt loam, 0 to 2 percent slopes, occasionally flooded; Loring silt loam, 5 to 8 percent slopes, severely eroded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Moderate		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 21.00**

**Justification / Notes :**

Bank height: 1-4 ft  
 Bank width: 1-6 ft  
 Connects from OW1 via overflow culvert  
 S10





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID : SR Ripley II
Site Name/Description: S011		
Site Location: Cornfield		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 20 to 40 percent slopes, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested; Easement		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Slight		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 19.50**

**Justification / Notes :**

Bank height: 1-4 ft

Bank width: 2-6 ft

Substrate: silt/gravel

S11





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID :
Site Name/Description: S012		SR Ripley II
Site Location: Forested area near road		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested; Easement		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 20.00**

**Justification / Notes :**

Bank height: 1-4 ft

Bank width: 2-4 ft

Substrate: silt/gravel/sand

Starts at WWC35 end

S12







**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID :
Site Name/Description: S013		SR Ripley II
Site Location: Natural in forest; filled with veg in soybean field; heavily altered/straightened		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested; Agricultural		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Severe</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 20.00**

**Justification / Notes :**

Bank height: not collected

Bank width: 4 ft

R4

S13

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 10.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	2
3. In-channel structure: riffle-pool sequences	0	1	2	3	1
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0.5
6. Depositional bars or benches	0	1	2	3	1
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 5.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	1
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	1
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		1.5

<b>C. Biology</b> (Subtotal = 4.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0.5
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 20.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID : SR Ripley II
Site Name/Description: S014		
Site Location: Tie to S013		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested; Agricultural		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 22.50**

**Justification / Notes :**

Bank height: 1-4 ft

Bank width: 2-4 ft

Substrate: silt/mud

S14

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 11.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	2
3. In-channel structure: riffle-pool sequences	0	1	2	3	1
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	1
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	1
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	1
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 5.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	1
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	1
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		1.5

<b>C. Biology</b> (Subtotal = 6.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 22.50**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID : SR Ripley II
Site Name/Description: S015		
Site Location: Likely crosses road to W9; Ditched; Soybean		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested; Agricultural		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Severe		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 19.00**

**Justification / Notes :**

Bank height: 1-3 ft

Bank width: 2-4 ft

Substrate: silt/mud

S15

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 9.50)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	1
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	1
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 5.00)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	1
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	1
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		1.5

<b>C. Biology</b> (Subtotal = 4.50)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0.5
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 19.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

11. Grade controls: culvert

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24. Amphibians: frogs

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID : SR Ripley II
Site Name/Description: S016		
Site Location: Connects to S15; Ditched		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Adler silt loam, 0 to 2 percent slopes, occasionally flooded; Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested; Agricultural		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Severe</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 23.50**

**Justification / Notes :**

Bank height: 2-6 ft

Bank width: 2-6 ft

Substrate: silt/mud/gravel

S16







**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID :
Site Name/Description: S017		SR Ripley II
Site Location: South of WWC 53; flows from agricultural field to offsite		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested; agricultural		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Absent		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 23.00**

**Justification / Notes :**

Bank height: 4-20 ft

Bank width: 4-15 ft

Heavily incised banks

S17





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette and Jake Irvin		Project ID : SR Ripley II
Site Name/Description: S018		
Site Location: Starts at WWC54 end; Borders property line quickly runs off-site		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = STREAM**

**Secondary Indicator Score (if applicable) = 21.50**

**Justification / Notes :**

Bank height: 2-10 ft

Bank width: 2-10 ft

Substrate: silt/mud/gravel

Heavily incised banks; Similar to S17

S18





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/19/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E001		
Site Location: Forested area near cotton field and site boundary		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested, Agricultural (cotton)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 15.00**

**Justification / Notes :**

R6 - Jurisdictional

BH: 1-3 ft

BW: 2-4 ft

Defined bed and bank

WWC 1





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/19/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E002		
Site Location: Forested area near cotton field and site boundary		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Morganfield silt loam, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested, Agricultural (cotton)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 12.00**

**Justification / Notes :**

Short, went into the woods and flows into to Stream 5.

BH: 1-2 ft

BW: 2ft

Substrate: sand/silt

WWC 2







**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/19/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E003		
Site Location: Forested area near cotton field and site boundary		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested, Agricultural (cotton)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 14.00**

**Justification / Notes :**

Flows from field into Stream 2

BH: 2 ft

BW: 2ft

Substrate: silt

WWC 3





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/19/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID :
Site Name/Description: E004		SR Ripley II
Site Location: In cotton field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Adler silt loam, 0 to 2 percent slopes, occasionally flooded &amp; Memphis silt loam, 8 to 12 percent slopes, severely eroded, northern phase</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (cotton)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 13.50**

**Justification / Notes :**

Flows from field into Stream 2  
 BH: 0-1 ft  
 BW: 1-5 ft  
 WWC 4

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 7.50)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	1
2. Sinuous channel	0	1	2	3	1.5
3. In-channel structure: riffle-pool sequences	0	1	2	3	1
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	2
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.00)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	NA
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 13.50**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

11. Grade controls: Rock fill

21. Rooted plants in the thalweg: cotton



**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/19/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E005		
Site Location: In cotton & corn fields		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Adler silt loam, 0 to 2 percent slopes, occasionally flooded &amp; Memphis silt loam, 8 to 12 percent slopes, severely eroded, northern phase</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (cotton & corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 13.50**

**Justification / Notes :**

Flows from corn field into Stream 2  
 BH: 0-1 ft  
 BW: 1-5 ft  
 WWC 5

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 7.50)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	1
2. Sinuous channel	0	1	2	3	1.5
3. In-channel structure: riffle-pool sequences	0	1	2	3	1
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	2
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.00)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	NA
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 13.50**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

11. Grade controls: Rock fill

21. Rooted plants in the thalweg: cotton

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/19/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E006		
Site Location: In cotton & corn fields		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 8 to 12 percent slopes, severely eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (cotton & corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 10.00**

**Justification / Notes :**

Flows from corn field into WWC 5

WWC 6







**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/19/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID :
Site Name/Description: E007		SR Ripley II
Site Location: In cotton field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (cotton)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 14.50**

**Justification / Notes :**

Flows from cotton field into Stream 2. Highly incised.

