3500 Parkway Lane, Suite 500
Peachtree Corners, GA 30092
T: 678.336.7740

June 26, 2024

Tim Jennette
TDEC Division of Water Resources
Nashville Environmental Field Office
(615) 687-7000
Tim.Jennette@tn.go

Qualified Hydrologic Professional:
Paul Murray, QHP
Pond & Company

Subject: **Hydrologic Determination Report**
Middle Point Landfill RNG - Natural Gas Pipeline Project
City of Murfreesboro, Rutherford County, Tennessee

Pond and Company (POND) has completed a stream and wetland delineation and this Hydrologic Determination Report for your review and concurrence. This report was completed to describe environmental features observed during the field delineation along the 2.4 miles of proposed natural gas pipeline within public roadside rights-of-way (ROW) at the intersection of Compton Road and Memorial Boulevard. The Project continues along the eastern roadside ROW and then extends northeast to the Middle Point Landfill in Rutherford County, Tennessee (**Figure 1**). Portions of this project within proximity to water resources and their associated buffers will be installed via Horizontal Directional Drilling (HDD). The field delineation took place on February 7, 2024. Prior to the field delineation, a review of the Middle Point Landfill Approved Jurisdictional Determination (LRN-2007-01013) and pertinent geographic information system (GIS) data was completed to identify potential aquatic resources and protected species habitat that may be present within the immediate area of the proposed project. Sources of these data included but were not limited to the:

- U.S. Geological Survey (USGS) National Hydrography Dataset (NHD)
- USGS Topographic Quadrangles
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI)
- USFWS Information for Planning and Consultation (IPaC)
- Tennessee Department of Environment & Conservation (TDEC) Rare Species
- Tennessee Historical Commission (THC) Map Viewer
- National Register of Historic Places (NRHP)
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey
- Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL)

This report summarizes the findings from the February 2024 hydrologic determination.

Water Resources

Land area within the environmental survey boundary (ESB) surrounding the proposed project route includes maintained roadside ROW, agricultural fields, East Fork Stones River area, and mixed hardwood forests. During the field delineation, five (5) wet weather conveyances (WWC), one (1) perennial stream, one (1) isolated water-filled depression (WFD), one (1) open water (OW), one (1) stormwater pond (SWP), and two (2) previously mined wetlands (PMW) were identified (**Figure 3**). These findings are consistent and in accordance with the findings detailed in the Approved Jurisdictional Determination completed for the Middle Point Landfill (LRN-2007-01013). The identified

stream would likely be considered a jurisdictional Water of the U.S. (WOTUS) and be regulated by the U.S. Army Corps of Engineers (USACE). All resources identified are located within Rutherford County, Tennessee jurisdictional boundary.

Table 1: Water Resources Summary

Resource Name	Start Coordinates (Decimal Degrees)		End Coordinates (Decimal Degrees)	
	Latitude	Longitude	Latitude	Longitude
OW 1	35.917185	-86.382501	35.915682	-86.382845
SWP 2	35.933265	-86.375570	35.932221	-86.375601
WFD 3	35.935687	-86.375799	35.933036	-86.377826
PMW 4	35.932872	-86.377785	35.931476	-86.377617
PMW 5	35.931101	-86.376868	35.929281	-86.375829
WWC 1	35.915679	-86.382913	35.914711	-86.383466
WWC 2	35.932109	-86.375211	35.932199	-86.375382
WWC 3	35.932031	-86.375263	35.932241	-86.375382
WWC 4	35.931913	-86.375296	35.932048	-86.375344
WWC 5	35.933022	-86.377820	35.934217	-86.377072
Perennial Stream 1	35.935407	-86.376846	35.924933	-86.373712

Conclusions

This report has been prepared to assist TDEC, Nashville Environmental Field Office, Water Resources Division in their review of our Hydrologic Determination. Additionally, the findings presented in this report will be utilized to assist with avoidance and minimization of impacts to environmental resources. The Tennessee Wildlife Resources Agency (TWRA) has confirmed that no state protected aquatic species are documented within one (1) mile of the project area. However, two (2) state protected species is documented within two (2) miles of the proposed project: the state deemed in need of management Redband darter (*Etheostoma luteovinctum*) and streamside salamander (*Etheostoma microlepidum*). If you have any questions or require additional information, please contact Paul Murray at (678) 925-3805; paul.murray@pondco.com.

Sincerely,

Charlie Rao

Charlie Rao
Environmental Scientist

Paul Murray

Paul Murray, PWS, QHP
Senior Ecologist

Attachments: Attachment A – Project Figures
Attachment B – Photograph Log
Attachment C – Hydrologic Determination Data Forms
Attachment D – Precipitation Data
Attachment E – NRCS Soils Report

Hydrologic Determination Report Submittal Checklist

TDEC Reviewer: TBD

Standard Submittal

Waterlog HD #TBD Project name: ATMOS – Landfill RNG Mid-Point Natural Gas Pipeline Project County: Rutherford
Other Tracking #TBD

N/A 1. Contact information of the current property owner(s).

Yes 2. Name, affiliation, and certification identification number of the QHP or QHP IT submitting the report.
See Cover Letter - Paul Murray, QHP

Yes 3. QHP or QHP IT status verified.
See Cover Letter - Paul Murray, QHP

Yes 4. The identification of the starting and ending points along a watercourse of the areas determined to be a wet weather conveyance.
See Cover Letter

Yes 5. A vicinity map, including the property boundaries or hydrologic determination review area (if different than property boundary). On linear projects, start and terminus points are required. The map should clearly indicate the specific locations of all hydrologic features identified in the report.
Attachment A

Yes 6. Specific latitude/longitude coordinates (decimal degrees) either included on the map or in the body of the hydrologic determination report.
Cover letter, Attachment A, Attachment B

Yes 7. Color photographs of each of the hydrologic features to potentially be altered or otherwise identified in the report; including the date each photograph was taken, latitude and longitude, in decimal degrees of each photograph location and indicate the location and direction of each photographic view on the site map or plan. These photographs must be representative of the overall reach of water feature evaluated. At a minimum, include a photograph of the area to potentially be altered, immediately up channel of the area to potentially be altered, and immediately down channel.
Attachment B

Yes 8. TDEC Hydrologic Determination Field Data Sheets, completed in conformance with the current TDEC-DWR Guidance for Making Hydrologic Determinations. At least one data sheet must be submitted for each watercourse to potentially be altered or identified.
Attachment C

Yes 9. Any previous assessments of hydrologic features on site known to the submitter. (See : http://tdeconline.tn.gov/dwr/)
Previous HD's submitted or found during TDEC review:
Determination ID:
USACE ORM: LRN-2007-01013 ; JD: LRN-2007-0101

Yes 10. Evidence HD was conducted under normal weather conditions.
Attachment D

Yes 11. List any other information submitted with report(e.g. NRCS Soil Maps, precipitation data, site plan etc.):
Attachment A-D

EFO administrative required information:

_____ 1. Property owner(s) granted written permission to access land/site.

_____ 2. Is there a site, associated with this HD? If yes, then associate HD to site within Waterlog.

_____ 3. Verified HD was conducted under normal weather conditions.

Report Received: ____/____/____ Assigned date: ____/____/____ Application Complete: ____/____/____

Deficiency Letter Sent: _____ Date: ____/____/____ Field Verified: _____ Date:____/____/____

List of Report Deficiencies: Final Determination Notification Date:____/____/____

