# **HYRDOLOGICAL ASSESSMENT REPORT**

# 10444 OOLTEWAH GEORGETWON ROAD PARCEL # 070 036 OOLTEWAH, TENNESSEE

Prepared For:

Mr. Mark Jooma 6143 Ooltewah Georgetown Rd. Ooltewah, TN 37363

Prepared by:



GEOServices, LLC 163 Business Park Drive, Suite 15 Lebanon, TN 37087

Project No. 34-214107

June 18, 2021



June 18, 2021

Mr. Mark Jooma 6143 Ooltewah Georgetown Rd. Ooltewah, TN 37363

Attention: Mr. Mark Jooma

Subject: **Hydrological Assessment Report** 

10444 Ooltewah Georgetown Road

Parcel # 070 036 Ooltewah, Tennessee

Dear Mr. Jooma,

GEOServices has completed a hydrologic determination and wetland delineation for the Proposed Development site located at 10444 Ooltewah Georgetown Road in Ooltewah, Hamilton County, Tennessee.

GEOServices appreciates the opportunity by providing these services to you and looks forward to working with you in the future. If you have any questions, please do not hesitate to contact us at your convenience.

Sincerely,

**GEOServices, LLC** 

Cody L. Givens

**Natural Resource Scientist** 

Michael J. Kendall, P.G., E.P

Michael of Kendell

**Executive Director** 

# **Table of Contents**

Appendix H

Appendix I

Weather Data

Field Photography

EXECL	JTIVE SUMMAR	Υ	1	
1.0	INTRODUCTION			
1.1	Scope of Servic	es	3	
2.0	SITE DESCRIPTION4			
3.0	BACKGROUND	DOCUMENTATION REVIEW	5	
3.1	National We	tland Inventory Map Review	5	
3.2	FEMA FIRM	Floodplain Map Review	5	
3.3	Soil Survey I	Map Review	6	
4.0	SITE RECONNA	ISSANCE & CHARACTERISTICS	8	
5.0	CONCLUSIONS	AND RECOMMENDATIONS	.1	
Apper	ndicies			
	Appendix A	Figures		
	Appendix B	Aquatic Feature Map		
	Appendix C	NWI Maps FEMA FIRM Panel		
	Appendix D Appendix E	NRCS Soil Survey		
	Appendix F	TDEC Field Data Sheets		
	Appendix G	USACE Wetland Delineation Field Data Forms		
	Appendix o	OSACE Wedana Demication Field Data Forms		

# **EXECUTIVE SUMMARY**

GEOServices, LLC (GEOServices) conducted a hydrologic determination and wetland delineation for the Proposed Development site located at 10444 Ooltewah Georgetown Road in Ooltewah, Hamilton County, Tennessee. The Subject Property consists of one (1) parcel of partially developed land that consist open fields and densely forested areas. The one (1) parcel of land (Parcel # 070 036) that makes up the Subject Property encompass approximately 92-acres.

The hydrologic determination and wetland delineation conducted within the Subject Property resulted in the identification and location of two (2) ponds, four (4) streams, four (4) wetlands, and four (4) wet weather conveyances.

This executive summary is intended to be taken in context with the complete report and is not designed to be used as a separate document. The following summarizes the findings of the wetland delineation and hydrologic determination.

This report is a determination of the potential regulatory status of wetland and non-wetland waters of the U.S. (WOUS) (i.e., significant bodies of water, watercourses, and/or floodplains) located within the Subject Property pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The wetland delineation was performed in accordance with the Eastern Mountain and Piedmont Regional Supplement (Version 2.0) to the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (1987 Manual).

GEOServices staff performed the hydrologic determination and wetland delineation, within the Subject Property on April 22-23, 2021. The wetland delineation performed included determining the size, shape, and location of any wetlands identified, thereby aiding in the determination of the regulatory status of any wetlands identified in the Subject Property. The hydrologic determination performed included determining if any streams and/or wet weather conveyances existed within the Subject Property.

Floodplain maps from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) were available for the Subject Property. According to FEMA Data, the Subject Property is located in Zone-X Area of Minimal Flood Hazard Panel: 47065C0300G effective date 2/3/2016. Zone X- Area of Minimal Flood Hazard are defined as areas determined to be outside the 1 % and 0.2% annual chance floodplain.

# 1.0 INTRODUCTION

GEOServices, LLC (GEOServices) conducted a hydrologic determination and wetland delineation for the Proposed Development site located at 10444 Ooltewah Georgetown Road in Ooltewah, Hamilton County, Tennessee. The Subject Property consists of one (1) parcel of partially developed land that consist of open fields and densely forested areas. The one (1) parcel of land (Parcel # 070036) that makes up the Subject Property encompasses approximately 92-acres. Appendix A contains Figure 1 – Site Location and Figure 2 – Topographical Map.

The hydrologic determination and wetland delineation conducted within the Subject Property resulted in the identification and location of two (2) ponds, four (4) streams, four (4) wetlands, and four (4) wet weather conveyances.

The purpose of the site inspection was to determine if any wetlands, streams, and/or wet weather conveyances were present within the Subject Property. If encountered, the boundaries of those features were delineated, and a preliminary determination was made of whether those features could potentially qualify as jurisdictional as defined by the U.S. Army Corps of Engineers (USACE). Any stream and/or wet weather conveyance encountered was assessed using the Tennessee Department of Environment and Conversation Standard Operating Procedure for conducting Hydrologic Determinations. In addition, available aerial photographs, National Wetland Inventory (NWI) Map, U.S. Geological Survey (USGS) Topographic maps, soil survey maps, and floodplain maps for the property were reviewed to evaluate overall site characteristics of the Subject Property.

Wetland delineations were performed in accordance with the *Eastern Mountain and Piedmont Regional Supplement (Version 2.0) to the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual* (1987 Manual). The determination of a wetland depends on three basic parameters: 1) presence of hydrophytic vegetation, 2) presence of hydric soils, and 3) wetland hydrology for a specific period of time. The parameters are virtually inter-related and present within wetland systems. Identification of non-wetland watercourses was performed utilizing existing mapping of known watercourses, including the National Hydrography Dataset (NHD) and topographic maps, as well as observations of a stream and channel characteristics, such as indicators of an ordinary high-water mark (OHWM) and defined bed and bank during the site reconnaissance.

# 1.1 Scope of Services

The Scope of Services for hydrologic determinations and wetland delineations included the following components:

- Background documentation review of aerial photographs (Aerial Photography Field Office 2016), National Wetland Inventory (NWI) Maps (US Fish and Wildlife Service [USFWS] 2015), National Hydrography Dataset (U.S. Geological Survey [USGS] 2014), USGS Topographic Maps, and Federal Emergency Management Agency Flood Insurance Rate Maps (FEMA FIRM Maps)
- Site reconnaissance to evaluate specific site characteristics and features within the Subject Property, including a wetland delineation and identification of WOUS.
- Any suspect drainage features were analyzed following the Tennessee Department of Environment and Conservation (TDEC) standard operating procedures for Hydrologic Determinations
- Generation of sitemaps illustrating the locations of the surveyed wetland boundaries and other notable features
- Preparation and submittal of this report summarizing the findings of the above-described tasks, including photographic documentation

# 2.0 SITE DESCRIPTION

The Subject Property consists of one (1) parcel of partially developed land that consist of open fields along with densely forested areas. The one (1) parcel of land (Parcel # 070 036) that makes up the Subject Property encompass approximately 92-acres. The property owner for the Property is listed as Viola Morgan. The approximate geographic center of the site is located at Latitude: North 35.221095° Longitude: West -84.994143°. The sites surface water flows multi-directionally on the Subject Property. The Natural Resource features located on-site are listed in the table below.

Site Number	Latitude	Longitude	Estimated number of
	Upstream Starting	Downstream Ending	aquatic resources in
			review area
Pond-1	35.22464935	-84.997065	~ 0.08 Acres
Pond-2	35.224355	-84.997276	~ 0.07 Acres
Stream-1	35.22456, -84.9968	35.22309, -84.9991	~ 990 Linear Feet
Stream-2	35.22197, -84.9937	35.22309, -84.9989	~ 1,825 Linear Feet
Stream-3	35.22236, -84.9945	35.22235, -84.9948	~ 85 Linear Feet
Stream-4	35.21999, -84.9920	35.21991, -84.9937	~ 563 Linear Feet
Wetland-1	35.221530	-84.995385	~ 0.44 Acres
Wetland-2	35.221890	-84.994033	~ 0.03 Acres
Wetland-3	35.223958	-84.997569	~ 0.04 Acres
Wetland-4	35.224024	-84.997609	~ 0.01 Acres
WWC-1	35.22741, -84.9975	35.22701, -84.9985	~ 389 Linear Feet
WWC-2	35.22501, -84.9955	35.22456, -84.9968	~ 503 Linear Feet
WWC-3	35.22468, -84.9969	35.22462, -84.9967	~ 60 Linear Feet
WWC-4	35.22020, -84.9919	35.21999, -84.9919	~ 410 Linear Feet

The site is bordered to the north by forested land and a power line right-of way; to the south by open fields and forested land; to the east by densely forested land, and to the west by residential properties followed by forested land, open fields and Ooltewah Georgetown Road.

# 3.0 BACKGROUND DOCUMENTATION REVIEW

A review of background documentation was performed utilizing National Wetland Inventory (NWI) maps, FEMA FIRMS, and County Soil Survey Maps. These sources of information were reviewed for the Subject Property as the information was utilized in an attempt to design infrastructure to avoid and or minimize impacts to the natural resource features found onsite. As such, the following subsection addresses each resource reviewed. The Aquatic Feature maps are included Appendix B.

# 3.1 National Wetland Inventory Map Review

A review of the NWI map was conducted to determine the likely presence, location, size, and type of wetland(s) which may be located within the Subject Property. The USFWS generates NWI maps through aerial photograph interpretation. GEOServices noted that the NWI map might not show the extent or existence of wetland systems accurately in a specific area, nor do the maps always correctly identify wetlands present or absent; therefore, the map(s) were utilized for preliminary analysis only. Field reconnaissance is necessary to determine the actual presence and type of wetlands within the Subject Property.

The NWI map did not identify any wetlands on the Subject Property. However, the NWI map did identify one (1) Riverine feature in the southwestern portion of the Subject Property. This feature will be discussed in greater detail in Section 4.0 below. The NWI map is located in Appendix C.

# 3.2 FEMA FIRM Floodplain Map Review

A review of the FEMA FIRM floodplain was conducted to determine the presence, extent, location, and zone of floodplain areas in the proposed Project. FIRMs are maps that show floodplain areas along rivers and tributaries. The maps record the following data: 100-year floodplain (1% chance of annual flooding) and the 0.2% annual chance of flooding area, the height of the base flood (Base Flood Elevations), and the risk premium zones developed from topographical information across a floodplain. The FEMA generates FIRM floodplain maps for flood insurance purposes.

The FEMA FIRM Map- According to FEMA Data, the Subject Property is located in Zone-X Area of Minimal Flood Hazard Panel: 47065C0300G effective date 2/3/2016. Zone X- Area of Minimal Flood Hazard are defined as areas determined to be outside the 1 % and 0.2% annual chance floodplain.

# 3.3 Soil Survey Map Review

The Hamilton County Soil Survey indicates a number of different soil types are present within the Subject Project as listed in Table 1 below. None of the below-listed soils identified were identified on the Hydric Soils list of Hamilton County with the exception to Hamblen silt loam (Ha) which includes a minor hydric component of Melvin silt loam (Me) and Tupelo silt loam (Tu) which includes a minor hydric component of Bloomingdale (Bd). The NRCS Soils Survey is located in Appendix E.

**Table 1: Potential Soils Located on the Subject Property** 

Hamilton Symbol Soil Name Description			Hydric	
County				,
	AeC	Allen loam, 5 to 12 percent slopes	Loamy colluvium derived from sandstone and shale	No
	AeD	Allen loam, 12 to 25 percent slopes	Loamy colluvium derived from sandstone and shale	No
	BuF	Bouldin-Gilpin complex, 20 to 60 percent slopes	Cobbly and stony colluvium derived from limestone, sandstone, and shale	No
	СаВ	Capshaw silt loam, 2 to 6 percent slopes	Loess and/or clayey alluvium over clayey residuum weathered from limestone	No
	CbC	Colbert silt loam, 2 to 12 percent slopes	Clayey residuum weathered from argillaceous limestone	No
	CoC	Collegedale silt loam, 2 to 12 percent slopes	Clayey residuum weathered from limestone and shale	No
	CoD	Collegedale silt loam, 12 to 25 percent slopes	Clayey residuum weathered from limestone and shale	No
	На	Hamblen silt loam, 0 to 2 percent slopes, occasionally flooded, hydric minor component	Fine-loamy alluvium derived from limestone, and shale	Yes, Minor Component
	HcE	Hanceville loam, 25 to 40 percent slopes	Clayey residuum weathered from sandstone and shale	No
	MoE	Montevallo shaly silt loam, 20 to 45 percent slopes	Channery residuum weathered from acid shale	No
	RaD	Ramsey loam, 8 to 25 percent slopes	Loamy residuum weathered from sandstone	No

RcF	Ramsey-Rock	Loamy residuum weathered	No
	outcrop complex, 15 to	from sandstone	
	70 percent slopes		
TaC	Talbott silt loam, 2 to 12	Clayey residuum weathered	No
	percent slopes	from limestone	
TaD	Talbott silt loam, 12 to	Clayey residuum weathered	No
	25 percent slopes	from limestone	
Tu	Tupelo silt loam, 0 to 3	Clayey alluvium derived	Yes, Minor
	percent slopes	from limestone	Component

# 4.0 SITE RECONNAISSANCE & CHARACTERISTICS

GEOServices conducted the site reconnaissance on April 22-23, 2021. The purpose of the site reconnaissance was to determine if wetland, stream, and/or wet weather conveyance conditions existed on within the Subject Property. Any suspect areas were identified, and multiple transects were performed to visually classify the soils, vegetation, and hydrogeology present across the Subject Property. Once the general characteristics were observed, data points were taken with a shovel, and the site was walked to identify the wetland boundary, based upon physical characteristics (Hydric soil, hydrology, and vegetation). In addition, eight (8) drainage features were observed during the field investigation. The features were scored using the Tennessee Department of Environment and Conservation Hydrologic Determination Field Data Form v1.5. The only one (1) of the eight (8) features located onsite was identified on the South Cleveland US Geological Survey 7.5 Minute Topographic Quadrangle for the Subject Property. For the purpose of this report, the four (4) features located onsite has been found to be wet weather conveyances and the remaining four (4) features have found to be streams.

To summarize, two (2) ponds, four (4) streams, four (4) wetlands, and four (4) wet weather conveyances. were observed on the Subject Property and are described as follows:

Pond-1 was located in the west-central portion of the Subject Property. This feature was assessed during the site reconnaissance and was found to meet the criteria of a freshwater pond. This feature was determined to meet the criteria of a freshwater pond per the Tennessee Department of Environment and Conservation (TDEC) guidance with a direct connection to downstream surface waters.

Pond-2 was located in the west-central portion of the Subject Property. This feature was assessed during the site reconnaissance and was found to meet the criteria of a freshwater pond. This feature was determined to meet the criteria of a freshwater pond per the Tennessee Department of Environment and Conservation (TDEC) guidance with a surface connection to downstream surface waters.

Stream-1 did not display any primary indicators for a stream at the time of the field assessment. The channels secondary indicators consisted mostly of moderate to strong geomorphology with a moderately to strongly pronounced bed and back found throughout the length of the feature. Other indicators of geomorphology consisted of moderately pronounced visible riffle-pool sequences and a moderate to strong natural valley or drainageway. Hydrology indicators were observed to be moderate to strong with visible flow found throughout the feature and 48 hours

since a significant (i.e., greater than 0.1 inch) rain fall event. Weak to moderate amounts of wrack lining were located within the feature along with hydric soil in the channel bed. Biology indicators were mostly weak to moderate with a weak amount's filamentous algae and periphyton located within the feature along with weak number of amphibians consisting of three (3) frogs. A weak to moderate amount wetland plants existed within the channel bed that consisted of Stilt grass (*Microstegium vimineum*). The channel ultimately scored a 29 on the TDEC Hydrologic Determination Field Data Sheet (HDFD) and is considered a Stream.

Stream-2 did display a primary indicator for a stream at the time of the field assessment with the presence of a naturally occurring groundwater table connection. The channels secondary indicators consisted mostly of moderate to strong geomorphology with a moderately to strongly pronounced bed and back found throughout the length of the feature. Other indicators of geomorphology consisted of moderately pronounced visible riffle-pool sequences and a moderate to strong natural valley or drainageway. Hydrology indicators were observed to be mostly moderate with visible flow within some sections of the feature and 48 hours since a significant (i.e., greater than 0.1 inch) rain fall event. Weak to moderate amounts of wrack lining were located within the feature along with moderate amounts of sediment on plants and debris within the channel. Biology indicators were mostly weak to moderate with a weak amounts filamentous algae and periphyton located within the feature along with a few species of caddis fly in the upper reaches of the channel. A weak to moderate amount wetland plants existed within the channel bed that consisted of Rush Grass (*Juncus effusus*). The channel ultimately scored a 29 on the TDEC Hydrologic Determination Field Data Sheet (HDFD) and is considered a Stream.

Stream-3 did not display a primary indicator for a stream at the time of the field assessment. The channels secondary indicators consisted mostly of moderate to strong geomorphology with a moderately to strongly pronounced bed and back found throughout the length of the feature. Other indicators of geomorphology consisted of weak to moderate amounts of depositional bar and benches along with a moderate to strong natural valley or drainageway. Hydrology indicators were observed to be mostly moderate with visible flow within some sections of the feature and 48 hours since a significant (i.e., greater than 0.1 inch) rain fall event. Weak to moderate amounts of wrack lining were located within the feature along with weak amounts of sediment on plants and debris within the channel. Biology indicators were mostly weak with a weak amounts visible iron oxidizing bacteria / fungus located within the channel along with a couple of caddis fly casings in the central portion of the channel. The channel ultimately scored a 24 on the TDEC Hydrologic Determination Field Data Sheet (HDFD) and is considered a Stream.

Stream-4 did display a primary indicator for a stream at the time of the field assessment with the presence of a naturally occurring groundwater table connection. The channels secondary indicators consisted mostly of moderate to strong geomorphology with a moderately to strongly pronounced bed and back found throughout the length of the feature. Other indicators of geomorphology consisted of moderately pronounced visible riffle-pool sequences and a strongly natural valley or drainageway. Hydrology indicators were observed to be mostly weak to moderate with visible flow within some sections of the feature and 48 hours since a significant (i.e., greater than 0.1 inch) rain fall event. Weak to moderate amounts of wrack lining were located within the feature along with moderate amounts of sediment on plants and debris within the channel. Biology indicators were mostly weak to moderate with weak amounts filamentous algae and periphyton located within the feature along with a few caddis fly casings in the upper reaches of the channel. A weak to moderate amount wetland plants existed within the channel bed that consisted of Stilt grass (*Microstegium vimineum*). The channel ultimately scored a 24 on the TDEC Hydrologic Determination Field Data Sheet (HDFD) and is considered a Stream.

Wet Weather Conveyance-1 did not display a primary indicator for a stream at the time of the field assessment. The channels secondary indicators consisted mostly of weak geomorphology with a weakly pronounced bed and back found throughout the length of the feature. Other indicators of geomorphology consisted of weak amounts of sediment sorting along with weakly pronounced riffle-pool sequencing. Hydrology indicators were observed to be mostly absent to weak with no visible flow or pooling with the feature and 48 hours since a significant (i.e., greater than 0.1 inch) rain fall event. Weak amounts of wrack lining were located within the feature along with weak amounts of sediment on plants and debris within the channel. Biology indicators were mostly weak with the exception of moderate to strong amounts of fibrous roots and rooted plants located within the channel. The channel ultimately scored a 9 on the TDEC Hydrologic Determination Field Data Sheet (HDFD) and is considered a Stream.

Wet Weather Conveyance-2 did not display a primary indicator for a stream at the time of the field assessment. The channels secondary indicators consisted mostly of weak to moderate geomorphology with a moderately pronounced bed and back found throughout the length of the feature. Other indicators of geomorphology consisted of weak to moderate sinuosity within the channel along with weakly pronounced riffle-pool sequencing. Hydrology indicators were observed to be mostly absent to weak with no visible flow or pooling with the feature and 48 hours since a significant (i.e., greater than 0.1 inch) rain fall event. Weak amounts of wrack lining were located within the feature along with weak amounts of sediment on plants and debris within the channel. Biology indicators were mostly weak with the exception of weak to moderate amounts of fibrous roots and rooted plants located within the channel. The channel ultimately

scored a 15.5 on the TDEC Hydrologic Determination Field Data Sheet (HDFD) and is considered a Stream.

Wet Weather Conveyance-3 did not display a primary indicator for a stream at the time of the field assessment. The channels secondary indicators consisted mostly of weak geomorphology with a weakly pronounced bed and back found throughout the length of the feature. Other indicators of geomorphology consisted of weakly pronounced riffle-pool sequencing along with weak sorting of soil and sediment with the channel bed. Hydrology indicators were observed to be mostly absent to weak with no visible flow or pooling with the feature and 48 hours since a significant (i.e., greater than 0.1 inch) rain fall event. Weak amounts of wrack lining were located within the feature along with weak amounts of sediment on plants and debris within the channel. Biology indicators were mostly weak with the exception of weak to moderate amounts of fibrous roots and rooted plants located within the channel. The channel ultimately scored a 10.75 on the TDEC Hydrologic Determination Field Data Sheet (HDFD) and is considered a Stream.

Wet Weather Conveyance-4 did not display a primary indicator for a stream at the time of the field assessment. The channels secondary indicators consisted mostly of weak to moderate geomorphology with a moderately pronounced bed and back found throughout the length of the feature. Other indicators of geomorphology consisted of weakly pronounced riffle-pool sequencing along with a strongly pronounced natural valley or drainageway along the channel margins. Hydrology indicators were observed to be mostly absent to weak with no visible flow or pooling with the feature and 48 hours since a significant (i.e., greater than 0.1 inch) rain fall event. Weak to moderate amounts of wrack lining were located within the feature along with weak amounts of sediment on plants and debris within the channel. Biology indicators were mostly weak with the exception of moderate amounts of fibrous roots located in the channel along with a weak to moderate amount of rooted plants additionally. The channel ultimately scored a 14.75 on the TDEC Hydrologic Determination Field Data Sheet (HDFD) and is considered a Stream.

Wetland-1 was located in the east-central portion of the portion of the Subject Property. Data points were taken to define the boundary of Wetland-1. Wetland-1 included species of American Elm (*Ulmus americana*), Common Rush (*Juncus effusus*), and Sweet Gum (*Liquidambar styraciflua*) Hydrology, hydrophytic vegetation, and hydric soil indicators were observed in this area. Wetland-1 consisted of plant species with a Facultative and Facultative Wet Wetland Indictor status. Visual hydrology indicators consisted of algal matting and crusting, saturation within the soil profile, and drift deposits. The soil from the data points taken met the criteria for the F3 Depleted Matrix indicator needed to confirm hydric soil conditions along with the

necessary redox concentrations needed for hydric soils.

Wetland-2 was located in the east-central portion of the portion of the Subject Property. Data points were taken to define the boundary of Wetland-2. Wetland-2 included species of American Elm (*Ulmus americana*), Sweet Gum (*Liquidambar styraciflua*), and Common Rush (*Juncus effusus*). Hydrology, hydrophytic vegetation, and hydric soil indicators were observed in this area. Wetland-2 consisted of plant species with a Facultative and Facultative Wet Wetland Indictor status. Visual hydrology indicators consisted of saturation within the soil profile along with drift deposits, and oxidized rhizospheres on living roots. The soil from the data points taken met the criteria for the F3 Depleted Matrix indicator needed to confirm hydric soil conditions along with the necessary redox concentrations needed for hydric soils.

Wetland-3 was located in the western portion of the portion of the Subject Property. Data points were taken to define the boundary of Wetland-3. Wetland-3 included species of Common Rush (*Juncus effusus*) and American Elm (*Ulmus americana*). Hydrology, hydrophytic vegetation, and hydric soil indicators were observed in this area. Wetland-3 consisted of plant species with a Facultative and Facultative Wet Wetland Indictor status. Visual hydrology indicators consisted of saturation within the soil profile along with drift deposits, algal matting/ crusting, and oxidized rhizospheres on living roots. The soil from the data points taken met the criteria for the F3 Depleted Matrix indicator needed to confirm hydric soil conditions along with the necessary redox concentrations needed for hydric soils.

Wetland-4 was located in the western-central portion of the Subject Property. Data points were taken to define the boundary of Wetland-4. Wetland-4 included species of Common Rush (*Juncus effusus*), American Elm (*Ulmus americana*), and Red Maple (*Acer rubrum*). Hydrology, hydrophytic vegetation, and hydric soil indicators were observed in this area. Wetland-4 consisted of plant species with a Facultative and Facultative Wet Wetland Indictor status. Visual hydrology indicators consisted of drift deposits along with saturation within the soil profile, and oxidized rhizospheres on living roots. The soil from the data points taken met the criteria for the F3 Depleted Matrix indicator needed to confirm hydric soil conditions along with the necessary redox concentrations needed for hydric soils.

Data forms for the above hydrologic determination are in Appendix F and data sheets for the wetland delineation are attached in Appendix G.

# 5.0 CONCLUSIONS AND RECOMMENDATIONS

The following natural resource features (with respective approximate sizes) were identified on within the Subject Property:

- Pond-1- Approximately- .08-Acres
- Pond-2- Approximately- .07-Acres
- Stream-1- Approximately- 990 Linear Feet
- Stream-2- Approximately- 1,825 Linear Feet
- Stream-3- Approximately- 85 Linear Feet
- Stream-4- Approximately- 563 Linear Feet
- Wetland-1- Approximately- .44-Acres
- Wetland-2- Approximately- .03-Acres
- Wetland-3- Approximately- .04 Acres
- Wetland-4- Approximately- .01-Acres
- WWC-1- Approximately- 389 Linear Feet
- WWC-2- Approximately- 503 Linear Feet
- WWC-3- Approximately- 60 Linear Feet
- WWC-4- Approximately- 410 Linear Feet

The ponds, streams, wetlands, and wet weather conveyances identified in this study will need to be verified by the U.S. Army Corps of Engineers (USACE) and the Tennessee Department of Environment and Conservation (TDEC) prior to any land disturbing activities. It is recommended that the area be professionally surveyed and placed on the engineering drawings.