Bank Height: 1-5'

Bank Width: 1-6'

Substrate: silt

WWC 7





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID :
Site Name/Description: E008		SR Ripley II
Site Location: In cotton field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (cotton)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Absent		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 13.00**

**Justification / Notes :**

Flows from offsite into Stream 5

Bank Height: 1-4'

Bank Width: 1-2'

Substrate: silt/sand

WWC 8





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E009		
Site Location: In cotton field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Adler silt loam, 0 to 2 percent slopes, occasionally flooded; Loring silt loam, 2 to 5 percent slopes, severely eroded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (cotton)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 18.50**

**Justification / Notes :**

Flows into Stream 5, Erosional feature w/ OHWM and defined bed and bank. Not intermittent. Score higher due to depth of incision.

Bank Height: 1-10'

Bank Width: 2-8'

Substrate: silt/clay

WWC 9





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E010		
Site Location: In cotton field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Loring silt loam, 8 to 12 percent slopes, severely eroded	Source: USDA Web Soil Survey	
Surrounding Land Use : <b>Agricultural (cotton)</b>		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 12.00**

**Justification / Notes :**

Flows into to WWC 11, Erosional feature

Bank Height: 1-4'

Bank Width: 0-1'

Substrate: silt/mud

WWC 10

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 5.50)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	1
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.50)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 12.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

11. Grade controls: culvert
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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID :
Site Name/Description: E011		SR Ripley II
Site Location: In cotton field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Loring silt loam, 8 to 12 percent slopes, severely eroded; Loring silt loam, 2 to 5 percent slopes, severely eroded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (cotton)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Severe</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 18.00**

**Justification / Notes :**

Flows into to Stream 2

R6

WWC 11





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E012		
Site Location: In corn field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase; Adler silt loam, 0 to 2 percent slopes, occasionally flooded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 12.00**

**Justification / Notes :**

Flows into to Stream 2

Bank Height: 0-2 ft

Bank width: 1-2 ft

Substrate: silt/mud

WWC 12





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E013		
Site Location: In corn field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase; Adler silt loam, 0 to 2 percent slopes, occasionally flooded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 9.50**

**Justification / Notes :**

Flows into to Stream 2

Bank Height: 1-2 ft

Bank width: 2-4 ft

Substrate: silt

WWC 13





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E014		
Site Location: Runs from forested property border into corn field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Loring silt loam, 5 to 8 percent slopes, eroded; Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase; Adler silt loam, 0 to 2 percent slopes, occasionally flooded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested and Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Severe</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 15.50**

**Justification / Notes :**

Flows into to Stream 2; R6 - Ephemeral JD; Heavy incised w/ significant vegetation in bottom - ragweed

Bank Height: 2-6 ft

Bank width: 2-8 ft

Substrate: silt

WWC 14







**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID :
Site Name/Description: E015		SR Ripley II
Site Location: Corn field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 11.50**

**Justification / Notes :**

Flows into to Stream 6

Bank Height: 0-4 ft

Bank width: 1-3 ft

Substrate: silt loam

WWC 15





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID :
Site Name/Description: E016		SR Ripley II
Site Location: Forested area near property boundary		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 17.50**

**Justification / Notes :**

Flows into to Stream 7; Forested

Bank Height: 0-2 ft

Bank width: 1-3 ft

WWC 16





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID :
Site Name/Description: E017		SR Ripley II
Site Location: Cornfield near Stream 6		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Forested; Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 8.50**

**Justification / Notes :**

Heavily vegetated cornfield  
 Bank Height: 0-2 ft  
 Bank width: 2-4 ft  
 WWC 17





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E018		
Site Location: Roadside ditch		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : see notes	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Severe		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 14.00**

**Justification / Notes : WWC 18**

Flows into Stream 2  
 Bank Height: 0-1 ft  
 Bank width: 1-2 ft  
 Substrate: silt/gravel  
 Soils: Adler silt loam, 0 to 2 percent slopes, occasionally flooded; Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	0.5
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1.5
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 14.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

11. Grade controls: culvert

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E019		
Site Location: Roadside ditch		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : see notes	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Severe		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 13.00**

**Justification / Notes :**

Flows into Stream 2

Bank Height: 0-1 ft

Bank width: 1-2 ft

WWC 19

Soils: Adler silt loam, 0 to 2 percent slopes, occasionally flooded; Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 5.00)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	0.5
3. In-channel structure: riffle-pool sequences	0	1	2	3	1
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.00)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macrobenthos (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 13.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

11. Grade controls: culvert

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/20/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E020		
Site Location: Cotton field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : see notes	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Severe</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 12.00**

**Justification / Notes :**

Flows out into field  
 Bank Height: 0-1 ft  
 Bank width: 2-6 ft  
 Substrate: silt/mud/gravel  
 WWC 20

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 5.50)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0.5
4. Sorting of soil textures or other substrate	0	1	2	3	0.5
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.50)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 12.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E021		
Site Location: Cornfield		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Center silt loam, 0 to 3 percent slopes	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 10.50**