_____

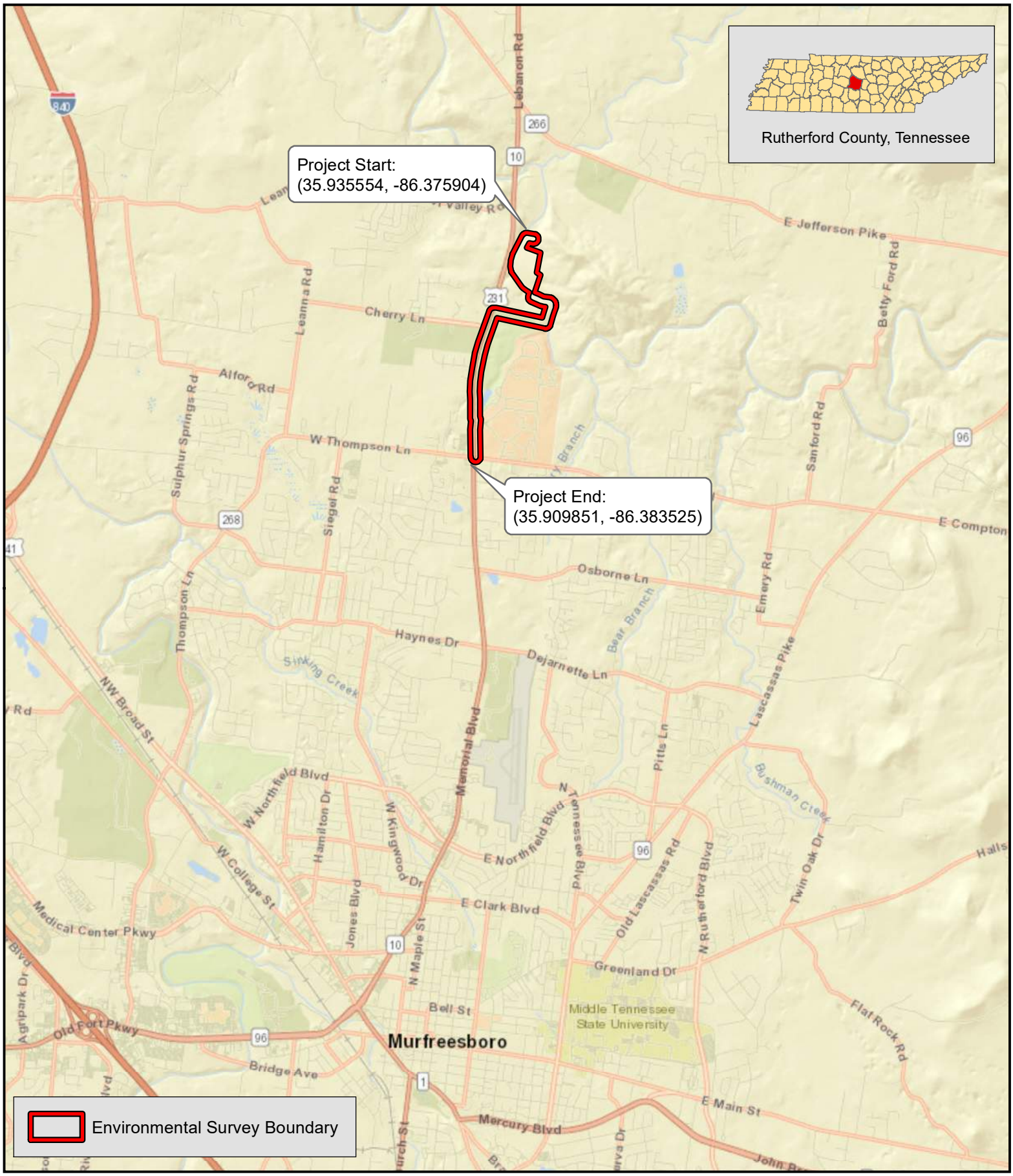
_____

_____

All Required Info Received: ____/____/____

MS4: _____ MS4 Contact Date: ____/____/____

Attachment A – Project Figures



Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

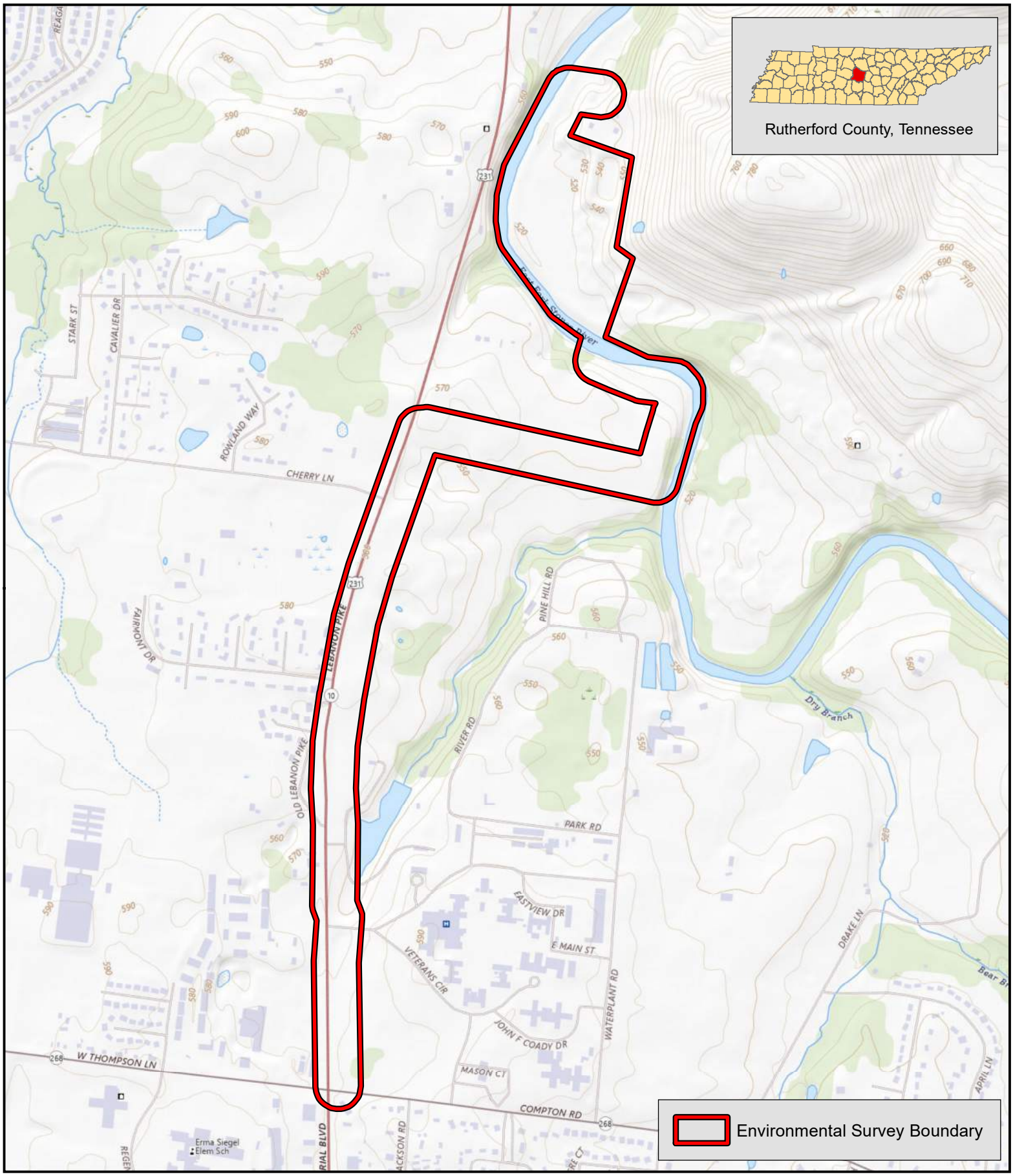
Figure 1
Project Location Map

POND

0 0.75 1.5 Miles
0 1,250 2,500 Meters

1 in = 1 miles

ATMOS - Landfill RNG MidPoint
Murfreesboro, Rutherford County, Tennessee
June 2024
Pond Project #: 1240171
Map Author: CR



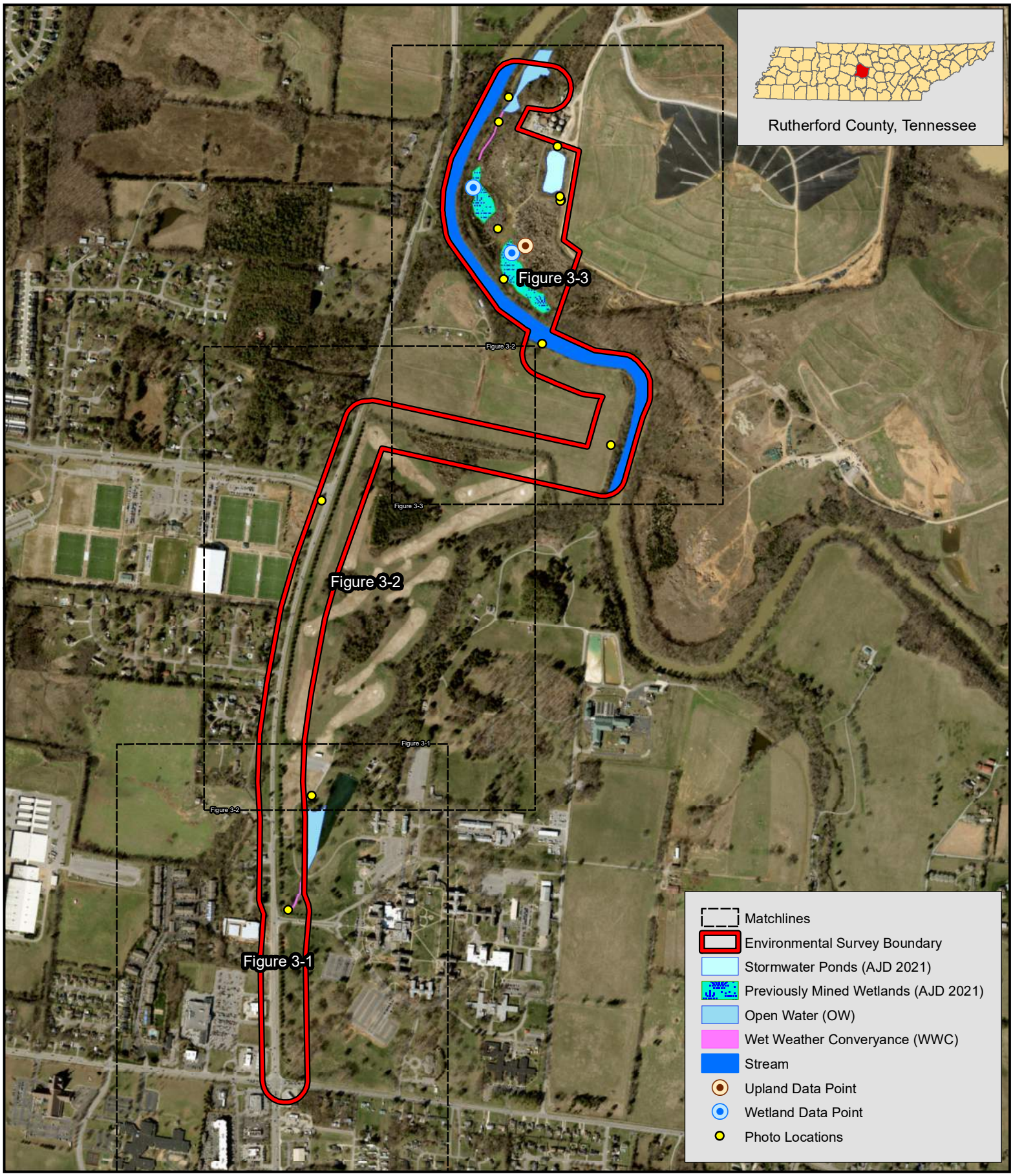
Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset,