Appendix A

Figures

Source Provided by: MYTOPO



USGS Topographic Map 10444 Ooltewah Georgetown Rd Ooltewah, Tennessee

DATE: 05/24/2021 GEOS Project No. 34-214107

FIGURE:

DATE: 05/24/2021

GEOS Project No. 34-214107 FIGURE:



Appendix B

**Aquatic Feature Map** 



Feature Map 10444 Ooltewah Georgetown Rd Ooltewah, Tennessee

DATE: 05/24/2021 GEOS Project No. 34-214107

FIGURE:

Aerial Source Provided by: Google Earth Pro, (10/07/2020)

Data Point Location & Identifier

Appendix C

**NWI Map** 

# U.S. Fish and Wildlife Service National Wetlands Inventory

# 10444 Ooltewah-Georgetown RD



May 25, 2021

# Wetlands

Estuarine and Marine Deepwater

Estuarine and Marine Wetland

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Lake

Other

Riverine

Otne

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

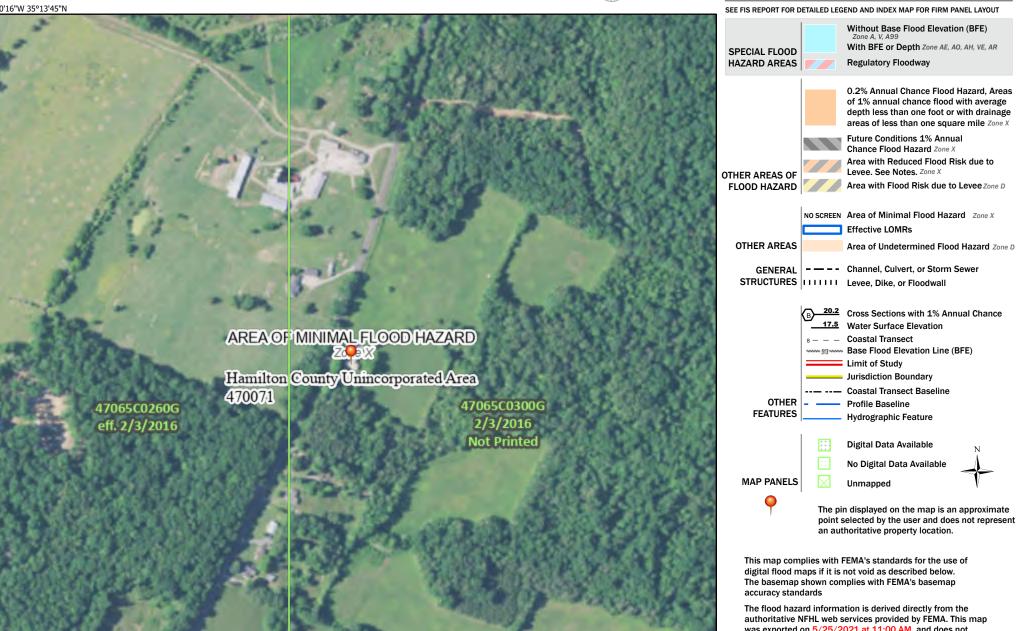
Appendix D

**FEMA FIRM Panel** 

# National Flood Hazard Layer FIRMette



Legend



was exported on 5/25/2021 at 11:00 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

1:6.000 250 500 1,000 1,500 2.000

Feet

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Appendix E

**NRCS Soil Survey** 



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 Hamilton County, Tennessee



# **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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

# **Contents**

Preface	2
How Soil Surveys Are Made	
Soil Map	
Soil Map	
Legend	10
Map Unit Legend	11
Map Unit Descriptions	11
Hamilton County, Tennessee	14
AeC—Allen loam, 5 to 12 percent slopes	14
AeD—Allen loam, 12 to 25 percent slopes	15
BuF—Bouldin-Gilpin complex, 20 to 60 percent slopes	16
CaB—Capshaw silt loam, 2 to 6 percent slopes	17
CbC—Colbert silt loam, 2 to 12 percent slopes	18
CoC—Collegedale silt loam, 2 to 12 percent slopes	19
CoD—Collegedale silt loam, 12 to 25 percent slopes	20
Ha—Hamblen silt loam, 0 to 2 percent slopes, occasionally flooded,	
hydric minor component	
HcE—Hanceville loam, 25 to 40 percent slopes	
MoE—Montevallo shaly silt loam, 20 to 45 percent slopes	23
RaD—Ramsey loam, 8 to 25 percent slopes	23
RcF—Ramsey-Rock outcrop complex, 15 to 70 percent slopes	24
TaC—Talbott silt loam, 2 to 12 percent slopes	
TaD—Talbott silt loam, 12 to 25 percent slopes	
Tu—Tupelo silt loam, 0 to 3 percent slopes	27
References	29

# **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

### Custom Soil Resource Report

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.

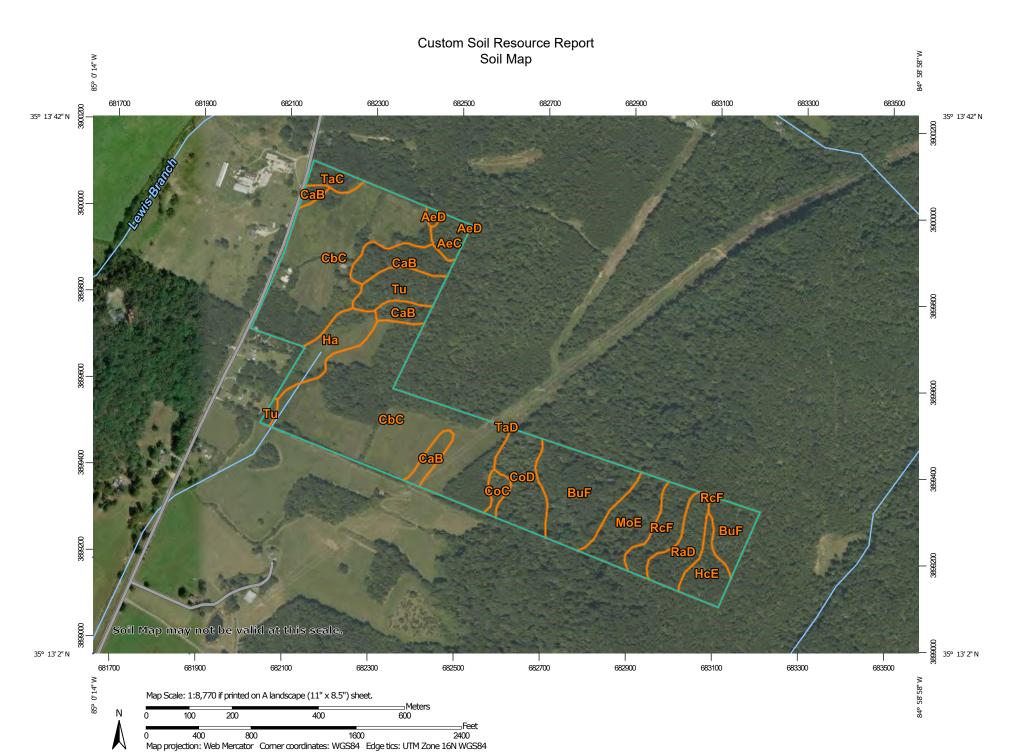
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

# Custom Soil Resource Report

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.



#### 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**

ဖ

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

Ŷ

Wet Spot

Δ

Other

Special Line Features

#### **Water Features**

Streams and Canals

# Transportation

---

Rails

Interstate Highways

**US Routes** 

Major Roads

00

Local Roads

# Background

Aerial Photography

# MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15.800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Hamilton County, Tennessee Survey Area Data: Version 17, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50.000 or larger.

Date(s) aerial images were photographed: Aug 29, 2019—Aug 30. 2019

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
AeC	Allen loam, 5 to 12 percent slopes	1.6	1.6%
AeD	Allen loam, 12 to 25 percent slopes	0.3	0.3%
BuF	Bouldin-Gilpin complex, 20 to 60 percent slopes	12.2	12.6%
СаВ	Capshaw silt loam, 2 to 6 percent slopes	6.4	6.6%
CbC	Colbert silt loam, 2 to 12 percent slopes	46.6	47.8%
CoC	Collegedale silt loam, 2 to 12 percent slopes	0.8	0.9%
CoD	Collegedale silt loam, 12 to 25 percent slopes	5.2	5.3%
На	Hamblen silt loam, 0 to 2 percent slopes, occasionally flooded, hydric minor component	4.0	4.1%
HcE	Hanceville loam, 25 to 40 percent slopes	2.9	2.9%
MoE	Montevallo shaly silt loam, 20 to 45 percent slopes	5.2	5.3%
RaD	Ramsey loam, 8 to 25 percent slopes	3.6	3.7%
RcF	Ramsey-Rock outcrop complex, 15 to 70 percent slopes	3.4	3.5%
TaC	Talbott silt loam, 2 to 12 percent slopes	1.3	1.4%
TaD	Talbott silt loam, 12 to 25 percent slopes	0.0	0.0%
Tu	Tupelo silt loam, 0 to 3 percent slopes	3.9	4.0%
Totals for Area of Interest		97.3	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.

### **Hamilton County, Tennessee**

### AeC—Allen loam, 5 to 12 percent slopes

#### **Map Unit Setting**

National map unit symbol: 2tg8v Elevation: 630 to 1,980 feet

Mean annual precipitation: 55 to 64 inches
Mean annual air temperature: 47 to 68 degrees F

Frost-free period: 180 to 210 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Allen and similar soils: 92 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Allen**

#### Setting

Landform: Hillslopes, alluvial fans

Landform position (two-dimensional): Footslope, backslope Landform position (three-dimensional): Base slope, side slope

Down-slope shape: Concave, convex Across-slope shape: Concave, linear

Parent material: Loamy colluvium derived from sandstone and shale

#### **Typical profile**

A - 0 to 7 inches: loam
BE - 7 to 12 inches: loam
Bt1 - 12 to 24 inches: clay loam
Bt2 - 24 to 35 inches: clay loam
Bt3 - 35 to 51 inches: clay loam
Bt4 - 51 to 74 inches: clay loam

#### **Properties and qualities**

Slope: 5 to 12 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained Runoff class: Medium

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 capacity: High (about 11.2 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B Hydric soil rating: No

#### AeD—Allen loam, 12 to 25 percent slopes

#### **Map Unit Setting**

National map unit symbol: 2tg8t Elevation: 630 to 1,980 feet

Mean annual precipitation: 55 to 64 inches Mean annual air temperature: 47 to 68 degrees F

Frost-free period: 180 to 210 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Allen and similar soils: 96 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Allen**

#### Setting

Landform: Hillslopes, alluvial fans

Landform position (two-dimensional): Footslope, backslope Landform position (three-dimensional): Base slope, side slope

Down-slope shape: Concave, convex Across-slope shape: Concave, linear

Parent material: Loamy colluvium derived from sandstone and shale

#### **Typical profile**

A - 0 to 7 inches: loam BE - 7 to 12 inches: loam

Bt1 - 12 to 24 inches: clay loam Bt2 - 24 to 35 inches: clay loam Bt3 - 35 to 51 inches: clay loam Bt4 - 51 to 74 inches: clay loam

#### Properties and qualities

Slope: 12 to 25 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained Runoff class: Medium

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 capacity: High (about 11.6 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B Hydric soil rating: No

#### BuF—Bouldin-Gilpin complex, 20 to 60 percent slopes

#### Map Unit Setting

National map unit symbol: 1354d Elevation: 640 to 2,300 feet

Mean annual precipitation: 45 to 59 inches Mean annual air temperature: 48 to 71 degrees F

Frost-free period: 192 to 218 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Bouldin and similar soils: 55 percent Gilpin and similar soils: 30 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Bouldin**

#### Setting

Landform: Escarpments

Landform position (three-dimensional): Side slope, base slope

Parent material: Cobbly and stony colluvium derived from limestone, sandstone,

and shale

#### **Typical profile**

H1 - 0 to 7 inches: stony loam H2 - 7 to 18 inches: stony loam

H3 - 18 to 80 inches: very stony clay loam

#### **Properties and qualities**

Slope: 20 to 60 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00

in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of pondina: None

Available water capacity: Low (about 4.8 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: A Hydric soil rating: No

#### **Description of Gilpin**

#### Setting

Landform: Escarpments

Landform position (three-dimensional): Side slope

Parent material: Loamy residuum weathered from interbedded sedimentary rock

#### Typical profile

H1 - 0 to 8 inches: silt loam

H2 - 8 to 24 inches: channery silt loam
H3 - 24 to 30 inches: very channery silt loam

Cr - 30 to 40 inches: bedrock

#### **Properties and qualities**

Slope: 20 to 60 percent

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.20 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Available water capacity: Low (about 4.0 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: C Hydric soil rating: No

#### CaB—Capshaw silt loam, 2 to 6 percent slopes

#### Map Unit Setting

National map unit symbol: 1354f

Elevation: 640 to 950 feet

Mean annual precipitation: 45 to 59 inches

Mean annual air temperature: 48 to 71 degrees F

Frost-free period: 192 to 218 days

Farmland classification: All areas are prime farmland

#### **Map Unit Composition**

Capshaw and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Capshaw**

#### Setting

Landform: Stream terraces

Parent material: Loess and/or clayey alluvium over clayey residuum weathered

from limestone

#### Typical profile

H1 - 0 to 4 inches: silt loam

H2 - 4 to 15 inches: silty clay loam H3 - 15 to 24 inches: silty clay

H4 - 24 to 45 inches: clay

H5 - 45 to 60 inches: clay

#### **Properties and qualities**

Slope: 2 to 6 percent

Depth to restrictive feature: 48 to 84 inches to paralithic bedrock

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to

moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 18 to 36 inches

Frequency of flooding: None Frequency of ponding: None

Available water capacity: Moderate (about 8.2 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C/D Hydric soil rating: No

#### CbC—Colbert silt loam, 2 to 12 percent slopes

#### Map Unit Setting

National map unit symbol: 1354g

Elevation: 500 to 950 feet

Mean annual precipitation: 45 to 59 inches Mean annual air temperature: 48 to 71 degrees F

Frost-free period: 192 to 218 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Colbert and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Colbert**

#### Setting

Landform: Ridges

Landform position (three-dimensional): Side slope, crest

Parent material: Clayey residuum weathered from argillaceous limestone

#### Typical profile

H1 - 0 to 4 inches: silt loam H2 - 4 to 14 inches: clay H3 - 14 to 45 inches: clay H4 - 45 to 55 inches: clay R - 55 to 59 inches: bedrock

#### **Properties and qualities**

Slope: 2 to 12 percent

Depth to restrictive feature: 40 to 72 inches to lithic bedrock

Drainage class: Moderately 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: About 42 to 55 inches

Frequency of flooding: None Frequency of ponding: None

Available water capacity: Moderate (about 8.1 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: D Hydric soil rating: No

#### CoC—Collegedale silt loam, 2 to 12 percent slopes

#### Map Unit Setting

National map unit symbol: 1354k Elevation: 700 to 1,200 feet

Mean annual precipitation: 45 to 59 inches Mean annual air temperature: 48 to 71 degrees F

Frost-free period: 192 to 218 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Collegedale and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Collegedale**

#### Setting

Landform: Ridges

Landform position (three-dimensional): Crest

Parent material: Clayey residuum weathered from limestone and shale

#### Typical profile

H1 - 0 to 6 inches: silt loam H2 - 6 to 80 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 (0.20

to 0.60 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Available water capacity: Moderate (about 8.7 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C Hydric soil rating: No

#### CoD—Collegedale silt loam, 12 to 25 percent slopes

#### Map Unit Setting

National map unit symbol: 1354l Elevation: 700 to 1,200 feet

Mean annual precipitation: 45 to 59 inches Mean annual air temperature: 48 to 71 degrees F

Frost-free period: 192 to 218 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Collegedale and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Collegedale**

#### Setting

Landform: Ridges

Landform position (three-dimensional): Side slope

Parent material: Clayey residuum weathered from limestone and shale

#### **Typical profile**

H1 - 0 to 6 inches: silt loam H2 - 6 to 80 inches: clay

#### Properties and qualities

Slope: 12 to 25 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 (0.20

to 0.60 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Available water capacity: Moderate (about 8.7 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: C Hydric soil rating: No

## Ha—Hamblen silt loam, 0 to 2 percent slopes, occasionally flooded, hydric minor component

#### **Map Unit Setting**

National map unit symbol: 2w2p4

Elevation: 840 to 1,260 feet

Mean annual precipitation: 46 to 52 inches
Mean annual air temperature: 47 to 68 degrees F

Frost-free period: 180 to 240 days

Farmland classification: All areas are prime farmland

#### **Map Unit Composition**

Hamblen and similar soils: 90 percent

Minor components: 3 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Hamblen**

#### Setting

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope, tread

Down-slope shape: Concave Across-slope shape: Linear

Parent material: Fine-loamy alluvium derived from limestone, sandstone, and

shale

#### **Typical profile**

Ap - 0 to 9 inches: silt loam Bw - 9 to 40 inches: silt loam C - 40 to 60 inches: silt loam

#### **Properties and qualities**

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately 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: About 21 to 36 inches Frequency of flooding: OccasionalNone

Frequency of ponding: None

Available water capacity: High (about 11.4 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: B/D Hydric soil rating: No

#### **Minor Components**

#### Melvin

Percent of map unit: 3 percent

Landform: Depressions

Landform position (two-dimensional): Toeslope Landform position (three-dimensional): Dip

Down-slope shape: Concave Across-slope shape: Concave

Hydric soil rating: Yes

#### HcE—Hanceville loam, 25 to 40 percent slopes

#### **Map Unit Setting**

National map unit symbol: 13559 Elevation: 600 to 1,800 feet

Mean annual precipitation: 45 to 59 inches Mean annual air temperature: 48 to 71 degrees F

Frost-free period: 192 to 218 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Hanceville and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Hanceville**

#### Setting

Landform: Ridges

Landform position (three-dimensional): Side slope

Parent material: Clayey residuum weathered from sandstone and shale

#### **Typical profile**

H1 - 0 to 6 inches: loam
H2 - 6 to 36 inches: clay
H3 - 36 to 64 inches: clay loam
R - 64 to 68 inches: bedrock

#### **Properties and qualities**

Slope: 25 to 40 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 (0.20

to 0.60 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Available water capacity: High (about 10.2 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: B Hydric soil rating: No

#### MoE—Montevallo shaly silt loam, 20 to 45 percent slopes

#### Map Unit Setting

National map unit symbol: 1355m Elevation: 500 to 1,800 feet

Mean annual precipitation: 45 to 59 inches Mean annual air temperature: 48 to 71 degrees F

Frost-free period: 192 to 218 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Montevallo and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Montevallo**

#### Setting

Landform: Ridges

Landform position (three-dimensional): Side slope

Parent material: Channery residuum weathered from acid shale

#### **Typical profile**

H1 - 0 to 6 inches: channery silt loam H2 - 6 to 18 inches: very channery silt loam

Cr - 18 to 28 inches: bedrock

#### **Properties and qualities**

Slope: 20 to 45 percent

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock

Drainage class: Well drained

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

Available water capacity: Very low (about 1.7 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: D Hydric soil rating: No

#### RaD—Ramsey loam, 8 to 25 percent slopes

#### Map Unit Setting

National map unit symbol: 2w2mv

Elevation: 1,200 to 2,580 feet

Mean annual precipitation: 55 to 64 inches Mean annual air temperature: 47 to 65 degrees F

Frost-free period: 180 to 210 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Ramsey and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Ramsey**

#### Setting

Landform: Hillslopes

Landform position (two-dimensional): Backslope Landform position (three-dimensional): Side slope

Down-slope shape: Convex Across-slope shape: Convex

Parent material: Loamy residuum weathered from sandstone

#### Typical profile

A - 0 to 8 inches: loam Bw1 - 8 to 14 inches: loam

Bw2 - 14 to 16 inches: sandy loam R - 16 to 26 inches: bedrock

#### **Properties and qualities**

Slope: 8 to 25 percent

Depth to restrictive feature: 15 to 19 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Runoff class: 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

Available water capacity: Very low (about 2.3 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: D Hydric soil rating: No

#### RcF—Ramsey-Rock outcrop complex, 15 to 70 percent slopes

#### **Map Unit Setting**

National map unit symbol: 2w2mz Elevation: 1,200 to 2,580 feet

Mean annual precipitation: 55 to 64 inches Mean annual air temperature: 47 to 65 degrees F

Frost-free period: 180 to 210 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Ramsey and similar soils: 55 percent

Rock outcrop: 40 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Ramsey**

#### Setting

Landform: Hillslopes

Landform position (two-dimensional): Backslope Landform position (three-dimensional): Side slope

Down-slope shape: Convex Across-slope shape: Convex

Parent material: Loamy residuum weathered from sandstone

#### **Typical profile**

A - 0 to 8 inches: loam Bw1 - 8 to 14 inches: loam

Bw2 - 14 to 16 inches: sandy loam R - 16 to 26 inches: bedrock

#### **Properties and qualities**

Slope: 15 to 70 percent

Depth to restrictive feature: 15 to 19 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Runoff class: 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

Available water capacity: Very low (about 2.3 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: D Hydric soil rating: No

#### **Description of Rock Outcrop**

#### Settina

Landform: Ridges

Landform position (three-dimensional): Side slope

#### **Properties and qualities**

Slope: 15 to 70 percent

Depth to restrictive feature: 0 inches to lithic bedrock

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

#### TaC—Talbott silt loam, 2 to 12 percent slopes

#### **Map Unit Setting**

National map unit symbol: 13561 Elevation: 460 to 1,400 feet

Mean annual precipitation: 45 to 59 inches Mean annual air temperature: 48 to 71 degrees F

Frost-free period: 192 to 218 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: Ridges

Landform position (three-dimensional): Crest, side slope Parent material: Clayey residuum weathered from limestone

#### **Typical profile**

H1 - 0 to 6 inches: silt loam H2 - 6 to 36 inches: clay R - 36 to 40 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 capacity: Low (about 4.4 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C Hydric soil rating: No

#### TaD—Talbott silt loam, 12 to 25 percent slopes

#### **Map Unit Setting**

National map unit symbol: 13562 Elevation: 460 to 1,400 feet

Mean annual precipitation: 45 to 59 inches Mean annual air temperature: 48 to 71 degrees F

Frost-free period: 192 to 218 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: Ridges

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 36 inches: clay R - 36 to 40 inches: bedrock

#### Properties and qualities

Slope: 12 to 25 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 capacity: Low (about 4.4 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: C Hydric soil rating: No

#### Tu—Tupelo silt loam, 0 to 3 percent slopes

#### Map Unit Setting

National map unit symbol: 13564

Elevation: 640 to 970 feet

Mean annual precipitation: 45 to 59 inches Mean annual air temperature: 48 to 71 degrees F

Frost-free period: 192 to 218 days

Farmland classification: All areas are prime farmland

#### **Map Unit Composition**

Tupelo and similar soils: 92 percent Minor components: 8 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Tupelo**

#### Setting

Landform: Stream terraces, depressions on flood plains Parent material: Clayey alluvium derived from limestone

#### **Typical profile**

H1 - 0 to 8 inches: silt loam H2 - 8 to 16 inches: silt loam H3 - 16 to 26 inches: silty clay H4 - 26 to 60 inches: clay

#### **Properties and qualities**

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to

moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 12 to 24 inches

Frequency of flooding: OccasionalNone

Frequency of ponding: None

Available water capacity: High (about 9.2 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D Hydric soil rating: No

#### **Minor Components**

#### Bloomingdale

Percent of map unit: 8 percent

Landform: Stream terraces, depressions on depressions on flood plains

Hydric soil rating: Yes

## References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2 054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2 053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2 053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2 053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_052290.pdf

Appendix F

**TDEC Field Data Sheets** 

Named Waterbody:	Date/Time: ע-גג-ן
Assessors/Affiliation: Coly Givers - GEOS	Project ID :
Site Name/Description: 10444 Ooltwah-Gargetoun Road Hylrological Assessment	39-214107
Site Location: 10444 Oolfersh-Georgetown Rd, Dollersh, TN	
HUC (12 digit): 0 (00) 000 0 40 1	Lat/Long: \$: 85-227411, - 84-99-7531
Previous Rainfall (7-days): .03 incle 5	E: 35-22 7014, - 54. 998591
Precipitation this Season vs. Normal: abnormally wet elevated average low Source of recent & seasonal precipidata: (o) (o) (b) Source of recent & seasonal precipidata:	abnormally dry unknown
	y: Hamilton
Soil Type(s) / Geology: Talbott 5:1+ 1000	Source: PLCS
Surrounding Land Use: Agricultural and Residential	
Degree of historical alteration to natural channel morphology & hydrology (circle one Severe Moderate Slight)	& describe fully in Notes) : Absent

### **Primary Field Indicators Observed**

Primary Indicators	NO	YES
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
<ol> <li>Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions</li> </ol>	4/A	wwc
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	4/A	wwc
<ol> <li>Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase</li> </ol>	Χ	Stream
6. Presence of fish (except Gambusia)	Χ	Stream
7. Presence of naturally occurring ground water table connection	X	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	Χ	Stream
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.

VVI O Guidanos I of Maning Cryatoregis Lessander	
Overall Hydrologic Determination = WWC	
Secondary Indicator Score (if applicable) = 9	- Contraction
Justification / Notes: See Wes Section	

## **Secondary Field Indicator Evaluation**

A. Geomorphology (Subtotal = 🗸 )	Absent	Weak	Moderate	Strong	J.	
Continuous bed and bank	0	<b>(1)</b>	2	3	71	
2. Sinuous channel	ō	<u>Ø</u>	2	3	71	
3. In-channel structure: riffle-pool sequences	ō	8	2	3	7-i	
Sorting of soil textures or other substrate	ō	(4)	2	3	71	
5. Active/relic floodplain	(0)	0.5	1	1.5	7-0	
6. Depositional bars or benches	0 0	1	2	3	7.5	
7. Braided channel	0	1	2	3	-0	
8. Recent alluvial deposits	6	0.5	1	1.5	70	
9. Natural levees		1	2	3	70	
10. Headcuts	<b>O</b>	1	2	3	70	
11. Grade controls	0	(0.5)	1	1.5	<b>7</b> .5	
12. Natural valley or drainageway	0	0.5	1 1 6	1.5	-1.25	
13. At least second order channel on existing USGS		1	<u> </u>	<u> </u>	1	
or	No.	=(6)	Yes	= 3	0	
NRCS map	1	•		_		+
	<u> </u>		<u> </u>		(c.2)	Ē
18						
. 15 B. Hydrology (Subtotal = \ )	Absent	Weak	Moderate	Strong	7	_
B. Hydrology (Subtotal = \ )	Absent	Weak	Moderate 2	Strong 3		_
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel	0	1	2	3	]	<b>پ</b>
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain	0	1	2 2			•
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain  16. Leaf litter in channel (January – September)	(i) (iii) 1.5	1 1 1	2 2 0.5	3 3 0	0 0 075	•
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain  16. Leaf litter in channel (January – September)  17. Sediment on plants or on debris	0 0 1.5 0	1 1 (0.5)	2 2 0.5 1	3 3 0 1.5	000.75	_
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain  16. Leaf litter in channel (January – September)  17. Sediment on plants or on debris  18. Organic debris lines or piles (wrack lines)	0 0 1.5 0	1 1 0.5 (0.5)	2 2 0.5 1	3 3 0 1.5 1.5	0	_
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain  16. Leaf litter in channel (January – September)  17. Sediment on plants or on debris	0 0 1.5 0	1 1 (0.5)	2 2 0.5 1	3 3 0 1.5 1.5	000.75	
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain  16. Leaf litter in channel (January – September)  17. Sediment on plants or on debris  18. Organic debris lines or piles (wrack lines)  19. Hydric soils in channel bed or sides of channel	1.5 0 0 No	1 1 (0.5) (0.5)	2 2 0.5 1 1 Yes =	3 0 1.5 1.5 = 1.5	00 75 550	
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain  16. Leaf litter in channel (January – September)  17. Sediment on plants or on debris  18. Organic debris lines or piles (wrack lines)  19. Hydric soils in channel bed or sides of channel  C. Biology (Subtotal = \ )	1.5 0 0 No	1 1 0.5 0.5 0.5	2 2 0.5 1 1 Yes :	3 0 1.5 1.5 = 1.5	00 75 550	
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain  16. Leaf litter in channel (January – September)  17. Sediment on plants or on debris  18. Organic debris lines or piles (wrack lines)  19. Hydric soils in channel bed or sides of channel  C. Biology (Subtotal = \ )  20. Fibrous roots in channel bed 1	1.5 0 0 No Absent	1 1 0.5 0.5 0.5 Weak 2	2 2 0.5 1 1 Yes =	3 0 1.5 1.5 = 1.5 Strong	00 75	
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain  16. Leaf litter in channel (January – September)  17. Sediment on plants or on debris  18. Organic debris lines or piles (wrack lines)  19. Hydric soils in channel bed or sides of channel  C. Biology (Subtotal = \ )  20. Fibrous roots in channel bed 1  21. Rooted plants in the thalweg 1	1.5 0 0 No Absent 3	1 1 0.5 0.5 0.5 •0 Weak 2 2	2 2 0.5 1 1 Yes =	3 0 1.5 1.5 = 1.5 Strong 0 0	000.75	
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain  16. Leaf litter in channel (January – September)  17. Sediment on plants or on debris  18. Organic debris lines or piles (wrack lines)  19. Hydric soils in channel bed or sides of channel  C. Biology (Subtotal = \ )  20. Fibrous roots in channel bed 1  21. Rooted plants in the thalweg 1  22. Crayfish in stream (exclude in floodplain)	1.5 0 0 No Absent 3	1 1 0.5 0.5 =0 Weak 2 2 1	2 2 0.5 1 1 Yes =	3 3 0 1.5 1.5 = 1.5 Strong 0 0 0 0 3	00075	
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain  16. Leaf litter in channel (January – September)  17. Sediment on plants or on debris  18. Organic debris lines or piles (wrack lines)  19. Hydric soils in channel bed or sides of channel  C. Biology (Subtotal = \ )  20. Fibrous roots in channel bed 1  21. Rooted plants in the thalweg 1  22. Crayfish in stream (exclude in floodplain)  23. Bivalves/mussels	1.5 0 0 No Absent 3 3 0	1 1 0.5 0.5 0.5 =0 Weak 2 2 1	2 2 0.5 1 1 Yes =	3 3 0 1.5 1.5 = 1.5 Strong 0 0 0 3 3 3	00075	
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain  16. Leaf litter in channel (January – September)  17. Sediment on plants or on debris  18. Organic debris lines or piles (wrack lines)  19. Hydric soils in channel bed or sides of channel  C. Biology (Subtotal = \ )  20. Fibrous roots in channel bed 1  21. Rooted plants in the thalweg 1  22. Crayfish in stream (exclude in floodplain)  23. Bivalves/mussels  24. Amphibians	1.5 0 0 No No Absent 3 3 0	1 1 0.5 0.5 =0 Weak 2 2 1 1 0.5	2 2 0.5 1 1 Yes =	3 3 0 1.5 1.5 = 1.5 Strong 0 0 0 3 3 3 1.5	0075550	
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain  16. Leaf litter in channel (January – September)  17. Sediment on plants or on debris  18. Organic debris lines or piles (wrack lines)  19. Hydric soils in channel bed or sides of channel  C. Biology (Subtotal = \ )  20. Fibrous roots in channel bed 1  21. Rooted plants in the thalweg 1  22. Crayfish in stream (exclude in floodplain)  23. Bivalves/mussels  24. Amphibians  25. Macrobenthos (record type & abundance)	1.5 0 0 No No Absent 3 3 0 0	1 1 0.5 0.5 =0 Weak 2 2 1 1 0.5	2 2 0.5 1 1 Yes =	3 3 0 1.5 1.5 1.5  Strong 0 0 3 3 1.5 3	00075	
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain  16. Leaf litter in channel (January – September)  17. Sediment on plants or on debris  18. Organic debris lines or piles (wrack lines)  19. Hydric soils in channel bed or sides of channel  C. Biology (Subtotal = \ )  20. Fibrous roots in channel bed 1  21. Rooted plants in the thalweg 1  22. Crayfish in stream (exclude in floodplain)  23. Bivalves/mussels  24. Amphibians  25. Macrobenthos (record type & abundance)  26. Filamentous algae; periphyton	1.5 0 0 No No Absent 3 3 0 0	1 1 0.5 0.5 =0 Weak 2 2 1 1 0.5 1	2 2 0.5 1 1 Yes =	3 3 0 1.5 1.5 = 1.5 Strong 0 0 3 3 1.5 3	00 75 550 0000	
B. Hydrology (Subtotal = \ )  14. Subsurface flow/discharge into channel  15. Water in channel and >48 hours since sig. rain  16. Leaf litter in channel (January – September)  17. Sediment on plants or on debris  18. Organic debris lines or piles (wrack lines)  19. Hydric soils in channel bed or sides of channel  C. Biology (Subtotal = \ )  20. Fibrous roots in channel bed 1  21. Rooted plants in the thalweg 1  22. Crayfish in stream (exclude in floodplain)  23. Bivalves/mussels  24. Amphibians  25. Macrobenthos (record type & abundance)	1.5 0 0 No No Absent 3 3 0 0	1 1 0.5 0.5 =0 Weak 2 2 1 1 0.5	2 2 0.5 1 1 Yes =	3 3 0 1.5 1.5 = 1.5 Strong 0 0 0 3 3 3 1.5	00 75 550 000	

Notes: The entire clanel was dry at the time of the field assessment. Some minor grade
Controlling and wrocking more visible in the upsaren and central partions at the time of the
assessment. A robote amount of visible leaves covered the clause Gottom.
lasted floats and true were found 14th chonces with a large presence of
Chinese Privat (Liguston Silvense). No equation life was located in the Channel twin
the field assessment.

