July 2, 2024

ELECTRONIC SUBMITTAL

Mr. Chuck Griffin
Barber McMurry Architects
505 Market Street
Suite 300
Knoxville, TN 37920

Dear Mr. Griffin:

Subject: Jurisdictional Waters Delineation
TCAT Harriman Site Development
Rockwood, Roane County, Tennessee
CEC Project 333-801

Civil & Environmental Consultants, Inc. (CEC) was contracted by Barber McMurry Architects to perform a jurisdictional waters determination to delineate jurisdictional features on the subject property. CEC ecologist Colson Karr, QHP-IT performed the site visit on October 17, 2023. The site coordinates are 35.8825826, -84.6203790. The hydrologic features are summarized in Table 3 and Figure 2. The site is located in the Caney Creek watershed (HUC12 –060102010601), which is part of the Ft. Loudoun/Watts Bar watershed (HUC8 – 06010201).

Prior to the site visit, CEC performed desktop reviews of the U.S. Fish and Wildlife Service National Wetland Inventory (NWI), the National Resources Conservation Service Web Soil Survey for Sevier County, Tennessee, and the Tennessee Department of Environment and Conservation GIS (TDEC-GIS) websites and databases. As depicted on Figure 1, there is one dashed "blue-line" feature located within the investigation boundary. Figure 2 (Aerial map) details the hydrologic features that were identified and delineated by CEC during the field survey. The NRCS soils map (Figure 3) indicates the absence of hydric soils on site. Soils present included the non-hydric Dewey silt loam, Etowah loam, Etowah silt loam, Fullerton-Pailo complex, Shady loam, and Waynesboro loam. The NWI map depicts one "wetland" feature (Riverine) in the area of interest (Figure 4).

CEC conducted on-site stream determinations using the Tennessee Department of Environment and Conservation Division of Water Resources (TDEC-DWR) stream determination guidance, *Guidance for Making Hydrologic Determinations, Version 1.5*, in order to assess jurisdictional status. CEC conducted an on-site wetland assessment following the 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual, *2012 Regional Supplement to the Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0).*

Table 1 below provides a description of normal weather conditions as calculated by the Antecedent Precipitation Tool Version 1.0. According to Table 1, weather conditions were normal prior to October 17, 2023. In the seven days prior to the site visit, 0.28 inches of rainfall had been recorded, with 0.13 inches of rainfall occurring in the 48 hours prior (Table 2, ROCKWOOD 2, TN).

Table 1: Summary of Normal Weather Condition Calculations (October 17, 2023)

Calculation of Normal Weather Conditions								
	30 Days Ending	Minus One Std. Dev. (DRY)	Plus One Std. Dev. (WET)	Actual Rainfall	Condition (dry, wet, normal)	Condition value: (1 = Dry 2 = Normal 3 = Wet)	Month weight value	Product of previous two columns
1st prior month	10/17/2023	2.55	5.46	0.87	Dry	1	x 3	3
2nd prior month	09/17/2023	2.64	3.71	3.52	Normal	1	x 2	4
3rd prior month	08/18/2023	4.10	5.46	9.51	Wet	1	x 1	3
							Sum =	**10**

If sum is:	
6-9	then prior period has been drier than normal
10-14	then prior period has been normal
15-18	Then prior period has been wetter than normal
CONCLUSION: **Normal**	

Table 2: Rainfall Data (October 17, 2023) – Rockwood, TN

ROCKWOOD 2, TN Rockwood, Tennessee	10/11 Wed	10/12 Thu	10/13 Fri	10/14 Sat	10/15 Sun	10/16 Mon	10/17 Tue
	0.00	0.00	0.00	0.15	0.00	0.13	0.05

A photographic summary (Attachment 1) depicting conditions observed during the site visit are attached. Figure 2 is an aerial map depicting the hydrologic features identified and delineated by CEC during the field survey, as described below. A summary table of hydrologic features can be found in Table 3.

WWC-1/UDF-1 is a grassy swale with areas of headcutting and a more defined bed and bank beginning at coordinates 35.8824776, -84.6210053 and flows for approximately 1,085 linear feet (l.f.) before ending into a more defined channel at a headcut at coordinates 35.8837337, -84.6178658. WWC-1/UDF-1 lacked water and geomorphic features like depositional bars and recent alluvial deposits. WWC-1/UDF-1 received a secondary indicator score of 12.5, indicating this feature is a wet weather conveyance/upland drainage feature.

WWC-2/EPH-1 is a channel beginning at a headcut at coordinates 35.8837337, -84.6178658 and flows for approximately 117 linear feet (l.f.) before ending at a concrete culvert at coordinates 35.8839929, -84.6176475. WWC-2/EPH-1 lacked water and geomorphic features, had no riffle pool sequences, and little to no deposition. WWC-2/EPH-1 received a secondary indicator score of 14.75, indicating this feature is a wet weather conveyance.

WWC-3/UDF-2 is a channel beginning at coordinates 35.8851907, -84.6202101 and extends for approximately 589 linear feet (l.f.) before ending at coordinates 35.8843607, -84.6185125. WWC-3/UDF-2 lacked water and geomorphic features like depositional bars and had a weak bed and bank. WWC-3/UDF-2 received a secondary indicator score of 1.25, indicating this feature is a wet weather conveyance.