**Justification / Notes :**

Flows into S8  
 Bank Height: 0-1 ft  
 Bank width: 1-2 ft  
 Substrate: silt  
 WWC 21

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 4.50)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 10.50**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E022		
Site Location: Cornfield		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Memphis silt loam, 8 to 12 percent slopes, severely eroded, northern phase; Adler silt loam, 0 to 2 percent slopes, occasionally flooded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 11.00**

**Justification / Notes :**

Flows into S8

Bank Height: 1-3 ft

Bank width: 0-1 ft

Substrate: silt/sand

WWC 22

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 4.50)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.50)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 11.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E023		
Site Location: Cornfield		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Memphis silt loam, 8 to 12 percent slopes, severely eroded, northern phase; Adler silt loam, 0 to 2 percent slopes, occasionally flooded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 11.50**

**Justification / Notes :**

Flows into culvert connected to S8

Bank Height: 0-2 ft

Bank width: 1-6 ft

Substrate: silt/mud

WWC 23

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 5.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.50)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 11.50**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

11. Grade controls: culvert

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E024		
Site Location: Dirt roadside ditch in corn field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Memphis silt loam, 8 to 12 percent slopes, severely eroded, northern phase; Adler silt loam, 0 to 2 percent slopes, occasionally flooded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Moderate</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 11.00**

**Justification / Notes :**

Top of S9  
 Bank Height: 2 ft  
 Bank width: 2 ft  
 WWC 24

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	2
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.00)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 3.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	1
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 11.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

11. Grade controls: rip-rap

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E025		
Site Location: Corn field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Memphis silt loam, 8 to 12 percent slopes, severely eroded, northern phase; Adler silt loam, 0 to 2 percent slopes, occasionally flooded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Moderate</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 11.00**

**Justification / Notes :**

Flows into WWC24

Bank Height: 0-1 ft

Bank width: 2-3 ft

WWC 25





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E026		
Site Location: Corn field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 11.50**

**Justification / Notes :**

Connects to S9

Bank Height: 0-1 ft

Bank width: 2-3 ft

WWC 26

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 5.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 11.50**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

11. Grade controls: culvert

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E027		
Site Location: Corn field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Loring silt loam, 5 to 8 percent slopes, severely eroded; Adler silt loam, 0 to 2 percent slopes, occasionally flooded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn)		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 12.00**

**Justification / Notes :**

Flows into S10

Bank Height: 0-1 ft

Bank width: 1-3 ft

Substrate: silt/mud

WWC 27

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 5.50)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.50)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 12.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E028		
Site Location: Corn field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Loring silt loam, 5 to 8 percent slopes, severely eroded; Adler silt loam, 0 to 2 percent slopes, occasionally flooded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn); Forest		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Severe</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 18.00**

**Justification / Notes : WWC 28**

Forested; Flows into S10; property line ditch

Bank Height: 1-4 ft

Bank width: 2-6 ft

Substrate: silt/sand/gravel

R6

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 8.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	1
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 4.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		1.5

<b>C. Biology</b> (Subtotal = 6.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 18.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID :
Site Name/Description: E029		SR Ripley II
Site Location: Flows from forested area into agricultural field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 2 to 5 percent slopes, moderately eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forest		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Severe</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 11.00**

**Justification / Notes :**

Starts at manmade berm and drops in

Bank Height: 1-2 ft

Bank width: 2-3 ft

Substrate: silt/sand

WWC 29

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	1
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 1.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macrobenthos (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 11.00** \_\_\_\_\_

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E030		
Site Location: Flows from forested area into agricultural field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Loring silt loam, 5 to 8 percent slopes, severely eroded	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forest		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Severe</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 13.50**

**Justification / Notes :**

Flows into S10  
 Bank Height: 0-4 ft  
 Bank width: 2-4 ft  
 Heavily incised in woods  
 WWC 30







**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID :
Site Name/Description: E031		SR Ripley II
Site Location: Corn field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Loring silt loam, 5 to 8 percent slopes, severely eroded	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forest		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Severe</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 15.00**

**Justification / Notes :**

Terraced with risers at each collection point to drop into next level. Only water was in a hole dug in one spot near a basin; Flows into W8 and OW1

Bank Height: 0-1 ft

Bank width: 1-6 ft

Substrate: silt/mud

WWC 31





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID :
Site Name/Description: E032		SR Ripley II
Site Location: Flows from corn field into forested area		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : see notes	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn); Forest		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Severe		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 12.00**

**Justification / Notes : WWC 32**

Ends at downspout; flows into S11

Bank Height: 0-1 ft

Bank width: 1-4 ft

Soils: Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase; Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase;

Memphis silt loam, 20 to 40 percent slopes, northern phase





**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E033		
Site Location: Flows from corn field into forested area		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 20 to 40 percent slopes, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn); Forest		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Severe		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 15.50**

**Justification / Notes :**

Flows into S11  
 Bank Height: 0-2 ft  
 Bank width: 2-4 ft  
 Substrate: silt/mud  
 WWC 33

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 7.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1.5
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	3
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 15.50**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

Large headcuts

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID :
Site Name/Description: E034		SR Ripley II
Site Location: Flows into W9; Top at property boundary; Forested area		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 20 to 40 percent slopes, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn); Forest; Easement		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Moderate</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 15.50**

**Justification / Notes :**

Flows from property boundary into W9

Bank Height: 0-2 ft

Bank width: 1-6 ft

Substrate: silt/mud

WWC 34







**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E035		
Site Location: Cornfield; Forested area northeastern portion of Site		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase; Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn); Forest		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 13.00**

**Justification / Notes :**

Flows into S12  
 Bank Height: 0-2 ft  
 Bank width: 1-4 ft  
 Substrate: silt  
 WWC 35