Named Waterbody: 사角	Date/Time: 4-22-21
Assessors/Affiliation: Cody Givens - GFOS	Project ID :
Site Name/Description: 10444 Dolleunh- Georgeteun H Hyllological Assessment	34-214107
Site Location: 10444 Doltewah- Georgetown RJ, Doltewoh, TN	
HUC (12 digit): 06 02-000 1040 1	Lat/Long: 5: 35.225011/ - 84. 59 554 7
Previous Rainfall (7-days): -03 incles	E: 35.2248661 - 54.996827
Precipitation this Season vs. Normal: abnormally wet elevated (average) low at Source of recent & seasonal precipidata: abnormally wet elevated (average) low at	pnormally dry unknown
Watershed Size : County:	Hem: Iton
Soil Type(s)/Geology: Tilelo silt loan & Cosho silt loan	Source: NLCS
Surrounding Land Use: Agriculturel and Residential	
Degree of historical alteration to natural channel morphology & hydrology (circle one & Slight A	describe fully in Notes) : Absent
Primary Field Indicators Observed	

Primary Indicators	NO	YES
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
<ol> <li>Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions</li> </ol>	A)H	WWC
<ol> <li>Daily flow and precipitation records showing feature only flows in direct response to rainfall</li> </ol>	AN	WWC
<ol> <li>Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase</li> </ol>	X	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
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.

WFC Guidance For Making Hydrologic Determinations, Version, IV
Overall Hydrologic Determination = ೪೪೪೮
Secondary Indicator Score (if applicable) = 15.5
Justification / Notes: Section — 7

# Secondary Field Indicator Evaluation

<b>A.</b> Geomorphology (Subtotal = $\frac{1}{2}$ )	Absent	Weak	Moderate	Strong
1. Continuous bed and bank	0	1	(3)	3
2. Sinuous channel	0	1 (	2	3
3. In-channel structure: riffle-pool sequences	0	<b>O</b>	2	3
4. Sorting of soil textures or other substrate	0	0	2	3
5. Active/relic floodplain	0	0.5	1	1.5
6. Depositional bars or benches	0	θ	2	3
7. Braided channel	0	1_	2	3
8. Recent alluvial deposits	0	(0.5)	1	1.5
9. Natural levees	0	1	2	3
10. Headcuts	0	0	2	3
11. Grade controls	0	05	1	1.5
12. Natural valley or drainageway	0	0.5	1 (	1.5
13. At least second order channel on existing USGS or NRCS map	No:	=⑥	Yes	= 3
15				
<b>B.</b> Hydrology (Subtotal = $2^{.15}$ )	Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	Absent	Weak 1	2	3
14. Subsurface flow/discharge into channel 15. Water in channel and >48 hours since sig. rain		Weak 1	2 2	3 3
<ul> <li>14. Subsurface flow/discharge into channel</li> <li>15. Water in channel and &gt;48 hours since sig. rain</li> <li>16. Leaf litter in channel (January – September)</li> </ul>	(0)	1 1	2	3 3 0
<ul> <li>14. Subsurface flow/discharge into channel</li> <li>15. Water in channel and &gt;48 hours since sig. rain</li> <li>16. Leaf litter in channel (January – September)</li> <li>17. Sediment on plants or on debris</li> </ul>	0	1 ) 1 ) †	2 2	3 3 0 1.5
<ul> <li>15. Water in channel and &gt;48 hours since sig. rain</li> <li>16. Leaf litter in channel (January – September)</li> <li>17. Sediment on plants or on debris</li> <li>18. Organic debris lines or piles (wrack lines)</li> </ul>	0 0	1 1	2 2 0.5 1	3 3 0 1.5 1.5
<ul> <li>14. Subsurface flow/discharge into channel</li> <li>15. Water in channel and &gt;48 hours since sig. rain</li> <li>16. Leaf litter in channel (January – September)</li> <li>17. Sediment on plants or on debris</li> </ul>	0 0 1.5 6	1 ) 1 ) † (0.5)	2 2	3 3 0 1.5 1.5
<ul> <li>14. Subsurface flow/discharge into channel</li> <li>15. Water in channel and &gt;48 hours since sig. rain</li> <li>16. Leaf litter in channel (January – September)</li> <li>17. Sediment on plants or on debris</li> <li>18. Organic debris lines or piles (wrack lines)</li> </ul>	0 0 1.5 6 0	1 ) 1 ) † (0.5)	2 2 0.5 1	3 3 0 1.5 1.5
14. Subsurface flow/discharge into channel 15. Water in channel and >48 hours since sig. rain 16. Leaf litter in channel (January – September) 17. Sediment on plants or on debris 18. Organic debris lines or piles (wrack lines) 19. Hydric soils in channel bed or sides of channel  C. Biology (Subtotal = )	0 0 1.5 6 0	1 ) 1 ) † (0.5)	2 2 0.5 1	3 3 0 1.5 1.5
<ul> <li>14. Subsurface flow/discharge into channel</li> <li>15. Water in channel and &gt;48 hours since sig. rain</li> <li>16. Leaf litter in channel (January – September)</li> <li>17. Sediment on plants or on debris</li> <li>18. Organic debris lines or piles (wrack lines)</li> <li>19. Hydric soils in channel bed or sides of channel</li> </ul>	0 0 1.5 6 0 0 No	1 ) 1 ) 1 (0.5) (0.5)	2 0.5 1 1 Yes =	3 0 1.5 1.5 = 1.5
14. Subsurface flow/discharge into channel 15. Water in channel and >48 hours since sig. rain 16. Leaf litter in channel (January – September) 17. Sediment on plants or on debris 18. Organic debris lines or piles (wrack lines) 19. Hydric soils in channel bed or sides of channel  C. Biology (Subtotal = )	0 0 0 0 0 No:  Absent 3 3	1 ) 1 ) 1 (0.5) (0.5) =(0)	2 0.5 1 1 Yes =	3 0 1.5 1.5 = 1.5 Strong 0
14. Subsurface flow/discharge into channel 15. Water in channel and >48 hours since sig. rain 16. Leaf litter in channel (January – September) 17. Sediment on plants or on debris 18. Organic debris lines or piles (wrack lines) 19. Hydric soils in channel bed or sides of channel  C. Biology (Subtotal = ) 20. Fibrous roots in channel bed 1	0 0 0 0 0 No:  Absent 3	1 ) 1 ) 1 (0.5) (0.5) =(0) Weak 2 (	2 0.5 1 1 Yes =	3 0 1.5 1.5 = 1.5

C. Dielogy (Cubicial	- Whadiir	AAGGIV	INIONO MED		<i>-</i>
20. Fibrous roots in channel bed 1	3	2 (	<b>D</b> 1	0	子!?
21. Rooted plants in the thalweg 1	3	2 (	<b>b</b> 1	0	}·!>
22. Crayfish in stream (exclude in floodplain)	0	1	2	3	-0
23. Bivalves/mussels	0	1	2	3	-0
24. Amphibians	<b>(</b>	0.5	1	1.5	<b>]-0</b>
25. Macrobenthos (record type & abundance)	0	1	2	3	-0
26. Filamentous algae; periphyton	0	1	2	3	]-0
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5	-0 -
28.Wetland plants in channel bed 2	<b>(9)</b>	0.5	1	1.5	1-0 t
1 Focus is on the presence of terrestrial plants. 2	Focus is on the pr	resence of a	quatic or wetla	nd plants. ~	- 2

Total Points = 15.5

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

The control of the state of the

Notes: No pools of flow was visible within the feature at the time of the field assessment
A small beautions located in the ulstream Polition of the feature near the starting
foint of the clannel. Some 195 and leaf debits were found in the clannel and security
be acting in moderate longerity as grade countries. Visible wreck lining was found
within the chine in smil averages. No garage lift was located in the
feature during the assessment.

Named Waterbody: 🎝 /A	Date/Time: y-72-21
Assessors/Affiliation: Cody Givens - GFOS	Project ID :
Site Name/Description: 10444 Ooltewah - Georgetown Rood Hydrological Assessment	34-214107
Site Location: 10444 Doltersh-Georgetown Rd, Ooltersh, TN	
HUC (12 digit): 0602000 (040 )	Lat/Long: 5: 35-22 46951
Previous Rainfall (7-days): .03 incles	E: 35.2246251 - 54. 996791
Precipitation this Season vs. Normal: abnormally wet elevated (average) low abn Source of recent & seasonal precipidata: (ofolials)	ormally dry unknown
Watershed Size : County:	Han: Itom
Soil Type(s) / Geology: Color Silt loom	Source: NCS
Surrounding Land Use: Agriculture and lesseles)	
Degree of historical alteration to natural channel morphology & hydrology (circle one & de	escribe fully in Notes) : osent
Primary Field Indicators Observed	

Primary Indicators	NO	YES
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
<ol><li>Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions</li></ol>	A/A	WWC
<ol> <li>Daily flow and precipitation records showing feature only flows in direct response to rainfall</li> </ol>	7/A	wwc
<ol> <li>Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase</li> </ol>	×	Stream
6. Presence of fish (except Gambusia)	X	Stream
7. Presence of naturally occurring ground water table connection	X	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	X	Stream
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.

WPC Guidance For Making Hydrologic Determinations, Version 1.5
Overall Hydrologic Determination = いいC
Secondary Indicator Score (if applicable) = 10.15
Justification / Notes: See Lotes Section 7

## **Secondary Field Indicator Evaluation**

A. Geomorphology (Subtotal = <sup>&lt; 5</sup>	Absent	Weak	Moderate	Strong
1. Continuous bed and bank	0	0	2	3
2. Sinuous channel	0	<b>6</b>	2	3
3. In-channel structure: riffle-pool sequences	0	(1)	2	3
4. Sorting of soil textures or other substrate	0 6		2	3
5. Active/relic floodplain	<b>6</b>	0.5	1	1.5
6. Depositional bars or benches	0 6		2	3
7. Braided channel	<u>(6)</u>	1	2	3
8. Recent alluvial deposits	0 (	0.5	1 1	1.5
9. Natural levees		1	2	3
10. Headcuts	<b>6</b>	1	2	3
11. Grade controls	0 8		1	1.5
12. Natural valley or drainageway	0	0.5	()	1.5
13. At least second order channel on existing USGS	<u>v</u>	<u></u>	<del>                                     </del>	
or	No:	<b>=</b> ∕0)	Yes	= 3
NRCS map		$\odot$		-
P. Hardward (2, 11, 14, 1				
B. Hydrology (Subtotal = )	Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	(0)	Wean 4	2	3
15. Water in channel and >48 hours since sig. rain	0 6	1 1	2	3
16. Leaf litter in channel (January – September)	1.5	Ó	0.5	0
17. Sediment on plants or on debris		(0.5)	1	1.5
	0		1	1.5
18. Organic debris lines or piles (wrack lines)	0 ( No:		Yes =	
19. Hydric soils in channel bed or sides of channel	NO:	=(0)	1 65 -	• 1.0
C Biology (Outstate 7		<del>                                     </del>	T 84 - 44-	
C. Biology (Subtotal = $3$ )	Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed 1	3		<u> </u>	0
21. Rooted plants in the thalweg 1	3	2	φ 1	3
22. Crayfish in stream (exclude in floodplain)	<b>Ø</b>	1	2	3
23. Bivalves/mussels	<b>Ø</b>	11	2	
24. Amphibians		0.5	1	1.5
25. Macrobenthos (record type & abundance)	<u>@</u>	1	2	3
26. Filamentous algae; periphyton	<u>Q</u>	11	2	3
27. Iron oxidizing bacteria/fungus	<b>(</b>	0.5	11	1.5
28.Wetland plants in channel bed 2	(0)	0.5	1 1	1.5
Focus is on the presence of terrestrial plants. 2 Focus	us is on the p	resence of a	equatic or wetlar	nd plants.

Notes: No floc	I was present	in the featur	e at the t	ine of the field
assessment. She	11 amounts of	anade countries	were visible	that consisted of
roots and leaf	/ limb debris	, Mind would	lives we	visible in the ulstream
Postion of the	feature. pro	gyvatic life	was present	in the feature at
the time of	the firell asses.	snewt.	•	
	·			•

Named Waterbody: -//A	Date/Time: 4-22-2-)
Assessors/Affiliation: Cody Givers - GEOS	Project ID:
Site Name/Description: 10444 Dollerah-Georgetown Coal Hylloba;cal Assessment	34-214107
Site Location: 10444 Oolfersh- Georgetown Rd, Dolfersh, TN	
HUC (12 digit): 0 6 02 00 1 040 1	Lat/Long: 5: 35: 22.02021
Previous Rainfall (7-days): . 03; Lules	E, 35. 219996, - 54. 991998
Precipitation this Season vs. Normal: abnormally wet elevated (average) low Source of recent & seasonal precipidata: Co Co LeLS	abnormally dry unknown
Watershed Size : Coun	ty: Hamilton
Soil Type(s) / Geology: B. uldin - Gillin Conflex	Source: PLCS
Surrounding Land Use: Agricultural and Residential	
Degree of historical alteration to natural channel morphology & hydrology (circle one Severe Moderate Slight	& describe fully in Notes) : Absent
Primary Field Indicators Observed	

### rimary Field Indicators Observed

Primary Indicators	NO	YES
Hydrologic feature exists solely due to a process discharge	χ	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	X	WWC
Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	ATA	WWC
<ol> <li>Daily flow and precipitation records showing feature only flows in direct response to rainfall</li> </ol>	AXA	WWC
<ol> <li>Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase</li> </ol>	×	Stream
6. Presence of fish (except Gambusia)	X	Stream
7. Presence of naturally occurring ground water table connection	X	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	X	Stream
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.

Overall Hydrologic Determination = WWC
Secondary Indicator Score (if applicable) = 1
Secondary Indicator Score (if applicable) = \ \
Justification / Notes: See hotes Section
,

## **Secondary Field Indicator Evaluation**

Absent 0	Weak	Moderate	Strong
	1	0	3
0	0	2	3
0	M	2	3
0	60	2	3
<b>(</b>	0.5	1	1.5
0	0	2	3
Ø	1	2	3
Ö	0.5>	1	1.5
<b>(</b>	1	2	3
	<b>①</b>	2	3
0	0.5	) 1	1.5
0	0.5	1	(1.5)
No:	=60	Yes	= 3
Absent	Weak	Moderate	Strong
0	1	2	3
0	1	2	3
1.5		0.5	0
0		1	1.5
0			1.5
No:	<b>=</b> (0)	Yes =	= 1.5
	***		
Absent	Weak		
MUSGIIL	AAGGV I	Moderate	Strong
3	2	Moderate	Strong 0
		6	0
3	2	0	0 0 3
3 3 <b>Ø</b>	2 (	<b>0</b>	0
3	2 2 ( 1	<b>0</b> ) 1 2	0 0 3
3 3	2 2 ( 1 1	) 1 2 2 1	0 0 3 3
3 3 0 0	2 2 ( 1 1 0.5	) 1 2 2	0 0 3 3 1.5
3 3 Q Q Q	2 2 1 1 0.5 1	) 1 2 2 1 2	0 0 3 3 1.5 3
3 3 0 0	2 2 ( 1 1 0.5	) 1 2 2 1 2 2	0 0 3 3 1.5
	0 0 0 0 0 0 0 No No 1.5 (	(b) 1 (c)	Ø         1         2           0         0.5         1           0         1         2           0         0.5         1           0         0.5         1           0         0.5         1           No = Ø         Yes           Absent         Weak         Moderate           Ø         1         2           0         1         2           1.5         1         0.5           0         0.5         1           0         0.5         1

Notes: No flow of Saturation was found in the channel foring the field
assessment. A good court of leaf cover was located in the bottom of the
Chamel. Grade coulds were located inthe feature which consisted of
large logs and small limbs/lest febris. The grade controls were acting in a maderall
loigent within the clines. No equite life was found surry fre assessment.

Named Waterbody: Ŋ∫ Å	Date/Time: 4- 22-2 \
Assessors/Affiliation: Cody Givens - GEOS	Project ID :
Site Name/Description: Loy 44 Doltewah - Georgetown Load Hyrldogical A	ssessment 34-214107
Site Location: O441 Dolferch - Georgesown Road, Odtersh, TN	
HUC (12 digit): 260200010401	Lat/Long: 5:35.22 4563,
Previous Rainfall (7-days): .03; Lche S	E: 35.223099/_ 84.999110
Precipitation this Season vs. Normal: abnormally wet elevated (average Source of recent & seasonal precipidata: 20 6 6 5	low abnormally dry unknown
Watershed Size :	County: Hamilton
Soil Type(s) / Geology: Hambler 5:1+ lan	Source: NRCS
Surrounding Land Use: Agricultural qui lesidential	
Degree of historical alteration to natural channel morphology & hydrology (circ Severe Moderate Slight	le one & describe fully in Notes) : Absent
Primary Field Indicators Observed	

Primary Indicators	NO	YES
Hydrologic feature exists solely due to a process discharge	×	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	X	WWC
Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	MA	WWC
Daily flow and precipitation records showing feature only flows in direct response to rainfall	4/A	WWC
<ol> <li>Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase</li> </ol>	Χ	Stream
6. Presence of fish (except Gambusia)	X	Stream
7. Presence of naturally occurring ground water table connection	X	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	X	Stream
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.

VVI O Guidance For Manning Tryanslegie Determinents,	teres de
Overall Hydrologic Determination = Strew	
Secondary Indicator Score (if applicable) = 29	
Justification / Notes: See Lates Section	

# Secondary Field Indicator Evaluation

0 0 0 0 0 0 0 0 0 0	1 1 1 0.5 1 0.5	2 2 2 2 2 3 1 5 2 4 1 2	3 3 3 1.5 3 1.5
0 0	1 '	② ② 1 0 2 0 1	3 3 1.5 3 3 1.5
0 0	1 '	2 0 2 0 1	3 1.5 3 3 1.5
0	1 '	1 0 <b>6</b> 2 0 1	1.5 3 3 1.5
0	1 '	2 0 1	3 3 1.5
0 0 0	1 1 0.5	2 0 1	3 1.5
<b>0</b> 0	1 0.5	0 1	1.5
0	0.5 1	φ <u>1</u>	- <del></del>
0	1	0	
			3
0	0	2	3
0	0.5	0	1.5
0	0.5	1 (	1.5
No =(6)		Yes	= 3

<b>B.</b> Hydrology (Subtotal = ${}^{0}^{2}$ )	Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	0	1	<b>(1)</b> 2	3
15. Water in channel and >48 hours since sig. rain	0	1	2	
16. Leaf litter in channel (January - September)	(1.5)	1	0.5	Ŏ_
17. Sediment on plants or on debris	0	0.5	0 9	1.5
18. Organic debris lines or piles (wrack lines)	0	0.5	0 3	1.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes =(1.5)	

C. Biology (Subtotal = 7)	Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed 1	3	2)	1	0
21. Rooted plants in the thalweg 1	3	2	0 1	0
22. Crayfish in stream (exclude in floodplain)	0	1	2	3
23. Bivalves/mussels	(0)	1	2	3
24. Amphibians	Ŏ	(0.5)	1	1.5
25. Macrobenthos (record type & abundance)	0	(1)	2	3_
26. Filamentous algae; periphyton	0	(1)	2	3
27. Iron oxidizing bacteria/fungus	0	(0.5)	1	1.5
28.Wetland plants in channel bed 2	0	(0.5)	1	1.5
1 Focus is on the presence of terrestrial plants. 2	Focus is on the p	resence of a	equatic or wetla	nd plants.

Total Points = <u>29</u>
Inder Normal Conditions, Watercourse is a Wet Weather
Conveyance if Secondary Indicator Score < 19 points

Notes: V: sible flow was found throughout the channel at the time of the field
assessment. Areas of prifile-run-lost sequences muce found throughout. Iron sheen:
was form within different locations of the Chemal. Grade Country's were eiso visible
that consisted on small logs and limb dobres. A few trops where weather in the
central Polition of the feature along with a croinafteet cosing. A few seccies of
Stiltgrass were visible aby the channel margins as well.

Named Waterbody: 1/A	Date/Time: 4-22-21				
Assessors/Affiliation: Cody Givens - GEOS	Project ID:				
Site Name/Description: 10444 Dollerah- Georgetone Rd Hylrological Assessment	39-214107				
Site Name/Description: 10444 Dollewah - Georgetown 10 Hylrological Assessment Site Location: 10444 Dollewah - Georgetown 10, Oolfewah, TN					
HUC (12 digit): 0 ( 0 2 00 ) 040 )	Lat/Long: 5:35-22 197 )				
Previous Rainfall (7-days) : هاعها: 3 ه	E: 35.2230901 - 84-998992				
Precipitation this Season vs. Normal: abnormally wet elevated (average) low abn Source of recent & seasonal precipidata: Co Co flobs	ormally dry unknown				
Watershed Size : County:	an: Iton				
Soil Type(s) / Geology: Colbert 5:   + loam	Source: NCS				
Surrounding Land Use: Agricultural and Residential					
Degree of historical alteration to natural channel morphology & hydrology (circle one & do	escribe fully in Notes) : osent				
Primary Field Indicators Observed					

Primary Indicators	NO	YES
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
Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	4/A	WWC
<ol> <li>Daily flow and precipitation records showing feature only flows in direct response to rainfall</li> </ol>	4/A	wwc
<ol> <li>Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase</li> </ol>	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	Χ	Stream
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.

	at 7
Overall Hydrologic Determination = Streen	
Secondary Indicator Score (if applicable) = 29	-
Justification / Notes: See hotes Section	

## **Secondary Field Indicator Evaluation**

	2.78				
_A. Geome	<b>orphology</b> (Subtotal = $\sqrt{5}$ )	Absent	Weak	Moderate	Strong
1. Continu	ous bed and bank	0	1	2 (	) 3
2. Sinuou	s channel	0	1	2	3
3. In-char	nel structure: riffle-pool sequences	0	1	2	3
	of soil textures or other substrate	0	1	2	3
5. Active	relic floodplain	0	0.5	1	1.5
6. Depos	tional bars or benches	0	1	(2)	3
7. Braide	d channel	0	1	2	3
8. Recen	t alluvial deposits	0	0.5	0 1	1.5
9. Natura	lievees	0	1	2	3
10. Heado	uts	0	1 /	0 2	3
11. Grade	controls	0	0.5	0 1	1.5
12. Natura	l valley or drainageway	0	0.5	1 (	) 1.5
	t second order channel on existing USGS				
or	1		=(0)	Yes	= 3
NRCS	map				
	, 15				
	logy (Subtotal = 🤟 )	Absent	Weak	Moderate	Strong
14. Subsu	rface flow/discharge into channel	0	1	(2)	3
15. Water	in channel and >48 hours since sig. rain	0	1	Φ <b>(2</b> )	3
16. Leaf li	ter in channel (January – September)	(1.5)	1	0.5	0
	ent on plants or on debris	Ō	0.5	0	1.5
18. Organ	ic debris lines or piles (wrack lines)	0	0.0	<b>b</b> 1	1.5
19. Hydric	soils in channel bed or sides of channel	No:	=(0)	Yes =	: 1.5
C. Biolog	y (Subtotal = $\delta$ )	Absent	Weak	Moderate	Strong
20. Fibrou	s roots in channel bed 1	3	(2)	1	0
21. Roote	d plants in the thalweg 1	3	(2)	1	0
	sh in stream (exclude in floodplain)	0	Ø	2	3
	es/mussels	0	1	2	3
24. Amph		O	(0.5)	1	1.5
25. Macro	benthos (record type & abundance)	0	(1)	2	3
	ratorio ologo, morinhi den			2	2

0

0

1 Focus is on the presence of terrestrial plants.

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

1.5

1.5

26. Filamentous algae; periphyton27. Iron oxidizing bacteria/fungus

28.Wetland plants in channel bed 2

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

Notes: A growduster table connection was located in the for usstrem storting
Point of the feature during the assessment. Visible flow was form in the claude
but not present throughout. A large bed out was found in the central lustion
of the feature. large logs and bolder clusters use found in the chancel and
work acting as moderate grade controls. A few species of callis fly where
located in the upstream portion of the feature - wetland (last species of
saft Rush ( Julis efficies) was found in the ulstrem stating loint of the foot

Named Waterbody:	Date/Time: 4-77-71
Assessors/Affiliation: Coly Gives- GEOS	Project ID :
Site Name/Description: 1044 Doltenth - Georgetoun Road Hyllorg: al Assessment	34-214107
Site Location: 10444 Dolferm - Georgetour Rd, Dolfersh ITN	
HUC (12 digit): 060200 040 (	Lai/Long: 5: 35.223 363, - 24. 49 45 55 E: 55. 322 354, - 54. 49 49 14
Previous Rainfall (7-days): . 03 : . cles	E: 35. 2223541 - 54. 99 481 4
Precipitation this Season vs. Normal: abnormally wet elevated (average) low abn Source of recent & seasonal precip data: ده (علمه)	ormally dry unknown
Watershed Size : County:	amilton
Soil Type(s) / Geology: Colbert 5:1+ lacm	Source: /LCS
Surrounding Land Use: Apricultural and besidential	
Degree of historical alteration to natural channel morphology & hydrotogy (circle one & do Severe Moderate Slight Al	escribe fully in Notes) : osent
Primary Eight Indicators Observed	

### **Primary Field Indicators Observed**

Primary Indicators	NO	YES
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
Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	4/A	wwc
Daily flow and precipitation records showing feature only flows in direct response to rainfall	4/A	wwc
<ol> <li>Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase</li> </ol>	×	Stream
6. Presence of fish (except Gambusia)	X	Stream
7. Presence of naturally occurring ground water table connection	X	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	X	Stream
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.

	and the same
Overall Hydrologic Determination = Street	and the second second
Secondary Indicator Score (if applicable) = $2^{9}$	Transmiss of the last of the l
Justification / Notes: Set hotes section ->	
	_
·	

# Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = \\ )	Absent	Weak	Moderate	Strong
1. Continuous bed and bank	0	1	2 (	) 3
2. Sinuous channel	0	1	2	3
3. In-channel structure: riffle-pool sequences	0	1 (	<b>9</b> 2	3
4. Sorting of soil textures or other substrate	Q	1 (	0 2	3
5. Active/relic floodplain	(6)	0.5	1	1.5
6. Depositional bars or benches	0	1 .	0 2	3
7. Braided channel	(0)	1	2	3
8. Recent alluvial deposits	0	0.5	<b>0</b> 1	1.5
9. Natural levees	0	1	2	3
10. Headcuts	0	<b>(D)</b>	2	3
11. Grade controls	0	0.5	<b>þ</b> 1	1.5
12. Natural valley or drainageway	0	0.5	1 (	1.5
13. At least second order channel on existing USGS		^		
or	No =(0)		Yes = 3	
NRCS map				
. 15				
B. Hydrology (Subtotal = 5 )	Absent	Weak	Moderate	Strong
14 Subsurface Boulding bound into the second	1		1 3	2

B. Hydrology (Subtotal = 5 )	Absent	Weak	Moderate	Strong	1.
14. Subsurface flow/discharge into channel	0	(1)	2	3	} \
15. Water in channel and >48 hours since sig. rain	0	1	2	3	12
16. Leaf litter in channel (January - September)	(7.5)	1	0.5	0	11.5
17. Sediment on plants or on debris	0	(0.5)	1	1.5	-5
18. Organic debris lines or piles (wrack lines)	0	0.5	<b>1</b>	1.5	7.
19. Hydric soils in channel bed or sides of channel	No	=(0)	Yes =	: 1.5	J-0

<b>C. Biology</b> (Subtotal = $6^{\circ}$ )	Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed 1	3	(2)	1	0
21. Rooted plants in the thalweg 1	3	(2)	1	0
22. Crayfish in stream (exclude in floodplain)	0	1	2	3
23. Bivalves/mussels	(6)	1	2	3
24. Amphibians	0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	0	9	2	3
26. Filamentous algae; periphyton	0	<b>6</b>	2	3
27. Iron oxidizing bacteria/fungus	0	(0.5)	1	1.5
28.Wetland plants in channel bed 2	6	0.5	1	1.5

1 Focus is on the presence of terrestrial plants.

<sup>2</sup> Focus is on the presence of aquatic or wetland plants.