WWC-4/UDF-3 is a channel beginning at coordinates 35.8849998, -84.6192969 and flows for approximately 79 linear feet (l.f.) before ending at coordinates 35.8847859, -84.6192625. WWC-4/UDF-3 lacked water and geomorphic features like depositional bars and a bed and bank. WWC-4/UDF-3 received a secondary indicator score of 1.50, indicating this feature is a wet weather conveyance.

In summary, CEC identified approximately 1,753 linear feet (l.f.) of wet weather conveyance/upland drainage features and 117 linear feet (l.f.) of wet weather conveyance/ephemeral features within the limits of investigation.

Table 3: Summary of Hydrologic Features within Study Area

ID	Flow Regime	Feature	Coordinates	Length (l.f.)

ID	Flow Regime	Feature	Coordinates	Length (l.f.)
WWC-1/UDF-1	Wet Weather Conveyance/Upland Drainage Feature	Wet Weather Conveyance	BEG: 35.8824776, -84.6210053 END: 35.8837337, -84.6178658	1085
WWC-2/EPH-1	Wet Weather Conveyance/Ephemeral	Wet Weather Conveyance	BEG: 35.8837337, -84.6176475 END: 35.8837337, -84.6176475	117
WWC-3/UDF-2	Wet Weather Conveyance/Upland Drainage Feature	Wet Weather Conveyance	BEG: 35.8851907, -84.6202101 END: 35.8843607, -84.6185125	589
WWC-4/UDF-3	Wet Weather Conveyance/Upland Drainage Feature	Wet Weather Conveyance	BEG: 35.8849998, -84.6192969 END: 35.8847859, -84.6192625	79

If you have any questions or need any additional information, please feel free to call us at (865) 977-9997 or email at ckarr@cecinc.com or gbabbit@cecinc.com.

Sincerely,

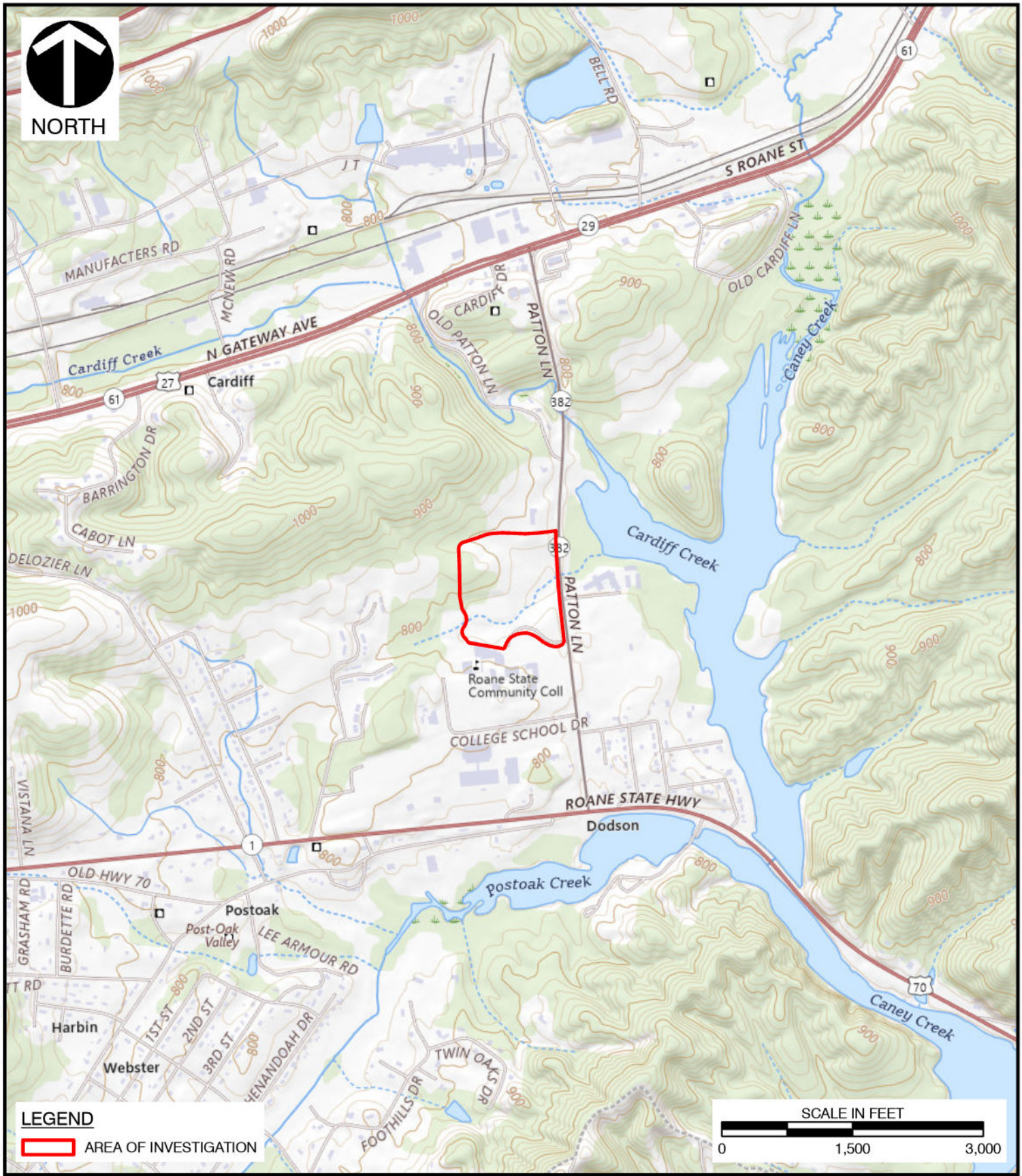
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Colson Karr, QHP-IT
Staff Scientist

