STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL DIVISION
ENVIRONMENTAL TECHNICAL STUDIES OFFICE
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

WILL REID
COMMISSIONER

BILL LEE
GOVERNOR

MEMORANDUM

To: Steve Sellers, Manager
Region 4 Alternative Delivery

From: Rita Thompson
Tech Studies Office, Ecology Unit *Rita M. Thompson*

Date: 08/14/2025

Subject: Environmental Boundaries Report for:
PIN 136185.10 (Old PIN 134858.00): SR-87 Bridge Replacement at LM 6.42 (Bridge #48)
Lauderdale County, TN

An ecological evaluation of the subject project has ben conducted in response to a request for initial feature identification with the following result:

STREAMS: Three (3) streams and two (2) wet weather conveyance/ephemeral streams were noted within the project limits.

WETLANDS: No wetlands were noted within the project limits.

OTHER FEATURES: No other features were noted within the project limits

SPECIES:

- *USFWS*: USFWS coordination was completed on May 21, 2025. USFWS did not have concerns for listed species. TDOT has determined there will be no effect to listed species as a result of the project.

- *TWRA*: TWRA coordination was completed on May 21, 2025. TWRA did not have species concerns

- *TDEC DNA*: This project fits condition #1 of the TDEC DNA MOA

COMMITMENTS: There are no project commitments.

Please note the fieldwork and coordination for the project was completed under the old PIN referenced above. If you have any questions or concerns, please contact me at (615) 253-2459 or *rita.m.thompson@tn.gov*.

xc: *TDOT.Env.Ecology@tn.gov*
TDOT.Env.Permits@tn.gov
TDOT.ENV.Mitigation@tn.gov
TDOT.ENV.NEPA@tn.gov
R4.EnvTechOffice@tn.gov