Figure 2
USGS Topographic Map

POND

0 0.25 0.5 Miles
0 250 500 Meters
1 in = 1,100 feet

ATMOS - Landfill RNG MidPoint
Murfreesboro, Rutherford County, Tennessee
June 2024
Pond Project #: 1240171
Map Author: CR



Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

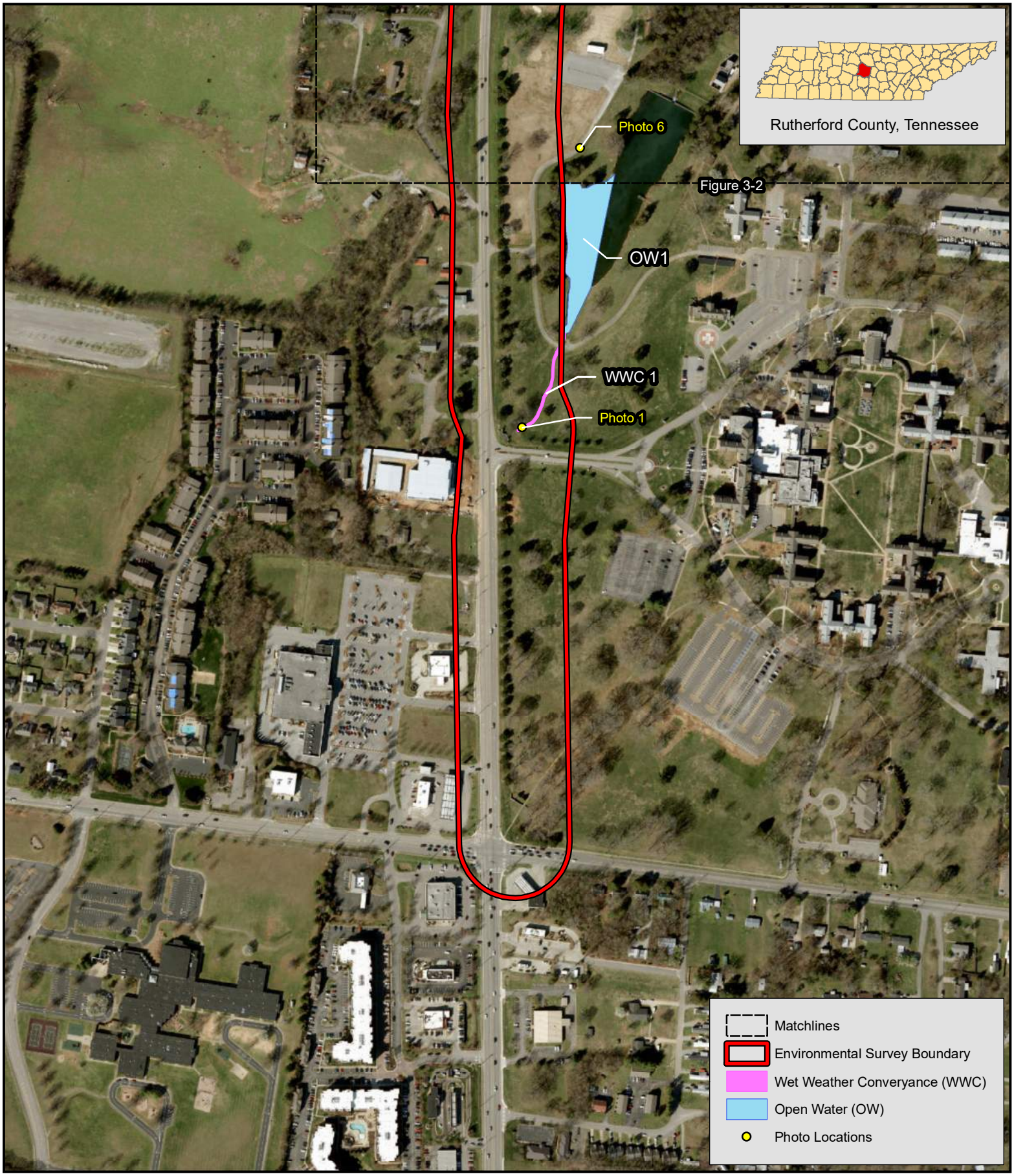
Figure 3 - Index
Water Resource Map

POND

0 0.25 0.5 Miles
0 250 500 Meters

1 in = 1,100 feet

ATMOS - Landfill RNG MidPoint
Murfreesboro, Rutherford County, Tennessee
June 2024
Pond Project #: 1240171
Map Author: CR



Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 3 - 1
Water Resource Map

POND

0 500 1,000 Feet
0 125 250 Meters
1 in = 450 feet

ATMOS - Landfill RNG MidPoint
Murfreesboro, Rutherford County, Tennessee
June 2024
Pond Project #: 1240171
Map Author: CR

Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

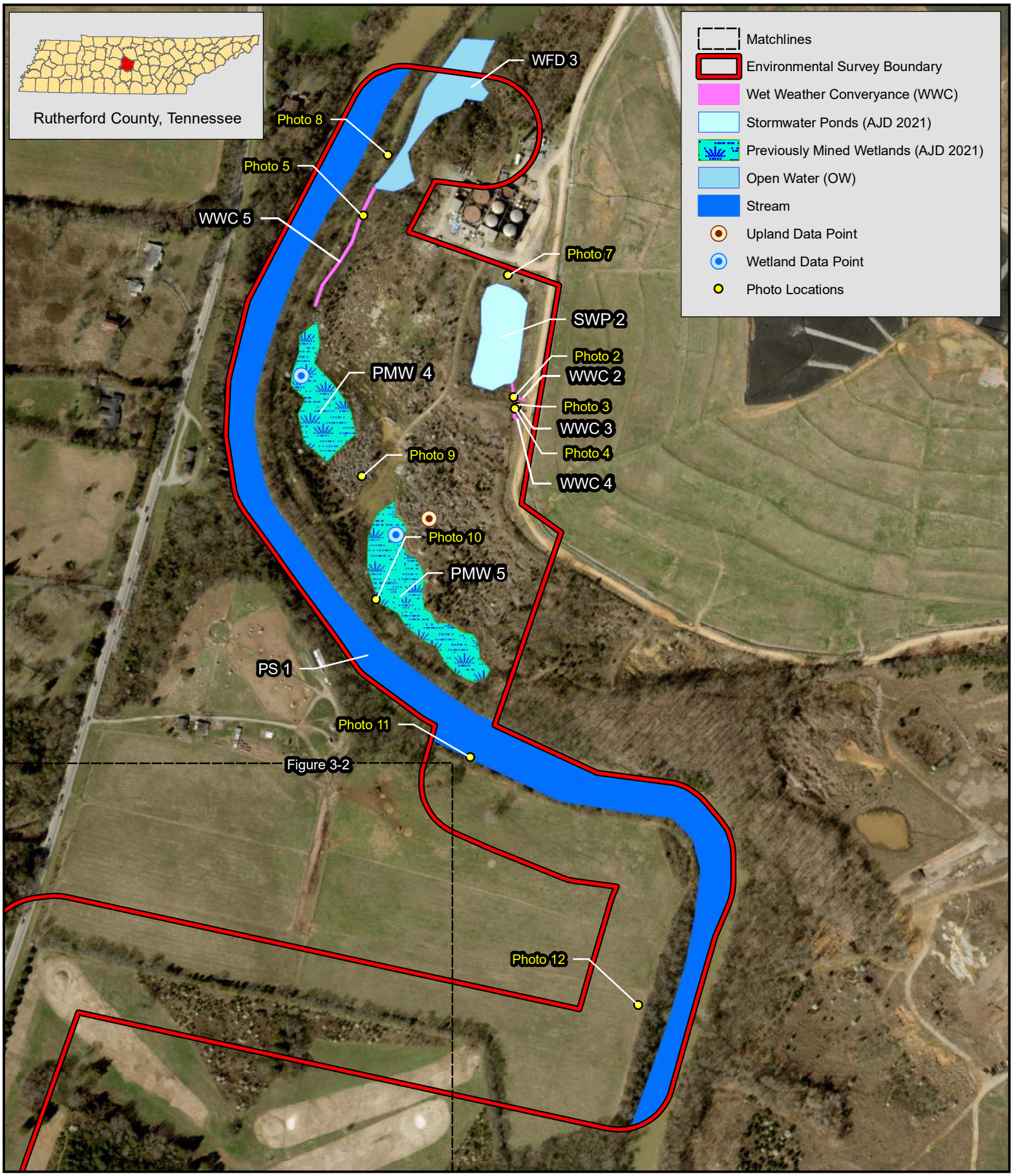
Figure 3 - 2
Water Resource Map

POND

0 500 1,000 Feet
0 125 250 Meters

1 in = 450 feet

ATMOS - Landfill RNG MidPoint
Murfreesboro, Rutherford County, Tennessee
June 2024
Pond Project #: 1240171
Map Author: CR



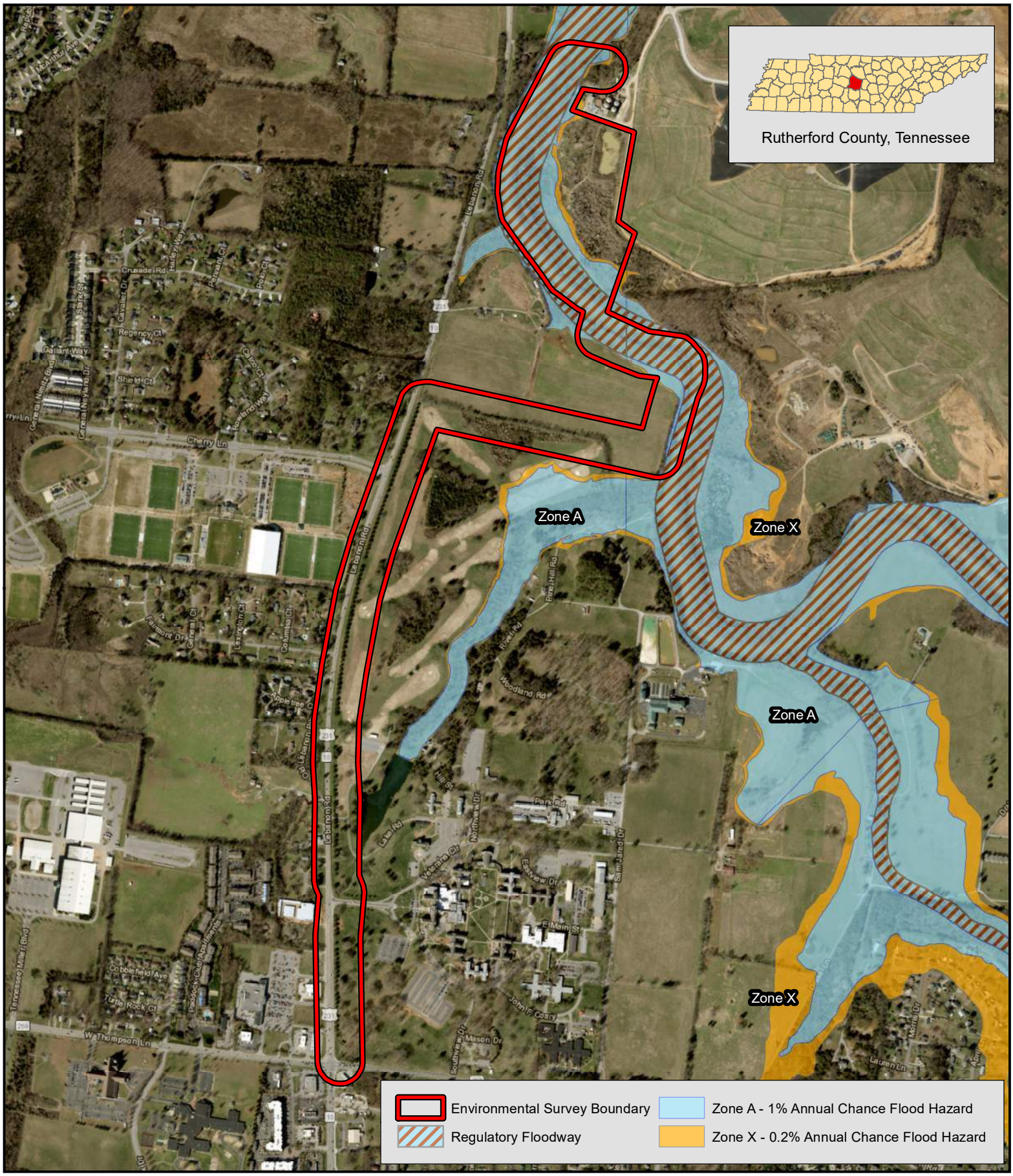
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 3 - 3
Water Resource Map

POND

0 500 1,000 Feet
0 125 250 Meters
1 in = 450 feet

ATMOS - Landfill RNG MidPoint
Murfreesboro, Rutherford County, Tennessee
June 2024
Pond Project #: 1240171
Map Author: CR



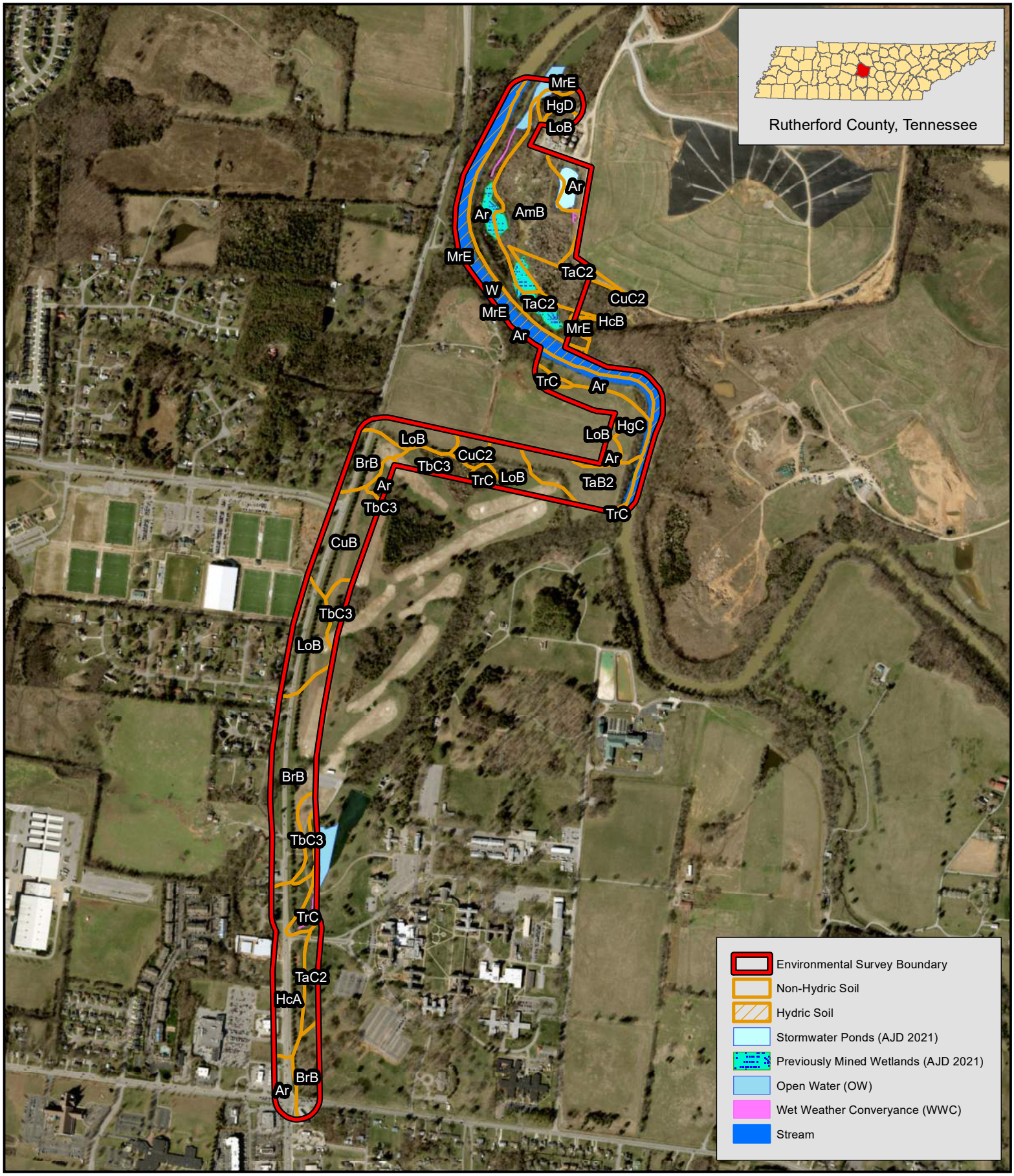
Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 4
FEMA National Flood Hazard Map