Total Points = 29

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

Notes: Visible flow was located in the chamel at the time of the field
assessment, flow was found in signer run Pool sequences. A head out was found
hear the ulstream starting Point of the feature. Grade controls consisting of large
Coldistry casing with logs we form in the Cheanof likewise. A could of
coldis fly casings we found in the central Portion of the feature.

Formiococo Division of Vottor Formion Contract,	0:0:0::		
Named Waterbody: 4/A		Date/T	ime: 4-22-21
Assessors/Affiliation: Coly Gives- GFOS		Project	
	Assormed	med 34-214107	
Site Name/Description: LOHH Dolfersh-Gergeturn Road flytological Site Location: OHH Dolfersh-Georgeturn Rt, Dolfersh, TN			
HUC (12 digit): 0(002 00/040/		Lat/Lor	1 <b>g</b> : <sup>S: 35.219995,</sup> -84.992010
Previous Rainfall (7-days): -03 incles		E: 35.21991	5, -84.993772
Precipitation this Season vs. Normal: abnormally wet elevated average Source of recent & seasonal precipidata: (0 (0 LaL)	low abi	normally	dry unknown
Watershed Size :	County:	(tani ) to	4
Soil Type(s) / Geology: Colleged of 5:1+ loca		Sou	rce: PRCS
Surrounding Land Use: Agr: cultural Rul Residential			
Degree of historical alteration to natural channel morphology & hydrology (circ Severe Moderate Slight		lescribe fo bsent	ully in Notes):
Primary Field Indicators Observed			
		81/2	74E-C

Primary Indicators	NO	YES
Hydrologic feature exists solely due to a process discharge	X	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	Χ	WWC
<ol> <li>Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions</li> </ol>	Alq	wwc
<ol> <li>Daily flow and precipitation records showing feature only flows in direct response to rainfall</li> </ol>	4/A	WWC
<ol> <li>Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase</li> </ol>	X	Stream
6. Presence of fish (except Gambusia)	<u> </u>	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
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.

WPC Guidance For Making Frydrologic Determinations, Verdien F.
Overall Hydrologic Determination = Steem
Secondary Indicator Score (if applicable) = 28
Justification / Notes: See hotes Section

# **Secondary Field Indicator Evaluation**

A. Geomorphology (Subtotal = $\binom{\circ}{}$ )	Absent	Weak	Moderate	Strong
Continuous bed and bank	0	1	2 (	) 3
2. Sinuous channel	0	9	2	3
3. In-channel structure: riffle-pool sequences	0	1	2	3
4. Sorting of soil textures or other substrate	Q	1	<b>P</b> 2	3
5. Active/relic floodplain	(0)	0.5	1	1.5
6. Depositional bars or benches	0	1	<b>Q</b>	3
7. Braided channel	0	1	2	3
8. Recent alluvial deposits	0	0.5	<b>\$</b> 1	1.5
9. Natural levees	0	1	2	3
10. Headcuts	0	1 1	<b>Q</b> 2	3
11. Grade controls	0	0.5	<b>d</b> 1	1.5
12. Natural valley or drainageway	0	0.5	1	(1.5)
13. At least second order channel on existing USGS or	No =0		Yes	= 3
NRCS map				

B. Hydrology (Subtotal = $\sqrt{2}$ )	Absent	Weak	Moderate	Strong	
14. Subsurface flow/discharge into channel	0	1	(2)	3	11
15. Water in channel and >48 hours since sig. rain	0	1	<b>d</b> 2	3	-1-
16. Leaf litter in channel (January - September)	(1.5)	1	0.5	0	1.5
17. Sediment on plants or on debris	0	0.5	o 1	1.5	7
18. Organic debris lines or piles (wrack lines)	0	0.5	<b>d</b> 1	1.5	7.
19. Hydric soils in channel bed or sides of channel	No	=(0)	Yes =	: 1.5	1-0

C. Biology (Subtotal = )	Absent	Weak	Moderate	Strong	].
20. Fibrous roots in channel bed 1	3	(2)	1	0	_};
21. Rooted plants in the thalweg 1	3	(2)	1	0	]-,
22. Crayfish in stream (exclude in floodplain)	0	9	2	3	_
23. Bivalves/mussels	(0)	1	2	3	
24. Amphibians	(0)	0.5	1	1.5	J-0
25. Macrobenthos (record type & abundance)	0	Ø	2	3	}-
26. Filamentous algae; periphyton	0	(1)	2	3	
27. Iron oxidizing bacteria/fungus	0	(0.5)	1	1.5	]-
28.Wetland plants in channel bed 2	0	(0.5)	1	1.5	]-
Focus is on the processes of torrestrial plants	Casua la an Man n		tio or wotlo	nd plante	

1 Focus is on the presence of terrestrial plants.

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

Total	<b>Points</b>	=	28
-------	---------------	---	----

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

Notes: A grow water table connection was located at the Starting Point of the
feature at a large headout. Flow was visible throughout the majority of the
feature but some areas consisted of foots or ment subsurface. Long, bolder clust
were present that feature and evere acting as persuant grade controls,
A small population of cronfish were found within the chemiel cloud with a few
Coldis fly Casings.

# Appendix G

**USACE Wetland Delineation Field Data Forms** 

Project/Site: 10444 Ooltewah C	eorgeto\	wn Road <sub>City/C</sub>	County: Ooltewah /	Hamilton	Sampling Date: 4-22-21		
Applicant/Owner: Mr. Mark Joom					Sampling Point: DP-1		
Investigator(s): Cody Givens-GE			on, Township, Range:				
Landform (hillslope, terrace, etc.): slop				<sub>ne):</sub> concave	Slope (%): 0-1		
Subregion (LRR or MLRA): LRR			Long: <u>-84</u>		Datum:		
Soil Map Unit Name: Capshaw silt	loam an	d Colbert silt lo	<u></u>		cation:		
Are climatic / hydrologic conditions on th							
Are Vegetation, Soil, or F		-			present? Yes No		
Are Vegetation, Soil, or F				explain any answe	· · · · · · · · · · · · · · · · · · ·		
SUMMARY OF FINDINGS – At	-						
COMMENT OF THE INCO - AC				, transcott	s, important reatures, etc.		
Hydrophytic Vegetation Present?		No	Is the Sampled Area				
Hydric Soil Present?		No	within a Wetland?	Yes	No		
Wetland Hydrology Present?  Remarks:	Yes	No					
HYDROLOGY							
Wetland Hydrology Indicators:				Secondary Indica	ators (minimum of two required)		
Primary Indicators (minimum of one is	equired; che	ck all that apply)		Surface Soil	Cracks (B6)		
Surface Water (A1)	_	_ True Aquatic Plants (			getated Concave Surface (B8)		
High Water Table (A2)	_	_ Hydrogen Sulfide Od	or (C1)	Drainage Pa			
✓ Saturation (A3)			es on Living Roots (C3)	Moss Trim L			
Water Marks (B1)		Presence of Reduced			Water Table (C2)		
Sediment Deposits (B2)		Recent Iron Reduction		Crayfish Bur			
Drift Deposits (B3)	_	_ Thin Muck Surface (0			isible on Aerial Imagery (C9)		
✓ Algal Mat or Crust (B4)	_	Other (Explain in Rer	marks)		tressed Plants (D1)		
Iron Deposits (B5) Inundation Visible on Aerial Image	rv (R7)				Position (D2)		
Water-Stained Leaves (B9)	y (D1)			Shallow Aquitard (D3) Microtopographic Relief (D4)			
Aquatic Fauna (B13)				FAC-Neutral			
Field Observations:					. ,		
Surface Water Present? Yes	No	Depth (inches):					
		Depth (inches):					
	<u></u> No	Depth (inches): 0-4	1" Wetland H	lydrology Presei	nt? Yes No		
(includes capillary fringe)  Describe Recorded Data (stream gauge)	e. monitorina	well, aerial photos, pre	evious inspections), if ava	ilable:			
33	.,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
Remarks:							

Sampling Point: DP-1

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:)		Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata:(B)
4			-	
5			-	Percent of Dominant Species
6			_	That Are OBL, FACW, or FAC: (A/B)
				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
8	^			OBL species x 1 =
Continue/Charle Charters (Diet sine)	0	= Total Cov	er	FACW species $30$ $x = 60$
Sapling/Shrub Stratum (Plot size:)  1. Ulmus americana	15	_	FACW	40
2. Liquidambar styraciflua	10		FAC	FACU species 30 x 4 = 120
3				UPL species x 5 =
4				Column Totals: 100 (A) 300 (B)
5			-	3.0
6			-	Prevalence Index = $B/A = 3.0$
7.			-	Hydrophytic Vegetation Indicators:
8				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
9				_ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
10	0.5			4 - Morphological Adaptations <sup>1</sup> (Provide supporting
Llorb Stratum (Diot circu	25	= Total Cov	er	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)  1 Juncus effusus	15	_	FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
**			FACU	_ , , , , , ,
2. Schedonorus arundinaceus	_ 10			<sup>1</sup> Indicators of hydric soil and wetland hydrology must
3. Sorghum halepense	20		FACU	be present, unless disturbed or problematic.
4. Carex abscondita	30		FAC	Definitions of Four Vegetation Strata:
5				John Marie Com Cognition Chata
6			-	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				more in diameter at breast height (DBH), regardless of height.
			_	neight.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10			<u> </u>	<b>Herb</b> – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
12				We although a Allows the citizen and the man O OO 6 in
	75	= Total Cov	er	Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size:)				noight.
1				
2				
3				
4		-	-	
5		_	-	Hydrophytic
			_	Vegetation Present? Yes No
6	0			100 <u> </u>
		= Total Cov	er	
Remarks: (Include photo numbers here or on a separate The vegetation had been altered by ag	•	nractic	es nrini	r to the field reconnaissance (i.e.
Bushhogging-Hay Production).	ilculturai	practic	es prioi	to the held recommaissance (i.e.,
businiogging-riay r roduction).				

Depth Des	Matrix		pth needed to doc Red	dox Featu	ires		42301100	
(inches)	Color (moist)	%	Color (moist)	i) % Type <sup>1</sup> Loc <sup>2</sup>			Texture	Remarks
0-12	10yr 5/2	96	10yr 4/6	4	<u>D</u>	<u> M</u>	_ <u>L</u>	
	-						·	
							<u> </u>	
	-		-					
							<u> </u>	
	· -		<del>.</del>				<u> </u>	
			<u></u>					
Typo: C=C	Concontration D=Da	nlotion DN	- ∕/⊫Reduced Matrix, I	MS=Mack	od Sand G	raine	<sup>2</sup> Location: DI	
	Indicators:	epietion, Ri	/i=Reduced Matrix, i	vi5=iviasr	eu Sanu G	oranis.		ators for Problematic Hydric Soils <sup>3</sup> :
Histoso			Dark Surfa	00 (87)				cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue I		rface (S8) (	(MI RΔ 147		Coast Prairie Redox (A16)
	listic (A3)		Tolyvaide I				, 140) C	(MLRA 147, 148)
	en Sulfide (A4)		Loamy Gle			147, 140)	P	Piedmont Floodplain Soils (F19)
	ed Layers (A5)		<u>✓</u> Depleted M					(MLRA 136, 147)
	uck (A10) (LRR N)		Redox Dar					, ,
	ed Below Dark Surfa	ice (A11)	Depleted D				V	ery Shallow Dark Surface (TF12)
Thick D	ark Surface (A12)		Redox Dep	ressions	(F8)		c	Other (Explain in Remarks)
	Mucky Mineral (S1)	(LRR N,	Iron-Manga	anese Ma	sses (F12)	(LRR N,		
	A 147, 148)		MLRA 1	•			_	
	Gleyed Matrix (S4)		Umbric Su					licators of hydrophytic vegetation and
-	Redox (S5)		Piedmont F					vetland hydrology must be present,
	d Matrix (S6)		Red Paren	t Material	(F21) <b>(ML</b>	RA 127, 14	<b>17)</b> ui	nless disturbed or problematic.
	Layer (if observed	1):						
Туре:								✓
Depth (ir	nches):						Hydric Soil	Present? Yes No
Remarks:								

Project/Site: 10444 Ooltewah Georgetown Road City/O	County: Ooltewah / Hamilton Sampling Date: 4-22-21
Applicant/Owner: Mr. Mark Jooma	State: TN Sampling Point: DP-2
0 1 0: 0500	ion, Township, Range:
Landform (hillslope, terrace, etc.): slope Local re	
Subregion (LRR or MLRA): LRR Lat: 35.221691	Long: -84.995414 Datum:
Canabayy ailt laam	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation, Soil, or Hydrology significantly disturbed.	
Are Vegetation, Soil, or Hydrology naturally problem	natic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing san	mpling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes No  Yes No	Is the Sampled Area within a Wetland? Yes No
Wetland Hydrology Present? Yes V No	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants	
High Water Table (A2)  Hydrogen Sulfide Oct.	
Saturation (A3)  Oxidized Rhizospher  Water Marks (B1)	
Water Marks (B1) Presence of Reduce Sediment Deposits (B2) Recent Iron Reduction	· · ·
Algal Mat or Crust (B4) Other (Explain in Re Iron Deposits (B5)	marks) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Initial Deposits (B5) Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	(Po-Neutral Test (Po)
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes _ No _ Depth (inches): 0-2	Wetland Hydrology Present? Yes No No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	
	,
Remarks:	

Sampling Point: DP-2

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover		Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4			-	Description of Description of Organia
5			-	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
6.				(74B)
7.				Prevalence Index worksheet:
8			-	Total % Cover of: Multiply by:
· .	^	= Total Co	vor	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)	<u>-</u>	- Total Co	VCI	FACW species 30 x 2 = 60
1.		-	-	FAC species 40 x 3 = 120
2.			-	FACU species 30 x 4 = 120
3.			-	UPL species x 5 =
4			_	Column Totals: 100 (A) 300 (B)
				(1)
5				Prevalence Index = $B/A = 3.0$
6				Hydrophytic Vegetation Indicators:
7			<u> </u>	1 - Rapid Test for Hydrophytic Vegetation
8			<del>-</del>	2 - Dominance Test is >50%
9				✓ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
10				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
	0	= Total Co	ver	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)			FACU	Problematic Hydrophytic Vegetation¹ (Explain)
1. Rubus argutus				
			FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
			FAC	be present, unless disturbed or problematic.
4. Andropogon virginicus				Definitions of Four Vegetation Strata:
5		_	-	
6			-	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				more in diameter at breast height (DBH), regardless of height.
8.				
9.				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				than 3 in. DBH and greater than 3.20 it (1 iii) tail.
11				Herb – All herbaceous (non-woody) plants, regardless
				of size, and woody plants less than 3.28 ft tall.
12	<del></del>	T-4-1 O-		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)	<del>-</del>	= Total Co	ver	height.
1		-	-	
		_	-	
2				
3				
4			· —	Hydrophytic
5			<u> </u>	Vegetation
6	^		· <del>-</del>	Present? Yes No
		= Total Co	ver	
Remarks: (Include photo numbers here or on a separate The vegetation had been altered by ag Bushhogging-Hay Production).	•	l practio	ces prior	r to the field reconnaissance (i.e.,

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.	narks
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  PL=Pore Lining, M=N ydric Soil Indicators:  Indicators for Problems  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Thin Dark Surface (S8) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Stratified Layers (A5)  Depleted Matrix (F3)  Z cm Muck (A10) (LRR N)  Depleted Below Dark Surface (F6)  Depleted Below Dark Surface (F7)  Thick Dark Surface (A11)  Thick Dark Surface (A11)  Depleted Dark Surface (F7)  Thick Dark Surface (A11)  MLRA 147, 148)  MURA 147, 148)  Sandy Mucky Mineral (S1) (LRR N, MLRA 136, 122)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Depleted Dark Surface (F12) (MLRA 136, 122)  Sandy Redox (S5)  Sandy Redox (S5)  Piedmont Floodplair  MRA 147, 148)  MRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Piedmont Floodplair Soils (F12) (LRR N, MLRA 147)  Wetland hydrology in Stripped Matrix (S6)  Red Parent Material (F21) (MLRA 127, 147)  Depth (inches):  Hydric Soil Present? Yes	
Histosol (A1)	
ric Soil Indicators:  Histosol (A1)  Dark Surface (S7)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Below Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Derivalue Below Surface (S8) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Selow Surface (A14, 148)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Iron-Manganese Masses (F12) (LRR N, MLRA 147, 148)  MLRA 136)  Umbric Surface (F13) (MLRA 136, 122)  Sandy Redox (S5)  Stripped Matrix (S6)  Red Parent Material (F21) (MLRA 148)  Sepeth (inches):  Dark Surface (S7)  Loamy Gleyed Matrix (F2)  MLRA 147, 148)  Depleted Matrix (F2)  Loamy Gleyed Matrix (F2)  MLRA 136, 147, 148  Wetland hydrology material (F21) (MLRA 148)  Wetland hydrology material (F21) (MLRA 127, 147)  Wetland Present? Yes Depth (inches):	
Histosol (A1)	_4ut.
Histosol (A1)	
Histic Epipedon (A2)	•
Black Histic (A3)	
Hydrogen Sulfide (A4)	(A16)
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) Red Parent Material (F21) (MLRA 127, 147) Stripped Matrix (S6) Stri	Soils (F19)
Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N,  MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Stripped Matrix (S6)  Stripped Matrix (S6)  Stripped Matrix (S6)  Crictive Layer (if observed):  Supper Matrix (S6)  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)  Wetland hydrology or processions (F8)  Wetland hydrology or processions (F12) (MLRA 127, 147)  Wetland hydrology or processions (F12) (MLRA 127, 147)  Wetland hydrology or processions (F12) (MLRA 128)  Wetlan	
Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Respondent Fig. 1) (LRR N, MLRA 147, 148) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) 3 Indicators of hydrophy MLRA 148) wetland hydrology material (F21) (MLRA 127, 147) unless disturbed or particitive Layer (if observed):  Type: Depth (inches): Hydric Soil Present? Yes	
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Stripped Matrix (S6)  Type:  Depth (inches):  Liron-Manganese Masses (F12) (LRR N, MLRA 136)  MLRA 136)  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology or trictive Layer (if observed):  Hydric Soil Present? Yes	
MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  MLRA 136,  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Red Parent Material (F21) (MLRA 127, 147)  Well of the served of	marks)
Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122)  Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology most property of the stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) unless disturbed or property of the stripped with the stripped wi	
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology more stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) unless disturbed or putrictive Layer (if observed):  Type: Depth (inches): Hydric Soil Present? Yes	
Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) unless disturbed or particitive Layer (if observed):  Type: Depth (inches): Hydric Soil Present? Yes	tic vegetation and
Strictive Layer (if observed):  Type:  Depth (inches): Hydric Soil Present? Yes	ust be present,
Strictive Layer (if observed):  Type:  Depth (inches): Hydric Soil Present? Yes	roblematic.
Type:	
Depth (inches): Hydric Soil Present? Yes _	
	No V
narks:	NO

Project/Site: 10444 Ooltewah 0	Georgetov	wn Road <sub>City/C</sub>	<sub>County:</sub> Ooltewah /	Hamilton	Sampling Date: 4-22-21		
Applicant/Owner: Mr. Mark Joon					Sampling Point: DP-3		
Investigator(s): Cody Givens-GE			on, Township, Range:		<u> </u>		
Landform (hillslope, terrace, etc.): Slop				<sub>ne):</sub> concave	Slope (%): <b>0-1</b>		
Subregion (LRR or MLRA): LRR					Datum:		
Soil Map Unit Name: Capshaw sil	t loam				cation:		
Are climatic / hydrologic conditions on the		for this time of year?	ves V No.				
Are Vegetation, Soil, or					4		
Are Vegetation, Soil, or	-			explain any answe			
SUMMARY OF FINDINGS - A	tach site r	nap snowing san	npling point locatio	ons, transects	s, important features, etc.		
Hydrophytic Vegetation Present?	Yes	No	Is the Sampled Area				
Hydric Soil Present?		No	within a Wetland?	Yes_	No		
Wetland Hydrology Present?  Remarks:	Yes	No					
HYDROLOGY							
Wetland Hydrology Indicators:				Secondary Indica	ators (minimum of two required)		
Primary Indicators (minimum of one is	required: che	ck all that apply)		Surface Soil			
Surface Water (A1)		_ True Aquatic Plants (			getated Concave Surface (B8)		
High Water Table (A2)		_ Hydrogen Sulfide Od		Drainage Pa			
Saturation (A3)		-	es on Living Roots (C3)	Moss Trim L			
Water Marks (B1)		Presence of Reduced	=		Water Table (C2)		
Sediment Deposits (B2)		Recent Iron Reduction		Crayfish Bur			
<u>✓</u> Drift Deposits (B3)	_	Thin Muck Surface (0			isible on Aerial Imagery (C9)		
✓ Algal Mat or Crust (B4)	_	Other (Explain in Rer	marks)		tressed Plants (D1)		
Iron Deposits (B5)					Position (D2)		
Inundation Visible on Aerial Image	ry (B7)			Shallow Aquitard (D3)			
Water-Stained Leaves (B9)				· -	aphic Relief (D4)		
Aquatic Fauna (B13) Field Observations:				FAC-Neutra	Tirest (D5)		
	No 🗸	_ Depth (inches):					
		Depth (inches):					
		Depth (inches): 0-4	1" Wetland H	lydrology Presei	nt? Yes No		
(includes capillary fringe)  Describe Recorded Data (stream gauge							
Describe Recorded Data (stream gaug	e, monitoring	weii, aeriai priotos, pre	evious irispections), ii ava	liable.			
Remarks:							

Sampling Point: DP-3

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:)		Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2		-	-	Total Number of Deminerat
3			-	Total Number of Dominant Species Across All Strata:(B)
4			-	(B)
				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A/B)
6				Prevalence Index worksheet:
7				
8				Total % Cover of: Multiply by:
	$^{\circ}$	= Total Cov	er er	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)	<u> </u>			FACW species $35$ $x = 70$
<sub>1.</sub> Liquidambar styraciflua	15	-	FAC	FAC species $30$ $x 3 = 90$
2. Ulmus americana	15	-	FACW	FACU species <u>35</u> x 4 = <u>140</u>
~` <del></del>			_	UPL species x 5 =
3				100 200
4				Column Totals: 100 (A) 300 (B)
5				Prevalence Index = B/A = 3.0
6				
7				Hydrophytic Vegetation Indicators:
8				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
9				v 3 - Prevalence Index is ≤3.0 <sup>1</sup>
10	20			4 - Morphological Adaptations <sup>1</sup> (Provide supporting
Hart Otastura (Districts	30	= Total Cov	er	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)	20		FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Schedonorus arundinaceus	20			
2. Juncus effusus	20		FACW	1 adjectors of budgie coil and well-and budgetons are
3. Sorghum halepense	15	-	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. Carex abscondita	15	-	FAC	
5			-	Definitions of Four Vegetation Strata:
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7				height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10			-	
11.			-	Herb – All herbaceous (non-woody) plants, regardless
			_	of size, and woody plants less than 3.28 ft tall.
12	70			Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)	70	= Total Cov	er	height.
		_	_	
1.				
2				
3				
4		-	-	
5		-	-	Hydrophytic
6.		_	_	Vegetation Present? Yes No
0	^	Tatal Car		
		= Total Cov	er	
Remarks: (Include photo numbers here or on a separate	•			
The vegetation had been altered by ag	ricultural	practic	es prior	r to the field reconnaissance (i.e.,
Bushhogging-Hay Production).				
,				
				I