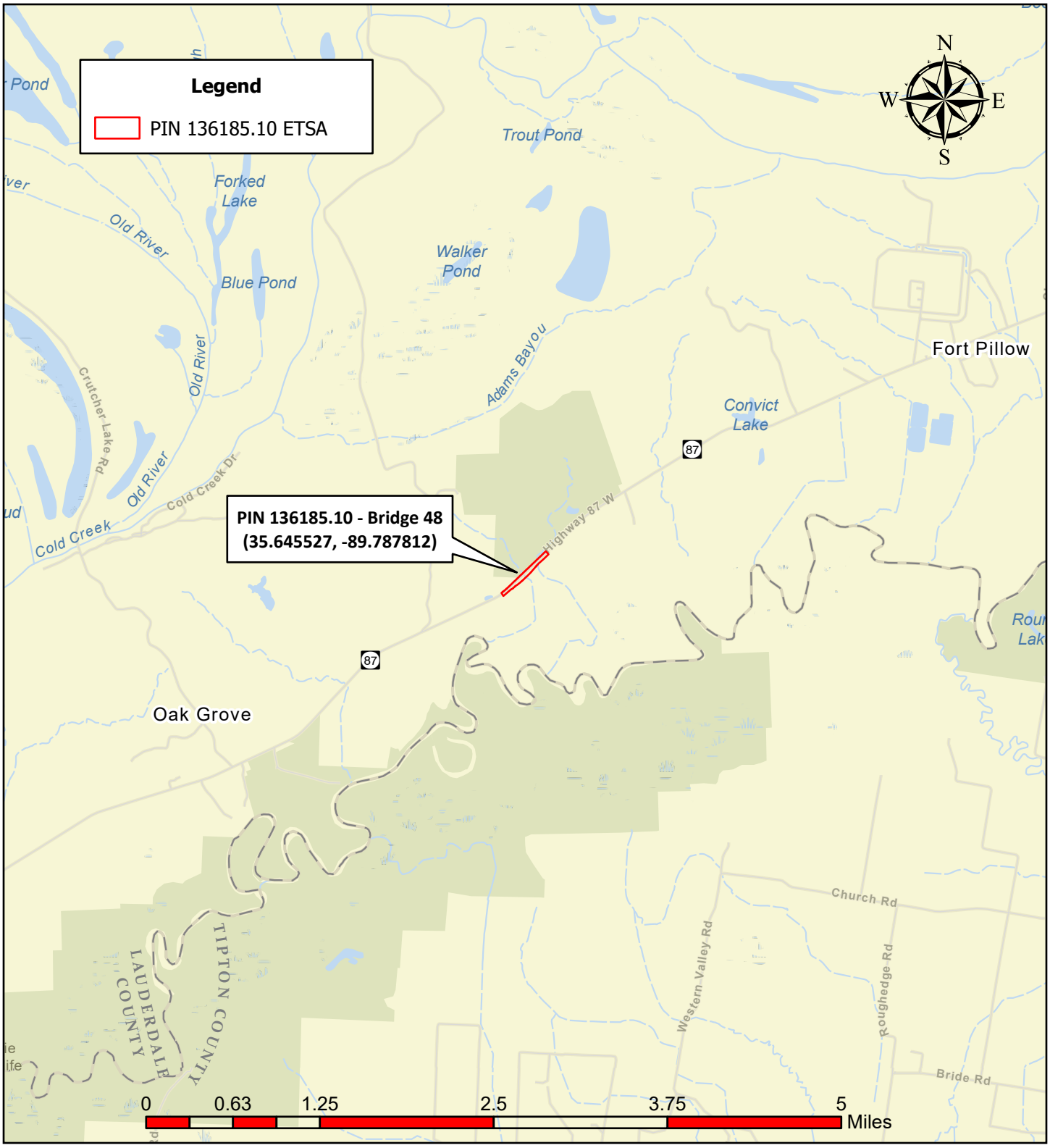


Figure 1: Vicinity Map
Lauderdale County, R4 Timber Bridge Bundle - Bridge 48

ESRI World Street Map Basemap
August 6, 2025

PIN 136185.10

TN TDOT Department of Transportation

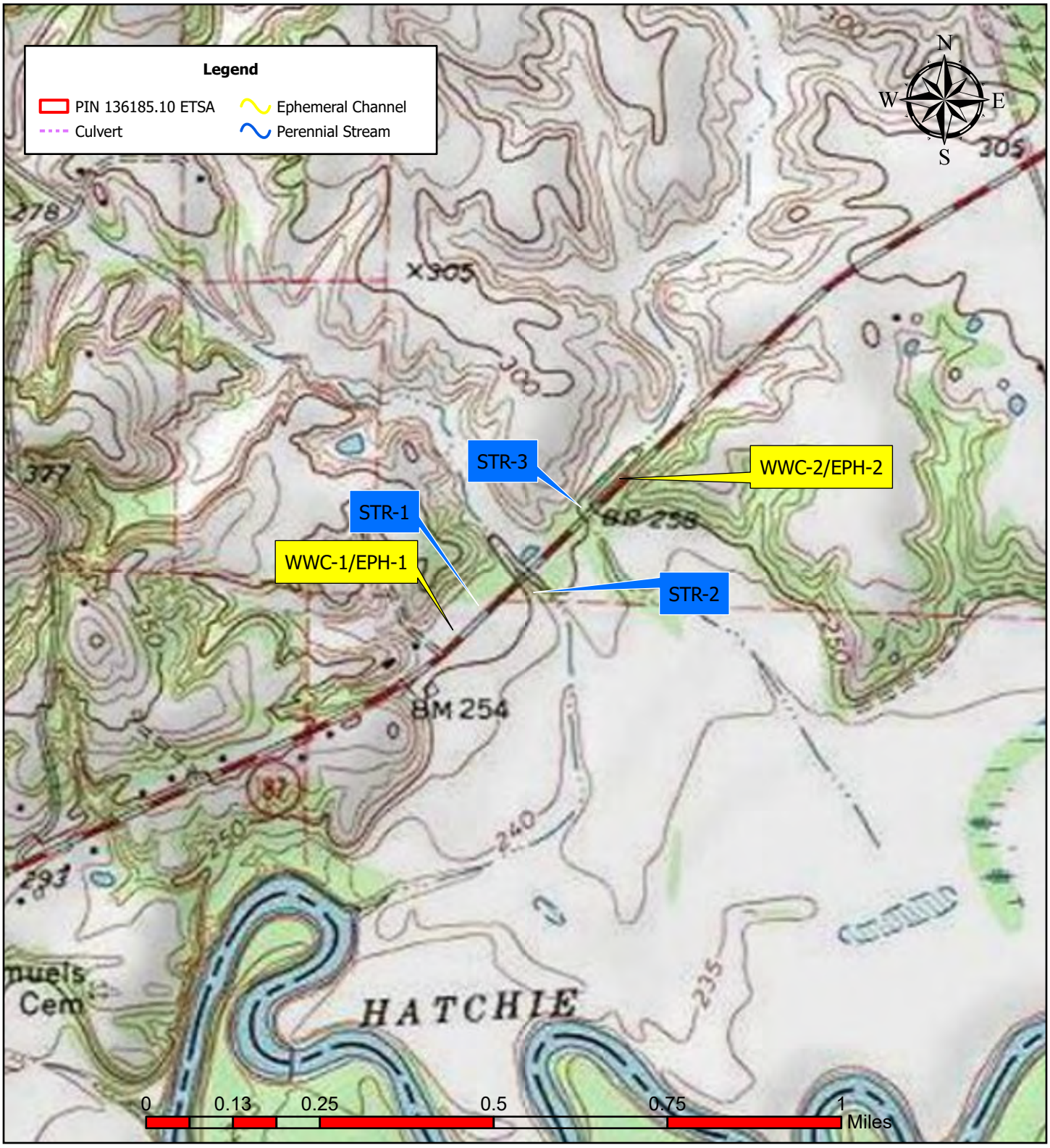


Figure 2: Water Resources Topographic Map
Lauderdale County, R4 Timber Bridge Bundle - Bridge 48

Gates, TN USGS Quadrangle
August 6, 2025

PIN 136185.10

TN TDOT Department of Transportation

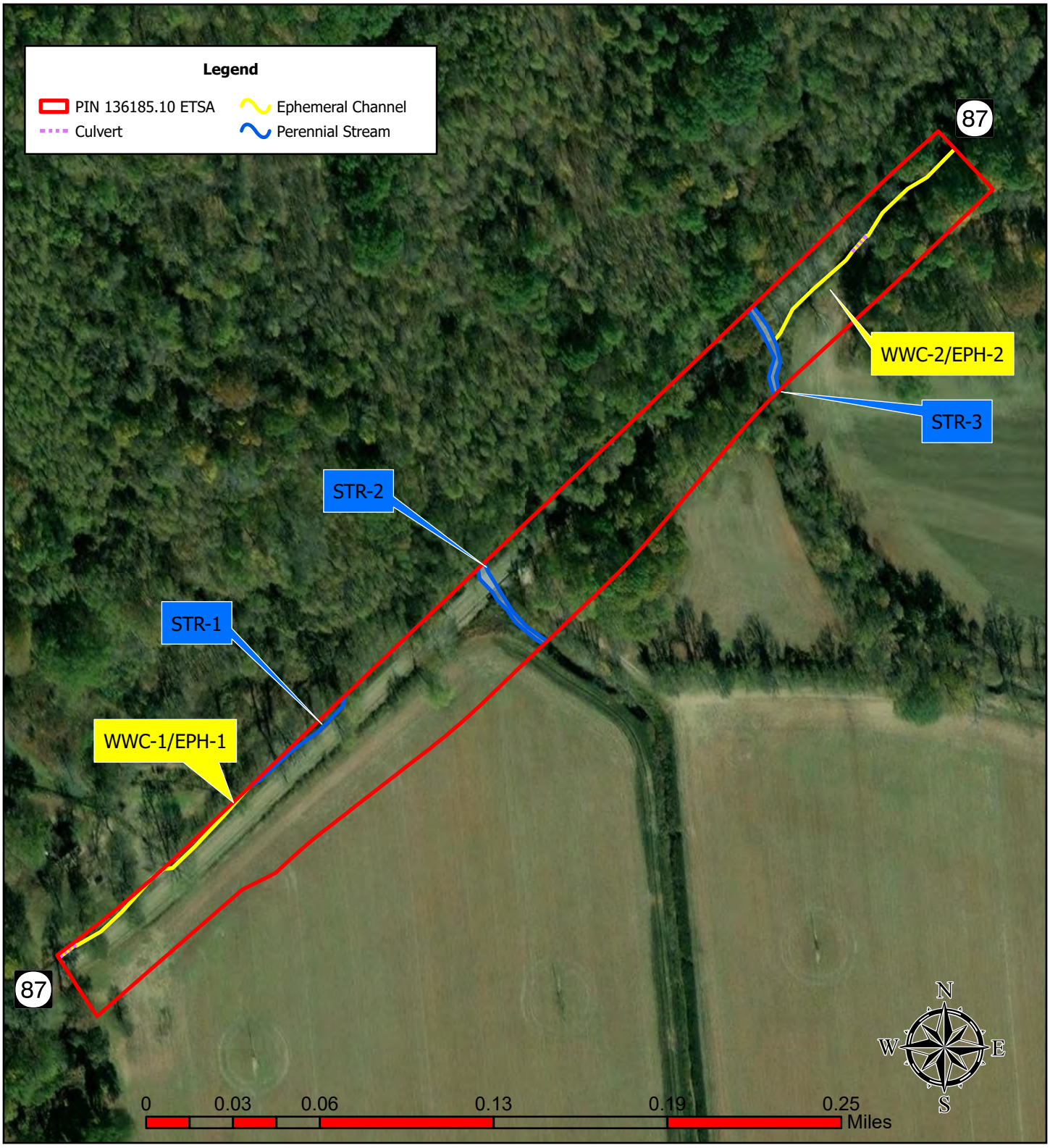


Figure 3: Water Resources Aerial Map
Lauderdale County, R4 Timber Bridge Bundle - Bridge 48