POND

0 0.25 0.5 Miles
0 250 500 Meters
1 in = 1,100 feet

ATMOS - Landfill RNG MidPoint
Murfreesboro, Rutherford County, Tennessee
June 2024
Pond Project #: 1240171
Map Author: CR



Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 5
NRCS Soils Map

POND

0 0.25 0.5 Miles
0 250 500 Meters
1 in = 1,100 feet

ATMOS - Landfill RNG MidPoint
Murfreesboro, Rutherford County, Tennessee
June 2024
Pond Project #: 1240171
Map Author: CR

Attachment B – Photograph Log

Photo Log

Photo 1: WWC 1

Photo 2: WWC 2

Photo 3: WWC 3

Photo 4: WWC 4

Photo 5: WWC 5

Photo 6: OW 1

Photo 7: SWP 2

Photo 8: WFD 3

Photo 9: PMW 4

Photo 10: PMW 5

Photo 11: Perennial Stream 1

Photo 12: Representative view of Farm Corridor

Photo 13: Representative view of Lebanon Pike

Attachment C – Hydrologic Determination Data Forms

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: Stream 1 (East Form Stones River)	Date/Time: 2/6/2024
Assessors/Affiliation: Paul Murray & Charlie Rao	Project ID : PS 1
Site Name/Description: Atmos - Middle Point Landfill	
Site Location: Rutherford County, TN	
HUC (12 digit): 051302030106 & 051302030107	Latitude: 35.928287
Previous Rainfall (7-days) : 3 inches	Longitude: -86.374369
Precipitation this Season vs. Normal : Source of recent & seasonal precip. data : average	
Watershed Size : N/A	County: Rutherford
Soil Type(s) / Geology : W - Water	Source: NRCS
Surrounding Land Use : Commercial / Residential	
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) =

Justification / Notes :

East Fork Stones River

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Resources, Version 1.5

Named Waterbody: Unnamed Tributary to East Fork Stones River		Date/Time: 2/6/24
Assessors/Affiliation: Paul Murray & Charlie Rao, Pond		Project ID : WWC 1
Site Name/Description: ATMOS Landfill RNG Mid-Point – Natural Gas Pipeline Project		
Site Location: City of Murfreesboro, Rutherford County, Tennessee		
HUC (12 digit): 051302030106 & 051302030107	Latitude: 35.915679	
Previous Rainfall (7-days) : 3 inches	Longitude: -86.382913	
Precipitation this Season vs. Normal : abnormally wet elevated **average** low abnormally dry unknown Source of recent & seasonal precip. data :		
Watershed Size : N/A	County: Rutherford	
Soil Type(s) / Geology : TrC - Talbott-Barfield-Rock outcrop complex, 2 to 12 percent slopes	Source: NRCS and US Corp of Engineers	
Surrounding Land Use : Commercial		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : **Severe** Moderate Slight Absent		

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	X	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	X	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions		**WWC**
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	X	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	X	Stream
6. Presence of fish (except *Gambusia*)	X	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	X	Stream
9. Evidence watercourse has been used as a supply of drinking water	X	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-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = Wet Weather Conveyance

Secondary Indicator Score (if applicable) =

Justification / Notes :

Feature is a man-made storm water ditch

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Resources, Version 1.5

Named Waterbody: Unnamed Tributary to East Fork Stones River		Date/Time: 2/6/24
Assessors/Affiliation: Paul Murray & Charlie Rao, Pond		Project ID : WWC 2
Site Name/Description: ATMOS Landfill RNG Mid-Point – Natural Gas Pipeline Project		
Site Location: City of Murfreesboro, Rutherford County, Tennessee		
HUC (12 digit): 051302030106 & 051302030107	Latitude: 35.932109	
Previous Rainfall (7-days) : 3 inches	Longitude: -86.375211	
Precipitation this Season vs. Normal : abnormally wet elevated **average** low abnormally dry unknown Source of recent & seasonal precip. data :		
Watershed Size : N/A	County: Rutherford	
Soil Type(s) / Geology : AmB - Armour silt loam, 2 to 5 percent slopes	Source: NRCS and US Corp of Engineers	
Surrounding Land Use : Commercial		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : **Severe** Moderate Slight Absent		

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	X	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	X	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions		**WWC**
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	X	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	X	Stream
6. Presence of fish (except *Gambusia*)	X	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	X	Stream
9. Evidence watercourse has been used as a supply of drinking water	X	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-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = Wet Weather Conveyance

Secondary Indicator Score (if applicable) =

Justification / Notes :

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Resources, Version 1.5

Named Waterbody: Unnamed Tributary to East Fork Stones River		Date/Time: 2/6/24
Assessors/Affiliation: Paul Murray & Charlie Rao, Pond		Project ID : WWC 3
Site Name/Description: ATMOS Landfill RNG Mid-Point – Natural Gas Pipeline Project		
Site Location: City of Murfreesboro, Rutherford County, Tennessee		
HUC (12 digit): 051302030106 & 051302030107	Latitude: 35.932031	
Previous Rainfall (7-days) : 3 inches	Longitude: -86.375263	
Precipitation this Season vs. Normal : abnormally wet elevated **average** low abnormally dry unknown Source of recent & seasonal precip. data :		
Watershed Size : N/A	County: Rutherford	
Soil Type(s) / Geology : AmB - Armour silt loam, 2 to 5 percent slopes Ar - Arrington silt loam, 0 to 2 percent slopes, occasionally flooded	Source: NRCS and US Corp of Engineers	
Surrounding Land Use : Commercial		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : **Severe** Moderate Slight Absent		

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	X	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	X	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions		**WWC**
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	X	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	X	Stream
6. Presence of fish (except *Gambusia*)	X	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	X	Stream
9. Evidence watercourse has been used as a supply of drinking water	X	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-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = Wet Weather Conveyance

Secondary Indicator Score (if applicable) =

Justification / Notes :

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Resources, Version 1.5

Named Waterbody: Unnamed Tributary to East Fork Stones River		Date/Time: 2/6/24
Assessors/Affiliation: Paul Murray & Charlie Rao, Pond		Project ID : WWC 4
Site Name/Description: ATMOS Landfill RNG Mid-Point – Natural Gas Pipeline Project		
Site Location: City of Murfreesboro, Rutherford County, Tennessee		
HUC (12 digit): 051302030106 & 051302030107	Latitude: 35.931913	
Previous Rainfall (7-days) : 3 inches	Longitude: -86.375296	
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown Source of recent & seasonal precip. data :		
Watershed Size : N/A	County: Rutherford	
Soil Type(s) / Geology : AmB - Armour silt loam, 2 to 5 percent slopes Ar - Arrington silt loam, 0 to 2 percent slopes, occasionally flooded	Source: NRCS and US Corp of Engineers	
Surrounding Land Use : Commercial		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe Moderate Slight Absent		

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	X	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	X	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions		WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	X	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	X	Stream
6. Presence of fish (except *Gambusia*)	X	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	X	Stream
9. Evidence watercourse has been used as a supply of drinking water	X	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-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = Wet Weather Conveyance

Secondary Indicator Score (if applicable) =

Justification / 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: Unnamed Tributary to East Fork Stones River	Date/Time: 2/6/2024
Assessors/Affiliation: Paul Murray & Charlie Rao, Pond	Project ID : WWC 5
Site Name/Description: Atmos - Middle Point Landfill	
Site Location: Rutherford County, TN	
HUC (12 digit): 051302030106 & 051302030107	Latitude: 35.933617
Previous Rainfall (7-days) : 3 inches	Longitude: -86.377458
Precipitation this Season vs. Normal : Source of recent & seasonal precip. data : average	
Watershed Size : N/A	County: Rutherford
Soil Type(s) / Geology : Ar—Arrington silt loam, 0 to 2 percent slopes, occasionally flooded	Source: NRCS and US Corps of Engineers
Surrounding Land Use : Commercial	
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	✔	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		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) =