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.50)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	1
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.50)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	1
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points =** 13.00

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E036		
Site Location: Cornfield; Forested area northeastern portion of Site		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase; Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn); Forest		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 11.50**

**Justification / Notes :**

Flows into S12  
 Bank Height: 0-2 ft  
 Bank width: 1-4 ft  
 WWC 36

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 5.00)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.50)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 11.50**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/21/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E037		
Site Location: Roadside ditch		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural (corn); Forest		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Severe</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 7.50**

**Justification / Notes :**

WWC 37  
 Bank Height: 0-2 ft  
 Bank width: 1-3 ft

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 3.50)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	0.5
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	0
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 2.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	1
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	1
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 7.50**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E038		
Site Location: Soybean field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 8 to 12 percent slopes, severely eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 9.00**

**Justification / Notes :**

Flows to W10  
 Bank Height: 0-1 ft  
 Bank width: 1-2 ft  
 WWC 38

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 3.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	0.5
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	0
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 9.00** \_\_\_\_\_

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E039		
Site Location: Soybean field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 8 to 12 percent slopes, severely eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 10.00**

**Justification / Notes :**

Flows to W10  
 Bank Height: 0-1 ft  
 Bank width: 1-2 ft  
 WWC 39

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 3.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	0
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 10.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**  
 Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID :
Site Name/Description: E040		SR Ripley II
Site Location: Soybean field; property line ditch		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 14.00**

**Justification / Notes :**

WWC 40

Bank Height: 0-1 ft

Bank width: 1-3 ft

Substrate: silt/mud

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	2
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 14.00** \_\_\_\_\_

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID :
Site Name/Description: E041		SR Ripley II
Site Location: Soybean field; Flows into W11; Connects to outfall from W10		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 11.00**

**Justification / Notes :**

WWC 41  
 Bank Height: 0-1 ft  
 Bank width: 1-4 ft  
 Substrate: silt

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 5.00)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.00)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 11.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E042		
Site Location: Soybean field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 10.00**

**Justification / Notes :**

WWC 42  
 Bank Height: 0-1 ft  
 Bank width: 1-4 ft

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 4.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	0
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

Total Points = 10.00

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E043		
Site Location: On forest edge; flows off property		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**  
**Secondary Indicator Score (if applicable) = 14.50**

**Justification / Notes :**

WWC 43  
 \_\_\_\_\_  
 Bank Height: 1-2 ft  
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 Bank width: 2-5 ft  
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## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.50)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	1
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 14.50**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E044		
Site Location: On forest edge; flows off property		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 17.50**

**Justification / Notes :**

WWC 44  
 Bank Height: 1-2 ft  
 Bank width: 2-3 ft

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 8.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	1.5
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 3.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	1
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	1
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points =** 17.50

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E045		
Site Location: In forest, starts off-site; flows to S13		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Slight		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 18.00**

**Justification / Notes :**

WWC 45  
 Bank Height: 1-4 ft  
 Bank width: 2-6 ft

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 9.50)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	2
3. In-channel structure: riffle-pool sequences	0	1	2	3	1
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	2
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.50)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 18.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

Large headcuts

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E046		
Site Location: In forest, starts off-site; flows to S13		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 17.00**

**Justification / Notes :**

WWC 46  
 Bank Height: 1-4 ft  
 Bank width: 2-4 ft

## Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 8.50)	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	2
3. In-channel structure: riffle-pool sequences	0	1	2	3	1
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

B. Hydrology (Subtotal = 2.50)	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

C. Biology (Subtotal = 6.00)	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

Total Points = 17.00

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID :
Site Name/Description: E047		SR Ripley II
Site Location: In forest; flows to S13		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Slight		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 13.50**

**Justification / Notes :**

WWC 47

Bank Height: 1-4 ft

Bank width: 2-4 ft

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 8.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	2
3. In-channel structure: riffle-pool sequences	0	1	2	3	1
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 1.50)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	0.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	1
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

Total Points = 13.50

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E048		
Site Location: Soybean field; flows to S13		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : elevated		USACE Antecedent Precipitation Tool
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Convent silt loam, occasionally flooded; Adler silt loam, 0 to 2 percent slopes, occasionally flooded</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Slight		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 11.50**

**Justification / Notes :**

WWC 48  
 Bank Height: 0-1 ft  
 Bank width: 1-10 ft

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 4.50)		<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank		0	1	2	3	2
2. Sinuous channel		0	1	2	3	1
3. In-channel structure: riffle-pool sequences		0	1	2	3	0
4. Sorting of soil textures or other substrate		0	1	2	3	0
5. Active/relic floodplain		0	0.5	1	1.5	0
6. Depositional bars or benches		0	1	2	3	0
7. Braided channel		0	1	2	3	0
8. Recent alluvial deposits		0	0.5	1	1.5	1
9. Natural levees		0	1	2	3	0
10. Headcuts		0	1	2	3	0
11. Grade controls		0	0.5	1	1.5	0
12. Natural valley or drainageway		0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map		0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 3.00)		<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel		0	1	2	3	0
15. Water in channel and >48 hours since sig. rain		0	1	2	3	0
16. Leaf litter in channel		1.5	1	0.5	0	1.5
17. Sediment on plants or on debris		0	0.5	1	1.5	1
18. Organic debris lines or piles (wrack lines)		0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel		No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)		<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>		3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>		3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)		0	1	2	3	0
23. Bivalves/mussels		0	1	2	3	0
24. Amphibians		0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)		0	1	2	3	0
26. Filamentous algae; periphyton		0	1	2	3	0
27. Iron oxidizing bacteria/fungus		0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>		0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

<b>Total Points = <u>11.50</u></b>
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<i>Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score &lt; 19 points</i>
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**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E049		
Site Location: Soybean field; flows to S13		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 16.00**