Gregory S. Babbit, QHP, PWS
Principal

Attachments: Figures
Photo Summary
Field Forms
APT Tool

Level of Care: *CEC's wetland and stream delineation services were conducted in a manner consistent with the criteria contained in the Corps Manual and Regional Supplement, and with the level of care and skill ordinarily exercised by members of the environmental consulting profession practicing contemporaneously under similar conditions in the locality of the project. It must be recognized that the delineation of waters of the U.S. was based on field observations and CEC's professional interpretation of the criteria in the Corps Manual and Regional Supplement at the time of our fieldwork. Wetland determinations may change subsequent to CEC's delineation based on changes in the regulatory criteria, seasonal variations in hydrology, alterations to drainage patterns and other human activities and/or land disturbances.*



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BARBER MCMURRY ARCHITECTS
TCAT HARRIMAN SITE DEVELOPMENT
ROCKWOOD, ROANE COUNTY, TENNESSEE

USGS TOPOGRAPHIC MAP

DRAWN BY:	CGK	CHECKED BY:	DRS	APPROVED BY:	GSB	FIGURE NO:	1
DATE:	6/20/2024	SCALE:	1"=1,500'	PROJECT NO:	333-801		

*Hand Signature on file

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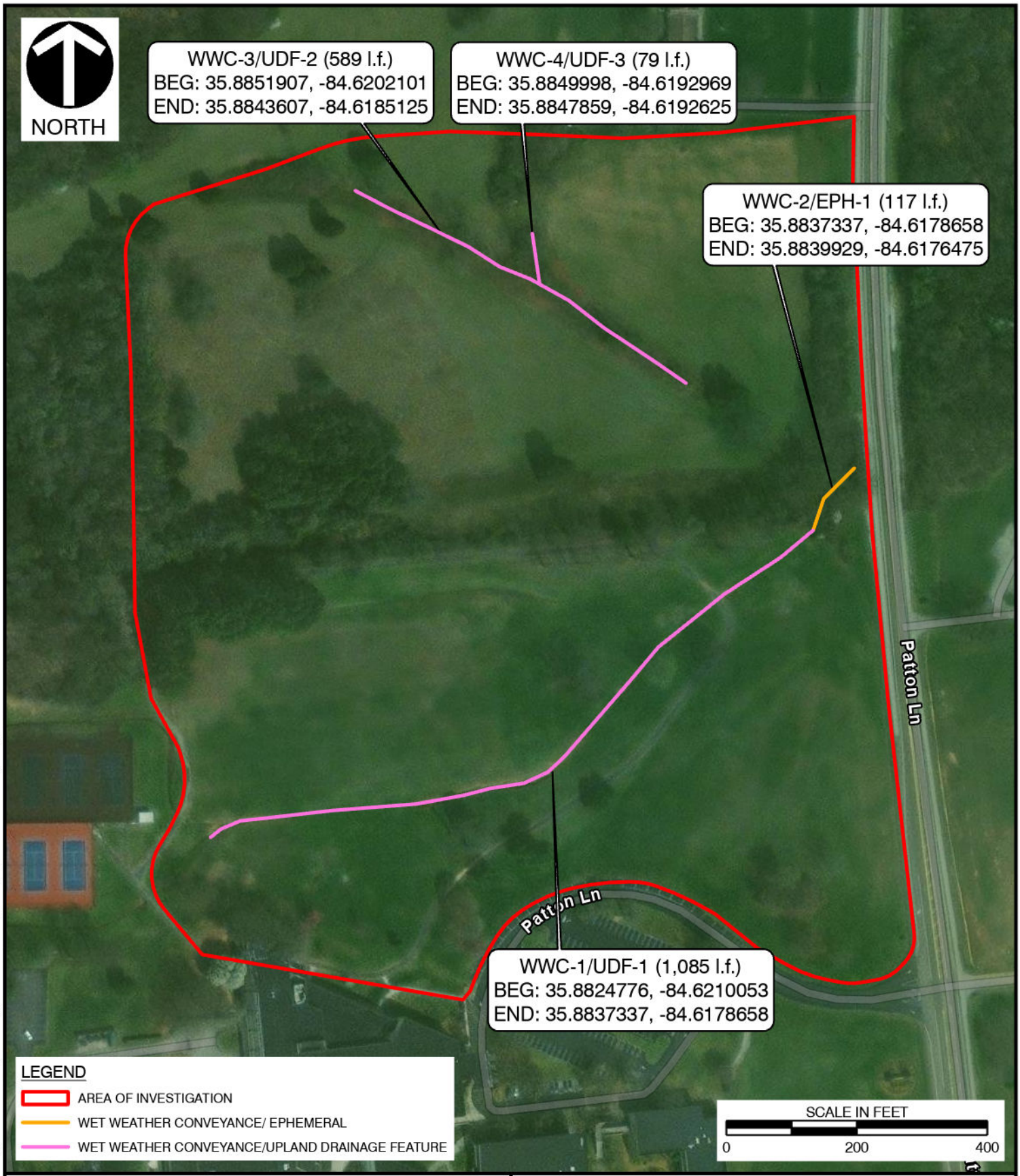