Justification / Notes :

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: ATMOS - Landfill RNG MidPoint City/County: Murfreesboro, Rutherford County Sampling Date: 2024-06-17

Applicant/Owner: ATMOS State: Tennessee Sampling Point: PMW 4

Investigator(s): Paul Murray, Charlie Rao Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): N 123 Lat: 35.932347 Long: -86.377964 Datum: WGS 84

Soil Map Unit Name: Ar - Arrington silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification:

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

Are Vegetation ____, Soil ✔, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✔

Are Vegetation ____, Soil ✔, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Active construction in area. Fill has been moved into this previously mined wetland. In the AJD for the landfill construction, this resource is considered non-jurisdictional.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✔ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✔ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ✔	No ___	Depth (inches): 6
Water Table Present?	Yes ___	No ✔	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No ✔	Depth (inches): ___

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: PMW 4

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	30	✔	FAC
2. Juniperus virginiana	10	✔	FACU
3.			
4.			
5.			
6.			
7.			
	40 = Total Cover		
50% of total cover: 20.00	20% of total cover: 8.00		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5 ft r)			
1. Typha angustifolia	40	✔	OBL
2. Andropogon sp.	10	✔	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
50% of total cover: 25.00	20% of total cover: 10.00		
Woody Vine Stratum (Plot size: 30 ft r)			
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: 75.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	10	x 2 =	20
FAC species	30	x 3 =	90
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	90 (A)		190 (B)

Prevalence Index = B/A = 2.11

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: PMW 4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 6	7.5YR 5/4	100					Silt Loam	Washed Fill
6 -								Bedrock
-								
-								
-								
-								
-								
-								
-								

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 6

Hydric Soil Present? **Yes** ___ **No** ✔

Remarks:

Washed fill from landfill construction. Soil has high chroma. Seasonal inundation as well as runoff pipes are being ran to these previously mined wetlands. The AJD for the landfill construction has this resource as non-jurisdictional.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: ATMOS - Landfill RNG MidPoint City/County: Murfreesboro, Rutherford County Sampling Date: 2024-06-17

Applicant/Owner: ATMOS State: Tennessee Sampling Point: PMW 5

Investigator(s): Paul Murray, Charlie Rao Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): N 123 Lat: 35.930552 Long: -86.377001 Datum: WGS 84

Soil Map Unit Name: AmB - Armour silt loam, 2 to 5 percent slopes NWI classification:

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

Are Vegetation , Soil ✔, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No ✔

Are Vegetation , Soil ✔, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Active construction in area. Washed fill from landfill construction. Runoff pipes are being ran to these previously mined wetlands. The AJD for the landfill construction has this resource as non-jurisdictional.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✔ Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- ✔ Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ✔	No	Depth (inches): 4
Water Table Present?	Yes	No ✔	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No ✔	Depth (inches):

Wetland Hydrology Present? Yes ✔ No

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: PMW 5

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	10	✔	FAC
2. Juniperus virginiana	10	✔	FACU
3. Quercus nigra	10	✔	FAC
4.			
5.			
6.			
7.			
	30	= Total Cover	
50% of total cover: 15.00	20% of total cover: 6.00		

Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 5 ft r)			
1. Typha angustifolia	40	✔	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40	= Total Cover	
50% of total cover: 20.00	20% of total cover: 8.00		

Woody Vine Stratum (Plot size: 30 ft r)			
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: 75.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	70 (A)		140 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

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

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

SOIL Sampling Point: PMW 5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 6	7.5YR 5/8	100					Silt Loam	Problematic Soil
6 -								Bedrock
-								
-								
-								
-								
-								
-								
-								

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 6

Hydric Soil Present? **Yes** ___ **No** ✔

Remarks:

Washed fill from landfill construction. Soil has high chroma. Seasonal inundation as well as runoff pipes are being ran to these previously mined wetlands. The AJD for the landfill construction has this resource as non-jurisdictional.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: ATMOS - Landfill RNG Midpoint City/County: Murfreesboro, Rutherford County Sampling Date: 2/6/24

Applicant/Owner: Atmos State: Tennessee Sampling Point: PMW 5 - UP

Investigator(s): Paul Murray, Charlie Rao Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 2-5

Subregion (LRR or MLRA): N 123 Lat: 35.930896 Long: -86.376365 Datum: WGS 84

Soil Map Unit Name: TaC2 - Talbott silt loam, 5 to 12 percent slopes, eroded NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Representative for PMW 4 and PMW 5 - Active construction - this was taken in fill near road

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ **No** ✔

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: PMW 5 - UP

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
	0 = Total Cover		
Herb Stratum (Plot size:)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
7.		-	-
8.		-	-
9.		-	-
10.		-	-
11.		-	-
12.		-	-
	0 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.		-	-
2.		-	-
3.		-	-
4.		-	-
5.		-	-
6.		-	-
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Active construction - this was taken in fill near road

SOIL

Sampling Point: PMW 5 - UP

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	7.5YR 5/8	100					Silt Loam	Active Construction

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✔

Remarks: Active construction - this was taken in fill near road

Attachment D – Precipitation Data

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

Coordinates	35.926313, -86.379172
Observation Date	2024-02-07
Elevation (ft)	568.225
Drought Index (PDSI)	Mild drought (2024-01)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-02-07	3.183858	5.82126	6.255906	Wet	3	3	9
2024-01-08	3.808662	5.472441	2.271654	Dry	1	2	2
2023-12-09	3.137795	5.36811	3.748032	Normal	2	1	2
Result							Normal Conditions - 13

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
MURFREESBORO 5 N	35.9203, -86.3728	535.105	0.547	33.12	0.264	11319	85
MURFREESBORO 4.6 NNE	35.9106, -86.3524	550.853	1.324	15.748	0.617	2	0
MURFREESBORO 5.5 NNW	35.9247, -86.4367	550.853	3.588	15.748	1.671	26	5
SMYRNA 6S	35.9106, -86.5578	549.869	10.374	14.764	4.821	2	0
LEBANON	36.2292, -86.3181	524.934	21.56	10.171	9.921	2	0
WATERTOWN PUBLIC SAFETY COMPLE	36.0967, -86.1397	645.013	17.841	109.908	9.989	1	0

Attachment E – NRCS Soils Report

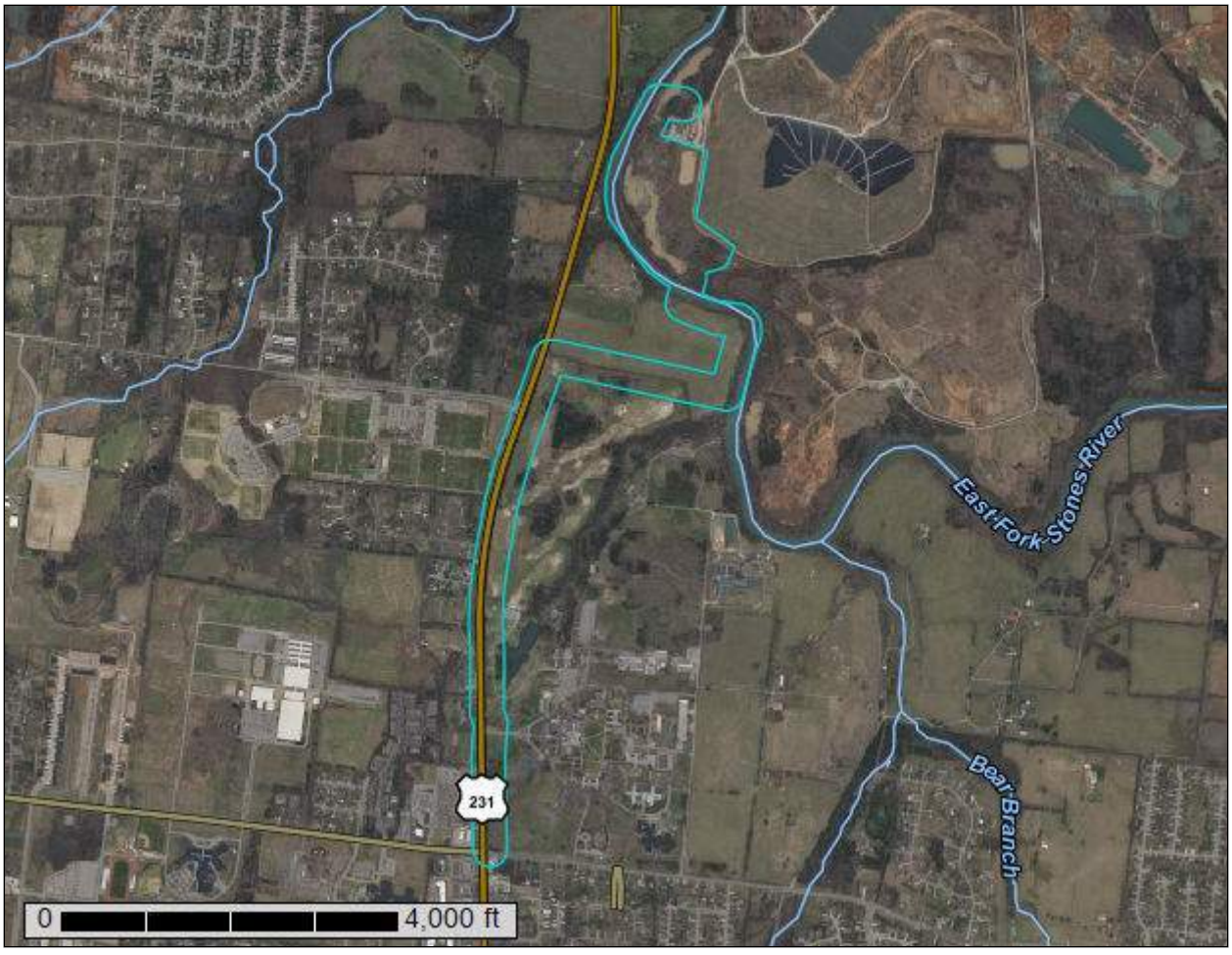
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Rutherford County, Tennessee