**Justification / Notes :**

Heavily incised with headcut from off-site

Bank Height: 2-4 ft

Bank width: 2-4 ft

WWC 49

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 7.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	2
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	1
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points =** 16.00

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E050		
Site Location: Soybean field; flows to S16		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Adler silt loam, 0 to 2 percent slopes, occasionally flooded; Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Moderate</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 13.50**

**Justification / Notes :**

Heavily incised with headcut from off-site  
 Bank Height: 0-1 ft  
 Bank width: 1 ft  
 WWC 50

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 7.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	1
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	1
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	0
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	1
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	1
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

Total Points = 13.50 \_\_\_\_\_

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E051		
Site Location: Soybean field; flows to S16		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Adler silt loam, 0 to 2 percent slopes, occasionally flooded; Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 10.50**

**Justification / Notes :**

WWC 51  
 Bank Height: 1-5 ft  
 Bank width: 2-4 ft

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 4.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

<b>Total Points =</b> <u>10.50</u>
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<i>Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score &lt; 19 points</i>
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**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E052		
Site Location: Soybean field		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Adler silt loam, 0 to 2 percent slopes, occasionally flooded; Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 17.50**

**Justification / Notes :**

R6  
 Bank Height: 1-5 ft  
 Bank width: 2-4 ft  
 WWC 52

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 8.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	1
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 3.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	1
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points =** 17.50

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E053		
Site Location: Connects to S17 off-site		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 17.50**

**Justification / Notes :**

Very heavily eroded  
 Bank Height: 1-15 ft  
 Bank width: 2-4 ft  
 WWC 53

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 8.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	3
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 3.50)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		1.5

<b>C. Biology</b> (Subtotal = 6.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 17.50**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E054		
Site Location: Starts in soybean; flows into woods off-site and connects to S18 back on-site		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : <small>Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase; Memphis silt loam, 2 to 5 percent slopes, moderately eroded, northern phase</small>	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Absent</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 15.50**

**Justification / Notes :**

WWC 54  
 Bank Height: Not collected in field  
 Bank width: 2 ft







**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: N/A		Date/Time: 9/22/22
Assessors/Affiliation: Benjamin Burdette & Jake Irvin		Project ID : SR Ripley II
Site Name/Description: E055		
Site Location: Soybean field in eastern portion of site		
HUC (12 digit): Cane Creek Upper 080102080701	Latitude: See Table 1.	
Previous Rainfall (7-days) : 0.03"	Longitude: See Table 1.	
Precipitation this Season vs. Normal : <b>elevated</b> <span style="float: right;">USACE Antecedent Precipitation Tool</span>		
Source of recent & seasonal precip. data :		
Watershed Size : 29,327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 5 to 8 percent slopes, moderately eroded, northern phase	Source: USDA Web Soil Survey	
Surrounding Land Use : Agricultural; Forested		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : <b>Slight</b>		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions <span style="float: right; color: red;">N/A</span>	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

**Overall Hydrologic Determination = WET WEATHER CONVEYANCE**

**Secondary Indicator Score (if applicable) = 12.50**

**Justification / Notes :**

WWC 55  
 Bank Height: 0-2 ft  
 Bank width: 1-4 ft

## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	3
2. Sinuous channel	0	1	2	3	1
3. In-channel structure: riffle-pool sequences	0	1	2	3	0
4. Sorting of soil textures or other substrate	0	1	2	3	0
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0.5
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 2.50)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0
16. Leaf litter in channel	1.5	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 4.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	2
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	2
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 12.50**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

Headcut at property line

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 11/1/23
Assessors/Affiliation: I. Maldonado, L. Thiem		Project ID : Ripley II
Site Name/Description: E056		
Site Location: Ripley, TN		
HUC (12 digit): Upper Cane Creek 080102080701	Latitude: 35.725686	
Previous Rainfall (7-days) : 1.91	Longitude: -89.52668	
Precipitation this Season vs. Normal : low	<input type="checkbox"/> CoCoRaHS and USACE Antecedent Precipitation Tool	
Source of recent & seasonal precip. data :		
Watershed Size : 29327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Wb Soil Survy	
Surrounding Land Use : Agriculture		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Absent		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	N/A <input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

<b>Overall Hydrologic Determination = WET WEATHER CONVEYANCE</b> <input type="checkbox"/>
<b>Secondary Indicator Score (if applicable) = 13.00</b>

**Justification / Notes :**

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## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	2 <input type="checkbox"/>
2. Sinuous channel	0	1	2	3	0.5 <input type="checkbox"/>
3. In-channel structure: riffle-pool sequences	0	1	2	3	1 <input type="checkbox"/>
4. Sorting of soil textures or other substrate	0	1	2	3	1 <input type="checkbox"/>
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1 <input type="checkbox"/>
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5 <input type="checkbox"/>
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 1.00)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0.5 <input type="checkbox"/>
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0 <input type="checkbox"/>
16. Leaf litter in channel	1.5	1	0.5	0	NA
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5 <input type="checkbox"/>
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

Total Points = 13.00

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

### Notes :

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 11/1/23
Assessors/Affiliation: I. Maldonado, L. Thiem		Project ID : Ripley II
Site Name/Description: E057		
Site Location: Ripley, TN		
HUC (12 digit): Upper Cane Creek 080102080701	Latitude: 35.724552	
Previous Rainfall (7-days) : 1.91	Longitude: -89.525986	
Precipitation this Season vs. Normal : low	<input type="checkbox"/> CoCoRaHS and USACE Antecedent Precipitation Tool	
Source of recent & seasonal precip. data :		
Watershed Size : 29327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Wb Soil Survy	
Surrounding Land Use : Agriculture		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Absent		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	N/A	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