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EXISITNG AQUATIC RESOURCES MAP

DRAWN BY:	CGK	CHECKED BY:	DRS	APPROVED BY:	GSB	FIGURE NO:	2
DATE:	6/20/2024	SCALE:	1"=200'	PROJECT NO:	333-801		

*Hand Signature on file

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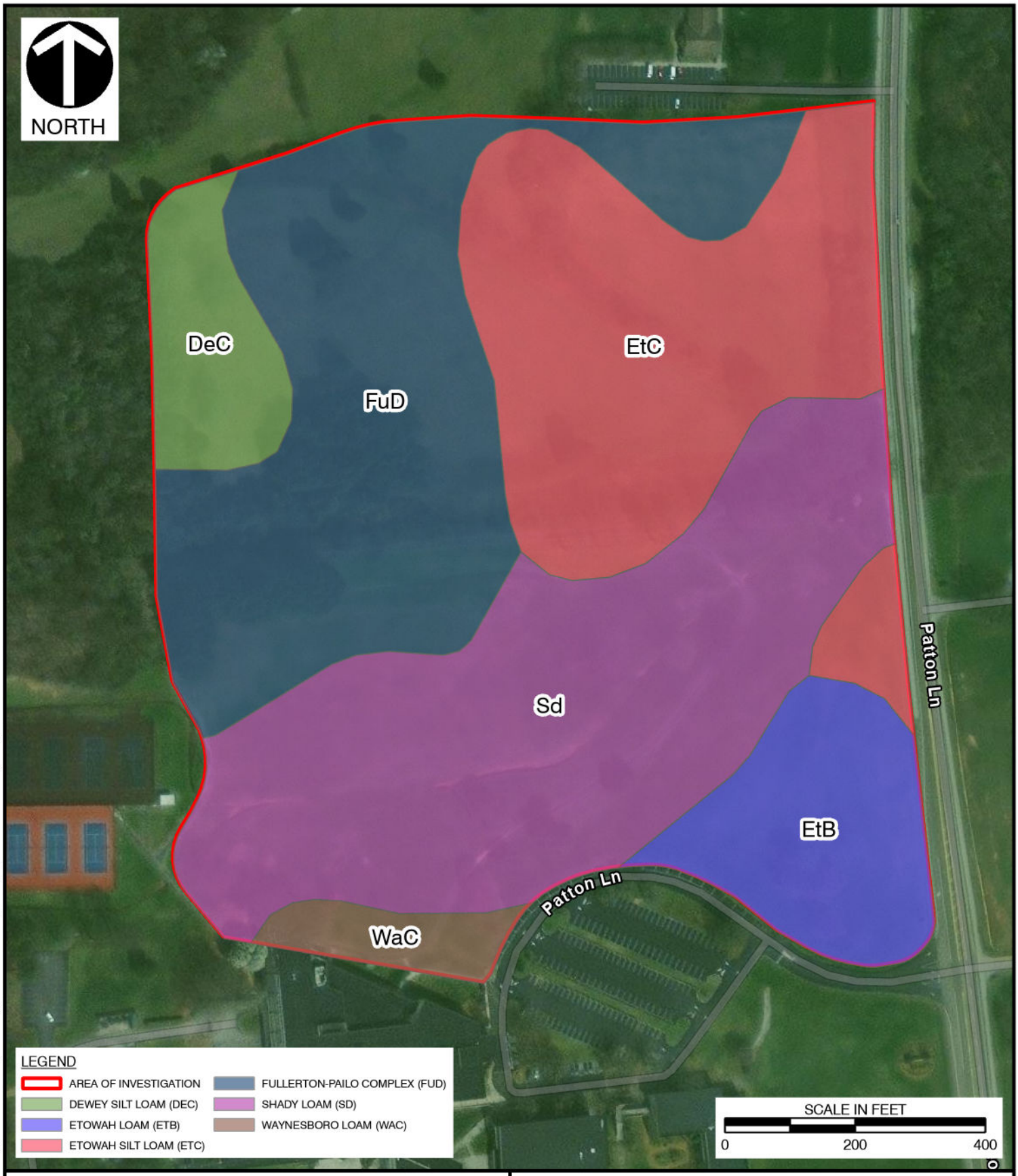

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BARBER MCMURRY ARCHITECTS
TCAT HARRIMAN SITE DEVELOPMENT
ROCKWOOD, ROANE COUNTY, TENNESSEE