February 21, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

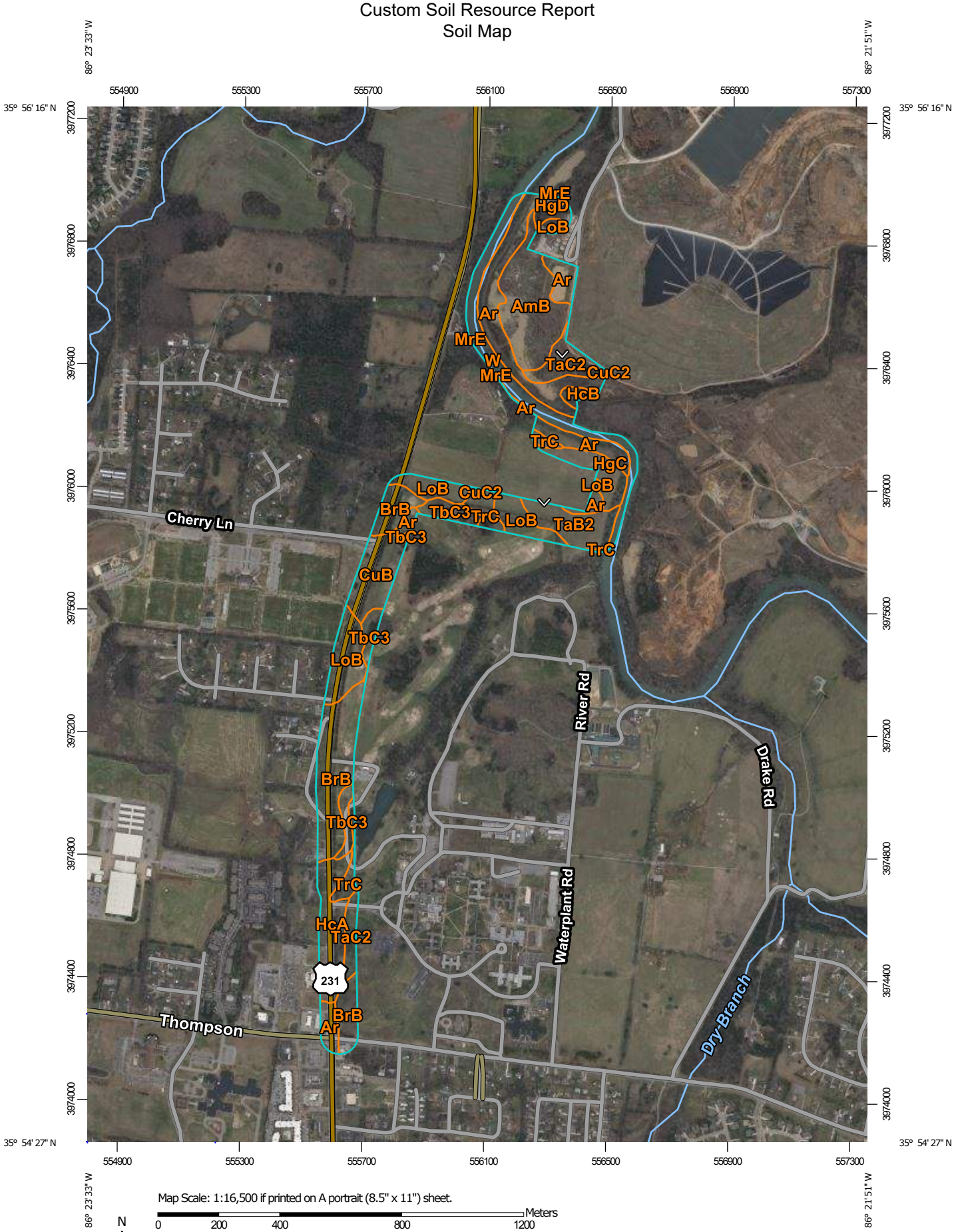
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map


86° 23' 33" W
86° 21' 51" W
35° 56' 16" N
35° 54' 27" N
554900
555300
555700
556100
556500
556900
557300
3977200
3976800
3976400
3976000
3975600
3975200
3974800
3974400
3974000
MrE
HgD
LoB
Ar
AmB
Ar
MrE
W
MrE
TaC2
CuC2
HcB
Ar
TrC
Ar
HgC
LoB
LoB
CuC2
Ar
BrB
TbC3
TrC
LoB
TaB2
Ar
TbC3
TrC
Cherry Ln
CuB
TbC3
LoB
River Rd
Drake Rd
BrB
TbC3
TrC
HcA
TaC2
Waterplant Rd
231
BrB
Ar
Thompson
Dry Branch
Map Scale: 1:16,500 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0
200
400
800
1200
Feet
0
500
1000
2000
3000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rutherford County, Tennessee
Survey Area Data: Version 20, Sep 12, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 14, 2020—Mar 1, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AmB	Armour silt loam, 2 to 5 percent slopes	16.3	11.5%
Ar	Arrington silt loam, 0 to 2 percent slopes, occasionally flooded	24.6	17.3%
BrB	Bradyville silt loam, 2 to 5 percent slopes	21.5	15.1%
CuB	Cumberland silt loam, 2 to 5 percent slopes	8.0	5.7%
CuC2	Cumberland silt loam, 5 to 12 percent slopes, eroded	1.7	1.2%
HcA	Harpeth silt loam, 0 to 2 percent slopes	9.1	6.4%
HcB	Harpeth silt loam, 2 to 5 percent slopes	0.5	0.3%
HgC	Hillwood gravelly silt loam, 2 to 12 percent slopes	5.2	3.6%
HgD	Hillwood gravelly silt loam, 12 to 20 percent slopes	1.6	1.2%
LoB	Lomond silt loam 2 to 5 percent slopes	15.1	10.7%
MrE	Mimosa-Rock outcrop complex, 20 to 40 percent slopes	1.1	0.8%
TaB2	Talbott silt loam, 2 to 5 percent slopes, eroded	7.3	5.1%
TaC2	Talbott silt loam, 5 to 12 percent slopes, eroded	7.6	5.3%
TbC3	Talbott silty clay loam, 5 to 12 percent slopes, severely eroded	6.5	4.5%
TrC	Talbott-Barfield-Rock outcrop complex, 2 to 12 percent slopes	3.7	2.6%
W	Water	12.2	8.6%
Totals for Area of Interest		**141.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps.