2022 Maxar Vivid Standard Imagery
August 6, 2025

PIN 136185.10

TN TDOT Department of Transportation

Project Name: Lauderdale County SR-87
R4 Timber Bridge Bundle Project

PIN: 136185.10

Water Resource Table for NEPA Documentation

Based on: ETSA

Date: 5/23/2025, 7/31/2025

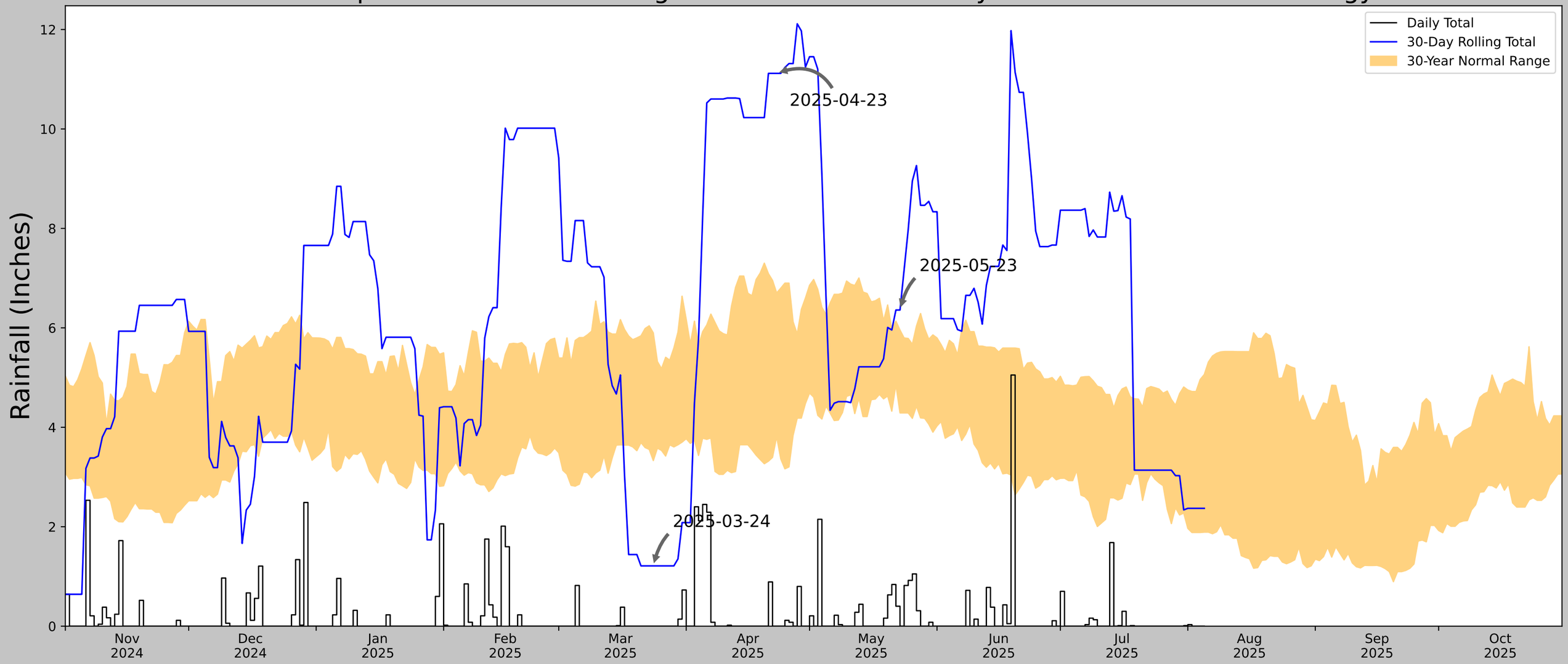
Table Amounts are based on (choose only one): Estimated extent of resource within ETSA

Water Resources (Non-Wetland)

Label	Type	Latitude	Longitude	Receiving Waters		USACE Jurisdiction	Quality
WWC-1/EPH-1	Wet Weather Conveyance/Ephemeral	35.644357	-89.790302	Hatchie River		No	Not Applicable
STR-1	Perennial Stream	35.644740	-89.789118	Hatchie River		Yes	Unassessed
STR-2	Perennial Stream	35.645439	-89.788082	Hatchie River		Yes	Unassessed
STR-3	Perennial Stream	35.646554	-89.786586	Hatchie River		Yes	Unassessed
WWC-2/EPH-2	Wet Weather Conveyance/Ephemeral	35.644357	-89.790302	Hatchie River		No	Not Applicable

Note- Features and estimated amounts referenced in this table are based on information available and may change as the project is further refined throughout project development.

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	35.64548, -89.78781
Observation Date	2025-05-23
Elevation (ft)	253.842
Drought Index (PDSI)	Moderate wetness
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-05-23	4.288583	5.955512	6.358268	Wet	3	3	9
2025-04-23	3.812992	6.701969	11.118111	Wet	3	2	6
2025-03-24	3.329921	5.898425	1.212598	Dry	1	1	1
Result							Wetter than Normal - 16

Figures and tables made by the Antecedent Precipitation Tool Version 3.0

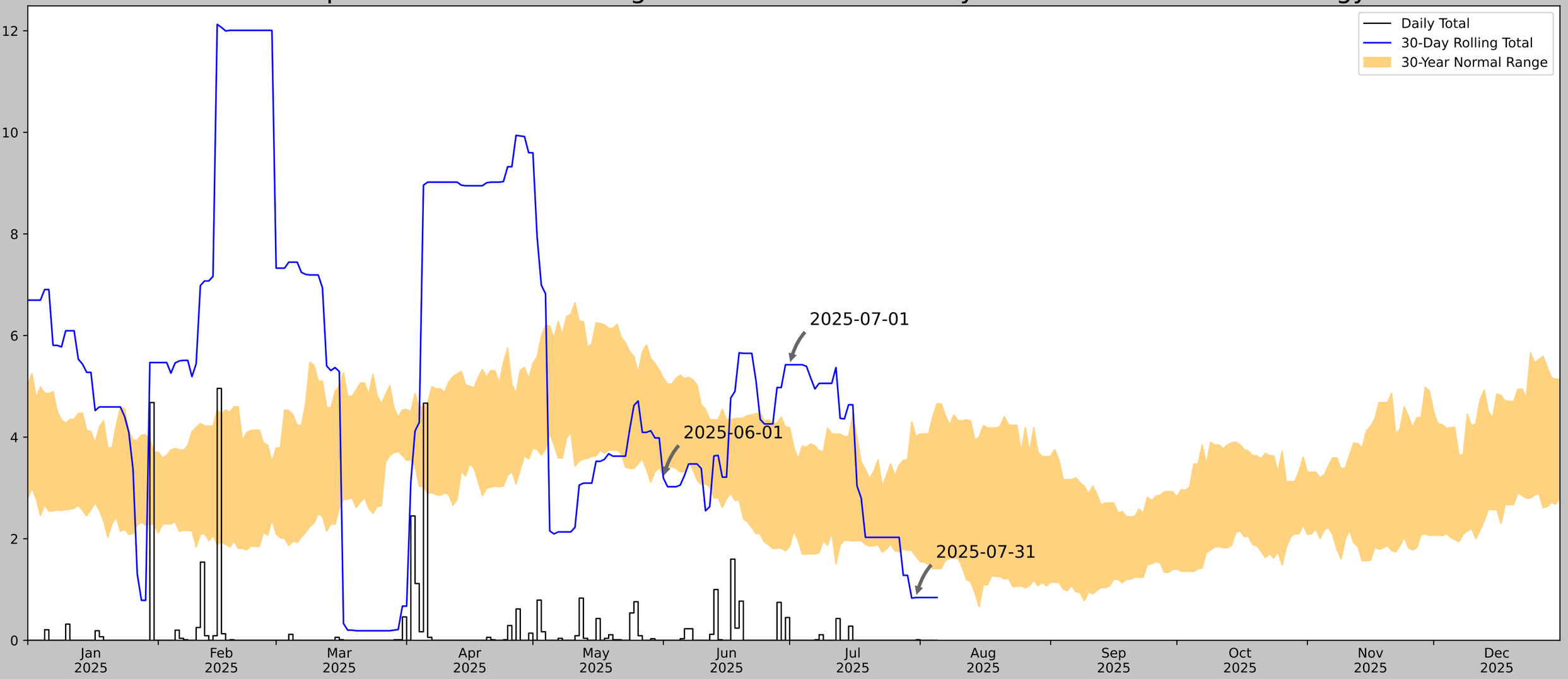
US Army Corps of Engineers.