NRCS SOIL MAP

DRAWN BY:	CGK	CHECKED BY:	DRS	APPROVED BY:	GSB	FIGURE NO:	3
DATE:	6/20/2024	SCALE:	1"=200'	PROJECT NO:	333-801		

*Hand Signature on file

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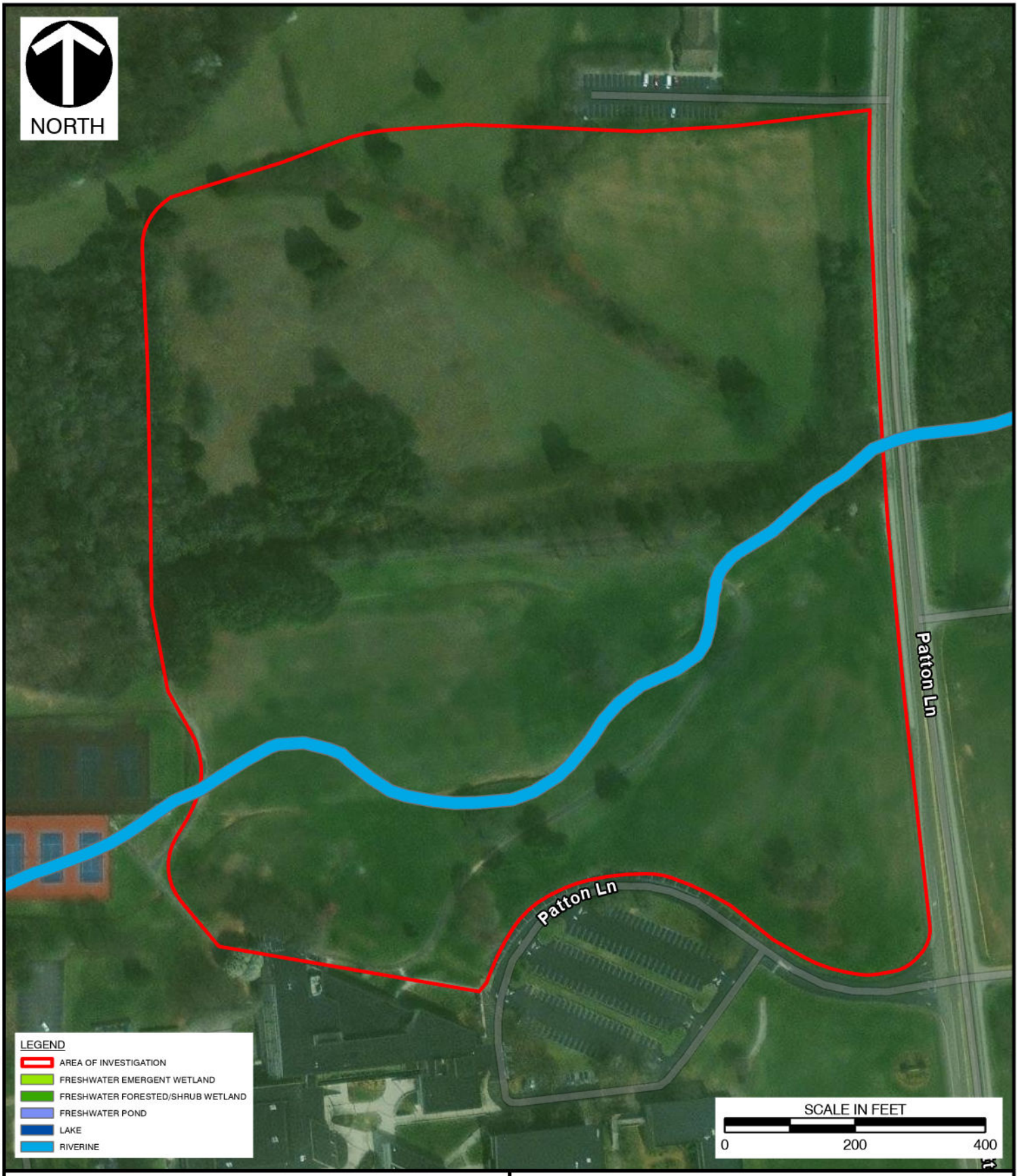