Depth	Matrix		epth needed to doc Red	lox Featu				,
(inches)	Color (moist)	%	Color (moist)	%_	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-12	10yr 5/2	97	10yr 4/6	3	<u>D</u>	M	L	
			-			- '		
		_		_		-		-
							· -	
			-	<u> </u>				
	-							-
							· -	
Type: C=C	oncentration, D=De	epletion. RN	M=Reduced Matrix, N	 ∕/S=Mask	ed Sand G	rains.	<sup>2</sup> Location: F	PL=Pore Lining, M=Matrix.
	Indicators:	<del>, , , , , , , , , , , , , , , , , , , </del>			04 044 0			cators for Problematic Hydric Soils <sup>3</sup> :
_ Histosol			Dark Surfa	ce (S7)				2 cm Muck (A10) <b>(MLRA 147)</b>
	pipedon (A2)		Polyvalue E		face (S8) (	MLRA 147		Coast Prairie Redox (A16)
_ Black H	istic (A3)		Thin Dark S	Surface (S	9) <b>(MLRA</b>	147, 148)		(MLRA 147, 148)
Hydroge	en Sulfide (A4)		Loamy Gle					Piedmont Floodplain Soils (F19)
<del></del>	d Layers (A5)		Depleted M					(MLRA 136, 147)
	uck (A10) (LRR N)		Redox Dar					
	d Below Dark Surfa	ace (A11)	Depleted D					Very Shallow Dark Surface (TF12)
	ark Surface (A12) Mucky Mineral (S1)	/I DD N	Redox Dep Iron-Manga			/I DD N		Other (Explain in Remarks)
	A 147, 148)	(LKK N,	IIOII-Manga		5565 (F 12)	(LKK N,		
	Gleyed Matrix (S4)		Umbric Sur	•	) (MLRA 1	36. 122)	<sup>3</sup> In	dicators of hydrophytic vegetation and
	Redox (S5)		Piedmont F					wetland hydrology must be present,
-	d Matrix (S6)		Red Parent					unless disturbed or problematic.
Restrictive	Layer (if observed	i):						-
								4
Type:								
	iches):						Hydric So	il Present? Yes No
Depth (in	iches):						Hydric So	il Present? Yes No
• • • • • • • • • • • • • • • • • • • •	oches):						Hydric So	il Present? Yes No
Depth (in	iches):						Hydric So	il Present? Yes No
Depth (in	iches):						Hydric So	il Present? Yes No No
Depth (in	ches):						Hydric So	il Present? Yes No
Depth (in	iches):						Hydric So	il Present? Yes No
Depth (in	iches):						Hydric So	il Present? Yes No
Depth (in	iches):						Hydric So	il Present? Yes No
Depth (in	iches):						Hydric So	il Present? Yes No
Depth (in	iches):						Hydric So	il Present? Yes No No
Depth (in	iches):						Hydric So	il Present? Yes No No
Depth (in	iches):						Hydric So	il Present? Yes No No
Depth (in	iches):						Hydric So	il Present? Yes No
Depth (in	iches):						Hydric So	il Present? Yes No
Depth (in	iches):						Hydric So	il Present? Yes No
Depth (in	iches):						Hydric So	il Present? Yes No No
Depth (in	iches):						Hydric So	Il Present? Yes No No
Depth (in	iches):						Hydric So	il Present? Yes No No
Depth (in	iches):						Hydric So	il Present? Yes No No
Depth (in	iches):						Hydric So	il Present? Yes No
Depth (in	iches):						Hydric So	il Present? Yes No
Depth (in	iches):						Hydric So	il Present? Yes No
Depth (in	iches):						Hydric So	Il Present? Yes No No

Project/Site: 10444 Ooltewah	า Georgetow	n Road <sub>City/C</sub>	county: Ooltewah /	Hamilton	Sampling Date: 4-22-21			
Applicant/Owner: Mr. Mark Jou					Sampling Point: DP-4			
Investigator(s): Cody Givens-			on, Township, Range:		<u> </u>			
Landform (hillslope, terrace, etc.): Sl				<sub>ne):</sub> convex	Slope (%): <b>0-1</b>			
Subregion (LRR or MLRA): LRR			Long: <u>-84</u>		Datum:			
Soil Map Unit Name: Capshaw	silt loam				cation:			
Are climatic / hydrologic conditions o		or this time of year? V	ves V No					
Are Vegetation, Soil,					<b>4</b>			
Are Vegetation, Soil,				explain any answe				
SUMMARY OF FINDINGS –	Attach site m	ap snowing sam	ipling point location	ons, transects	s, important features, etc.			
Hydrophytic Vegetation Present?	hytic Vegetation Present? Yes No Is the Sampled A				4			
Hydric Soil Present?	Yes	No	within a Wetland?	Yes	No			
Wetland Hydrology Present?	Yes	_ No						
HYDROLOGY	_							
Wetland Hydrology Indicators:				Secondary Indicators (minimum of two required) Surface Soil Cracks (B6)				
Primary Indicators (minimum of one								
Surface Water (A1)		True Aquatic Plants (			getated Concave Surface (B8)			
High Water Table (A2) Saturation (A3)		Hydrogen Sulfide Ode	or (C1) es on Living Roots (C3)	Drainage Pa				
Water Marks (B1)		Presence of Reduced	- · · · · · · · · · · · · · · · · · · ·		Water Table (C2)			
Sediment Deposits (B2)		Recent Iron Reductio		Crayfish Bur				
Drift Deposits (B3)		Thin Muck Surface (C		-	isible on Aerial Imagery (C9)			
Algal Mat or Crust (B4)	_	Other (Explain in Rer	marks)		Stressed Plants (D1)			
Iron Deposits (B5)					Position (D2)			
Inundation Visible on Aerial Ima	agery (B7)			Shallow Aqu				
Water-Stained Leaves (B9)				Microtopographic Relief (D4)				
Aquatic Fauna (B13) Field Observations:				FAC-Neutra	i Test (D5)			
	s No 🗸	Depth (inches):						
		Depth (inches):						
		Depth (inches):		lydrology Prese	nt? Yes No			
(includes capillary fringe)								
Describe Recorded Data (stream ga	auge, monitoring w	veii, aeriai pnotos, pre	evious inspections), if ava	illable:				
Remarks:								
remarks.								

Sampling Point: DP-4

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:)		Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4			-	Description of Description of Organics
5				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
6.				That rice obe, troov, or tries
7				Prevalence Index worksheet:
8			-	Total % Cover of: Multiply by:
·	^	= Total Cov		OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)		- Total Cov	761	FACW species 10 x 2 = 20
1. Ulmus americana	10	-	FACW	FAC species x 3 =
2.		-	-	FACU species 90 x 4 = 360
3			-	UPL species x 5 =
			_	Column Totals: 100 (A) 380 (B)
4				(A)(A)
5				Prevalence Index = $B/A = 3.8$
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
10				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
	10	= Total Cov	/er	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)	00		FACIL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Solidago canadensis	_ 20		FACU	
2. Sorghum halepense	20		FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
3. Schedonorus arundinaceus	30		FACU	be present, unless disturbed or problematic.
4. Andropogon virginicus	20		FACU	Definitions of Four Vegetation Strata:
5				John Mone of Four Togottation Guatar
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				more in diameter at breast height (DBH), regardless of height.
8				
9			_	Sapling/Shrub – Woody plants, excluding vines, less
			_	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		_		Herb – All herbaceous (non-woody) plants, regardless
				of size, and woody plants less than 3.28 ft tall.
12	90	<del>-</del>		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)	90	= Total Cov	/er	height.
		_	_	
1				
2.				
3				
4				Hydrophytic
5				Vegetation
6				Present? Yes No
	0	= Total Cov	/er	
Remarks: (Include photo numbers here or on a separate	sheet.)			
The vegetation had been altered by ag	ricultural	practic	es prior	to the field reconnaissance (i e
Bushhogging-Hay Production).	i ioditara	praotio	oo piloi	to the hold recommendation (i.e.,
Bushinogging-ray r roduction).				

Denin	Matrix		Redov	Features					
Depth (inches)	Color (moist)	%	Color (moist)	% Type <sup>1</sup>	Loc <sup>2</sup>	Texture	<u>.                                    </u>	Remarks	
0-12	10yr 4/4	100	,/			L			
					<del></del>	_			
vno: C=C	oncontration D=Day	olotion DM-	Reduced Matrix, MS	-Maakad Sand Cra	ino 2	Location	PL=Pore Lini	oa M-Motriy	
	Indicators:	pielion, Rivi-	Reduced Matrix, MS	=iviaskeu Sanu Gra	IIIS.			roblematic Hy	rdria Caila <sup>3</sup> :
						1111		_	
_ Histosol			Dark Surface			_		A10) (MLRA 1	
	oipedon (A2)			ow Surface (S8) (M		48)		e Redox (A16)	
_	istic (A3)			face (S9) <b>(MLRA 1</b>	47, 148)		(MLRA 14		
	en Sulfide (A4)		Loamy Gleyed					oodplain Soils	(F19)
<del></del> -	d Layers (A5)		Depleted Matr				(MLRA 13	36, 147)	
_ 2 cm Mu	ıck (A10) <b>(LRR N)</b>		Redox Dark S	urface (F6)					
Deplete	d Below Dark Surfac	ce (A11)	Depleted Dark	Surface (F7)			Very Shallov	v Dark Surface	: (TF12)
_ Thick Da	ark Surface (A12)		Redox Depres	sions (F8)			_ Other (Expla	in in Remarks	)
_ Sandy N	Mucky Mineral (S1)	LRR N,	Iron-Mangane	se Masses (F12) (L	.RR N,				
	A 147, 148)		MLRA 136						
	Gleyed Matrix (S4)			, e (F13) <b>(MLRA 13</b>	6, 122)	5	Indicators of h	ydrophytic veg	etation and
	Redox (S5)			odplain Soils (F19)				rology must be	
-	Matrix (S6)			aterial (F21) <b>(MLR</b> /			-	bed or problen	
	Layer (if observed)	•	rear arenew	aterial (i 21) (iii210	1 121, 141)		dilicoo diotai	bed of problem	idilo.
Type:									<b>/</b>
						Hydric S	Soil Present?	Yes	No
Depth (in	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
Depth (in	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								

Project/Site: 10444 Ooltewah 0	Georgetov	wn Road <sub>City/C</sub>	<sub>County:</sub> Ooltewah /	Hamilton	Sampling Date: 4-22-21			
Applicant/Owner: Mr. Mark Joon					Sampling Point: DP-5			
Investigator(s): Cody Givens-G			on, Township, Range:					
Landform (hillslope, terrace, etc.): Slop				<sub>ne):</sub> concave	Slope (%): <b>0-1</b>			
Subregion (LRR or MLRA): LRR			Long: <u>-84</u>		Datum:			
Soil Map Unit Name: Capshaw sil	t loam	•			cation:			
Are climatic / hydrologic conditions on the		for this time of year?	ves V No.					
Are Vegetation, Soil, or					4			
Are Vegetation, Soil, or	-			explain any answe				
SUMMARY OF FINDINGS – A	ttach site n	nap snowing san	npling point locatio	ons, transects	s, important features, etc.			
Hydrophytic Vegetation Present?	Yes	No	Is the Sampled Area	4				
Hydric Soil Present?		No	within a Wetland?	Yes_	No			
Wetland Hydrology Present?  Remarks:	Yes	No						
HYDROLOGY								
Wetland Hydrology Indicators:				Secondary Indica	ators (minimum of two required)			
Primary Indicators (minimum of one is	required; chec	ck all that apply)		Surface Soil				
Surface Water (A1)		True Aquatic Plants (			getated Concave Surface (B8)			
High Water Table (A2)		Hydrogen Sulfide Od		Drainage Pa				
Saturation (A3)		Oxidized Rhizospher	es on Living Roots (C3)	Moss Trim L	ines (B16)			
Water Marks (B1)		Presence of Reduced	d Iron (C4)	Dry-Season	Water Table (C2)			
Sediment Deposits (B2)		Recent Iron Reduction	on in Tilled Soils (C6)	Crayfish Bur	rows (C8)			
Drift Deposits (B3)		Thin Muck Surface (0						
Algal Mat or Crust (B4)		Other (Explain in Rer	marks)		tressed Plants (D1)			
Iron Deposits (B5)	(5-)				Position (D2)			
Inundation Visible on Aerial Image	ery (B7)			Shallow Aquitard (D3)				
Water-Stained Leaves (B9)				Microtopographic Relief (D4) FAC-Neutral Test (D5)				
Aquatic Fauna (B13) Field Observations:				FAC-Neutral	Trest (D5)			
	No 🗸	_ Depth (inches):						
		Depth (inches):			4			
		Depth (inches): 0-4	1" Wetland H	lydrology Preser	nt? Yes No No			
(includes capillary fringe)  Describe Recorded Data (stream gauge								
Describe Necorded Data (Stream gade	je, monitoring	well, acrial priotos, pro	vious inspections), ii ava	liable.				
Remarks:								

Sampling Point: DP-5

	Absolute	Dominant		Dominance Test worksheet:				
Tree Stratum (Plot size:)		Species?	Status	Number of Dominant Species				
1				That Are OBL, FACW, or FAC: (A)				
2				Total Number of Dominant				
3				Species Across All Strata: (B)				
4			-					
5.			-	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B	,			
6			_	I nat Are OBL, FACW, or FAC: (A/B	,			
7			_	Prevalence Index worksheet:				
				Total % Cover of: Multiply by:				
8	^			OBL species x 1 =				
Sapling/Shrub Stratum (Plot size:)	<u>U</u>	= Total Cov	er	FACW species $\frac{40}{40}$ x 2 = $\frac{80}{40}$				
1. Liquidambar styraciflua	5	_	FAC	FAC species 20 x 3 = 60				
2. Ulmus americana	10		FACW	FACU species 40 x 4 = 160				
3				UPL species x 5 =				
4				Column Totals: 100 (A) 300 (B)				
5				Prevalence Index = B/A = 3.0				
6					_			
7				Hydrophytic Vegetation Indicators:				
8				1 - Rapid Test for Hydrophytic Vegetation				
9.				2 - Dominance Test is >50%				
10		_	-	3 - Prevalence Index is ≤3.0 <sup>1</sup>				
	4 -	= Total Cov		4 - Morphological Adaptations <sup>1</sup> (Provide supportin	g			
Herb Stratum (Plot size:)		- Total Gov	Ci	data in Remarks or on a separate sheet)				
1. Juncus effusus	30	-	FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
2 Schedonorus arundinaceus	20	_	FACU					
3. Carex abscondita	15		FAC	Indicators of hydric soil and wetland hydrology must				
4. Sorghum halepense	20		FACU	be present, unless disturbed or problematic.				
· · · · · · · · · · · · · · · · · · ·				Definitions of Four Vegetation Strata:				
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o	r			
6				more in diameter at breast height (DBH), regardless of				
7				height.				
8				Sapling/Shrub – Woody plants, excluding vines, less				
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.				
10								
11				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.				
12.		-	-	or size, and woody plants less than 5.25 it tall.				
	85	= Total Cov	er	<b>Woody vine</b> – All woody vines greater than 3.28 ft in				
Woody Vine Stratum (Plot size:)				height.				
1.		-						
2		-	-					
3.		-	-					
4		_	-					
5				Hydrophytic				
				Vegetation Present? Yes No				
6	^	T-4-1 O-1		11036Ht: 163HO				
		= Total Cov	er					
Remarks: (Include photo numbers here or on a separate	•			. A. Al Cialal management in a constant in the constant in				
The vegetation had been altered by ag	ricuiturai	practic	es prioi	r to the field reconnaissance (i.e.,				
Bushhogging-Hay Production).								

Depth	Matrix Color (moist)	%		lox Featu	res	Loc <sup>2</sup>	Taxe	Domorko
inches)	Color (moist)		Color (moist)	<u>%</u>	Type <sup>1</sup>		Texture	Remarks
-12	10yr 5/2	97	10 yr 4/6	_ 3	_ <u>D</u>	<u>M</u>	<u>L</u>	
		_			_			
	-				_			
	-							
	-							
		_						
			A-Dadwaad Matrix N				21tion. DI	-Dara Lining M-Matrix
		pietion, Riv	M=Reduced Matrix, N	/IS=IVIASK	ed Sand G	rains.	Location: PL	=Pore Lining, M=Matrix. ators for Problematic Hydric Soils <sup>3</sup>
	Indicators:							
Histoso	, ,		Dark Surfac					cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue E				, <b>148)</b> C	oast Prairie Redox (A16)
	istic (A3)		Thin Dark S			147, 148)		(MLRA 147, 148)
	en Sulfide (A4)		Loamy Gley				P	iedmont Floodplain Soils (F19)
	d Layers (A5)		Depleted M					(MLRA 136, 147)
	uck (A10) (LRR N)		Redox Dark					
	d Below Dark Surfa	ce (A11)	Depleted D					ery Shallow Dark Surface (TF12)
	ark Surface (A12)		Redox Dep				0	ther (Explain in Remarks)
-	Mucky Mineral (S1)	(LRR N,	Iron-Manga	nese Mas	sses (F12)	(LRR N,		
	A 147, 148)		MLRA 1					
Sandy	Gleyed Matrix (S4)		Umbric Sur	face (F13	) (MLRA 1	36, 122)	<sup>3</sup> Indi	icators of hydrophytic vegetation and
_ Sandy I	Redox (S5)		Piedmont F	loodplain	Soils (F19	) (MLRA 14	<b>48)</b> w	etland hydrology must be present,
_ Stripped	d Matrix (S6)		Red Parent	Material	(F21) <b>(MLI</b>	RA 127, 14	<b>7)</b> ur	nless disturbed or problematic.
estrictive	Layer (if observed	):						
Type:								
Depth (in							Hydric Soil	Present? Yes No
							Tiyunc 3011	riesent: lesNo
emarks:								

Project/Site: 10444 Ooltewa	h Georgetow	n Road <sub>City/C</sub>	county: Ooltewah /	Hamilton	Sampling Date: 4-22-21		
Applicant/Owner: Mr. Mark Jo					Sampling Point: DP-6		
Investigator(s): Cody Givens-			on, Township, Range:				
Landform (hillslope, terrace, etc.): S				<sub>ne):</sub> convex	Slope (%): 0-1		
Subregion (LRR or MLRA): LRR			Long: <u>-</u> 84		Datum:		
Soil Map Unit Name: Colbert si	It loam				cation:		
Are climatic / hydrologic conditions of		or this time of year? V	res V No				
Are Vegetation, Soil					<b>4</b>		
Are Vegetation, Soil							
_				explain any answe			
SUMMARY OF FINDINGS –	Attach site m	ap snowing sam	ipling point location	ons, transects	s, important features, etc.		
Hydrophytic Vegetation Present?	rophytic Vegetation Present? Yes No Is the Sam				4		
Hydric Soil Present?	Yes	No	within a Wetland?	Yes	No		
Wetland Hydrology Present?  Remarks:	Yes	_ No					
HYDROLOGY							
Wetland Hydrology Indicators:				Secondary Indica	ators (minimum of two required)		
Primary Indicators (minimum of on	e is required: check	c all that apply)		Surface Soil			
Surface Water (A1)		True Aquatic Plants (	B14)		getated Concave Surface (B8)		
High Water Table (A2)		Hydrogen Sulfide Ode		Drainage Pa			
Saturation (A3)		-	es on Living Roots (C3)	Moss Trim L			
Water Marks (B1)		Presence of Reduced	-		Water Table (C2)		
Sediment Deposits (B2)		Recent Iron Reductio	n in Tilled Soils (C6)	Crayfish Bur			
Drift Deposits (B3)		Thin Muck Surface (C			isible on Aerial Imagery (C9)		
Algal Mat or Crust (B4)	_	Other (Explain in Ren	marks)		Stressed Plants (D1)		
Iron Deposits (B5)	(0.7)				Position (D2)		
Inundation Visible on Aerial Im	agery (B7)			Shallow Aquitard (D3)			
Water-Stained Leaves (B9) Aquatic Fauna (B13)				Microtopographic Relief (D4) FAC-Neutral Test (D5)			
Field Observations:				I AO-Neulla	1 1 (03)		
	s No 🗸	Depth (inches):					
		Depth (inches):			•		
		Depth (inches):		Hydrology Prese	nt? Yes No		
(includes capillary fringe)  Describe Recorded Data (stream of				ailable:			
(0.000.000.000.000.000.000.000.000.000.	,g-,g	, , , , , , , , , , , , , , , , , , , ,	,,,				
Remarks:							

Sampling Point: DP-6

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:)		Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4				Description of Description of Organia
5				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
6.				(74B)
7.				Prevalence Index worksheet:
8			_	Total % Cover of: Multiply by:
o	^	= Total Cov	/or	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)		- Total Cov	/CI	FACW species 10 x 2 = 20
1. Ulmus americana	10	-	FACW	FAC species x 3 =
2.		-	-	FACU species 90 x 4 = 360
3			-	UPL species x 5 =
			_	Column Totals: 100 (A) 380 (B)
4				Column Totals (A) (B)
5				Prevalence Index = $B/A = 3.8$
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
10				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
	10	= Total Cov	/er	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)	25		FACIL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Sorghum halepense	35		FACU	
2. Schedonorus arundinaceus	30		FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
3. Andropogon virginicus	10		FACU	be present, unless disturbed or problematic.
<sub>4.</sub> Rubus argutus	15		FACU	Definitions of Four Vegetation Strata:
5			-	John Mone of Four Togottation Guata.
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7.				more in diameter at breast height (DBH), regardless of height.
8				
9			_	Sapling/Shrub – Woody plants, excluding vines, less
			_	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		_		Herb – All herbaceous (non-woody) plants, regardless
				of size, and woody plants less than 3.28 ft tall.
12	90	<u> </u>		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)	90	= Total Cov	/er	height.
-		_	-	
1				
2.				
3				
4				Hydrophytic
5				Vegetation
6	_			Present? Yes No
	0	= Total Cov	/er	
Remarks: (Include photo numbers here or on a separate	sheet.)			
The vegetation had been altered by ag	ricultural	practic	es prior	r to the field reconnaissance (i e
Bushhogging-Hay Production).	ilouitaiai	praotio	oo piloi	to the hold recommended (i.e.,
Bushinogging-ray r roudottorij.				

Profile Desc	ription: (Describe	to the de	oth needed to docur	ment the	indicator	or confirm	n the ab	sence of indica	itors.)	
Depth	Matrix		Redo	x Feature	es					
(inches)	Color (moist)	<u>%</u>	Color (moist)		Type <sup>1</sup>	Loc <sup>2</sup>	Text	ture	Remarks	<u> </u>
0-12	10yr 5/4	98	10 yr 4/6	2	<u>C</u>	M	<u>L</u>			
							<u> </u>			_
	-	<del></del>	-					<del></del>		
				-	-		-			
		· ——						<del></del>		
<sup>1</sup> Type: C=Co	ncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Maske	d Sand Gr	ains.	<sup>2</sup> Locati	on: PL=Pore Lir	ning, M=Matrix	ζ.
Hydric Soil I		<u>,                                    </u>	,					Indicators for		
Histosol	(A1)		Dark Surface	e (S7)				2 cm Muck	(A10) <b>(MLRA</b>	. 147)
Histic Ep	ipedon (A2)		Polyvalue Be	elow Surfa	ace (S8) <b>(I</b>	<b>MLRA 147</b> ,	, 148)	Coast Prair		
Black His	stic (A3)		Thin Dark Su	ırface (S9	) (MLRA	147, 148)		(MLRA	147, 148)	
	n Sulfide (A4)		Loamy Gleye		(F2)			Piedmont F		s (F19)
	Layers (A5)		Depleted Ma					(MLRA	136, 147)	
	ck (A10) (LRR N)	(8.4.4)	Redox Dark	`	,			.,	D 1 0 1	(TE40)
	Below Dark Surface	e (A11)	Depleted Da						ow Dark Surfac lain in Remark	
	rk Surface (A12) ucky Mineral (S1) (I	DD N	Redox Depre Iron-Mangan			(I DD N		Other (Exp	iain in Remark	(8)
	. 147, 148)	-IXIX I <b>4</b> ,	MLRA 13		663 (I 12 <i>)</i> (	(LIXIX IV,				
	leyed Matrix (S4)		Umbric Surfa		(MLRA 1	36, 122)		<sup>3</sup> Indicators of	hydrophytic ve	egetation and
	edox (S5)		Piedmont Flo				<b>4</b> 8)		drology must b	-
	Matrix (S6)		Red Parent I						urbed or proble	
Restrictive L	.ayer (if observed):									
Туре:										
Depth (inc	:hes):						Hydr	ic Soil Present?	? Yes	No
Remarks:	<u> </u>									<u> </u>

Project/Site: 10444 Ooltewa	h Georgetow	n Road <sub>City/C</sub>	County: Ooltewah /	Hamilton	Sampling Date: 4-22-21		
Applicant/Owner: Mr. Mark Jo					Sampling Point: DP-7		
Investigator(s): Cody Givens			on, Township, Range:		<u> </u>		
Landform (hillslope, terrace, etc.):				<sub>ne):</sub> convex	Slope (%): 0-1		
Subregion (LRR or MLRA): LRR			Long: <u>-84</u>		Datum:		
Soil Map Unit Name: Colbert s	ilt loam				cation:		
Are climatic / hydrologic conditions		or this time of year? Y	es V No				
Are Vegetation, Soil					present? Yes V No		
Are Vegetation, Soil				explain any answe	<u> </u>		
SUMMARY OF FINDINGS -							
			, , , , , , , , , , , , , , , , , , ,	,	·, ···· <b> </b>		
Hydrophytic Vegetation Present?		_ No	Is the Sampled Area		<b>✓</b>		
Hydric Soil Present? Wetland Hydrology Present?	Yes	_ No	within a Wetland?	Yes	No		
Remarks:	165						
HYDROLOGY							
Wetland Hydrology Indicators:				Secondary Indica	ators (minimum of two required)		
Primary Indicators (minimum of or	ne is required; check	call that apply)		Surface Soil	Cracks (B6)		
Surface Water (A1)		True Aquatic Plants (	(B14)	Sparsely Ve	getated Concave Surface (B8)		
High Water Table (A2)		Hydrogen Sulfide Ode	or (C1)	Drainage Patterns (B10)			
Saturation (A3)			es on Living Roots (C3)	Moss Trim L			
Water Marks (B1)		Presence of Reduced			Water Table (C2)		
Sediment Deposits (B2)		Recent Iron Reductio		Crayfish Bur			
Drift Deposits (B3)		Thin Muck Surface (C			/isible on Aerial Imagery (C9)		
Algal Mat or Crust (B4) Iron Deposits (B5)		Other (Explain in Ren	marks)		Stressed Plants (D1) : Position (D2)		
Inundation Visible on Aerial Ir	magery (R7)						
Water-Stained Leaves (B9)	nagery (5. )			Shallow Aquitard (D3) Microtopographic Relief (D4)			
Aquatic Fauna (B13)				FAC-Neutral Test (D5)			
Field Observations:							
		Depth (inches):					
		Depth (inches):					
	es No	Depth (inches):	Wetland H	Hydrology Prese	nt? Yes No		
(includes capillary fringe)  Describe Recorded Data (stream	gauge, monitoring w	vell, aerial photos, pre	evious inspections), if ava	nilable:			
Remarks:							

Sampling Point: DP-7

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:)		Species?		Number of Dominant Species
1. Pinus taeda	<u> 25 </u>		FAC	That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4			-	
5			-	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
6.				That Are OBL, FACW, or FAC: (A/B)
				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
8	25			OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)	23	= Total Cov	/er	FACW species $10$ $\times 2 = 20$
1 Ulmus americana	10	_	FACW	FAC species 25 x 3 = 75
··· <del></del>				FACU species 65 x 4 = 260
2				
3				UPL species x 5 =
4				Column Totals: 100 (A) 355 (B)
5				Prevalence Index = B/A = $3.55$
6				
7		_	_	Hydrophytic Vegetation Indicators:
8			-	1 - Rapid Test for Hydrophytic Vegetation
9.			-	2 - Dominance Test is >50%
10			-	3 - Prevalence Index is ≤3.0 <sup>1</sup>
10.	40	= Total Cov		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
Herb Stratum (Plot size:)		- 10tal C0	/ei	data in Remarks or on a separate sheet)
1 Solidago canadensis	15	-	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. Rubus argutus	20		FACU	
3 Schedonorus arundinaceus	30		FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
			FACU	be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				Tree Woody plants evaluding vince 2 in (7.6 cm) or
6				<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7				height.
8				Sanling/Shrub Woody plants evaluding vines loss
9				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10			-	
	_	_	-	Herb – All herbaceous (non-woody) plants, regardless
12.			-	of size, and woody plants less than 3.28 ft tall.
12.	65	= Total Cov		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)		- 10tal C0	/ei	height.
1		-	-	
2.			_	
3				
4				Hydrophytic
5				Vegetation
6	_			Present? Yes No
	0	= Total Cov	/er	
Remarks: (Include photo numbers here or on a separate The vegetation had been altered by ag Bushhogging-Hay Production).	•	l practic	es prior	r to the field reconnaissance (i.e.,