ERDC

Developed by:
U.S. Army Corps of Engineers and
U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
KEISER	35.6744, -90.0842	223.097	16.758	30.745	8.056	11274	86
MANILA 3.6 SSW	35.8337, -90.1778	232.94	12.194	9.843	5.607	2	0
BLYTHEVILLE	35.9239, -89.9044	251.969	19.967	28.872	9.562	3	0
BLYTHEVILLE 0.9 NE	35.9421, -89.9128	259.843	20.841	36.746	10.144	23	4
BLYTHEVILLE 1.8 E	35.9371, -89.8926	258.858	21.088	35.761	10.244	7	0
BLYTHEVILLE 1.9 ENE	35.9427, -89.8926	258.858	21.422	35.761	10.406	1	0
MUNFORD 6.8 WNW	35.4725, -89.9227	403.871	16.643	180.774	10.498	1	0
BLYTHEVILLE MUNI AP	35.9378, -89.8331	254.921	23.004	31.824	11.084	40	0
ARLINGTON 7.1 WNW	35.3065, -89.7873	328.084	30.416	104.987	16.88	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	35.64548, -89.78781
Observation Date	2025-07-31
Elevation (ft)	253.842
Drought Index (PDSI)	Moderate wetness (2025-06)
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-07-31	1.652362	4.011024	0.84252	Dry	1	3	3
2025-07-01	1.848425	4.188583	5.425197	Wet	3	2	6
2025-06-01	3.244882	5.162205	3.192913	Dry	1	1	1
Result							Normal Conditions - 10

Figures and tables made by the Antecedent Precipitation Tool Version 3.0

US Army Corps of Engineers.

ERDC

Developed by:
U.S. Army Corps of Engineers and
U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BLYTHEVILLE MUNI AP	35.9378, -89.8331	254.921	20.356	1.079	9.182	9328	84
BLYTHEVILLE 6.1 E	35.9496, -89.8179	253.937	1.178	0.984	0.531	27	6
BLYTHEVILLE 1.8 E	35.9371, -89.8926	258.858	3.329	3.937	1.511	10	0
BLYTHEVILLE 1.9 ENE	35.9427, -89.8926	258.858	3.346	3.937	1.519	8	0
BLYTHEVILLE	35.9239, -89.9044	251.969	4.103	2.952	1.858	1940	0
BLYTHEVILLE 0.9 NE	35.9421, -89.9128	259.843	4.468	4.922	2.033	14	0
KEISER	35.6744, -90.0842	223.097	23.004	31.824	11.084	24	0
GATES 1.9 S	35.8115, -89.406	390.092	25.454	135.171	14.895	1	0
BARTLETT 3.1 NNE	35.2546, -89.8068	287.074	47.228	32.153	22.771	1	0

Ecology Field Data Sheet: **Water Resources**

Project: PN136185.10					
Biologist:	I. Maldonado / L. Niven	**Affiliation:**	Athena EE	**Date:**	5/23/2025

1-Station: from plans										
2-Map label and name	LM 6.42 / WWC-1 / EPH-1									
3-Latitude/Longitude	35.644357, -89.790302									
4-Feature description:										
-channel identification	perennial stream	☐	intermittent stream	☐	ephemeral stream	☐	wwc	☑		
-HD score (if applicable)	16.5									
-OHWM indicators	bed & banks	☑	deposition	☐	presence of litter debris	☐	scour	☐	veg absent, bent, matted	☑
	change in plant community	☐	destruction of terrestrial veg	☐	multiple observe flow events	☐	sediment sorting	☑	water staining	☐
	change in soil character	☐	leaf litter disturb or absent	☑	natural line impressed on bank	☑	shelving	☐	wracking	☐
-channel bottom width	1.5'		-top of bank width		3'					
-width and max depth at ordinary high water mark	2' and 0.5'									
-width at bankfull	3'									
-bank height	LDB - 1.5'				RDB - 1.5'					
-riffle/pool complex or other specialized habitat present?	N/A									
-dominant riparian species: ----------(LDB /RDB)----------	LDB: grasses									
	RDB: grasses									
-particle size distribution %	Silt/Sand: 90		Gravel: 10		Cobble:		Boulder:		Bedrock: 0	
5-photo numbers	1-6									
6-HUC -8 Code & Name	08010208 - Lower Hatchie									
7-Assessed	yes	☐	no	☑						
8-ETW	yes	☐	no	☑						
9-303 (d) List	yes	☐	siltation	☐	habitat:	☐	other:	☐		
	no	☑								
10-Notes	Roadside ditch originates from pond overflow.									

Tennessee Department of Environment and Conservation - Division of Water Resources
500 James Robertson Parkway, 9th Floor. Nashville, TN 37243

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hatchie River	Date/Time: 5/23
Assessors/Affiliation: I. Maldonado / L. Niven	Project ID : 136185.10
Site Name/Description: Bridge Repair Over Branch	
Site Location: WWC-1 / EPH-1 (LM 6.42)	
HUC (12 digit): 080102080806 - Hatchie River Outlet	Latitude: 35.644357
Previous Rainfall (7-days) : 2.87"	Longitude: -89.790302
Precipitation this Season vs. Normal : average Source of recent & seasonal precip. data : NOAA / weather.gov	
Watershed Size : <2.0 sq. mi.	County: Lauderdale
Soil Type(s) / Geology : Ad - Adler silt loam, 0 to 2 percent slopes, frequently flooded	Source: Web Soil Survey
Surrounding Land Use : Forested / Agricultural	
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	☑	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	☑	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	☑	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	☑	Stream
6. Presence of fish (except *Gambusia*)	☑	Stream
7. Presence of naturally occurring ground water table connection	☑	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	☑	Stream
9. Evidence watercourse has been used as a supply of drinking water	☑	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) = 16.50

Justification / Notes :

Roadside ditch sourced from pond overflow upgradient. forms confluence with STR-1 where STR-1 enters ROW

moderate sorting

flow in channel

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 7.25)	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	0.5
4. Sorting of soil textures or other substrate	0	1	2	3	2
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	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	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	0.25
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

B. Hydrology (Subtotal = 6.25)	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	1
15. Water in channel and >48 hours since sig. rain	0	1	2	3	1.5
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	0.75
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

C. Biology (Subtotal = 3.00)	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed [1]	3	2	1	0	1.5
21. Rooted plants in the thalweg [1]	3	2	1	0	1.5
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 [2]	0	0.5	1	1.5	0

[1] Focus is on the presence of terrestrial plants.