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TCAT HARRIMAN SITE DEVELOPMENT
ROCKWOOD, ROANE COUNTY, TENNESSEE

NATIONAL WETLAND INVENTORY MAP

DRAWN BY:	CGK	CHECKED BY:	DRS	APPROVED BY:	GSB	FIGURE NO:	4
DATE:	6/20/2024	SCALE:	1"=200'	PROJECT NO:	333-801		

*Hand Signature on file

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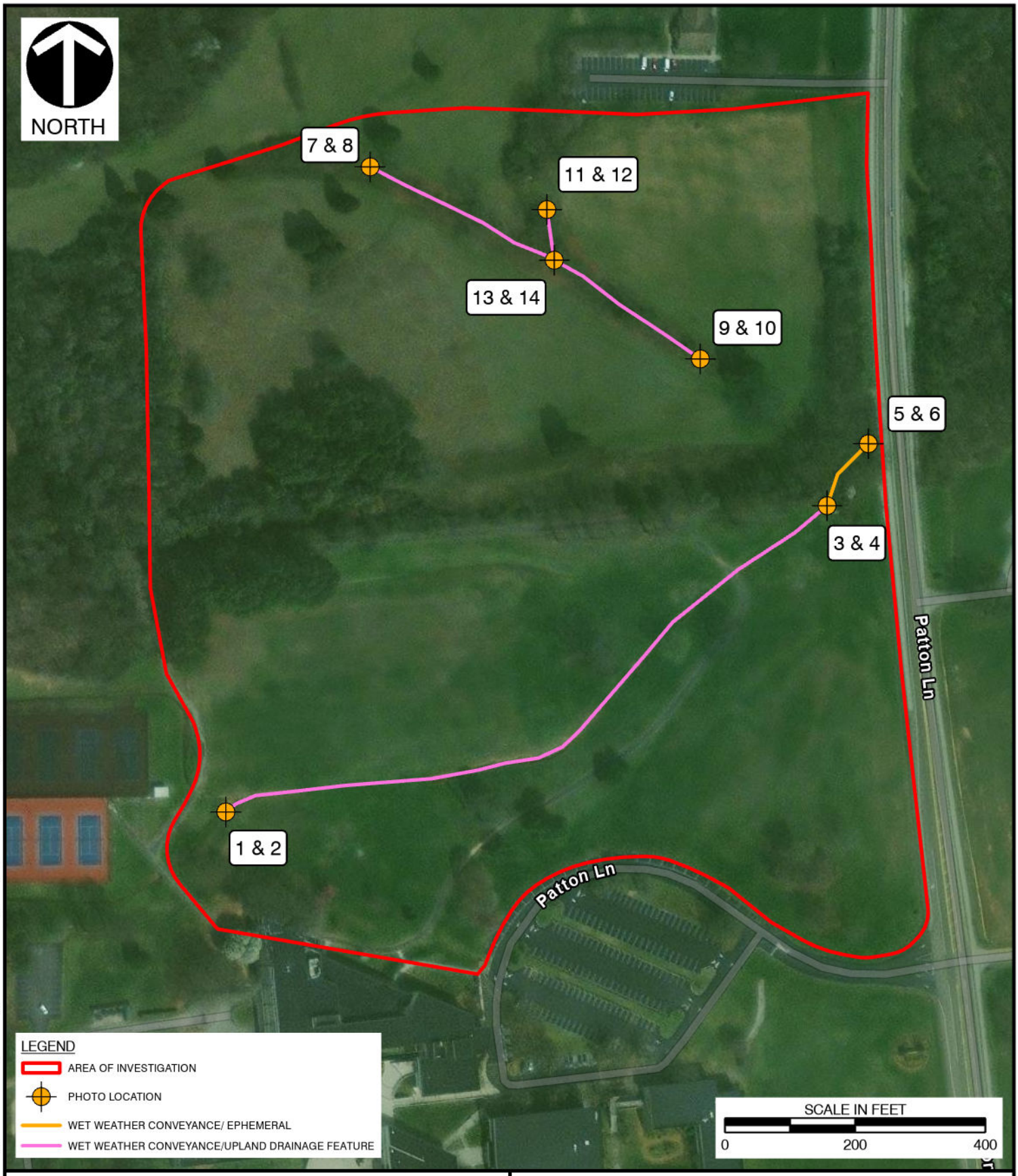

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ROCKWOOD, ROANE COUNTY, TENNESSEE

PHOTO LOCATION MAP

DRAWN BY:	CGK	CHECKED BY:	DRS	APPROVED BY:	GSB	FIGURE NO:	5
DATE:	6/20/2024	SCALE:	1"=200'	PROJECT NO:	333-801		

*Hand Signature on file

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Photo Summary: October 17, 2023
Project Description: TCAT Harriman Site Development, Roane County, TN; Jurisdictional Waters Delineation
CEC Project No. 333-801

Photo 1: View at start of WWC-1/UDF-1 facing upstream located at 35.8824776, -84.6210053.

Photo 2: View at start of WWC-1/UDF-1 facing downstream located at 35.8824776, -84.6210053.

Photo 3: View at end of WWC-1/UDF-1, start of WWC-2/EPH-1 facing upstream located at 35.8837337, -84.6178658.

Photo 4: View at end of WWC-1/UDF-1, start of WWC-2/EPH-1 facing downstream located at 35.8837337, -846178658.

Photo 5: View at end of WWC-2/EPH-1 facing upstream located at 35.8839929, -84.6176475.

Photo 6: View at end of WWC-2/EPH-1 facing downstream located at 35.8839929, -84.6176475.

Photo 7: View at start of WWC-3/UDF-2 facing upstream located at 35.8851907, -84.6202101.

Photo 8: View at start of WWC-3/UDF-2 facing downstream located at 35.8851907, -84.6202101.

Photo 9: View at end of WWC-3/UDF-2 facing upstream located at 35.8843607, -84.6185125.

Photo 10: View at end of WWC-3/UDF-2 facing downstream located at 35.8843607, -84.6185125.

Photo 11: View at start of WWC-4/UDF-3 facing upstream located at 35.8849998, -84.6192969.

Photo 12: View at start of WWC-4/UDF-3 facing downstream located at 35.8849998, -84.6192969.

Photo 13: View at end of WWC-4/UDF-3 facing upstream located at 35.8847859, -84.6192625.

Photo 14: View at end of WWC-4/UDF-3 facing downstream located at 35.8847859, -84.6192625.

Tennessee Department of Environment and Conservation - Division of Water Resources
312 Rosa L. Parks Ave. 11th Floor. Nashville, TN 37243

Hydrologic Determination Field Data Sheet

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

Named Waterbody: N/A	Date/Time: 10/17/23
Assessors/Affiliation: C. Karr, CEC, Inc.	Project ID : WWC-1/UDF-1
Site Name/Description: TCAT Harriman	
Site Location: Rockwood, Roane County, Tennessee	
HUC (12 digit): Caney Creek (060102010601)	Latitude: BEG: 35.8824776, END: 35.8837337
Previous Rainfall (7-days) : 0.28 inches	Longitude: BEG: -84.6210053, END: -84.6178658
Precipitation this Season vs. Normal : average Source of recent & seasonal precip. data : Antecedent Precipitation Tool	
Watershed Size : 0.16 sq. mi.	County: Roane
Soil Type(s) / Geology : Shady loam	Source: NRCS Web Soil Survey
Surrounding Land Use : Developed/Agriculture	
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 = WET WEATHER CONVEYANCE

Secondary Indicator Score (if applicable) = 10.00

Justification / Notes :

Areas of grassy swale, and other areas of headcutting with a cut down profile. Feature runs through mowed field of fescue.