<b>Overall Hydrologic Determination = WET WEATHER CONVEYANCE</b> <input type="checkbox"/>
<b>Secondary Indicator Score (if applicable) = 13.00</b>

**Justification / Notes :**

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## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2 <input type="checkbox"/>
2. Sinuous channel	0	1	2	3	0.5 <input type="checkbox"/>
3. In-channel structure: riffle-pool sequences	0	1	2	3	1 <input type="checkbox"/>
4. Sorting of soil textures or other substrate	0	1	2	3	1 <input type="checkbox"/>
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1 <input type="checkbox"/>
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5 <input type="checkbox"/>
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 1.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0.5 <input type="checkbox"/>
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0 <input type="checkbox"/>
16. Leaf litter in channel	1.5	1	0.5	0	NA
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5 <input type="checkbox"/>
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)					
	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macrobenthos (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 13.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 11/1/23
Assessors/Affiliation: I. Maldonado, L. Thiem		Project ID : Ripley II
Site Name/Description: E058		
Site Location: Ripley, TN		
HUC (12 digit): Upper Cane Creek 080102080701	Latitude: 35.724643	
Previous Rainfall (7-days) : 1.91	Longitude: -89.524977	
Precipitation this Season vs. Normal : low	<input type="checkbox"/> CoCoRaHS and USACE Antecedent Precipitation Tool	
Source of recent & seasonal precip. data :		
Watershed Size : 29327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Wb Soil Survy	
Surrounding Land Use : Agriculture		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Absent		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	N/A	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

<b>Overall Hydrologic Determination = WET WEATHER CONVEYANCE</b> <input type="checkbox"/>
<b>Secondary Indicator Score (if applicable) = 13.00</b>

**Justification / Notes :**

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## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)		<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
1. Continuous bed and bank	0	1	2	3	2	<input type="checkbox"/>
2. Sinuous channel	0	1	2	3	0.5	<input type="checkbox"/>
3. In-channel structure: riffle-pool sequences	0	1	2	3	1	<input type="checkbox"/>
4. Sorting of soil textures or other substrate	0	1	2	3	1	<input type="checkbox"/>
5. Active/relic floodplain	0	0.5	1	1.5	0	
6. Depositional bars or benches	0	1	2	3	0	
7. Braided channel	0	1	2	3	0	
8. Recent alluvial deposits	0	0.5	1	1.5	0	
9. Natural levees	0	1	2	3	0	
10. Headcuts	0	1	2	3	1	<input type="checkbox"/>
11. Grade controls	0	0.5	1	1.5	0	
12. Natural valley or drainageway	0	0.5	1	1.5	0.5	<input type="checkbox"/>
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0	

<b>B. Hydrology</b> (Subtotal = 1.00)		<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
14. Subsurface flow/discharge into channel	0	1	2	3	0.5	<input type="checkbox"/>
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0	<input type="checkbox"/>
16. Leaf litter in channel	1.5	1	0.5	0	NA	
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5	<input type="checkbox"/>
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0	
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0	

<b>C. Biology</b> (Subtotal = 6.00)		<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3	<input type="checkbox"/>
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3	<input type="checkbox"/>
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0	
23. Bivalves/mussels	0	1	2	3	0	
24. Amphibians	0	0.5	1	1.5	0	
25. Macrobenthos (record type & abundance)	0	1	2	3	0	
26. Filamentous algae; periphyton	0	1	2	3	0	
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0	
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0	

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 13.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 11/1/23
Assessors/Affiliation: I. Maldonado, L. Thiem		Project ID : Ripley II
Site Name/Description: E059		
Site Location: Ripley, TN		
HUC (12 digit): Upper Cane Creek 080102080701	Latitude: 35.724761	
Previous Rainfall (7-days) : 1.91	Longitude: -89.523697	
Precipitation this Season vs. Normal : low	<input type="checkbox"/> CoCoRaHS and USACE Antecedent Precipitation Tool	
Source of recent & seasonal precip. data :		
Watershed Size : 29327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Wb Soil Survy	
Surrounding Land Use : Agriculture		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Absent		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

<b>Overall Hydrologic Determination = WET WEATHER CONVEYANCE</b> <input type="checkbox"/>
<b>Secondary Indicator Score (if applicable) = 14.25</b>

**Justification / Notes :**

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## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 7.00)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	2 <input type="checkbox"/>
2. Sinuous channel	0	1	2	3	1.5 <input type="checkbox"/>
3. In-channel structure: riffle-pool sequences	0	1	2	3	1.5 <input type="checkbox"/>
4. Sorting of soil textures or other substrate	0	1	2	3	1.5 <input type="checkbox"/>
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	0
11. Grade controls	0	0.5	1	1.5	0.5 <input type="checkbox"/>
12. Natural valley or drainageway	0	0.5	1	1.5	0
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 1.25)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0 <input type="checkbox"/>
16. Leaf litter in channel	1.5	1	0.5	0	NA
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5 <input type="checkbox"/>
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0.75 <input type="checkbox"/>
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macrobenthos (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

Total Points = 14.25

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 11/1/23
Assessors/Affiliation: I. Maldonado, L. Thiem		Project ID : Ripley II
Site Name/Description: E060		
Site Location: Ripley, TN		
HUC (12 digit): Upper Cane Creek 080102080701	Latitude: 35.727367	
Previous Rainfall (7-days) : 1.91	Longitude: -89.524614	
Precipitation this Season vs. Normal : low	<input type="checkbox"/> CoCoRaHS and USACE Antecedent Precipitation Tool	
Source of recent & seasonal precip. data :		
Watershed Size : 29327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase	Source: USDA Wb Soil Survy	
Surrounding Land Use : Agriculture		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Absent		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	N/A	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