[2] Focus is on the presence of aquatic or wetland plants.

Total Points = 16.50

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

clear turbidity

no biology present (dead rat snake in channel)

Ecology Field Data Sheet: **Water Resources**

Project: PN136185.10					
Biologist:	I. Maldonado / L. Niven	**Affiliation:**	Athena EE	**Date:**	5/23/2025

1-Station: from plans										
2-Map label and name	LM 6.42 / STR-1									
3-Latitude/Longitude	35.644740, -89.789118									
4-Feature description:										
-channel identification	perennial stream	✓	intermittent stream		ephemeral stream		wwc			
-HD score (if applicable)	19.75									
-OHWM indicators	bed & banks	✓	deposition		presence of litter debris		scour	✓	veg absent, bent, matted	
	change in plant community		destruction of terrestrial veg	✓	multiple observe flow events		sediment sorting	✓	water staining	
	change in soil character		leaf litter disturb or absent	✓	natural line impressed on bank	✓	shelving		wracking	
-channel bottom width	1.5'		-top of bank width		3'					
-width and max depth at ordinary high water mark	1.8' and .5'									
-width at bankfull	3'									
-bank height	LDB - 2.5'		RDB - 2.5'							
-riffle/pool complex or other specialized habitat present?	N/A									
-dominant riparian species: ----------(LDB /RDB)----------	LDB: grasses									
	RDB: grasses									
-particle size distribution %	Silt/Sand: 75		Gravel: 20		Cobble: 5		Boulder:		Bedrock: 0	
5-photo numbers	7-10									
6-HUC -8 Code & Name	08010208 - Lower Hatchie									
7-Assessed	yes		no	✓						
8-ETW	yes		no	✓						
9-303 (d) List	yes		siltation		habitat:		other:			
	no	✓								
10-Notes										

Revised July 2022

Tennessee Department of Environment and Conservation - Division of Water Resources
500 James Robertson Parkway, 9th Floor. Nashville, TN 37243

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hatchie River	Date/Time: 5/23
Assessors/Affiliation: I. Maldonado / L. Niven	Project ID : 136185.10
Site Name/Description: Bridge Repair Over Branch	
Site Location: STR-1 (LM 6.42)	
HUC (12 digit): 080102080806 - Hatchie River Outlet	Latitude: 35.644740
Previous Rainfall (7-days) : 2.87"	Longitude: -89.789118
Precipitation this Season vs. Normal : average Source of recent & seasonal precip. data : NOAA / weather.gov	
Watershed Size : 0.7 sq. mi.	County: Lauderdale
Soil Type(s) / Geology : Ad - Adler silt loam, 0 to 2 percent slopes, frequently flooded	Source: Web Soil Survey
Surrounding Land Use : Forested / Agricultural	
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	☑	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	☑	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	☑	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	☑	Stream
6. Presence of fish (except *Gambusia*)	☑	Stream
7. Presence of naturally occurring ground water table connection	☑	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	☑	Stream
9. Evidence watercourse has been used as a supply of drinking water	☑	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) = 19.75

Justification / Notes :

flow from off site forested / pasture area, directed into roadside ditch. ultimate forms confluence with main stream in project (STR-2)

good / average flow

frogs observed

good riparian buffer outside of project

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	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	0.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

B. **Hydrology** (Subtotal = 7.75)	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	1.5
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
17. Sediment on plants or on debris	0	0.5	1	1.5	0.75
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

C. **Biology** (Subtotal = 3.50)	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed [1]	3	2	1	0	2
21. Rooted plants in the thalweg [1]	3	2	1	0	1.5
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 [2]	0	0.5	1	1.5	0

[1] Focus is on the presence of terrestrial plants.

[2] Focus is on the presence of aquatic or wetland plants.

Total Points = 19.75

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

clear turbidity

matted down vegetation along banks of roadside

Rip rap located at exit point of ROW in channel

farm field with no culvert through channel outside of ROW

Ecology Field Data Sheet: **Water Resources**

Project: PN136185.10					
Biologist:	I. Maldonado / L. Niven	**Affiliation:**	Athena EE	**Date:**	5/23/2025

1-Station: from plans										
2-Map label and name	LM 6.42 / STR-2									
3-Latitude/Longitude	35.645439, -89.788082									
4-Feature description:										
-channel identification	perennial stream	✓	intermittent stream		ephemeral stream		wwc			
-HD score (if applicable)	28.00									
-OHWM indicators	bed & banks	✓	deposition		presence of litter debris		scour		veg absent, bent, matted	
	change in plant community	✓	destruction of terrestrial veg		multiple observe flow events		sediment sorting	✓	water staining	
	change in soil character	✓	leaf litter disturb or absent		natural line impressed on bank		shelving	✓	wracking	✓
-channel bottom width	8'		-top of bank width	20'						
-width and max depth at ordinary high water mark	13' and 1.5'									
-width at bankfull	20'									
-bank height	LDB - 2.5'		RDB - 2.5'							
-riffle/pool complex or other specialized habitat present?	N/A									
-dominant riparian species: ----------(LDB /RDB)----------	LDB: Equisetum sp									
	RDB: Equisetum sp									
-particle size distribution %	Silt/Sand: 65		Gravel: 20		Cobble: 15		Boulder:		Bedrock: 0	
5-photo numbers	11-14									
6-HUC -8 Code & Name	08010208 - Lower Hatchie									
7-Assessed	yes		no	✓						
8-ETW	yes		no	✓						
9-303 (d) List	yes		siltation		habitat:		other:			
	no	✓								
10-Notes										

Revised July 2022

Tennessee Department of Environment and Conservation - Division of Water Resources
500 James Robertson Parkway, 9th Floor. Nashville, TN 37243

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hatchie River	Date/Time: 5/23
Assessors/Affiliation: I. Maldonado / L. Niven	Project ID : 136185.10
Site Name/Description: Bridge Repair Over Branch	
Site Location: STR-2 (LM 6.42)	
HUC (12 digit): 080102080806 - Hatchie River Outlet	Latitude: 35.645439
Previous Rainfall (7-days) : 2.87"	Longitude: -89.788082
Precipitation this Season vs. Normal : average Source of recent & seasonal precip. data : NOAA / weather.gov	
Watershed Size : 0.48 sq. mi.	County: Lauderdale
Soil Type(s) / Geology : Ad - Adler silt loam, 0 to 2 percent slopes, frequently flooded	Source: Web Soil Survey
Surrounding Land Use : Forested / Agricultural	
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	✓	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✓	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	✓	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except *Gambusia*)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream
9. Evidence watercourse has been used as a supply of drinking water	✓	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) = 28.00

Justification / Notes :

Main channel beneath bridge flowing NW to SE ultimately forms confluence with the Hatchie River

Riprap reenforcement under bridge piers, creating associated riffles. so runs up and down stream of bridge

good / average flow

frogs observed

good riparian buffer outside of project

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 13.75)	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	1.5
4. Sorting of soil textures or other substrate	0	1	2	3	2
5. Active/relic floodplain	0	0.5	1	1.5	0.5
6. Depositional bars or benches	0	1	2	3	2
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	0.75
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	1

B. Hydrology (Subtotal = 10.25)	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	3
15. Water in channel and >48 hours since sig. rain	0	1	2	3	3
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	0.75
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

C. Biology (Subtotal = 4.00)	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed [1]	3	2	1	0	NA
21. Rooted plants in the thalweg [1]	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	1
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 [2]	0	0.5	1	1.5	0

[1] Focus is on the presence of terrestrial plants.