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 6.50)	**Absent**	**Weak**	**Moderate**	**Strong**	
1. Continuous bed and bank	0	1	2	3	1.5
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	0.5
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	1
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

B. Hydrology (Subtotal = 1.50)	**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	N/A
16. Leaf litter in channel (January – September)	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	
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0	

C. Biology (Subtotal = 2.00)	**Absent**	**Weak**	**Moderate**	**Strong**	
20. Fibrous roots in channel bed [1]	3	2	1	0	1
21. Rooted plants in the thalweg [1]	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. 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 = 10.00

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

Notes :

Tennessee Department of Environment and Conservation - Division of Water Resources
312 Rosa L. Parks Ave. 11th Floor. Nashville, TN 37243

Hydrologic Determination Field Data Sheet

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

Named Waterbody: N/A	Date/Time: 10/17/23
Assessors/Affiliation: C. Karr, CEC, Inc.	Project ID : WWC-2/EPH-1
Site Name/Description: TCAT Harriman	
Site Location: Rockwood, Roane County, Tennessee	
HUC (12 digit): Caney Creek (060102010601)	Latitude: BEG: 35.8837337, END: 35.8839929
Previous Rainfall (7-days) : 0.28 inches	Longitude: BEG: -84.6178658, END: -84.6176475
Precipitation this Season vs. Normal : average Source of recent & seasonal precip. data : Antecedent Precipitation Tool	
Watershed Size : 0.17 sq. mi.	County: Roane
Soil Type(s) / Geology : Shady loam	Source: NRCS Web Soil Survey
Surrounding Land Use : Developed/Agriculture	
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 = WET WEATHER CONVEYANCE

Secondary Indicator Score (if applicable) = 14.50

Justification / Notes :

Starts at large headcut in wooded area. Weak hydrology and Biology.

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 12.00)	**Absent**	**Weak**	**Moderate**	**Strong**	
1. Continuous bed and bank	0	1	2	3	2.5
2. Sinuous channel	0	1	2	3	1.5
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	1
5. Active/relic floodplain	0	0.5	1	1.5	0
6. Depositional bars or benches	0	1	2	3	1.5
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	2.5
11. Grade controls	0	0.5	1	1.5	0.5
12. Natural valley or drainageway	0	0.5	1	1.5	1.5
13. At least second order channel on existing USGS or NRCS map	0	1	2	3	0

B. Hydrology (Subtotal = 0.50)	**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	N/A
16. Leaf litter in channel (January – September)	1.5	1	0.5	0	0	N/A
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	

C. Biology (Subtotal = 2.00)	**Absent**	**Weak**	**Moderate**	**Strong**	
20. Fibrous roots in channel bed [1]	3	2	1	0	1
21. Rooted plants in the thalweg [1]	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. 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 = 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

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Precipitation this Season vs. Normal : average Source of recent & seasonal precip. data : Antecedent Precipitation Tool	
Watershed Size : 0.02 sq. mi.	County: Roane
Soil Type(s) / Geology : Shady loam	Source: NRCS Web Soil Survey
Surrounding Land Use : Developed/Agriculture	
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 = WET WEATHER CONVEYANCE

Secondary Indicator Score (if applicable) = 1.25

Justification / Notes :

wooded low point with minimal evidence of flow, no bed and bank.

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 1.00)	**Absent**	**Weak**	**Moderate**	**Strong**	
1. Continuous bed and bank	0	1	2	3	0
2. Sinuous channel	0	1	2	3	0
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. Hydrology (Subtotal = 0.25)	**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	N/A
16. Leaf litter in channel (January – September)	1.5	1	0.5	0	0	N/A
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	0.25	
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5		0	

C. Biology (Subtotal = 0.00)	**Absent**	**Weak**	**Moderate**	**Strong**	
20. Fibrous roots in channel bed [1]	3	2	1	0	0
21. Rooted plants in the thalweg [1]	3	2	1	0	0
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 = 1.25

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

Notes :

Tennessee Department of Environment and Conservation - Division of Water Resources
312 Rosa L. Parks Ave. 11th Floor. Nashville, TN 37243

Hydrologic Determination Field Data Sheet

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

Named Waterbody: N/A	Date/Time: 10/17/23
Assessors/Affiliation: C. Karr, CEC, Inc.	Project ID : WWC-4/UDF-3
Site Name/Description: TCAT Harriman	
Site Location: Rockwood, Roane County, Tennessee	
HUC (12 digit): Caney Creek (060102010601)	Latitude: BEG: 35.8849998, END: 35.8847859
Previous Rainfall (7-days) : 0.28 inches	Longitude: BEG: -84.6192969, END: -84.6192625
Precipitation this Season vs. Normal : average Source of recent & seasonal precip. data : Antecedent Precipitation Tool	
Watershed Size : 0.01 sq. mi.	County: Roane
Soil Type(s) / Geology : Shady loam	Source: NRCS Web Soil Survey
Surrounding Land Use : Developed/Agriculture	
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 = WET WEATHER CONVEYANCE

Secondary Indicator Score (if applicable) = 1.50

Justification / Notes :

wooded low area with weak flow path, no bed and bank.