<b>Overall Hydrologic Determination = WET WEATHER CONVEYANCE</b> <input type="checkbox"/>
<b>Secondary Indicator Score (if applicable) = 13.00</b>

**Justification / Notes :**

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## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	2 <input type="checkbox"/>
2. Sinuous channel	0	1	2	3	0.5 <input type="checkbox"/>
3. In-channel structure: riffle-pool sequences	0	1	2	3	1 <input type="checkbox"/>
4. Sorting of soil textures or other substrate	0	1	2	3	1 <input type="checkbox"/>
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1 <input type="checkbox"/>
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5 <input type="checkbox"/>
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 1.00)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0.5 <input type="checkbox"/>
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0 <input type="checkbox"/>
16. Leaf litter in channel	1.5	1	0.5	0	NA
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5 <input type="checkbox"/>
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macrobenthos (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 13.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 11/1/23
Assessors/Affiliation: I. Maldonado, L. Thiem		Project ID : Ripley II
Site Name/Description: E061		
Site Location: Ripley, TN		
HUC (12 digit): Upper Cane Creek 080102080701	Latitude: 35.730014	
Previous Rainfall (7-days) : 1.91	Longitude: -89.525462	
Precipitation this Season vs. Normal : low	<input type="checkbox"/> CoCoRaHS and USACE Antecedent Precipitation Tool	
Source of recent & seasonal precip. data :		
Watershed Size : 29327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase	Source: USDA Wb Soil Survy	
Surrounding Land Use : Agriculture		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Absent		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

<b>Overall Hydrologic Determination</b> = WET WEATHER CONVEYANCE <input type="checkbox"/>
<b>Secondary Indicator Score (if applicable)</b> = 13.00

**Justification / Notes :**

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## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>		
1. Continuous bed and bank	0	1	2	3	2	▼
2. Sinuous channel	0	1	2	3	0.5	▼
3. In-channel structure: riffle-pool sequences	0	1	2	3	1	▼
4. Sorting of soil textures or other substrate	0	1	2	3	1	▼
5. Active/relic floodplain	0	0.5	1	1.5	0	
6. Depositional bars or benches	0	1	2	3	0	
7. Braided channel	0	1	2	3	0	
8. Recent alluvial deposits	0	0.5	1	1.5	0	
9. Natural levees	0	1	2	3	0	
10. Headcuts	0	1	2	3	1	▼
11. Grade controls	0	0.5	1	1.5	0	
12. Natural valley or drainageway	0	0.5	1	1.5	0.5	▼
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0	

<b>B. Hydrology</b> (Subtotal = 1.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>		
14. Subsurface flow/discharge into channel	0	1	2	3	0.5	▼
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0	▼
16. Leaf litter in channel	1.5	1	0.5	0	NA	
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5	▼
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0	
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0	

<b>C. Biology</b> (Subtotal = 6.00)	<b>Absent</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>		
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3	▼
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3	▼
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0	
23. Bivalves/mussels	0	1	2	3	0	
24. Amphibians	0	0.5	1	1.5	0	
25. Macrobenthos (record type & abundance)	0	1	2	3	0	
26. Filamentous algae; periphyton	0	1	2	3	0	
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0	
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0	

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 13.00** \_\_\_\_\_

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 11/1/23
Assessors/Affiliation: I. Maldonado, L. Thiem		Project ID : Ripley II
Site Name/Description: E062		
Site Location: Ripley, TN		
HUC (12 digit): Upper Cane Creek 080102080701	Latitude: 35.731125	
Previous Rainfall (7-days) : 1.91	Longitude: -89.524156	
Precipitation this Season vs. Normal : low	<input type="checkbox"/> CoCoRaHS and USACE Antecedent Precipitation Tool	
Source of recent & seasonal precip. data :		
Watershed Size : 29327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase	Source: USDA Wb Soil Survy	
Surrounding Land Use : Agriculture		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Absent		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	N/A	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

<b>Overall Hydrologic Determination = WET WEATHER CONVEYANCE</b> <input type="checkbox"/>
<b>Secondary Indicator Score (if applicable) = 13.00</b>

**Justification / Notes :**

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## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	2 <input type="checkbox"/>
2. Sinuous channel	0	1	2	3	0.5 <input type="checkbox"/>
3. In-channel structure: riffle-pool sequences	0	1	2	3	1 <input type="checkbox"/>
4. Sorting of soil textures or other substrate	0	1	2	3	1 <input type="checkbox"/>
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1 <input type="checkbox"/>
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5 <input type="checkbox"/>
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 1.00)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0.5 <input type="checkbox"/>
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0 <input type="checkbox"/>
16. Leaf litter in channel	1.5	1	0.5	0	NA
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5 <input type="checkbox"/>
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

Total Points = 13.00

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 11/1/23
Assessors/Affiliation: I. Maldonado, L. Thiem		Project ID : Ripley II
Site Name/Description: E063		
Site Location: Ripley, TN		
HUC (12 digit): Upper Cane Creek 080102080701	Latitude: 35.730709	
Previous Rainfall (7-days) : 1.91	Longitude: -89.523808	
Precipitation this Season vs. Normal : low	<input type="checkbox"/> CoCoRaHS and USACE Antecedent Precipitation Tool	
Source of recent & seasonal precip. data :		
Watershed Size : 29327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase	Source: USDA Wb Soil Survy	
Surrounding Land Use : Agriculture		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Absent		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	N/A <input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

<b>Overall Hydrologic Determination = WET WEATHER CONVEYANCE</b> <input type="checkbox"/>
<b>Secondary Indicator Score (if applicable) = 13.00</b>