The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Rutherford County, Tennessee

AmB—Armour silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2td31
Elevation: 500 to 850 feet
Mean annual precipitation: 48 to 58 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 190 to 230 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Armour and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Armour

Setting

Landform: Stream terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Silty alluvium over clayey residuum weathered from phosphatic limestone

Typical profile

A - 0 to 19 inches: silt loam
Bt - 19 to 58 inches: silty clay loam
BC - 58 to 79 inches: clay

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F123XY004TN - Deep Loamy Terraces And Depressions
Hydric soil rating: No

Minor Components

Byler

Percent of map unit: 4 percent
Landform: Stream terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Arrington

Percent of map unit: 4 percent
Landform: Flood plains
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Mimosa

Percent of map unit: 2 percent
Landform: Escarpments
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Ar—Arrington silt loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2td34
Elevation: 500 to 850 feet
Mean annual precipitation: 48 to 58 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 190 to 230 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Arrington and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arrington

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear

Across-slope shape: Linear
Parent material: Silty alluvium derived from limestone and siltstone

Typical profile

Ap - 0 to 26 inches: silt loam
B - 26 to 50 inches: silt loam
C - 50 to 79 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 12.5 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F123XY005TN - Floodplains
Hydric soil rating: No

Minor Components

Egam

Percent of map unit: 4 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Lindell

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Armour

Percent of map unit: 2 percent
Landform: Stream terraces
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Ocana

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

BrB—Bradyville silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2qh79
Elevation: 450 to 850 feet
Mean annual precipitation: 48 to 58 inches
Mean annual air temperature: 57 to 59 degrees F
Frost-free period: 190 to 230 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Bradyville and similar soils: 91 percent
Minor components: 9 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bradyville

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Clayey residuum weathered from limestone

Typical profile

Ap - 0 to 6 inches: silt loam
Bt1 - 6 to 19 inches: silty clay loam
Bt2 - 19 to 48 inches: clay
R - 48 to 58 inches: bedrock

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: 39 to 59 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F123XY001TN - Limestone Uplands
Hydric soil rating: No

Minor Components

Talbott

Percent of map unit: 9 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 0 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

CuB—Cumberland silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: kqn9
Elevation: 490 to 850 feet
Mean annual precipitation: 46 to 60 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 190 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Cumberland and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cumberland

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Parent material: Clayey alluvium derived from limestone

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 14 inches: silty clay loam
H3 - 14 to 40 inches: clay
H4 - 40 to 64 inches: clay

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F123XY004TN - Deep Loamy Terraces And Depressions
Hydric soil rating: No

CuC2—Cumberland silt loam, 5 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: kqnb
Elevation: 490 to 800 feet
Mean annual precipitation: 46 to 60 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 190 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Cumberland and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cumberland

Setting

Landform: Stream terraces
Landform position (three-dimensional): Riser
Parent material: Clayey alluvium derived from limestone

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 14 inches: silty clay loam
H3 - 14 to 40 inches: clay
H4 - 40 to 64 inches: clay

Properties and qualities

Slope: 5 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F123XY004TN - Deep Loamy Terraces And Depressions
Hydric soil rating: No

HcA—Harpeth silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: kqnw
Elevation: 700 to 1,300 feet
Mean annual precipitation: 48 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 190 to 205 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Harpeth and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Harpeth

Setting

Landform: Flats
Landform position (three-dimensional): Talf
Parent material: Loess or loamy alluvium over clayey residuum weathered from limestone

Typical profile

H1 - 0 to 12 inches: silt loam
H2 - 12 to 37 inches: silty clay loam
H3 - 37 to 78 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: F123XY004TN - Deep Loamy Terraces And Depressions
Hydric soil rating: No

HcB—Harpeth silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: kqnx
Elevation: 700 to 1,300 feet
Mean annual precipitation: 48 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 190 to 205 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Harpeth and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Harpeth

Setting

Landform: Hillslopes
Landform position (three-dimensional): Crest
Parent material: Loess or loamy alluvium over clayey residuum weathered from limestone

Typical profile

H1 - 0 to 12 inches: silt loam
H2 - 12 to 37 inches: silty clay loam
H3 - 37 to 78 inches: silty clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Ecological site: F123XY004TN - Deep Loamy Terraces And Depressions
Hydric soil rating: No

HgC—Hillwood gravelly silt loam, 2 to 12 percent slopes

Map Unit Setting

National map unit symbol: kqny
Elevation: 490 to 870 feet
Mean annual precipitation: 46 to 60 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 190 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Hillwood and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hillwood

Setting

Landform: Hillslopes
Landform position (three-dimensional): Crest
Parent material: Gravelly alluvium derived from limestone

Typical profile

H1 - 0 to 9 inches: gravelly silt loam
H2 - 9 to 62 inches: very gravelly clay
H3 - 62 to 70 inches: clay

Properties and qualities

Slope: 2 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Ecological site: F123XY004TN - Deep Loamy Terraces And Depressions
Hydric soil rating: No

HgD—Hillwood gravelly silt loam, 12 to 20 percent slopes

Map Unit Setting

National map unit symbol: kqnz
Elevation: 490 to 790 feet
Mean annual precipitation: 46 to 60 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 190 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Hillwood and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hillwood

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Parent material: Gravelly alluvium derived from limestone

Typical profile

H1 - 0 to 9 inches: gravelly silt loam
H2 - 9 to 62 inches: very gravelly clay
H3 - 62 to 70 inches: clay

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Ecological site: F123XY004TN - Deep Loamy Terraces And Depressions
Hydric soil rating: No

LoB—Lomond silt loam 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: kqp3
Elevation: 480 to 850 feet
Mean annual precipitation: 46 to 60 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 190 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Lomond and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lomond

Setting

Landform: Hillslopes
Landform position (three-dimensional): Crest
Parent material: Loess and alluvium over residuum weathered from limestone

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 20 inches: silty clay loam
H3 - 20 to 49 inches: silty clay loam
H4 - 49 to 59 inches: silty clay loam
H5 - 59 to 70 inches: clay

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F123XY001TN - Limestone Uplands
Hydric soil rating: No

MrE—Mimosa-Rock outcrop complex, 20 to 40 percent slopes

Map Unit Setting

National map unit symbol: 2td3h
Elevation: 500 to 850 feet
Mean annual precipitation: 48 to 58 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 190 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition

Mimosa and similar soils: 70 percent
Rock outcrop: 15 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mimosa

Setting

Landform: Escarpments
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, convex
Across-slope shape: Linear, convex
Parent material: Clayey residuum weathered from limestone

Typical profile

Ap - 0 to 6 inches: silt loam
Bt - 6 to 40 inches: clay
BC - 40 to 50 inches: clay
C - 50 to 55 inches: clay
R - 55 to 65 inches: bedrock

Properties and qualities

Slope: 20 to 40 percent
Depth to restrictive feature: 31 to 72 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: F123XY001TN - Limestone Uplands

Hydric soil rating: No

Minor Components

Ashwood

Percent of map unit: 6 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Dellrose

Percent of map unit: 5 percent
Landform: Hillsides
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Gladdice

Percent of map unit: 4 percent
Landform: Escarpments
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

TaB2—Talbott silt loam, 2 to 5 percent slopes, eroded

Map Unit Setting

National map unit symbol: kqpr
Elevation: 460 to 1,400 feet
Mean annual precipitation: 45 to 55 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Talbott and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Talbott

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 6 inches: silt loam
H2 - 6 to 37 inches: clay
R - 37 to 47 inches: bedrock

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F123XY001TN - Limestone Uplands
Hydric soil rating: No

TaC2—Talbott silt loam, 5 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: kqps
Elevation: 460 to 1,400 feet
Mean annual precipitation: 45 to 55 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Talbott and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Talbott

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 6 inches: silt loam
H2 - 6 to 37 inches: clay
R - 37 to 47 inches: bedrock

Properties and qualities

Slope: 5 to 12 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F123XY001TN - Limestone Uplands
Hydric soil rating: No

TbC3—Talbott silty clay loam, 5 to 12 percent slopes, severely eroded

Map Unit Setting
National map unit symbol: kqpv
Elevation: 460 to 1,400 feet
Mean annual precipitation: 45 to 55 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition
Talbott, severely eroded, and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Talbott, Severely Eroded

Setting
Landform: Hillslopes
Landform position (three-dimensional): Side slope
Parent material: Clayey residuum weathered from limestone

Typical profile
H1 - 0 to 6 inches: silty clay loam
H2 - 6 to 32 inches: clay
R - 32 to 42 inches: bedrock

Properties and qualities
Slope: 5 to 12 percent
Depth to restrictive feature: 20 to 39 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F123XY001TN - Limestone Uplands
Hydric soil rating: No

TrC—Talbott-Barfield-Rock outcrop complex, 2 to 12 percent slopes

Map Unit Setting

National map unit symbol: kqpx
Elevation: 460 to 1,400 feet
Mean annual precipitation: 45 to 55 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Talbott and similar soils: 36 percent
Barfield and similar soils: 34 percent
Rock outcrop: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Talbott

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 6 inches: silt loam
H2 - 6 to 37 inches: clay
R - 37 to 47 inches: bedrock

Properties and qualities

Slope: 2 to 12 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F123XY001TN - Limestone Uplands

Hydric soil rating: No

Description of Barfield

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 6 inches: silty clay loam
H2 - 6 to 18 inches: clay
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 2 to 12 percent
Depth to restrictive feature: 8 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F123XY003TN - Limestone Glades And Dry Woodlands
Hydric soil rating: No

Minor Components

Minor components

Percent of map unit: 10 percent
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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