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 0.50)	**Absent**	**Weak**	**Moderate**	**Strong**	
1. Continuous bed and bank	0	1	2	3	0
2. Sinuous channel	0	1	2	3	0
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. Hydrology (Subtotal = 1.00)	**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	N/A
16. Leaf litter in channel (January – September)	1.5	1	0.5	0	0	N/A
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 = 0.00)	**Absent**	**Weak**	**Moderate**	**Strong**	
20. Fibrous roots in channel bed [1]	3	2	1	0	0
21. Rooted plants in the thalweg [1]	3	2	1	0	0
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.

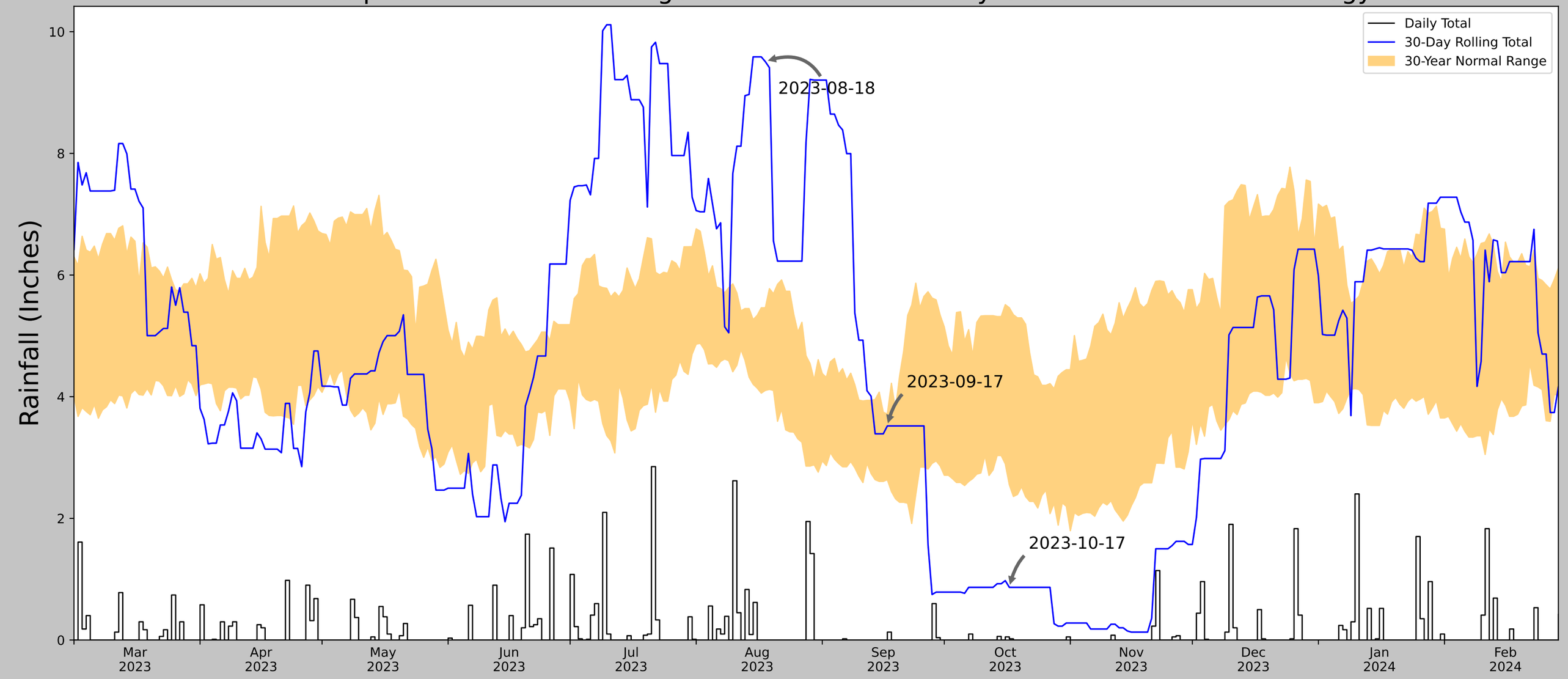
[2] Focus is on the presence of aquatic or wetland plants.

Total Points = 1.50

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

Notes :

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



Coordinates	35.8825826, -84.6203790
Observation Date	2023-10-17
Elevation (ft)	770.135
Drought Index (PDSI)	Mild drought
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-10-17	2.550787	5.462205	0.866142	Dry	1	3	3
2023-09-17	2.635039	3.714961	3.519685	Normal	2	2	4
2023-08-18	4.103543	5.461417	9.507874	Wet	3	1	3
Result							Normal Conditions - 10

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ROCKWOOD 2	35.8361, -84.6919	767.06	5.134	3.075	2.326	10463	90
ROCKWOOD 0.6 WSW	35.8702, -84.6839	909.121	2.398	142.061	1.42	3	0
HARRIMAN 4.5 SW	35.8843, -84.6149	755.906	5.448	11.154	2.512	532	0
KINGSTON	35.8572, -84.5281	813.976	9.289	46.916	4.616	349	0
DECATUR 7NE	35.6394, -84.665	750.0	13.674	17.06	6.387	4	0
LENOIR CITY	35.7875, -84.2622	785.105	24.309	18.045	11.378	1	0