Depth	Matrix		Redox Features			
(inches)	Color (moist)	%	Color (moist) % Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-12	10yr 5/4	100			L	
						_
			<u> </u>			<u> </u>
			· · · · ·			
	-					
ype: C=C	oncentration, D=Dep	oletion, RM=	Reduced Matrix, MS=Masked Sand G	Grains. 2	Location:	PL=Pore Lining, M=Matrix.
	Indicators:					icators for Problematic Hydric Soils <sup>3</sup> :
_ Histosol	(A1)		Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Below Surface (S8)	(MLRA 147. 1	48)	Coast Prairie Redox (A16)
	istic (A3)		Thin Dark Surface (S9) (MLRA	•	,	(MLRA 147, 148)
_	en Sulfide (A4)		Loamy Gleyed Matrix (F2)	, ,		Piedmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Matrix (F3)			(MLRA 136, 147)
	uck (A10) (LRR N)		Redox Dark Surface (F6)			(
	d Below Dark Surfac	ce (A11)	Depleted Dark Surface (F7)			Very Shallow Dark Surface (TF12)
	ark Surface (A12)	JC (7111)	Redox Depressions (F8)			Other (Explain in Remarks)
	Mucky Mineral (S1) (	IRRN	Iron-Manganese Masses (F12)	(I RR N		Other (Explain in Remarks)
	A 147, 148)	LIXIX IV,	MLRA 136)	(LIXIX IX,		
	Gleyed Matrix (S4)		Umbric Surface (F13) (MLRA 1	136 122\	31	ndicators of hydrophytic vegetation and
	Redox (S5)		Piedmont Floodplain Soils (F19			wetland hydrology must be present,
-	Matrix (S6)		Red Parent Material (F21) (ML			unless disturbed or problematic.
	Layer (if observed)		Red Falent Material (F21) (ML	KA 121, 141)		unless disturbed of problematic.
Type:						<b>✓</b>
					Hydric So	oil Present? Yes No
Depth (in	ches):				-	
	ches):		<del></del>			
	ches):			I.		
	ches):		<del></del>	1		
	ches):		<del></del>	,		
	ches):		<del></del>	,		
	ches):		<del></del>	,	-	
	ches):				-	
	ches):				•	
	ches):				•	
	ches):					
	ches):					
	ches):					
	ches):					
	ches):				•	
	ches):				•	
	ches):				•	
	ches):					
	ches):					
	ches):					
Depth (in	ches):					
	ches):					
	ches):					
	ches):					
	ches):					
	ches):					
	ches):					
	ches):					

Project/Site: 10444 Ooltewah G	eorgeto	wn Road <sub>City/C</sub>	County: Ooltewah /	Hamilton	Sampling Date: 4-22-21	
Applicant/Owner: Mr. Mark Joom					Sampling Point: DP-8	
Investigator(s): Cody Givens-GE			on, Township, Range:			
Landform (hillslope, terrace, etc.): slop				ne): concave	Slope (%): 0-1	
Subregion (LRR or MLRA): LRR			Long: <u>-84</u>		Datum:	
Soil Map Unit Name: Colbert silt Ic	am	···			cation:	
Are climatic / hydrologic conditions on the		for this time of year?	ves V No			
Are Vegetation, Soil, or F					4	
Are Vegetation, Soil, or F				explain any answe		
SUMMARY OF FINDINGS – At						
SOMMAN OF THE DINGS - AL				nis, transects	, important leatures, etc.	
Hydrophytic Vegetation Present?		No	Is the Sampled Area	. 1		
Hydric Soil Present?		No	within a Wetland?	Yes_	No	
Wetland Hydrology Present?  Remarks:	Yes	No				
HYDROLOGY						
Wetland Hydrology Indicators:				Secondary Indica	ators (minimum of two required)	
Primary Indicators (minimum of one is r	equired; che	ck all that apply)		Surface Soil	Cracks (B6)	
Surface Water (A1)	_	_ True Aquatic Plants (		Sparsely Vegetated Concave Surface (B8)		
High Water Table (A2)	_	_ Hydrogen Sulfide Od	or (C1)	Drainage Pa		
Saturation (A3)			es on Living Roots (C3)	Moss Trim L		
Water Marks (B1)		Presence of Reduced			Water Table (C2)	
Sediment Deposits (B2)		_ Recent Iron Reduction		Crayfish Bur		
Drift Deposits (B3)		_ Thin Muck Surface ((			isible on Aerial Imagery (C9)	
Algal Mat or Crust (B4) Iron Deposits (B5)	_	Other (Explain in Rer	marks)		tressed Plants (D1) Position (D2)	
Inundation Visible on Aerial Imager	v (B7)			Shallow Aqu		
Water-Stained Leaves (B9)	<i>y</i> (2.)				aphic Relief (D4)	
Aquatic Fauna (B13)				FAC-Neutral		
Field Observations:						
Surface Water Present? Yes	No	Depth (inches):				
Water Table Present? Yes	No	Depth (inches):				
Saturation Present? Yes	No	Depth (inches): 0-3	3" Wetland H	lydrology Preser	nt? Yes No No	
(includes capillary fringe)  Describe Recorded Data (stream gauge	, monitoring	well, aerial photos, pre	evious inspections), if ava	ilable:		
Remarks:						

Sampling	Point:	DP-8

	Absolute	Dominant		Dominance Test worksheet:	
Tree Stratum (Plot size:)		Species?	Status	Number of Dominant Species	
1				That Are OBL, FACW, or FAC:	(A)
2				Total Number of Dessinant	
3			-	Total Number of Dominant Species Across All Strata:	(B)
4.			-	Openies / toross / tir otrata.	(D)
				Percent of Dominant Species	
5				That Are OBL, FACW, or FAC:	(A/B)
6				Prevalence Index worksheet:	
7					
8				Total % Cover of: Multiply by:	_
	^	= Total Cov	er	OBL species x 1 =	-
Sapling/Shrub Stratum (Plot size:)				FACW species $\frac{50}{5}$ x 2 = $\frac{100}{15}$	_
1. Ulmus americana	10		FACW	FAC species $5 \times 3 = 15$	_
2. Liquidambar styraciflua	5	-	FAC	FACU species 45 x 4 = 180	_
3.		-	-	UPL species x 5 =	
4.			-	Column Totals: 100 (A) 295	(B)
				( ) ,	_ (-)
5				Prevalence Index = $B/A = 2.95$	_
6				Hydrophytic Vegetation Indicators:	
7				1 - Rapid Test for Hydrophytic Vegetation	
8				2 - Dominance Test is >50%	
9				_	
10		-	-	<u>✓</u> 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
	15	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide support data in Remarks or on a separate sheet)	orting
Herb Stratum (Plot size:)			-		
1. Juncus effusus	40	-	FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain	ו)
Solidago canadensis	20	-	FACU		
3. Schedonorus arundinaceus	25		FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology m	ıust
	<del></del>			be present, unless disturbed or problematic.	
4				Definitions of Four Vegetation Strata:	
5				Tree – Woody plants, excluding vines, 3 in. (7.6 c	m) or
6				more in diameter at breast height (DBH), regardle	
7				height.	
8				Continue/Church Mandy plants avaluating vines	looo
9				Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
10			-	and one per and ground than one in (1111) tall.	
		_		Herb – All herbaceous (non-woody) plants, regar	dless
				of size, and woody plants less than 3.28 ft tall.	
12	O.F.			Woody vine – All woody vines greater than 3.28	ft in
Mandy Vine Stratum (Plat size:	85	= Total Cov	er	height.	
Woody Vine Stratum (Plot size:)			_		
1					
2					
3					
4					
5		-	-	Hydrophytic	
6.			_	Vegetation Present? Yes No	
0	^	= Total Cov			
Remarks: (Include photo numbers here or on a separate		- Total Cov	CI		
The vegetation had been altered by agr Bushhogging-Hay Production).	•	practic	es prior	to the field reconnaissance (i.e.,	

Depth	Matrix	0/		lox Featu	res	1.5.2	Tour	Domestics
inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
-12	10yr 5/2	96	10 yr 4/6	_ 4	_ <u>D</u>	M	L	
		_						
			-		<del></del>			
			· <u> </u>					
								-
	-							
			-					
(no: C=C	oncontration D=Do	nlotion DA	/I=Reduced Matrix, N	19-Mack	od Sand G	raine	<sup>2</sup> Location: D	L=Pore Lining, M=Matrix.
	Indicators:	pietion, Ki	n-Reduced Matrix, N	/IO-IVIASK	eu Sanu G	I all 15.	Indic	ators for Problematic Hydric Soils
			5	(07)				
Histoso	, ,		Dark Surfac	. ,	f (00) (	M D4 44=		2 cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue E				, 148) (	Coast Prairie Redox (A16)
	istic (A3)		Thin Dark S			147, 148)	_	(MLRA 147, 148)
	en Sulfide (A4)		Loamy Gley				F	Piedmont Floodplain Soils (F19)
	d Layers (A5)		<u>✓</u> Depleted M					(MLRA 136, 147)
	uck (A10) (LRR N)	(4.44)	Redox Dark				,	( OL
	d Below Dark Surfa	ce (A11)	Depleted D					Very Shallow Dark Surface (TF12)
	ark Surface (A12)		Redox Dep				_ (	Other (Explain in Remarks)
-	Mucky Mineral (S1)	LRR N,	Iron-Manga		sses (F12)	(LRR N,		
	A 147, 148)		MLRA 1				3.	
	Gleyed Matrix (S4)		Umbric Sur					dicators of hydrophytic vegetation and
-	Redox (S5)		Piedmont F					wetland hydrology must be present,
	d Matrix (S6)		Red Parent	Material	(F21) <b>(MLI</b>	RA 127, 14	<b>7</b> ) u	inless disturbed or problematic.
estrictive	Layer (if observed)	):						
Type:								. /
Depth (in	iches):						Hydric Soi	l Present? Yes V No
emarks:	<u> </u>							<u> </u>

Project/Site: 10444 Ooltewa	h Georgetow	n Road <sub>City/C</sub>	County: Ooltewah /	Hamilton	Sampling Date: 4-22-21
Applicant/Owner: Mr. Mark Jo					Sampling Point: DP-9
Investigator(s): Cody Givens-			on, Township, Range:		
Landform (hillslope, terrace, etc.): S				<sub>ne):</sub> convex	Slope (%): 0-1
Subregion (LRR or MLRA): LRR	Lat:	35.221813	Long: <u>-84</u>	1.994140	Datum:
Soil Map Unit Name: Colbert si	It loam				cation:
Are climatic / hydrologic conditions of		or this time of year? Y			
Are Vegetation, Soil					<u> </u>
Are Vegetation, Soil				explain any answe	
SUMMARY OF FINDINGS -					
					, p
Hydrophytic Vegetation Present? Hydric Soil Present?		_ No	Is the Sampled Area		<b>✓</b>
Wetland Hydrology Present?	Yes	_ No	within a Wetland?	Yes	No
Remarks:	165	NO			
HYDROLOGY					
Wetland Hydrology Indicators:				Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of on	e is required; checl	k all that apply)		Surface Soil	Cracks (B6)
Surface Water (A1)		True Aquatic Plants (	(B14)	Sparsely Ve	getated Concave Surface (B8)
High Water Table (A2)		Hydrogen Sulfide Od	or (C1)	Drainage Pa	etterns (B10)
Saturation (A3)		Oxidized Rhizosphere	es on Living Roots (C3)	Moss Trim L	
Water Marks (B1)	_	Presence of Reduced	d Iron (C4)	Dry-Season	Water Table (C2)
Sediment Deposits (B2)		Recent Iron Reduction		Crayfish Bur	
Drift Deposits (B3)		Thin Muck Surface (C			isible on Aerial Imagery (C9)
Algal Mat or Crust (B4)		Other (Explain in Rer	marks)		Stressed Plants (D1)
Iron Deposits (B5) Inundation Visible on Aerial Im	aggory (P7)				Position (D2)
Water-Stained Leaves (B9)	lagery (b7)			Shallow Aqu	aphic Relief (D4)
Aguatic Fauna (B13)				FAC-Neutra	• • • • • • • • • • • • • • • • • • • •
Field Observations:					
	s No	Depth (inches):			
		Depth (inches):			4
Saturation Present? Ye	s No	Depth (inches):	Wetland H	Hydrology Prese	nt? Yes No
(includes capillary fringe)  Describe Recorded Data (stream of	auge. monitoring v	vell. aerial photos, pre	evious inspections), if ava	nilable:	_
(111)	,,	, , , , , , , , , , , , , , , , , , , ,			
Remarks:					

Sampling Point:	DP-9
. •	

	Absolute	Dominant		Dominance Test worksheet:	
Tree Stratum (Plot size:)		Species?	Status	Number of Dominant Species	
1				That Are OBL, FACW, or FAC: (	(A)
2				Total Number of Dominant	
3			-		(B)
4			_	Developed of Developed On a six	
5				Percent of Dominant Species That Are OBL, FACW, or FAC: (	(A/B)
6.				111dt / 110 OBE, 1 / 1000, 01 1 / 10.	,700)
7.				Prevalence Index worksheet:	
8.			_	Total % Cover of: Multiply by:	
o		= Total Cov	ıor	OBL species x 1 =	
Sapling/Shrub Stratum (Plot size:)	<u> </u>	- Total Co	VCI	FACW species 10 x 2 = 20	
1. Ulmus americana	10	-	FACW	FAC species x 3 =	
2.		-	-	FACU species 90 x 4 = 360	
3.			-	UPL species x 5 =	
				Column Totals: 100 (A) 380	(B)
4				Column Totals (A)	(D)
5				Prevalence Index = $B/A = \frac{3.8}{}$	
6				Hydrophytic Vegetation Indicators:	
7				1 - Rapid Test for Hydrophytic Vegetation	
8.				2 - Dominance Test is >50%	
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>	
10				4 - Morphological Adaptations <sup>1</sup> (Provide suppo	ortina
	10	= Total Cov	ver	data in Remarks or on a separate sheet)	July
Herb Stratum (Plot size:)	20		EA CW/	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	)
1. Schedonorus arundinaceus	30		FACW	: : : : : : : : : : : : : : : : :	<b>'</b>
2. Solidago canadensis	25		FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology mu	ıot
3. Sorghum halepense	25		FACU	be present, unless disturbed or problematic.	151
4. Andropogon virginicus	10	-	FACU	Definitions of Four Vegetation Strata:	
5				Dominiono or i our rogotation ou atai	
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cr	
7.				more in diameter at breast height (DBH), regardles height.	SS OT
8.				noight.	
9.			_	Sapling/Shrub – Woody plants, excluding vines, le	ess
			_	than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
10.		_		Herb - All herbaceous (non-woody) plants, regard	less
				of size, and woody plants less than 3.28 ft tall.	
12	00			Woody vine – All woody vines greater than 3.28 ft	t in
Woody Vine Stratum (Plot size:)	90	= Total Cov	ver	height.	
		_	_		
1					
2.					
3					
4				Hydrophytic	
5				Vegetation	
6				Present? Yes No	
	0	= Total Cov	ver		
Remarks: (Include photo numbers here or on a separate The vegetation had been altered by ag Bushhogging-Hay Production).		l practic	es prior	to the field reconnaissance (i.e.,	

Profile Desc	cription: (Describe	e to the depth	needed to document the indicator or confi	rm the abs	sence of indicators.)
Depth (inches)	Matrix Color (moist)	<u></u> %	Redox Features  Color (moist)	_ Textu	ure Remarks
0-12	10yr 4/4	100	Coloi (Illoist) /0 Type Loc		ne nemars
0-12	10y1 <del>1</del> /1			_ <u> </u>	<del></del>
	-				
				_	
				<del>-</del>	
-				_	
1			durand Matrix, MO, Marahand Carad Carina	21 +: -	DI Describition M. Matrix
Hydric Soil		pletion, RM=Re	educed Matrix, MS=Masked Sand Grains.	Locatio	on: PL=Pore Lining, M=Matrix.  Indicators for Problematic Hydric Soils <sup>3</sup> :
•			Dark Curface (C7)		
Histosol	(A1) pipedon (A2)		<ul><li>Dark Surface (S7)</li><li>Polyvalue Below Surface (S8) (MLRA 14</li></ul>	7 148\	2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16)
	istic (A3)	•	Thin Dark Surface (S9) (MLRA 147, 148)		(MLRA 147, 148)
	en Sulfide (A4)	•	Loamy Gleyed Matrix (F2)	•	Piedmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Matrix (F3)		(MLRA 136, 147)
	uck (A10) (LRR N)		Redox Dark Surface (F6)		
	d Below Dark Surfa	ce (A11)	Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
	ark Surface (A12)		Redox Depressions (F8)		Other (Explain in Remarks)
	Mucky Mineral (S1)	(LRR N,	Iron-Manganese Masses (F12) (LRR N,		
	<b>A 147, 148)</b> Gleyed Matrix (S4)		MLRA 136) Umbric Surface (F13) (MLRA 136, 122)		<sup>3</sup> Indicators of hydrophytic vegetation and
	Redox (S5)	•	Piedmont Floodplain Soils (F19) (MLRA	148)	wetland hydrology must be present,
	Matrix (S6)		Red Parent Material (F21) (MLRA 127, 1		unless disturbed or problematic.
	Layer (if observed	):	, , ,	ĺ	'
Type:					
Depth (in	ches):			Hydric	c Soil Present? Yes No
Remarks:					

Project/Site: 10444 Ooltewa	ah Georgetov	vn Road <sub>City/C</sub>	County: Ooltewah /	Hamilton	Sampling Date: 4-22-21
Applicant/Owner: Mr. Mark Jo					Sampling Point: DP-10
Investigator(s): Cody Givens			on, Township, Range:		
Landform (hillslope, terrace, etc.):				<sub>ne):</sub> convex	Slope (%): 0-1
Subregion (LRR or MLRA): LRR			Long: <u>-84</u>		Datum:
Soil Map Unit Name: Colbert s	ilt loam				cation:
Are climatic / hydrologic conditions		or this time of year? Y	ves V No		
Are Vegetation, Soil					<u> </u>
Are Vegetation, Soil				explain any answe	
SUMMARY OF FINDINGS -					
			pining point recurs		,, <b>,</b>
Hydrophytic Vegetation Present?		No	Is the Sampled Area		<b>√</b>
Hydric Soil Present? Wetland Hydrology Present?	Yes	No V	within a Wetland?	Yes	No
Remarks:		NO			
HYDROLOGY					
Wetland Hydrology Indicators:				Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of or	ne is required; chec	k all that apply)		Surface Soil	
Surface Water (A1)		True Aquatic Plants (			getated Concave Surface (B8)
High Water Table (A2)		Hydrogen Sulfide Od		Drainage Pa	
Saturation (A3)			es on Living Roots (C3)	Moss Trim L	
Water Marks (B1)		Presence of Reduced	-		Water Table (C2)
Sediment Deposits (B2)		Recent Iron Reduction		Crayfish Bur	
Drift Deposits (B3)		Thin Muck Surface (0			isible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	_	Other (Explain in Rer	marks)		Stressed Plants (D1)
Iron Deposits (B5)					Position (D2)
Inundation Visible on Aerial Ir	magery (B7)			Shallow Aqu	
Water-Stained Leaves (B9)				· -	aphic Relief (D4)
Aquatic Fauna (B13)  Field Observations:				FAC-Neutra	Trest (D5)
	es No 🗸	_ Depth (inches):			
		Depth (inches):			
		_ Depth (inches):		Hydrology Prese	nt? Yes No
(includes capillary fringe)					
Describe Recorded Data (stream	gauge, monitoring	weii, aeriai priotos, pre	evious inspections), if ava	iliable:	
Remarks:					
remarks.					

<u> </u>	Absolute	Dominant	Indicator	Sampling Point: DP-10  Dominance Test worksheet:
ree Stratum (Plot size:) .	·	Species?	Status -	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/I
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
apling/Shrub Stratum (Plot size:)		= Total Cov	/er	OBL species $x = 10$ FACW species $x = 10$
Juniperus virginana	10		FACU	FAC species x 3 =
Ulmus americana	5	-	FACW	FACU species <u>95</u> x 4 = <u>380</u>
			-	UPL species x 5 =
			-	Column Totals: 100 (A) 390 (B
-				Prevalence Index = B/A = 3.9
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50%
· <u> </u>				3 - Prevalence Index is ≤3.0¹
0				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
lark Stratum (Diet size:	15	= Total Cov	/er	data in Remarks or on a separate sheet)
lerb Stratum (Plot size:) Rubus argutus	10		FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Solidago canadensis	20		FACU	1 and contains of brodein and contained brodein and account
Schedonorus arundinaceus	30		FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Sorghum halepense	25		FACU	Definitions of Four Vegetation Strata:
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of 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.
0				Herb – All herbaceous (non-woody) plants, regardles
1				of size, and woody plants less than 3.28 ft tall.
2	0.5			Woody vine – All woody vines greater than 3.28 ft in
Voody Vine Stratum (Plot size:)	85	= Total Cov	/er	height.
·		-	-	
			-	
			_	
			-	
			-	Hydrophytic
			-	Vegetation Present? Yes No
	^	= Total Cov	/er	
Remarks: (Include photo numbers here or on a separa				

Profile Desc	cription: (Describe	to the depth	needed to docur	nent the ir	ndicator	or confirm	the ab	sence of indicat	ors.)	
Depth	Matrix			x Features		. 2	_			
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u> </u>	Type'	Loc <sup>2</sup>	lex	ture	Remarks	<u> </u>
0-12	10yr 4/4	100					<u>L</u>			
	•			· ——			-			
								<del></del> -		
				· ——						
				·						
	-	- <u> </u>		· ——						
				- ——						
	oncentration, D=Dep	letion, RM=Re	educed Matrix, M	S=Masked	Sand Gra	ains.	<sup>2</sup> Locat	ion: PL=Pore Lini	ng, M=Matrix	(
Hydric Soil	Indicators:							Indicators for P	roblematic I	Hydric Soils <sup>*</sup> :
Histosol			Dark Surface					2 cm Muck (	. , .	•
	pipedon (A2)		Polyvalue Be		. , .		148)	Coast Prairi		5)
	listic (A3)			_ Thin Dark Surface (S9) (MLRA 147, 148)				(MLRA 1		(= 40°
	en Sulfide (A4)			_ Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils Depleted Matrix (F3) (MLRA 136, 147)				s (F19)		
	d Layers (A5)		Depleted Ma	, ,	۵,			(MLRA 1	36, 147)	
	uck (A10) <b>(LRR N)</b>	o (A11)		edox Dark Surface (F6) pleted Dark Surface (F7) Very Shallow Dark Surface (TF12)					oo (TE12)	
	d Below Dark Surfac ark Surface (A12)	e (ATT)	Depleted Da				Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
	Mucky Mineral (S1) (I	DD N	Iron-Mangan			DD N	Other (Explain in Remarks)			
	A 147, 148)	LIXIX IV,	MLRA 13		3 (1 12) <b>(1</b>	-IXIX I <b>X</b> ,				
	Gleyed Matrix (S4)			•	MIRA 13	6 122)		<sup>3</sup> Indicators of h	vdronhytic v	egetation and
	Redox (S5)		<ul> <li>Umbric Surface (F13) (MLRA 136, 122)</li> <li>Piedmont Floodplain Soils (F19) (MLRA 148)</li> <li>Wetland hydrology must be present,</li> </ul>					-		
	d Matrix (S6)				21) (MLRA 127, 147) unless disturbed or problematic.					
	Layer (if observed)					,	<del>',</del>	<u> </u>	504 0. p. 05.	
Type:										
• • • • • • • • • • • • • • • • • • • •			<del>_</del>				Llvd	ic Soil Present?	Voo	No 🗸
	iches):						пуш	ic Soil Present?	Yes	NO
Remarks:										

Project/Site: 10444 Ooltewah 0	eorgetowr	n Road City/C	county: Ooltewah /	Hamilton	Sampling Date: 4-22-21			
Project/Site: 10444 Ooltewah Georgetown Road City/County: Ooltewah / Hamilton Sampling Date: 4-22-21  Applicant/Owner: Mr. Mark Jooma State: TN Sampling Point: DP-11								
Investigator(s): Cody Givens-GEOS Section, Township, Range:								
Landform (hillslope, terrace, etc.): slop			<sub>ne):</sub> concave	Slope (%): 0-1				
Subregion (LRR or MLRA): LRR					Datum:			
Soil Map Unit Name: Colbert silt loam  NWI classification:								
		this time of year? Y	ree V No					
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 disturbed? Are Normal Circumstances present? Tes No								
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.								
				,	, ,			
Hydrophytic Vegetation Present? Hydric Soil Present?	Yes	No	Is the Sampled Area		· · ·			
Wetland Hydrology Present?	Yes	No	within a Wetland?	Yes	No			
Remarks:								
HYDROLOGY								
Wetland Hydrology Indicators:				-	ators (minimum of two required)			
Primary Indicators (minimum of one is	-			Surface Soil Cracks (B6)				
Surface Water (A1)		rue Aquatic Plants (		<ul><li>Sparsely Vegetated Concave Surface (B8)</li><li>Drainage Patterns (B10)</li></ul>				
High Water Table (A2)		lydrogen Sulfide Od		_				
Saturation (A3) Water Marks (B1)		Oxidized Rhizosphero Presence of Reduced	es on Living Roots (C3)	Moss Trim L				
Sediment Deposits (B2)		on in Tilled Soils (C6)	Dry-Season Water Table (C2) Soils (C6) Crayfish Burrows (C8)					
✓ Drift Deposits (B3)	hin Muck Surface (C		-	isible on Aerial Imagery (C9)				
Algal Mat or Crust (B4)	Other (Explain in Rer			stressed Plants (D1)				
Iron Deposits (B5)				Geomorphic	Position (D2)			
Inundation Visible on Aerial Image	ry (B7)			Shallow Aqu				
Water-Stained Leaves (B9)				Microtopographic Relief (D4) FAC-Neutral Test (D5)				
Aquatic Fauna (B13) Field Observations:				FAC-Neutra	Test (D5)			
	No 🗸 [	Denth (inches):						
		Depth (inches):						
		Depth (inches): $0-4$	4" Wetland Hydrology Present? Yes No					
(includes capillary fringe)								
Describe Recorded Data (stream gaug	e, monitoring we	eii, aeriai pnotos, pre	evious inspections), if ava	aliable:				
Remarks:								
remarks.								