[2] Focus is on the presence of aquatic or wetland plants.

Total Points = 28.00

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

raised turbidity

Ecology Field Data Sheet: **Water Resources**

Project: PN136185.10					
Biologist:	I. Maldonado / L. Niven	**Affiliation:**	Athena EE	**Date:**	5/23/2025

1-Station: from plans											
2-Map label and name	LM 6.42 / STR-3										
3-Latitude/Longitude	35.646554, -89.786586										
4-Feature description:											
-channel identification	perennial stream	✓	intermittent stream		ephemeral stream		wwc				
-HD score (if applicable)	30.50										
-OHWM indicators	bed & banks	✓	deposition		presence of litter debris		scour		veg absent, bent, matted		
	change in plant community	✓	destruction of terrestrial veg		multiple observe flow events		sediment sorting		water staining		
	change in soil character	✓	leaf litter disturb or absent		natural line impressed on bank	✓	shelving		wracking		
-channel bottom width	8'		-top of bank width	20'							
-width and max depth at ordinary high water mark	11' and 1.0'										
-width at bankfull	20'										
-bank height	LDB - 8'		RDB - 4'								
-riffle/pool complex or other specialized habitat present?	N/A										
-dominant riparian species: ----------(LDB /RDB)----------	LDB: Acer sp										
	RDB: Acer sp										
-particle size distribution %	Silt/Sand: 65		Gravel: 20		Cobble: 15		Boulder:		Bedrock: 0		
5-photo numbers	15-22										
6-HUC -8 Code & Name	08010208 - Lower Hatchie										
7-Assessed	yes		no	✓							
8-ETW	yes		no	✓							
9-303 (d) List	yes		siltation		habitat:		other:				
	no	✓									
10-Notes											

Revised July 2022

Tennessee Department of Environment and Conservation - Division of Water Resources
500 James Robertson Parkway, 9th Floor. Nashville, TN 37243

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hatchie River		Date/Time: 5/23
Assessors/Affiliation: I. Maldonado / L. Niven		Project ID : 136185.10
Site Name/Description: Bridge Repair Over Branch		
Site Location: STR-3 (LM 6.42)		
HUC (12 digit): 080102080806 - Hatchie River Outlet	Latitude: 35.646554	
Previous Rainfall (7-days) : 2.87"	Longitude: -89.786586	
Precipitation this Season vs. Normal : average Source of recent & seasonal precip. data : NOAA / weather.gov		
Watershed Size : 0.56 sq. mi.	County: Lauderdale	
Soil Type(s) / Geology : Ad - Adler silt loam, 0 to 2 percent slopes, frequently flooded	Source: Web Soil Survey	
Surrounding Land Use : Forested / Agricultural		
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	✓	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✓	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	✓	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except *Gambusia*)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream
9. Evidence watercourse has been used as a supply of drinking water	✓	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) = 30.50

Justification / Notes :

Main channel beneath north bridge flowing NW to SE ultimately forms confluence with the Hatchie River

slow runs up and down stream of bridge. large culvert (10') acts as a grade control. creates large pool at outlet of culvert.

good / average flow

frogs observed

good riparian buffer outside of project

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 13.25)	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	2
5. Active/relic floodplain	0	0.5	1	1.5	0.5
6. Depositional bars or benches	0	1	2	3	2
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	0.75
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	1

B. Hydrology (Subtotal = 10.25)	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	2	3	3
15. Water in channel and >48 hours since sig. rain	0	1	2	3	3
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	0.75
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

C. Biology (Subtotal = 7.00)	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed [1]	3	2	1	0	3
21. Rooted plants in the thalweg [1]	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	1
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 [2]	0	0.5	1	1.5	0

[1] Focus is on the presence of terrestrial plants.

[2] Focus is on the presence of aquatic or wetland plants.

Total Points = 30.50

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

raised turbidity

Ecology Field Data Sheet: **Water Resources**

Project: PN136185.10					
Biologist:	I. Maldonado / L. Niven	**Affiliation:**	Athena EE	**Date:**	5/23/2025

1-Station: from plans											
2-Map label and name	LM 6.42 / WWC-2 / EPH-2										
3-Latitude/Longitude	35.644357, -89.790302										
4-Feature description:											
-channel identification	perennial stream		intermittent stream		ephemeral stream		wwc	✓			
-HD score (if applicable)	12										
-OHWM indicators	bed & banks	✓	deposition		presence of litter debris		scour		veg absent, bent, matted	✓	
	change in plant community		destruction of terrestrial veg		multiple observe flow events		sediment sorting	✓	water staining		
	change in soil character		leaf litter disturb or absent	✓	natural line impressed on bank	✓	shelving		wracking		
-channel bottom width	4'		-top of bank width		6'						
-width and max depth at ordinary high water mark	2' and 1.5'										
-width at bankfull	6'										
-bank height	LDB - 4'		RDB - 4'								
-riffle/pool complex or other specialized habitat present?	N/A										
-dominant riparian species: ----------(LDB /RDB)----------	LDB: Agriculture										
	RDB: grasses										
-particle size distribution %	Silt/Sand:	85	Gravel:	10	Cobble:	5	Boulder:		Bedrock:	0	
5-photo numbers	23-30										
6-HUC -8 Code & Name	08010208 - Lower Hatchie										
7-Assessed	yes		no	✓							
8-ETW	yes		no	✓							
9-303 (d) List	yes		siltation		habitat:		other:				
	no	✓									
10-Notes											

Revised July 2022

Tennessee Department of Environment and Conservation - Division of Water Resources
500 James Robertson Parkway, 9th Floor. Nashville, TN 37243

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Resources, Version 1.5 (Fillable Form)

Named Waterbody: UNT to Hatchie River	Date/Time: 5/23
Assessors/Affiliation: I. Maldonado / L. Niven	Project ID : 136185.10
Site Name/Description: Bridge Repair Over Branch	
Site Location: WWC-2 / EPH-2 (LM 6.42)	
HUC (12 digit): 080102080806 - Hatchie River Outlet	Latitude: 35.644357
Previous Rainfall (7-days) : 2.87"	Longitude: -89.790302
Precipitation this Season vs. Normal : average Source of recent & seasonal precip. data : NOAA / weather.gov	
Watershed Size : <2.0 sq. mi.	County: Lauderdale
Soil Type(s) / Geology : Ad - Adler silt loam, 0 to 2 percent slopes, frequently flooded	Source: Web Soil Survey
Surrounding Land Use : Forested / Agricultural	
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	☑	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	☑	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	☑	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	☑	Stream
6. Presence of fish (except *Gambusia*)	☑	Stream
7. Presence of naturally occurring ground water table connection	☑	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	☑	Stream
9. Evidence watercourse has been used as a supply of drinking water	☑	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 :

Roadside ditch forms confluence with STR-3 down stream of culvert at bridge

little sorting

moist channel

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 7.00)	Absent	Weak	Moderate	Strong	
1. Continuous bed and bank	0	1	2	3	2
2. Sinuous channel	0	1	2	3	0
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
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	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	0.75
12. Natural valley or drainageway	0	0.5	1	1.5	0.25
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

B. Hydrology (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

C. Biology (Subtotal = 3.00)	Absent	Weak	Moderate	Strong	
20. Fibrous roots in channel bed [1]	3	2	1	0	1.5
21. Rooted plants in the thalweg [1]	3	2	1	0	1.5
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 [2]	0	0.5	1	1.5	0

[1] Focus is on the presence of terrestrial plants.