**Justification / Notes :**

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## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	2 <input type="checkbox"/>
2. Sinuous channel	0	1	2	3	0.5 <input type="checkbox"/>
3. In-channel structure: riffle-pool sequences	0	1	2	3	1 <input type="checkbox"/>
4. Sorting of soil textures or other substrate	0	1	2	3	1 <input type="checkbox"/>
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1 <input type="checkbox"/>
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5 <input type="checkbox"/>
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 1.00)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0.5 <input type="checkbox"/>
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0 <input type="checkbox"/>
16. Leaf litter in channel	1.5	1	0.5	0	NA
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5 <input type="checkbox"/>
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 13.00** \_\_\_\_\_

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

### Notes :

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 11/1/23
Assessors/Affiliation: I. Maldonado, L. Thiem		Project ID : Ripley II
Site Name/Description: E064		
Site Location: Ripley, TN		
HUC (12 digit): Upper Cane Creek 080102080701	Latitude: 35.728626	
Previous Rainfall (7-days) : 1.91	Longitude: -89.524824	
Precipitation this Season vs. Normal : low	<input type="checkbox"/> CoCoRaHS and USACE Antecedent Precipitation Tool	
Source of recent & seasonal precip. data :		
Watershed Size : 29327.89	County: Lauderdale	
Soil Type(s) / Geology : Memphis silt loam, 12 to 20 percent slopes, severely eroded, northern phase	Source: USDA Wb Soil Survy	
Surrounding Land Use : Agriculture		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Absent		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

<b>Overall Hydrologic Determination = WET WEATHER CONVEYANCE</b> <input type="checkbox"/>
<b>Secondary Indicator Score (if applicable) = 13.00</b>

**Justification / Notes :**

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## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	2 <input type="checkbox"/>
2. Sinuous channel	0	1	2	3	0.5 <input type="checkbox"/>
3. In-channel structure: riffle-pool sequences	0	1	2	3	1 <input type="checkbox"/>
4. Sorting of soil textures or other substrate	0	1	2	3	1 <input type="checkbox"/>
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1 <input type="checkbox"/>
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5 <input type="checkbox"/>
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 1.00)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0.5 <input type="checkbox"/>
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0 <input type="checkbox"/>
16. Leaf litter in channel	1.5	1	0.5	0	NA
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5 <input type="checkbox"/>
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macrobenthos (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 13.00** \_\_\_\_\_

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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**Hydrologic Determination Field Data Sheet**

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hyde Creek		Date/Time: 11/1/23
Assessors/Affiliation: I. Maldonado, L. Thiem		Project ID : Ripley II
Site Name/Description: E065		
Site Location: Ripley, TN		
HUC (12 digit): Upper Cane Creek 080102080701	Latitude: 35.727039	
Previous Rainfall (7-days) : 1.91	Longitude: -89.525992	
Precipitation this Season vs. Normal : low	<input type="checkbox"/> CoCoRaHS and USACE Antecedent Precipitation Tool	
Source of recent & seasonal precip. data :		
Watershed Size : 29327.89	County: Lauderdale	
Soil Type(s) / Geology : Adler silt loam, 0 to 2 percent slopes, occasionally flooded	Source: USDA Wb Soil Survy	
Surrounding Land Use : Agriculture		
Degree of historical alteration to natural channel morphology & hydrology (select one & describe fully in Notes) : Absent		

**Primary Field Indicators Observed**

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input type="checkbox"/>	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input checked="" type="checkbox"/>	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream
6. Presence of fish (except <i>Gambusia</i> )	<input checked="" type="checkbox"/>	Stream
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream

**NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-DWR Guidance For Making Hydrologic Determinations, Version 1.5*

<b>Overall Hydrologic Determination = WET WEATHER CONVEYANCE</b> <input type="checkbox"/>
<b>Secondary Indicator Score (if applicable) = 13.00</b>

**Justification / Notes :**

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## Secondary Field Indicator Evaluation

<b>A. Geomorphology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	2 <input type="checkbox"/>
2. Sinuous channel	0	1	2	3	0.5 <input type="checkbox"/>
3. In-channel structure: riffle-pool sequences	0	1	2	3	1 <input type="checkbox"/>
4. Sorting of soil textures or other substrate	0	1	2	3	1 <input type="checkbox"/>
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	0
7. Braided channel	0	1	2	3	0
8. Recent alluvial deposits	0	0.5	1	1.5	0
9. Natural levees	0	1	2	3	0
10. Headcuts	0	1	2	3	1 <input type="checkbox"/>
11. Grade controls	0	0.5	1	1.5	0
12. Natural valley or drainageway	0	0.5	1	1.5	0.5 <input type="checkbox"/>
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

<b>B. Hydrology</b> (Subtotal = 1.00)					
	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	0.5 <input type="checkbox"/>
15. Water in channel and >48 hours since sig. rain	0	1	2	3	0 <input type="checkbox"/>
16. Leaf litter in channel	1.5	1	0.5	0	NA
17. Sediment on plants or on debris	0	0.5	1	1.5	0.5 <input type="checkbox"/>
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	0
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0

<b>C. Biology</b> (Subtotal = 6.00)					
	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
21. Rooted plants in the thalweg <sup>1</sup>	3	2	1	0	3 <input type="checkbox"/>
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	0
23. Bivalves/mussels	0	1	2	3	0
24. Amphibians	0	0.5	1	1.5	0
25. Macroinvertebrates (record type & abundance)	0	1	2	3	0
26. Filamentous algae; periphyton	0	1	2	3	0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	0
28. Wetland plants in channel bed <sup>2</sup>	0	0.5	1	1.5	0

<sup>1</sup> Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

**Total Points = 13.00**

*Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points*

**Notes :**

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