Sampling Point:	DP-11

Tree Stratum (Plot size:)	Absolute		Indicator	Dominance Test worksheet:
		Species?		Number of Dominant Species
1. Celtis occidentalis	35		FACU	That Are OBL, FACW, or FAC: (A)
<sub>2.</sub> Carya ovata	20		FACU	Total Number of Dominant
3				Species Across All Strata: (B)
4		-	-	Descrit of Descinant Conscion
5			-	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
6			-	
7			-	Prevalence Index worksheet:
8		-	-	Total % Cover of: Multiply by:
	EE	= Total Cov	er	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)		- Total Gov	Ci	FACW species x 2 =
1. Ligustrum sinense	25	-	FACU	FAC species 10 x 3 = 30
2. Juniperus virginiana	10	-	FACU	FACU species 90 x 4 = 360
3			-	UPL species x 5 =
			_	Column Totals: 100 (A) 390 (B)
4				Column Totals (A) (B)
5				Prevalence Index = $B/A = 3.9$
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
10				
	35	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)				Problematic Hydrophytic Vegetation (Explain)
1				1 Toblematic Trydrophytic Vegetation (Explain)
2			-	The disease of booking and condend booking to account
3				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5.				Definitions of Four Vegetation Strata:
6			-	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				more in diameter at breast height (DBH), regardless of
				height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				<b>Herb</b> – All herbaceous (non-woody) plants, regardless
11		-		of size, and woody plants less than 3.28 ft tall.
12				Woody vine – All woody vines greater than 3.28 ft in
	0 :	= Total Cov	er	height.
Woody Vine Stratum (Plot size:)  1 Toxicodendron radicans	10		FAC	
			<u> </u>	
2				
3				
4				Hydrophytic
5				Vegetation
		-		Present? Yes No
6.				
	10 .	= Total Cov	er	

Profile Desc	cription: (Describe	to the depth	needed to document the indicator or confir	m the abs	sence of indicators.)
Depth (inches)	Matrix Color (moist)	<u></u> %	Redox Features  Color (moist) % Type <sup>1</sup> Loc <sup>2</sup>	Textu	ure Remarks
0-12	10yr 3/4		Coloi (Illoist) /0 Type Loc	<u>  TEXIL</u>	NE NEIIIdiks
0-12	10y1 3/ <del>1</del>	_ 100			<del></del>
	_				
-	_				
	-				
					<del></del>
		pletion, RM=Re	educed Matrix, MS=Masked Sand Grains.	Locatio	n: PL=Pore Lining, M=Matrix.
Hydric Soil					Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol			Dark Surface (S7)	. 440	2 cm Muck (A10) (MLRA 147)
	pipedon (A2)		<ul><li>Polyvalue Below Surface (S8) (MLRA 147)</li><li>Thin Dark Surface (S9) (MLRA 147, 148)</li></ul>		Coast Prairie Redox (A16)
	istic (A3) en Sulfide (A4)		Loamy Gleyed Matrix (F2)		(MLRA 147, 148)  Piedmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Matrix (F3)		(MLRA 136, 147)
	uck (A10) (LRR N)		Redox Dark Surface (F6)		(,
	d Below Dark Surfa	ce (A11)	Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
Thick Da	ark Surface (A12)		Redox Depressions (F8)	•	Other (Explain in Remarks)
	Mucky Mineral (S1)	(LRR N,	Iron-Manganese Masses (F12) (LRR N,		
	A 147, 148)		MLRA 136)		3
	Gleyed Matrix (S4)		Umbric Surface (F13) (MLRA 136, 122)   Sindicators of hydrophytic vegetation  Sindicators of hydrophytic vegetation		
	Redox (S5)		Piedmont Floodplain Soils (F19) (MLRA 1		wetland hydrology must be present,
	l Matrix (S6)  Layer (if observed	١٠	Red Parent Material (F21) (MLRA 127, 14	47)	unless disturbed or problematic.
	Layer (II observed	).			
Type:	- I V-		<del>-</del>		0.11 Page 2010 - No N
Depth (in	cnes):		_	Hyaria	c Soil Present? Yes No
Remarks:					

Project/Site: 10444 Ooltewah G	eorgeto	wn Road <sub>City/C</sub>	county: Ooltewah /	Hamilton	Sampling Date: 4-22-21				
Project/Site: 10444 Ooltewah Georgetown Road City/County: Ooltewah / Hamilton Sampling Date: 4-22-21  Applicant/Owner: Mr. Mark Jooma State: TN Sampling Point: DP-12									
Investigator(s): Cody Givens-GEOS Section, Township, Range:									
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 0-1									
Subregion (LRR or MLRA): LRR		Long: <u>-84</u>		Datum:					
Soil Map Unit Name: Hamblen silt	loam				cation:				
		for this time of year? Y	res V No						
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.									
			- Print 9   Print 1   Prin	,	,,,				
Hydrophytic Vegetation Present?	is the Sampled		Is the Sampled Area						
Hydric Soil Present? Wetland Hydrology Present?		No	within a Wetland?	Yes	No				
Remarks:									
HYDROLOGY									
Wetland Hydrology Indicators:					ators (minimum of two required)				
Primary Indicators (minimum of one is r				Surface Soil					
Surface Water (A1)		_ True Aquatic Plants (		Sparsely Vegetated Concave Surface (B8)					
High Water Table (A2)		_ Hydrogen Sulfide Od		Drainage Pa					
Saturation (A3) Water Marks (B1)		<ul><li>Oxidized Rhizosphere</li><li>Presence of Reduced</li></ul>	es on Living Roots (C3)	Moss Trim L	ines (B16) Water Table (C2)				
Sediment Deposits (B2)		on in Tilled Soils (C6)	Crayfish Bur						
✓ Drift Deposits (B3)	Thin Muck Surface (C			isible on Aerial Imagery (C9)					
Algal Mat or Crust (B4)	_ 	marks)		stressed Plants (D1)					
Iron Deposits (B5)				Geomorphic	Position (D2)				
Inundation Visible on Aerial Imager	y (B7)		Shallow Aqu						
Water-Stained Leaves (B9)				· -	aphic Relief (D4)				
Aquatic Fauna (B13) Field Observations:			Ι	FAC-Neutra	Test (D5)				
	No 🗸	Depth (inches):							
		Depth (inches):							
Saturation Present? Yes	No	Depth (inches): 0-3	3" Wetland Hydrology Present? Yes No No						
(includes capillary fringe)  Describe Recorded Data (stream gauge									
Describe Recorded Data (stream gauge	, monitoring	well, aerial priotos, pre	evious irispections), ii ava	iliable.					
Remarks:									
Terrano.									

Sampling Point: DP-12

Tree Stratum (Plot size:)	Absolute	Dominant		Dominance Test worksheet:	
Tiee Stratum (Flot Size)	% Cover	Species?	Status	Number of Dominant Species	
1			-		(A)
2.		-	-		
				Total Number of Dominant	(D)
3				Species Across All Strata:	(B)
4				Percent of Dominant Species	
5				That Are OBL, FACW, or FAC:	(A/B)
6					
7		-	-	Prevalence Index worksheet:	
8.			_	Total % Cover of: Multiply by:	
o	0			OBL species x 1 =	
Sapling/Shrub Stratum (Plot size:)	<u> </u>	= Total Cov	/ei	FACW species <u>50</u> x 2 = <u>100</u>	
I Ilmus amaricana	10	_	FACW		
				FAC species x 3 =	
2				FACU species $50$ $x 4 = 200$	
3				UPL species x 5 =	
4			-	Column Totals: 100 (A) 300	(B)
5			_		
				Prevalence Index = $B/A = 3.0$	
6				Hydrophytic Vegetation Indicators:	
7				1 - Rapid Test for Hydrophytic Vegetation	
8					
9			-	2 - Dominance Test is >50%	
10.		_	-	v 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
10.	10	- Total Cay		4 - Morphological Adaptations <sup>1</sup> (Provide suppo	orting
Herb Stratum (Plot size:)	<u> 10                                   </u>	= Total Cov	/er	data in Remarks or on a separate sheet)	
1 Juncus effusus	25	_	FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain	)
2. Carex grayi	15		FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology mu	ıct
3. Schedonorus arundinaceus	20		FACU	be present, unless disturbed or problematic.	มรเ
4. Andropogon virginicus	10	-	FACU		
5 Sorghum halepense	20		FACU	Definitions of Four Vegetation Strata:	
· · · · · · · · · · · · · · · · · · ·				Tree – Woody plants, excluding vines, 3 in. (7.6 cr	m) or
6				more in diameter at breast height (DBH), regardles	
7				height.	
8				One line (Observe) None de la landa de la colonida de la landa	
9			-	Sapling/Shrub – Woody plants, excluding vines, I than 3 in. DBH and greater than 3.28 ft (1 m) tall.	ess
10				than 3 in. DBT and greater than 3.20 it (1 in) tail.	
				Herb – All herbaceous (non-woody) plants, regard	less
11				of size, and woody plants less than 3.28 ft tall.	
12					
	90	= Total Cov	er er	Woody vine – All woody vines greater than 3.28 fl height.	t in
				Height.	
Woody Vine Stratum (Plot size:)					
Woody Vine Stratum (Plot size:) 1				1	
1.		-	-		
1 2			- - -		
1			- - -		
1			- - - -	Hydrophyfic	
1			- - - -	Hydrophytic Vegetation	
1			- - - - -		
1			- - - - -	Vegetation	

Depth	Matrix		pth needed to doc Red	dox Featu	ıres			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		Texture	Remarks
0-12	10yr 5/2	96	10 yr 4/6	_ 3	D	<u> M</u>	_ <u>L</u>	
						_	· -	
			-					
						_	· · ·	
				<u> </u>				
Type: C=C	Concentration, D=De	epletion, RN	M=Reduced Matrix, I	MS=Mask	ked Sand G	Grains.	<sup>2</sup> Location: PL	_=Pore Lining, M=Matrix.
	Indicators:	,	,					ators for Problematic Hydric Soils <sup>3</sup> :
Histosc	ol (A1)		Dark Surfa	ce (S7)			2	cm Muck (A10) (MLRA 147)
	Epipedon (A2)		Polyvalue I		rface (S8)	(MLRA 147	<b>7, 148)</b> C	coast Prairie Redox (A16)
	listic (A3)		Thin Dark S			147, 148)		(MLRA 147, 148)
	en Sulfide (A4)		Loamy Gle				P	iedmont Floodplain Soils (F19)
<del></del> '	ed Layers (A5)		Depleted M					(MLRA 136, 147)
	uck (A10) (LRR N)	(8.4.4)	Redox Dar					(ann Ohallana Dark Ourface (TE40)
	ed Below Dark Surfa Park Surface (A12)	ace (A11)	Depleted D Redox Dep					ery Shallow Dark Surface (TF12) Other (Explain in Remarks)
	Mucky Mineral (S1)	/I DD N	Redox Dep			(I DD N	0	oner (Explain in Remarks)
	A 147, 148)	(LIXIX IV,	MLRA 1		13363 (1 12)	(LIXIX IV,		
	Gleyed Matrix (S4)		Umbric Sur		3) <b>(MLRA</b> 1	36, 122)	<sup>3</sup> Ind	icators of hydrophytic vegetation and
	Redox (S5)		Piedmont F					retland hydrology must be present,
	d Matrix (S6)		Red Paren					nless disturbed or problematic.
Restrictive	Layer (if observed	i):						
Type:								4
Depth (ir	nches):						Hydric Soil	Present? Yes No No
Remarks:								<del>_</del>

Project/Site: 10444 Ooltewah Georgetown	Road City/County:	Ooltewah / Ha	amilton <sub>S</sub>	ampling Date: 4-22-21			
Applicant/Owner: Mr. Mark Jooma		S		Sampling Point: DP-13			
0-4-0-000	Section, Tov		·				
Landform (hillslope, terrace, etc.): Slope  Local relief (concave, convex, none): CONVEX  Slope (%): C							
Subregion (LRR or MLRA): LRR Lat: 35			Datum:				
Soil Map Unit Name: Hamblen silt loam		Long		on:			
Are climatic / hydrologic conditions on the site typical for the	nis time of year? Yes	No (If n					
Are Vegetation, Soil, or Hydrology	-			sent? Yes No			
Are Vegetation, Soil, or Hydrology	naturally problematic?	(If needed, expl	ain any answers	in Remarks.)			
SUMMARY OF FINDINGS - Attach site map	showing sampling	g point locations	s, transects, i	mportant features, etc.			
Hydrophytic Vegetation Present? Yes	No. V						
Hydric Soil Present? Yes		e Sampled Area		🗸			
Wetland Hydrology Present? Yes	No withi	in a Wetland?	Yes	No			
Remarks:				-			
HYDROLOGY							
Wetland Hydrology Indicators:		<u>Se</u>		rs (minimum of two required)			
Primary Indicators (minimum of one is required; check all	that apply)		Surface Soil Cracks (B6)				
Surface Water (A1) Tru	ue Aquatic Plants (B14)	_	Sparsely Vegetated Concave Surface (B8)				
	drogen Sulfide Odor (C1)		_ Drainage Patte	rns (B10)			
	idized Rhizospheres on L	-	<del>-</del>				
Water Marks (B1) Pre	esence of Reduced Iron (	(C4)	_ Dry-Season Wa	ater Table (C2)			
	cent Iron Reduction in Til	lled Soils (C6)	_ Crayfish Burrov				
	in Muck Surface (C7)	_		ole on Aerial Imagery (C9)			
<del>-</del>	ner (Explain in Remarks)	·	Stunted or Stressed Plants (D1)				
Iron Deposits (B5)			Geomorphic Position (D2)				
Inundation Visible on Aerial Imagery (B7)			Shallow Aquitard (D3)				
Water-Stained Leaves (B9)			Microtopographic Relief (D4)				
Aquatic Fauna (B13)			FAC-Neutral Te	est (D5)			
Field Observations:  Surface Water Present?  Yes No De	enth (inches):						
Water Table Present? Yes No De							
Saturation Present? Yes No De			rology Present?	Yes No			
(includes capillary fringe)			-				
Describe Recorded Data (stream gauge, monitoring well,	aerial photos, previous i	inspections), if availab	ole:				
Remarks:							

Sampling Point: DP-13

T 01 ( /DI 1 :	Absolute		Indicator	Dominance Test worksheet:	
Tree Stratum (Plot size:)		Species?	Status	Number of Dominant Species	
1				That Are OBL, FACW, or FAC:	(A)
2				Total Number of Dominant	
3				Species Across All Strata:	(B)
4			-		` ,
5.			-	Percent of Dominant Species	(A (D)
			_	That Are OBL, FACW, or FAC:	(A/B)
6				Prevalence Index worksheet:	
7				Total % Cover of: Multiply by:	
8				OBL species x 1 =	
	0	= Total Cov	ver		
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =	
1.				FAC species x 3 =	_
2				FACU species 100 x 4 = 400	_
3				UPL species x 5 =	_
4.				Column Totals: 100 (A) 400	(B)
			_	( ,	_ ` '
5				Prevalence Index = $B/A = 4.0$	
6				Hydrophytic Vegetation Indicators:	
7				1 - Rapid Test for Hydrophytic Vegetation	
8				2 - Dominance Test is >50%	
9				1 <del></del>	
10				3 - Prevalence Index is ≤3.0 <sup>1</sup>	
	^	= Total Cov	ver	4 - Morphological Adaptations <sup>1</sup> (Provide sup	
Herb Stratum (Plot size:)				data in Remarks or on a separate sheet)	
1. Sorghum halepense	25	-	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Expla	ıın)
2 Schedonorus arundinaceus	30	-	FACU		
3. Rubus argutus	10		FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology i	must
4. Solidago canadensis	<del>15</del>		FACU	be present, unless disturbed or problematic.	
· · · <u> </u>	$-\frac{10}{20}$		FACU	Definitions of Four Vegetation Strata:	
<sub>5.</sub> Chasmanthium latifolium			FACU	Tree Weeds plants evaluding since 2 in (7.6	am) ar
6				Tree – Woody plants, excluding vines, 3 in. (7.6 more in diameter at breast height (DBH), regard	
7				height.	1000 01
8			-		
9.				Sapling/Shrub – Woody plants, excluding vines	s, less
				than 3 in. DBH and greater than 3.28 ft (1 m) tall	l.
10				Herb – All herbaceous (non-woody) plants, rega	ırdless
11				of size, and woody plants less than 3.28 ft tall.	
12				Manda di con a All con adocción a a manda di trans a 200	) # :
	100	= Total Cov	ver	<b>Woody vine</b> – All woody vines greater than 3.28 height.	πın
Woody Vine Stratum (Plot size:)				Tieight.	
1					
2					
3		-	-		
			_		
<i>A</i>				Hydrophytic	
4				Vegetation	
4				Dunanuto Van	
		- = Total Cov		Present? Yes No	

		to the depth i	needed to document the indicator or confir	m the abs	sence of indicators.)
Depth (inches)	Matrix Color (moist)	<u></u> %	Redox Features  Color (moist) % Type <sup>1</sup> Loc <sup>2</sup>	Textu	ure Remarks
0-12	10vr 4/4	100	Color (moist) /0 Type Loc	I	ite itemates
0-12	1091 7/7	_ 100 _		- <del></del>	<del></del>
	·				
	-			_	
	· -				
		<del></del>			
				_	
<sup>1</sup> Type: C=C	Concentration D=De	nletion RM=Re	educed Matrix, MS=Masked Sand Grains.	<sup>2</sup> Locatio	on: PL=Pore Lining, M=Matrix.
	Indicators:	piction, raw rec	duced Matrix, We Macked Garia Grains.		Indicators for Problematic Hydric Soils <sup>3</sup> :
Histoso			Dark Surface (S7)		2 cm Muck (A10) (MLRA 147)
	pipedon (A2)	-	Polyvalue Below Surface (S8) (MLRA 147	7 148)	Coast Prairie Redox (A16)
	listic (A3)	-	Thin Dark Surface (S9) (MLRA 147, 148)		(MLRA 147, 148)
	en Sulfide (A4)	-	Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	ed Layers (A5)	•	Depleted Matrix (F3)	•	(MLRA 136, 147)
	uck (A10) (LRR N)	-	Redox Dark Surface (F6)		, ,
	ed Below Dark Surfa	ce (A11)	Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
Thick D	ark Surface (A12)	-	Redox Depressions (F8)		Other (Explain in Remarks)
Sandy	Mucky Mineral (S1)	(LRR N,	Iron-Manganese Masses (F12) (LRR N,		
	A 147, 148)		MLRA 136)		
	Gleyed Matrix (S4)	-	Umbric Surface (F13) (MLRA 136, 122)		<sup>3</sup> Indicators of hydrophytic vegetation and
	Redox (S5)	-	Piedmont Floodplain Soils (F19) (MLRA 1		wetland hydrology must be present,
	d Matrix (S6)		Red Parent Material (F21) (MLRA 127, 14	47)	unless disturbed or problematic.
Restrictive	Layer (if observed	):			
Type:			_		
Depth (ir	nches):		<u>_</u>	Hydrid	c Soil Present? Yes No
Remarks:					

Project/Site: 10444 Ooltewah Ge	eorgeto	wn Road <sub>City/C</sub>	County: Ooltewah /	Hamilton	Sampling Date: 4-22-21		
Applicant/Owner: Mr. Mark Jooma				State: TN	Sampling Point: DP-14		
Investigator(s): Cody Givens-GEOS Section, Township, Range:							
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 0-1							
Subregion (LRR or MLRA): LRR	Long: <u>-84</u>		Datum:				
Soil Map Unit Name: Hamblen silt I	oam				cation:		
Are climatic / hydrologic conditions on the		for this time of year? Y	ves V No				
Are Vegetation, Soil, or Hy					4		
Are Vegetation, Soil, or Hy				explain any answe			
SUMMARY OF FINDINGS – Atta							
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,		
Hydrio Soil Propert?		No	Is the Sampled Area	<b>✓</b>			
Hydric Soil Present? Wetland Hydrology Present?		No No	within a Wetland?	Yes_	No		
Remarks:	169	140					
HYDROLOGY							
Wetland Hydrology Indicators:				-	ators (minimum of two required)		
Primary Indicators (minimum of one is re	quired; che			Surface Soil			
Surface Water (A1)	_	_ True Aquatic Plants (		Sparsely Vegetated Concave Surface (B8)			
High Water Table (A2)	_	_ Hydrogen Sulfide Od		Drainage Pa			
Saturation (A3) Water Marks (B1)		_ Oxidized Rnizospher _ Presence of Reduced	es on Living Roots (C3)	Moss Trim L	Water Table (C2)		
Sediment Deposits (B2)		Recent Iron Reduction		Crayfish Bur			
✓ Drift Deposits (B3)		_ Thin Muck Surface (0		-	isible on Aerial Imagery (C9)		
✓ Algal Mat or Crust (B4)	_	Other (Explain in Rer	marks)		tressed Plants (D1)		
Iron Deposits (B5)				Geomorphic Position (D2)			
Inundation Visible on Aerial Imagery	(B7)			Shallow Aquitard (D3)			
Water-Stained Leaves (B9) Aquatic Fauna (B13)				<pre> Microtopographic Relief (D4) FAC-Neutral Test (D5)</pre>			
Field Observations:				FAC-Neutral	Trest (D5)		
	No 🗸	Depth (inches):					
		Depth (inches):					
		Depth (inches): 0-4	4" Wetland F	lydrology Preser	nt? Yes No		
(includes capillary fringe)  Describe Recorded Data (stream gauge,				ilahle:			
Describe Recorded Data (stream gauge,	monitoring	well, aeriai priotos, pre	evious irispections), ii ava	illable.			
Remarks:							

Sampling Point: DP-14 sheet:

	Absolute	Dominant		Dominance Test worksheet:	
Tree Stratum (Plot size:)		Species?	Status	Number of Dominant Species	
1				That Are OBL, FACW, or FAC:	(A)
2				Total Number of Dominant	
3					(B)
4.			-		( )
			_	Percent of Dominant Species	
5				That Are OBL, FACW, or FAC:	(A/B)
6				Prevalence Index worksheet:	
7					
8				Total % Cover of: Multiply by:	_
	0	= Total Cov	er	OBL species x 1 =	_
Sapling/Shrub Stratum (Plot size:)				FACW species <u>50</u> x 2 = <u>100</u>	_
1. Ulmus americana	10		FACW	FAC species x 3 =	_
2		-	-	FACU species 50 x 4 = 200	_
3.			-	UPL species x 5 =	
			_	Column Totals: 100 (A) 300	– (B)
4				Column Totals (A)	_ (D)
5				Prevalence Index = B/A = 3.0	
6				Hydrophytic Vegetation Indicators:	_
7					
8			-	1 - Rapid Test for Hydrophytic Vegetation	
9.			_	2 - Dominance Test is >50%	
10.	-		_	3 - Prevalence Index is ≤3.0 <sup>1</sup>	
10.	10	T-4-1 O-1		4 - Morphological Adaptations <sup>1</sup> (Provide sup	porting
Herb Stratum (Plot size:)	10	= Total Cov	er	data in Remarks or on a separate sheet)	
1. Carex grayi	15	_	FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explai	n)
2. Schedonorus arundinaceus	20		FACU		
				<sup>1</sup> Indicators of hydric soil and wetland hydrology n	nust
3. Juncus effusus	25		FACW	be present, unless disturbed or problematic.	
4. Solidago canadensis	15		FACU	Definitions of Four Vegetation Strata:	
<sub>5.</sub> Sorghum halepense	15		FACU	3	
6		-	-	Tree – Woody plants, excluding vines, 3 in. (7.6	
7			-	more in diameter at breast height (DBH), regardle height.	ess of
8.				noight.	
				Sapling/Shrub – Woody plants, excluding vines,	
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
10				Herb – All herbaceous (non-woody) plants, regar	eaalb
11				of size, and woody plants less than 3.28 ft tall.	uicss
12					
	90	= Total Cov	er	<b>Woody vine</b> – All woody vines greater than 3.28	ft in
Woody Vine Stratum (Plot size:)				height.	
1					
2.			-		
			_		
3					
4				Hydrophytic	
5				Vegetation	
6				Present? Yes No	
	0	= Total Cov	er		
Remarks: (Include photo numbers here or on a separate s	sheet.)			1	
Vegeation had been altered prior to site		a Ruch	-hoggir	ng / Hay Production)	
vegeation had been altered phor to site	vioit. (i.	.e. Dusi	ı-noggii	ig / Hay Floduction)	

Profile Desc	ription: (Describe	to the de	pth needed to docu	ment the	indicator	or confirm	n the ab	sence of indicators.)
Depth	Matrix		Redo	x Feature				
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Tex	ture Remarks
0-12	10yr 5/2	92	10 yr 4/6	88	<u>D</u>	M	<u>L</u>	
				_				
		<del></del>	-					
	-							, - <u> </u>
					_			
				_	_			
	-						-	
	-		-					
<sup>1</sup> Type: C=Co	oncentration, D=Dep	letion, RM	I=Reduced Matrix, M	S=Maske	d Sand Gr	ains.	<sup>2</sup> Locat	ion: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators:							Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Dark Surface					2 cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be		. , .		148)	Coast Prairie Redox (A16)
Black His			Thin Dark Su			147, 148)		(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleye		(F2)			Piedmont Floodplain Soils (F19)
	Layers (A5)		<u>✓</u> Depleted Ma Redox Dark		E6)			(MLRA 136, 147)
	ck (A10) <b>(LRR N)</b> d Below Dark Surfac	·e (Δ11)	Redox Dark Depleted Da	,	,			Very Shallow Dark Surface (TF12)
	ark Surface (A12)	(, (, 1, 1, )	Redox Depre					Other (Explain in Remarks)
	lucky Mineral (S1) (I	LRR N,	Iron-Mangan			LRR N,		
	147, 148)		MLRA 13					
	leyed Matrix (S4)		Umbric Surfa					<sup>3</sup> Indicators of hydrophytic vegetation and
-	edox (S5)		Piedmont Flo					wetland hydrology must be present,
	Matrix (S6)		Red Parent I	Material (I	=21) <b>(MLR</b>	A 127, 147	7)	unless disturbed or problematic.
	_ayer (if observed)	:						
Type:								<b>✓</b>
Depth (inc	ches):		<u></u>				Hydi	ric Soil Present? Yes No
Remarks:								

Project/Site: 10444 Ooltewa	h Georgetow	n Road <sub>City/C</sub>	County: Ooltewah /	Hamilton	Sampling Date: 4-22-21			
Applicant/Owner: Mr. Mark Jooma State: TN Sampling Point: DP-1								
Investigator(s): Cody Givens-			on, Township, Range:					
Landform (hillslope, terrace, etc.): S			ne): convex	Slope (%): 0-1				
Subregion (LRR or MLRA): LRR		Long: <u>-84</u>		Datum:				
Soil Map Unit Name: Hamblen	silt loam				cation:			
Are climatic / hydrologic conditions of		or this time of year? Y	es V No					
Are Vegetation, Soil					<b>4</b>			
Are Vegetation, Soil				explain any answe				
SUMMARY OF FINDINGS -								
				Tio, transcott	, important routeroo, etc.			
Hydrophytic Vegetation Present?		_ No	Is the Sampled Area		<b>√</b>			
Hydric Soil Present?		_ No	within a Wetland?	Yes	No			
Wetland Hydrology Present?  Remarks:	Yes	_ NO						
HYDROLOGY								
Wetland Hydrology Indicators:	_			Secondary Indica	ators (minimum of two required)			
Primary Indicators (minimum of on	e is required; check	k all that apply)		Surface Soil				
Surface Water (A1)		True Aquatic Plants (	B14)		getated Concave Surface (B8)			
High Water Table (A2)		Hydrogen Sulfide Ode		Drainage Patterns (B10)				
Saturation (A3)		-	es on Living Roots (C3)	Moss Trim L				
Water Marks (B1)		Presence of Reduced	-		Water Table (C2)			
Sediment Deposits (B2)	_	Recent Iron Reductio	on in Tilled Soils (C6)	Crayfish Bur	rows (C8)			
Drift Deposits (B3)		Thin Muck Surface (C		Saturation Visible on Aerial Imagery (C9)				
Algal Mat or Crust (B4)	_	Other (Explain in Ren	marks)	Stunted or Stressed Plants (D1)				
Iron Deposits (B5)	(5.7)			Geomorphic Position (D2)				
Inundation Visible on Aerial Im	agery (B7)			Shallow Aquitard (D3)				
Water-Stained Leaves (B9) Aguatic Fauna (B13)				<pre> Microtopographic Relief (D4) FAC-Neutral Test (D5)</pre>				
Field Observations:				FAC-Neulla	Trest (D5)			
	s No 🗸	Depth (inches):						
		Depth (inches):						
		Depth (inches):						
(includes capillary fringe)  Describe Recorded Data (stream of				ilable:				
Describe Recorded Data (stream g	jauge, monitoring w	reii, aeriai priotos, pre	evious irispections), ii ava	illable.				
Remarks:								

Sampling Point: DP-15

T 0' ' 'D' ' '	Absolute	Dominant		Dominance Test worksheet:	
Tree Stratum (Plot size:)	·	Species?	Status	Number of Dominant Species	
1				That Are OBL, FACW, or FAC:	(A)
2				Total Number of Dominant	
3					(B)
4			-		` ,
5.			-	Percent of Dominant Species	(A (D)
				That Are OBL, FACW, or FAC:	(A/B)
6				Prevalence Index worksheet:	
7				Total % Cover of: Multiply by:	
8					_
	0	= Total Cov	ver	OBL species x 1 =	
Sapling/Shrub Stratum (Plot size:)				FACW species <u>50</u> x 2 =	
1				FAC species x 3 =	
2				FACU species 100 x 4 = 400	
3			-	UPL species x 5 =	_
4.				450 400	(B)
			_	( )	. (-)
5				Prevalence Index = $B/A = 4.0$	_
6				Hydrophytic Vegetation Indicators:	
7				1 - Rapid Test for Hydrophytic Vegetation	
8				2 - Dominance Test is >50%	
9				1 <del>-</del>	
10		-	-	3 - Prevalence Index is ≤3.0 <sup>1</sup>	
	^	= Total Cov	ver	4 - Morphological Adaptations (Provide supp	orting
Herb Stratum (Plot size:)				data in Remarks or on a separate sheet)	
1. Sorghum halepense	20	-	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain	1)
2 Schedonorus arundinaceus	30	-	FACU		
3. Rubus argutus	10	_	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology m	ust
4. Solidago canadensis	20		FACU	be present, unless disturbed or problematic.	
5. Chasmanthium latifolium	$-\frac{20}{20}$		FACU	Definitions of Four Vegetation Strata:	
			17100	Tree – Woody plants, excluding vines, 3 in. (7.6 cr	m) or
6				more in diameter at breast height (DBH), regardles	
7				height.	
8			-	Continue/Church Woody plants avaluating vince	looo
9				Sapling/Shrub – Woody plants, excluding vines, than 3 in. DBH and greater than 3.28 ft (1 m) tall.	iess
10				than 5 m. BBN and groater than 6.25 k (1 m) tall.	
			_	Herb – All herbaceous (non-woody) plants, regard	lless
11				of size, and woody plants less than 3.28 ft tall.	
12	100			Woody vine – All woody vines greater than 3.28 f	ft in
Woody Vine Stratum (Plot size:)	100	= Total Cov	ver	height.	
		_	_		
1					
2		<u> </u>			
<u></u>		-			
3.					
			-	Headara headar	
3			-	Hydrophytic Vegetation	
3			- - -	Hydrophytic Vegetation Present? Yes No	
3			- - -	Vegetation	