[2] 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 :

some roots across channel acting as grade controls

becomes deeply channelized at end before confluence with STR-3

between road and ag field

silt/gravel substrate

Photo 1: WWC-1/EPH-1 Sourced from pond

Photo 2: WWC-1/EPH-1 End upgradient

Photo 3: WWC-1/EPH-1 Downgradient

Photo 4: WWC-1/EPH-1 Upgradient

Photo 5: WWC-1/EPH-1 Left top bank

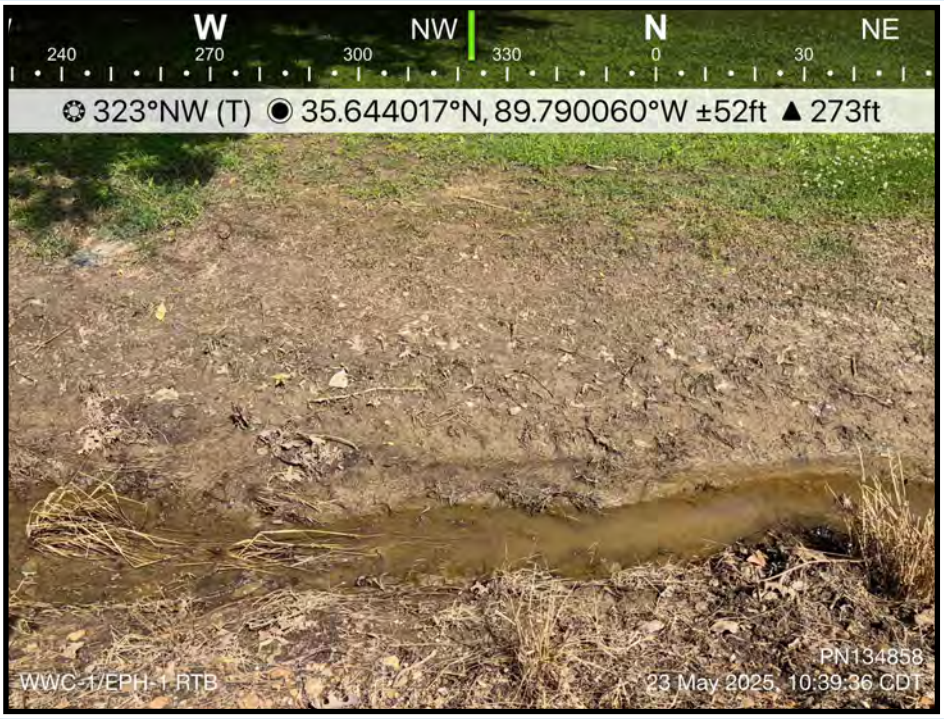


Photo 6: WWC-1/EPH-1 Right top bank

Photo 7: STR-1 Downstream

Photo 8: STR-1 Upstream

Photo 9: STR-1 Left top bank

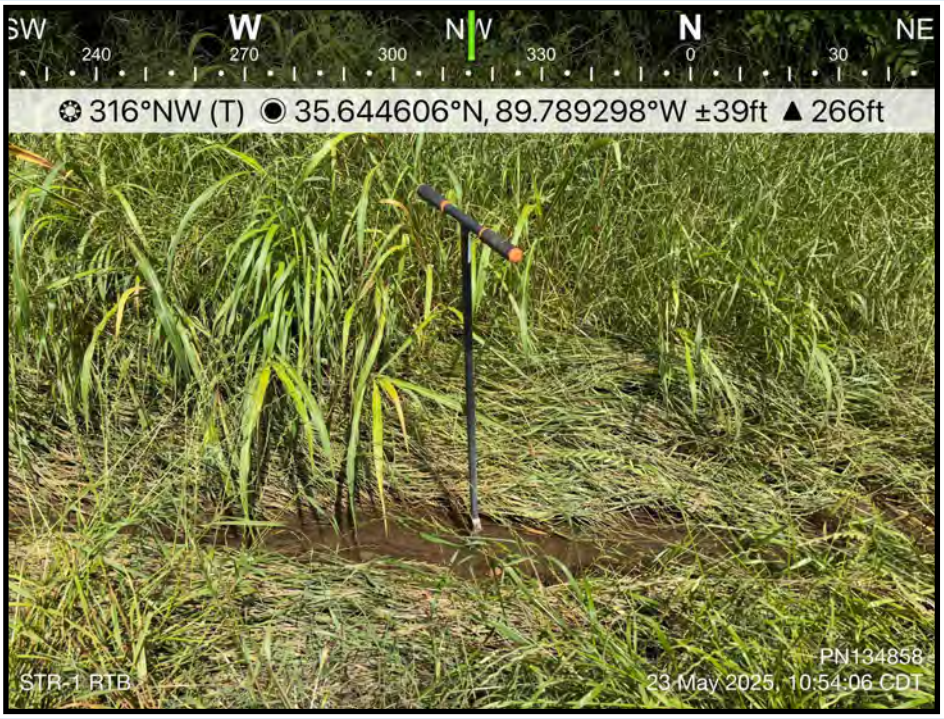


Photo 10: STR-1 Right top bank

Photo 11: STR-2 Downstream

Photo 12: STR-2 Upstream

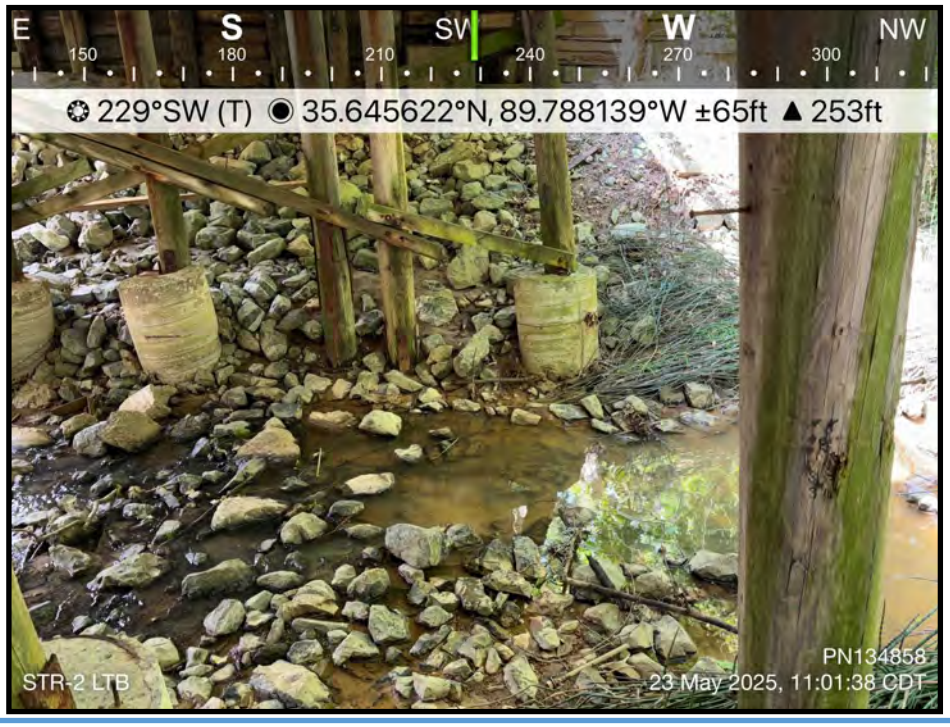


Photo 13: STR-2 Left top bank

Photo 14: STR-2 Right top bank

Photo 15: STR-3 Downstream

Photo 16: STR-3 Upstream

Photo 17: STR-3 downstream under TN-87; Culvert 10’

Photo 18: STR-3 Upstream

Photo 19: STR-3 Downstream

Photo 20: STR-3 Upstream

Photo 21: STR-3 Right top bank

Photo 22: STR-3 Left top bank (photo caption error)

Photo 23: WWC-2/EPH-2 Downgradient at STR-3 confluence

Photo 24: WWC-2/EPH-2 Upgradient at STR-3 confluence

Photo 25: WWC-2/EPH-2 Downgradient

Photo 26: WWC-2/EPH-2 Upgradient

Photo 27: WWC-2/EPH-2 Downgradient culvert 36”

Photo 28: WWC-2/EPH-2 Upgradient culvert 36”

Photo 29: WWC-2/EPH-2 Downgradient near north end study area

Photo 30: WWC-2/EPH-2 Upgradient near north end study area

Outlook

Fw: IPaC delivered Official Species List for project: 134858.00, ETSA_Bridge over Branch, LM 6.42

From William Methvin <William.Methvin@tn.gov>
Date Wed 6/18/2025 7:58 AM
To Steve A. Walker <Steve.A.Walker@tn.gov>

Image preview
Will Methvin | TDOT Consultant
Environmental Division / Tech Studies Office – Ecology Unit
James K. Polk, 9th Floor
505 Deadrick Street
Nashville, TN 37243-0334
P. (931) 2442-5571
William.methvin@tn.gov

From: TDOT_USFWS <tdot_usfws@fws.gov>
Sent: Wednesday, May 21, 2025 3:00 PM
To: William Methvin <William.Methvin@tn.gov>
Cc: Rita M. Thompson <Rita.M.Thompson@tn.gov>; Sikula, Nicole R <nicole_sikula@fws.gov>; Harris, Abigail N <abigail_harris@fws.gov>; DeVore, Christopher <Christopher_DeVore@fws.gov>
Subject: [EXTERNAL] Re: IPaC delivered Official Species List for project: 134858.00, ETSA_Bridge over Branch, LM 6.42

Will,

Thank you for your correspondence regarding the ETSA bridge replacement over Branch at LM 6.42 in Lauderdale County, Tennessee (PIN: 134858.00). You are requesting a list of federally threatened or endangered species that may be present in the project area.

A review of our database does not indicate that any federally listed or proposed species or designated critical habitat would be impacted by the project. Therefore, based on the best information available at this time, we believe that the requirements of the Endangered Species Act (ESA) are fulfilled for all species that currently receive protection under the ESA. Obligations under section 7 of the ESA should be reconsidered if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner

not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

This email will serve as our official project response. Please let me know if we can offer further assistance.

Thank you,

Wesley Giddens
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Tennessee Ecological Services Field Office
446 Neal Street
Cookeville, TN 38501
Email: david_giddens@fws.gov
Cell Phone: (931)260-6938

From: Administrator Email <ecosphere_support@ecosphere.fws.gov>
Sent: Tuesday, April 29, 2025 10:16 AM
To: Griffith, John <John_Griffith@fws.gov>; Tennessee ES, FWS <tennesseeES@fws.gov>; Sykes, Robbie <robbie_sykes@fws.gov>; TDOT_USFWS <tdot_usfws@fws.gov>; Alexander, Steven <steven_alexander@fws.gov>
Subject: IPaC delivered Official Species List for project: 134858.00, ETSA_Bridge over Branch, LM 6.42

To: IPaC point(s) of contact for Tennessee Ecological Services Field Office
Project Location: Lauderdale County, Tennessee

IPaC has delivered an official Section 7 species list on behalf of your office. For your convenience, IPaC has created an ETK project (2025-0089602) with a new associated 'Species List Provided' event. A PDF file of the species list document is attached to the event and contact information for the project can be found on the last page of the PDF.

IPaC has automatically set the Project status to "Closed". If you need to do any additional work in this project (*e.g.*, add staff, add events, change lead office, etc.), you must first change the Project status to "active" so that you can edit the project. You can access the project via the link, above.

Lead FWS Office:
The Tennessee Ecological Services Field Office is currently designated as the lead office for Section 7 on this project. The following additional offices have jurisdiction and have been notified: None. If another office is the lead office on this project, please access the project (via the link above) and update it. IPaC will not reset the Lead Office once it has been updated by a biologist.

*Projects created in ETK by IPaC have not been assigned to an FWS staff member. To identify the staff assigned to this project, please access the project (via the link above) and add their name(s).

TENNESSEE WILDLIFE RESOURCES AGENCY
WWW.TNWILDLIFE.ORG
(615) 781-6500

STATE OF TENNESSEE
ELLINGTON AGRICULTURAL CENTER
5107 EDMONDSON PIKE
NASHVILLE, TN 37211

May 21, 2025

Re: Lauderdale County Bridge replacement SR-87 LM 6.42 PIN 134858.00

Mr. William Methvin,

The Tennessee Wildlife Resources Agency has reviewed the information that you provided regarding the subject project in Lauderdale County, Tennessee. Your letter to us requested comments by our agency regarding potential impacts to endangered species, wetlands, and other areas of concern as we may think pertinent due to the proposed project.

This project involves the proposed bridge replacement on SR-87 at LM 11.75 in Lauderdale County. The initial information provided by TDOT and the data I have reviewed and compared to the proposed project, conclude that the project is not anticipated to adversely affect any federally or state-listed Endangered, Threatened, or Deemed-In-Need-of-Management species. Based upon these understandings, TWRA does not anticipate adverse impacts upon listed species under our authority due to the project and we have no concerns or objection to the proposed project. Re-coordination will be required if new species records are found or if the proposed project plans incorporate critical habitat for listed species of concern.

Thank you for the opportunity to review and comment on this proposed project. If you have further questions regarding this matter; please contact me at (731) 431-0012.

Sincerely,

Casey Parker
West TN Transportation Biologist