Profile Desc	cription: (Describe to the dep	th needed to document the indicator or confirm	the absen	ce of indicators.)
Depth	Matrix Color (moist) %	Redox Features Color (moist) % Type¹ Loc²	Touture	Domarka
(inches) 0-12	10yr 4/4	Color (moist) % Type <sup>1</sup> Loc <sup>2</sup>	Texture I	Remarks
0-12	10y1 4/4			_
				<del>-</del>
				<u> </u>
				<del>-</del>
<sup>1</sup> Type: C=C	oncentration, D=Depletion, RM	=Reduced Matrix, MS=Masked Sand Grains.	<sup>2</sup> Location:	PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:		Ind	icators for Problematic Hydric Soils <sup>3</sup> :
Histosol		Dark Surface (S7)		2 cm Muck (A10) (MLRA 147)
	pipedon (A2)	Polyvalue Below Surface (S8) (MLRA 147,	148)	Coast Prairie Redox (A16)
	istic (A3)	Thin Dark Surface (S9) (MLRA 147, 148)		(MLRA 147, 148)
	en Sulfide (A4)	Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	d Layers (A5) uck (A10) <b>(LRR N)</b>	Depleted Matrix (F3)		(MLRA 136, 147)
	d Below Dark Surface (A11)	Redox Dark Surface (F6) Depleted Dark Surface (F7)		Very Shallow Dark Surface (TF12)
	ark Surface (A12)	Redox Depressions (F8)		Other (Explain in Remarks)
	Mucky Mineral (S1) (LRR N,	Iron-Manganese Masses (F12) (LRR N,		(
	A 147, 148)	MLRA 136)		
	Gleyed Matrix (S4)	Umbric Surface (F13) (MLRA 136, 122)	<sup>3</sup> I	ndicators of hydrophytic vegetation and
-	Redox (S5)	Piedmont Floodplain Soils (F19) (MLRA 14	8)	wetland hydrology must be present,
	Matrix (S6)	Red Parent Material (F21) (MLRA 127, 147	<u>')</u>	unless disturbed or problematic.
Restrictive	Layer (if observed):			
Type:		<u></u>		•/
Depth (in	ches):		Hydric S	oil Present? Yes No
Remarks:				

Project/Site: 10444 Ooltewah G	eorgeto	wn Road <sub>City/C</sub>	County: Ooltewah /	Hamilton	Sampling Date: 4-22-21			
Applicant/Owner: Mr. Mark Joom					Sampling Point: DP-16			
Investigator(s): Cody Givens-GEOS Section, Township, Range:								
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 0-1								
Subregion (LRR or MLRA): LRR			Datum:					
Soil Map Unit Name: Hamblen silt	loam		2511g		cation:			
Are climatic / hydrologic conditions on the		for this time of year?	ves V No					
Are Vegetation, Soil, or F					<b>4</b>			
Are Vegetation, Soil, or F								
-				explain any answe				
SUMMARY OF FINDINGS – At	tach site i	map snowing san	npling point locatio	ons, transects	s, important features, etc.			
Hydrophytic Vegetation Present?	vic Vegetation Present? Yes No Is the Sampled Arc		Is the Sampled Area	nd Area				
Hydric Soil Present?		No	within a Wetland?	Yes_	No			
Wetland Hydrology Present?  Remarks:	Yes	No						
HYDROLOGY								
Wetland Hydrology Indicators:				Secondary Indica	ators (minimum of two required)			
Primary Indicators (minimum of one is r	equired che	ck all that apply)		Surface Soil				
Surface Water (A1)	oquirou, or.o	_ True Aquatic Plants (			getated Concave Surface (B8)			
High Water Table (A2)	_	_ Hydrogen Sulfide Od		Drainage Patterns (B10)				
Saturation (A3)	~		res on Living Roots (C3)	Moss Trim L				
Water Marks (B1)		Presence of Reduced	=		Water Table (C2)			
Sediment Deposits (B2)	_	_ Recent Iron Reduction	on in Tilled Soils (C6)	Crayfish Bur	rows (C8)			
Drift Deposits (B3)	_	_ Thin Muck Surface (0			isible on Aerial Imagery (C9)			
Algal Mat or Crust (B4)	_	Other (Explain in Rer	marks)	Stunted or Stressed Plants (D1)				
Iron Deposits (B5)				Geomorphic Position (D2)				
Inundation Visible on Aerial Imager	y (B7)			Shallow Aquitard (D3)				
Water-Stained Leaves (B9) Aquatic Fauna (B13)				Microtopographic Relief (D4) FAC-Neutral Test (D5)				
Field Observations:				FAC-Neutral	i Test (D3)			
	No 🗸	Depth (inches):						
		Depth (inches):						
Saturation Present? Yes	 No	Depth (inches): 0-3	B" Wetland H	lydrology Presei	nt? Yes No			
(includes capillary fringe)  Describe Recorded Data (stream gauge				ilahle:	<del></del>			
Describe Necolded Data (stream gauge	, monitoring	well, aeriai priotos, pre	svious irispections), ii ava	illable.				
Remarks:								

1. Juniperus virginiana 20 -

Tree Stratum (Plot size: \_\_\_\_\_)

Sapling/Shrub Stratum (Plot size:

Herb Stratum (Plot size: \_\_\_\_\_)

<sub>1.</sub> Juncus effusus

1. Ulmus americana

3. Ligustrum sinense

<sub>2</sub> Acer rubrum

Sampling Point: DP-16 **Dominance Test worksheet:** Absolute Dominant Indicator % Cover Species? Status **Number of Dominant Species** That Are OBL, FACW, or FAC: **Total Number of Dominant** \_\_\_ (B) Species Across All Strata: Percent of Dominant Species That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: \_\_\_\_ x1= OBL species FACW species 55 x = 11015 <sub>x 3 =</sub> 45 FAC species FACU species 30 x = 120x 5 = UPL species Column Totals: 100 (A) <u>2</u>75 Prevalence Index = B/A = 2.75**Hydrophytic Vegetation Indicators:** \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation \_\_ 2 - Dominance Test is >50% ✓ 3 - Prevalence Index is ≤3.0<sup>1</sup> 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) <sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. **Definitions of Four Vegetation Strata:** Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

8			-	One Brow (Ohanda - Wanda alanda - arabadia arabadia arabadia
9			_	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10.		-	-	
11.		-	-	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12		-	-	of size, and woody plants less than 5.25 it tall.
Woody Vine Stratum (Plot size:)	40	_ = Total Co	over	<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.

= Total Cover

FACU

FAC

**FACU** 

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

Vegeation had been altered prior to site visit. (i.e. Bush-hogging / Hay Production)

20

15

15

10

= Total Cover

= Total Cover

Hydrophytic

Vegetation Present?

Depth	Matrix		pth needed to doc Red	dox Featu			abscilet	Juioutoio.j
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-12	10yr 5/2	95	10 yr 4/6	5	D	M	<u>L</u>	
	- '-		-					
		_			_	_		
							· ——	
	<u> </u>		<u> </u>				<u> </u>	
						_	·	
	-		-				<del></del>	
	· -		<u> </u>				<u> </u>	
vpe: C=C	Concentration, D=De	epletion. RN	M=Reduced Matrix, I	MS=Mask	ed Sand G	rains.	<sup>2</sup> Location: PL	_=Pore Lining, M=Matrix.
	Indicators:	<u> </u>	,					ators for Problematic Hydric Soils <sup>3</sup> :
_ Histoso			Dark Surfa	ce (S7)				cm Muck (A10) (MLRA 147)
	Epipedon (A2)		Polyvalue E		rface (S8)	(MLRA 147		Coast Prairie Redox (A16)
_ Black H	listic (A3)		Thin Dark S	Surface (	S9) <b>(MLRA</b>	147, 148)		(MLRA 147, 148)
_ Hydrog	en Sulfide (A4)		Loamy Gle				P	riedmont Floodplain Soils (F19)
	ed Layers (A5)		Depleted M					(MLRA 136, 147)
	uck (A10) (LRR N)		Redox Dar					
	ed Below Dark Surfa	ace (A11)	Depleted D					/ery Shallow Dark Surface (TF12)
	Oark Surface (A12) Mucky Mineral (S1)	/I DD N	Redox Dep Iron-Manga			/I DD N		Other (Explain in Remarks)
	A 147, 148)	(LKK N,	IIOII-Manga		15565 (F 12)	(LKK N,		
	Gleyed Matrix (S4)		Umbric Sur		3) <b>(MLRA</b> 1	36. 122)	<sup>3</sup> Ind	icators of hydrophytic vegetation and
	Redox (S5)		Piedmont F					vetland hydrology must be present,
-	d Matrix (S6)		Red Parent					nless disturbed or problematic.
Restrictive	Layer (if observed	i):						•
Type:								_
Depth (ir	nches):						Hydric Soil	Present? Yes No
Remarks:								

Project/Site: 10444 Ooltewah Georg	etown Road City/County: Ooltewa	h / Hamilton Sampling Date: 4-22-21
Applicant/Owner: Mr. Mark Jooma		State: TN Sampling Point: DP-17
Investigator(s): Cody Givens-GEOS	Section, Township, Range	
		(, none): convex Slope (%): 0-1
Subregion (LRR or MLRA): LRR	_ Lat: 35.223985 Long:	-84.997625 Datum:
Soil Map Unit Name: Hamblen silt loam		NWI classification:
Are climatic / hydrologic conditions on the site ty		<u> </u>
		ormal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrolog		led, explain any answers in Remarks.)
		eations, transects, important features, etc.
		,,,,,
	No V Is the Sampled A	rea 🗸
	No within a Wetland?	? Yes No
Remarks:	140	
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required	; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3)	Oxidized Rhizospheres on Living Roots (	
Water Marks (B1)	Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)	
Drift Deposits (B3)	Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Iron Deposits (B5)	Other (Explain in Remarks)	<ul><li>Stunted or Stressed Plants (D1)</li><li>Geomorphic Position (D2)</li></ul>
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)
Water-Stained Leaves (B9)		Microtopographic Relief (D4)
Aquatic Fauna (B13)		FAC-Neutral Test (D5)
Field Observations:		
	Depth (inches):	
	Depth (inches):	
	Depth (inches): Wetla	and Hydrology Present? Yes No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monit	oring well, aerial photos, previous inspections), i	f available:
Remarks:		

Tree Stratum (Plot size: \_\_\_\_\_)

Sapling/Shrub Stratum (Plot size: \_\_\_\_\_)

Herb Stratum (Plot size: \_\_\_\_\_)

2. Schedonorus arundinaceus

Woody Vine Stratum (Plot size: \_\_\_\_\_)

<sub>1.</sub> Sorghum halepense

5 Chasmanthium latifolium

3 Rubus argutus

4 Solidago canadensis

5. \_\_\_\_\_\_

Absolute Dominant Indicator

= Total Cover

= Total Cover

100 = Total Cover

0 = Total Cover

FACU

**FACU** 

FACU

FACU

Sampling Point: DP-17 **Dominance Test worksheet:** % Cover Species? Status **Number of Dominant Species** That Are OBL, FACW, or FAC: Total Number of Dominant \_\_ (B) Species Across All Strata: Percent of Dominant Species That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species \_\_\_\_\_ x 1 = \_\_\_\_ FACW species \_\_\_\_\_ x 2 = \_\_\_\_ FAC species x 3 =FACU species 100 x 4 = 400\_\_\_\_\_ x 5 = \_\_\_\_ UPL species Column Totals: 100 (A) 400 (B) Prevalence Index = B/A = 4.0**Hydrophytic Vegetation Indicators:** \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation \_\_\_ 2 - Dominance Test is >50% \_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup> 4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) <sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. **Definitions of Four Vegetation Strata:** Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in **Hydrophytic** Vegetation Present?

Vegeation had been altered prior to site visit. (i.e. Bush-hogging / Hay Production)

10

15

20

Denin	Matrix		Redov	Features					
Depth (inches)	Color (moist)	%	Color (moist)	% Type <sup>1</sup>	Loc <sup>2</sup>	Texture	<u>.                                    </u>	Remarks	
0-12	10yr 4/4	100	,/			L			
					<del></del>	_			
vno: C=C	oncontration D=Day	olotion DM-	Reduced Matrix, MS	-Maakad Sand Cra	ino 2	Location	PL=Pore Lini	oa M-Motriy	
	Indicators:	pielion, Rivi-	Reduced Matrix, MS	=iviaskeu Sanu Gra	IIIS.			roblematic Hy	rdria Caila <sup>3</sup> :
						1111		_	
_ Histosol			Dark Surface			_		A10) (MLRA 1	
	oipedon (A2)			ow Surface (S8) (M		48)		e Redox (A16)	
_	istic (A3)			face (S9) <b>(MLRA 1</b>	47, 148)		(MLRA 14		
	en Sulfide (A4)		Loamy Gleyed					oodplain Soils	(F19)
<del></del> -	d Layers (A5)		Depleted Matr				(MLRA 13	36, 147)	
_ 2 cm Mu	ıck (A10) <b>(LRR N)</b>		Redox Dark S	urface (F6)					
Deplete	d Below Dark Surfac	ce (A11)	Depleted Dark	Surface (F7)			Very Shallov	v Dark Surface	: (TF12)
_ Thick Da	ark Surface (A12)		Redox Depres	sions (F8)			_ Other (Expla	in in Remarks	)
_ Sandy N	Mucky Mineral (S1)	LRR N,	Iron-Mangane	se Masses (F12) (L	.RR N,				
	A 147, 148)		MLRA 136						
	Gleyed Matrix (S4)			, e (F13) <b>(MLRA 13</b>	6, 122)	5	Indicators of h	ydrophytic veg	etation and
	Redox (S5)			odplain Soils (F19)				rology must be	
-	Matrix (S6)			aterial (F21) <b>(MLR</b> /			-	bed or problen	
	Layer (if observed)	•	rear arenew	aterial (i 21) (iii210	127, 147)		dilicoo diotal	bed of problem	idilo.
Type:									<b>/</b>
						Hydric S	Soil Present?	Yes	No
Depth (in	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
Depth (in	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								
	ches):								

Project/Site: 10444 Ooltewah Geo	rgetowr	า Road <sub>Citv/C</sub>	<sub>county:</sub> Ooltewah /	Hamilton	Sampling Date: 4-22-21
Applicant/Owner: Mr. Mark Jooma					Sampling Point: DP-18
Investigator(s): Cody Givens-GEO	S		on, Township, Range:		
Landform (hillslope, terrace, etc.): slope					Slope (%): 0-1
Subregion (LRR or MLRA): LRR					Datum:
Soil Map Unit Name: Hamblen silt lo	 am				cation:
Are climatic / hydrologic conditions on the sit		this time of year? Y	es V No		
Are Vegetation, Soil, or Hydr					4
Are Vegetation, Soil, or Hydr				explain any answe	
SUMMARY OF FINDINGS – Attac					
SUMMART OF FINDINGS - Allac		p snowing san	ipinig point location	ons, transects	s, important leatures, etc.
Hydrophytic Vegetation Present?	es	No	Is the Sampled Area		
Hydric Soil Present?	es	No	within a Wetland?	Yes	No
Wetland Hydrology Present?	'es	No			
HYDROLOGY					
Wetland Hydrology Indicators:				Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is requ	ired: check a	all that apply)		Surface Soil	
Surface Water (A1)		rue Aquatic Plants (	B14)		getated Concave Surface (B8)
High Water Table (A2)		lydrogen Sulfide Ode		Drainage Pa	
Saturation (A3)		-	es on Living Roots (C3)	Moss Trim L	
Water Marks (B1)	P	resence of Reduced	l Iron (C4)	Dry-Season	Water Table (C2)
Sediment Deposits (B2)			n in Tilled Soils (C6)	Crayfish Bur	
Drift Deposits (B3)		hin Muck Surface (C			isible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	0	Other (Explain in Ren	narks)		stressed Plants (D1)
Iron Deposits (B5) Inundation Visible on Aerial Imagery (E	₹7\			Geomorphic Shallow Aqu	Position (D2)
Water-Stained Leaves (B9)	''')				aphic Relief (D4)
Aquatic Fauna (B13)				FAC-Neutra	
Field Observations:		_			,
Surface Water Present? Yes	No [	Depth (inches):			
		Depth (inches):			
	No I	Depth (inches):	Wetland I	Hydrology Prese	nt? Yes No No
(includes capillary fringe)  Describe Recorded Data (stream gauge, m	onitoring we	ell, aerial photos, pre	vious inspections), if ava	ailable:	
Remarks:					

20 -

0 = Total Cover

Tree Stratum (Plot size:

2 Acer rubrum

1. Ligustrum sinense

1. Fraxinus pennsylvanica

Sapling/Shrub Stratum (Plot size:

2. Juniperus virginiana

Herb Stratum (Plot size: \_\_\_\_\_)

5. \_\_\_\_\_\_

1. Solidago canadensis 15

3. \_\_\_\_\_\_\_

mes of	plants.		Sampling Point: DF	<b>'-</b> 18
Absolute			Dominance Test worksheet:	
	Species?	FACW	Number of Dominant Species	
30		FAC	That Are OBL, FACW, or FAC:	(A)
20		FAC	Total Number of Dominant	
			Species Across All Strata:	(B)
			Percent of Dominant Species	
			That Are OBL, FACW, or FAC:	(A/B)
			Barrel and a land and a land	
			Prevalence Index worksheet:	
			Total % Cover of: Multiply by:	
50	= Total Cov	er	OBL species x 1 =	<del></del>
			FACW species $\frac{30}{20}$ x 2 = $\frac{60}{20}$	
20		FACU	FAC species $\frac{20}{20}$ x 3 = $\frac{60}{200}$	
15		FACU	FACU species 50 x 4 = 200	_
		-	UPL species x 5 =	
		-	Column Totals: 100 (A) 320	(B)
	-	-	2.2	
	-	-	Prevalence Index = B/A = 3.2	_
	-	-	Hydrophytic Vegetation Indicators:	
	-	_	1 - Rapid Test for Hydrophytic Vegetation	
			2 - Dominance Test is >50%	
			3 - Prevalence Index is ≤3.0 <sup>1</sup>	
35	= Total Cov	er	4 - Morphological Adaptations <sup>1</sup> (Provide support data in Remarks or on a separate sheet)	
15		FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Expla	ain)
		-	1	
	-	-	<sup>1</sup> Indicators of hydric soil and wetland hydrology be present, unless disturbed or problematic.	must
	-	-	<u> </u>	
	_	-	Definitions of Four Vegetation Strata:	
	-	-	Tree – Woody plants, excluding vines, 3 in. (7.6	
			more in diameter at breast height (DBH), regard height.	lless of
			neight.	
			Sapling/Shrub – Woody plants, excluding vines	
			than 3 in. DBH and greater than 3.28 ft (1 m) tal	II.
			Herb – All herbaceous (non-woody) plants, rega	ardless
			of size, and woody plants less than 3.28 ft tall.	
15	= Total Cov	er	Woody vine – All woody vines greater than 3.2	8 ft in
			height.	
		-		
			Hydranhydia	
			Hydrophytic Vegetation	
	-	-	Present? Yes No	

Woody Vine Stratum (Plot size: \_\_\_\_\_)

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Type: C=Concentration, D=Depletion Reduced Matrix, MS=Masked Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Type: C=Concentratio			to the depth i	needed to document the indicator or confir	m the abs	sence of indicators.)	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Lacticity PL=Pore Lining, M=Matrix.  Indicators PL=Pore Lining, M=Matrix.  Indicators PL=Pore Lining, M=Matrix.  Indicators for Problematic MukRA 147, 148)  (MLRA 147, 148)  (M	Depth (inches)		0/2	Redox Features  Color (moist) % Type <sup>1</sup> Loc <sup>2</sup>	Tevt	ire Remarks	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Playdric Soil Indicators:  Histosol (A1)  Histosol (A2)  Black Histo (A3)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Matrix (F3)  Depleted Below Dark Surface (F6)  Depleted Blow Dark Surface (A11)  Depleted Dark Surface (F6)  Sandy Mucky Mineral (S1) (LRR N, MLRA 136)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Depleted Matrix (F3)  MILRA 136, 122)  Sandy Redox (S5)  Sandy Redox (S5)  Red Parent Material (F21) (MLRA 127, 147)  Redox Dark Surface (F10) (MLRA 148)  Sandy Redox (S5)  Red Parent Material (F21) (MLRA 127, 147)  Hydric Soil Present? Yes No				Color (moist) // Type Loc			
Histosol (A1)	0 12	10 91 0/1			· <del>-</del>		
Histosol (A1)							
Histosol (A1)							
Histosol (A1)							
Histosol (A1)					_		
Histosol (A1)		<del>.</del> .			_		
Histosol (A1)							
Histosol (A1)							
Histosol (A1)		-					
Histosol (A1)		· ·			-		
Histosol (A1)							
Histosol (A1)							
Histosol (A1)	Type: C=C	Concentration, D=De	pletion, RM=Re	duced Matrix, MS=Masked Sand Grains.	<sup>2</sup> Locatio	on: PL=Pore Lining, M=Matrix.	
Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F3) 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 (S4) Stripped Matrix (S6) Black Histic (A3) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Pere Mark 136, 147)  Wery Shallow Dark Surface (TF12) Other (Explain in Remarks)  Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Sandy Redox (S5) Depleted Matrix (S4) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147)  Restrictive Layer (if observed):  Type: Depth (inches):  Hydric Soil Present? Yes No			, , , , , , , , , , , , , , , , , , , ,				oils³:
Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F3) 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 (S4) Stripped Matrix (S6) Black Histic (A3) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Pere Mark 136, 147)  Wery Shallow Dark Surface (TF12) Other (Explain in Remarks)  Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Sandy Redox (S5) Depleted Matrix (S4) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147)  Restrictive Layer (if observed):  Type: Depth (inches):  Hydric Soil Present? Yes No	-			Dark Surface (S7)			
Black Histic (A3)			-	• • • • • • • • • • • • • • • • • • • •	7. 148)		
Loamy Gleyed Matrix (F2)  Stratified Layers (A5)  2 cm Muck (A10) (LRR N)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 136, 147)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Red Parent Material (F21) (MLRA 127, 147)  Depth (inches):  Hydric Soil Present? Yes No			·				
Stratified Layers (A5)			_		_		
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Stripped Matrix (S6)  Red Parent Material (F21) (MLRA 127, 147) Depth (inches):  Depth (inches):  Depleted Dark Surface (F7) Setrictive Layer (if observed):  Type: Depth (inches):  Depth (inche			<u>-</u>			(MLRA 136, 147)	
Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Remarks) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) 3Indicators of hydrophytic vegetation and Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present, and wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (if observed):  Type: Depth (inches): Hydric Soil Present? Yes No	2 cm M	uck (A10) (LRR N)	-	Redox Dark Surface (F6)			
Sandy Mucky Mineral (S1) (LRR N,			ce (A11)		-		2)
MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Restrictive Layer (if observed):  Type: Depth (inches): Sandy Redox (S5)  MLRA 136, Umbric Surface (F13) (MLRA 136, 122)  MLRA 148)  MLRA 148)  Wetland hydrology must be present, wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No			-			Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122)   Sandy Redox (S5)			(LRR N,				
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present, Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) unless disturbed or problematic.  Restrictive Layer (if observed):  Type: Depth (inches): Hydric Soil Present? Yes No				•		3	
Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) unless disturbed or problematic.  Restrictive Layer (if observed):  Type: Depth (inches): Hydric Soil Present? Yes No			-				
Restrictive Layer (if observed):  Type:  Depth (inches): Hydric Soil Present? Yes No			-				nt,
Type:            Depth (inches):         Hydric Soil Present? Yes No				Red Parent Material (F21) (MLRA 127, 14	47)	unless disturbed or problematic.	
Depth (inches): No No		Layer (if observed	):				
	Type:			_			1
Remarks:	Depth (ir	nches):		_	Hydric	c Soil Present? Yes No _	
	Remarks:						

Project/Site: 10444 Ooltewa	ah Georgetow	n Road <sub>City/C</sub>	county: Ooltewah /	Hamilton	Sampling Date: 4-22-21
Applicant/Owner: Mr. Mark Jo					Sampling Point: DP-19
Investigator(s): Cody Givens			on, Township, Range:		<u> </u>
Landform (hillslope, terrace, etc.):				<sub>ne):</sub> concave	Slope (%): <b>0-1</b>
Subregion (LRR or MLRA): LRR			Long: <u>-84</u>		Datum:
Soil Map Unit Name: Hamblen	silt loam				cation:
Are climatic / hydrologic conditions					
Are Vegetation, Soil					<b>4</b>
Are Vegetation, Soil				explain any answe	
SUMMARY OF FINDINGS -	- Attach site m	ap snowing sam	ipling point location	ons, transects	s, important features, etc.
Hydrophytic Vegetation Present?	Yes	_ No <u> </u>	Is the Sampled Area		4
Hydric Soil Present?	Yes	_ No	within a Wetland?	Yes	No
Wetland Hydrology Present?  Remarks:	Yes	_ No			
LIVER OLD COV					
HYDROLOGY Wotland Hydrology Indicators:				Socondary Indio	ators (minimum of two required)
Wetland Hydrology Indicators:  Primary Indicators (minimum of or	ne is required: check	( all that annly)		Surface Soil	ators (minimum of two required)  Cracks (B6)
Surface Water (A1)		True Aquatic Plants (	R14)		getated Concave Surface (B8)
High Water Table (A2)		Hydrogen Sulfide Od		Sparsely ve	
Saturation (A3)			es on Living Roots (C3)	Moss Trim L	
Water Marks (B1)		Presence of Reduced			Water Table (C2)
Sediment Deposits (B2)		Recent Iron Reductio		Crayfish Bur	
Drift Deposits (B3)		Thin Muck Surface (C			isible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	_	Other (Explain in Ren	marks)		Stressed Plants (D1)
Iron Deposits (B5)					Position (D2)
Inundation Visible on Aerial In	nagery (B1)			Shallow Aqu	
Water-Stained Leaves (B9) Aquatic Fauna (B13)				Microtopogra	aphic Relief (D4) LTest (D5)
Field Observations:				1 /10-11000	1 1651 (00)
	es No 🗸	Depth (inches):			
		Depth (inches):			•
		Depth (inches):		Hydrology Presei	nt? Yes No
(includes capillary fringe)  Describe Recorded Data (stream				ailable:	
	gg-,g	, ,, , , , , , , , , , , , , , , ,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
Remarks:					

2. Fraxinus pennsylvanica 15 -

10

Tree Stratum (Plot size: \_\_\_\_\_)

Sapling/Shrub Stratum (Plot size:

2. Juniperus virginiana

Herb Stratum (Plot size: \_\_\_\_\_)

Woody Vine Stratum (Plot size: \_\_\_\_ 1. Toxicodendron radicans

5. \_\_\_\_\_\_

3. \_\_\_\_\_\_ \_

7. \_\_\_\_\_\_

1. Acer rubrum

1. Ligustrum sinense

ames of	plants.		Sampling Point: DP-19
Absolute			Dominance Test worksheet:
	Species?	Status FAC	Number of Dominant Species
30 15		FACW	That Are OBL, FACW, or FAC:(A)
10		-	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:
45	= Total Cov	·or	OBL species x 1 =
	- Total Cov	CI	FACW species <u>15</u> x 2 = <u>30</u>
20		FACU	FAC species $40$ $\times 3 = 120$
25		FACU	FACU species <u>45</u> x 4 = <u>180</u>
			UPL species x 5 =
			Column Totals: 100 (A) 330 (B)
		-	Prevalence Index = B/A = 3.3
		<u> </u>	Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
			2 - Dominance Test is >50%
			3 - Prevalence Index is ≤3.0 <sup>1</sup>
45	= Total Cov	/er	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
		<u>-</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
			be present, unless disturbed or problematic.
			Definitions of Four Vegetation Strata:
			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
			more in diameter at breast height (DBH), regardless of
			height.
			Sapling/Shrub – Woody plants, excluding vines, less
			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
			Herb – All herbaceous (non-woody) plants, regardless
			of size, and woody plants less than 3.28 ft tall.
0	= Total Cov	er	<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
10	-	FAC	
		_	
	-	-	
	-	-	
	-	-	Hydrophytic Vegetation
		-	Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet	Remarks:	(Include phot	o numbers	here or	r on a	separate	sheet.
-------------------------------------------------------------	----------	---------------	-----------	---------	--------	----------	--------

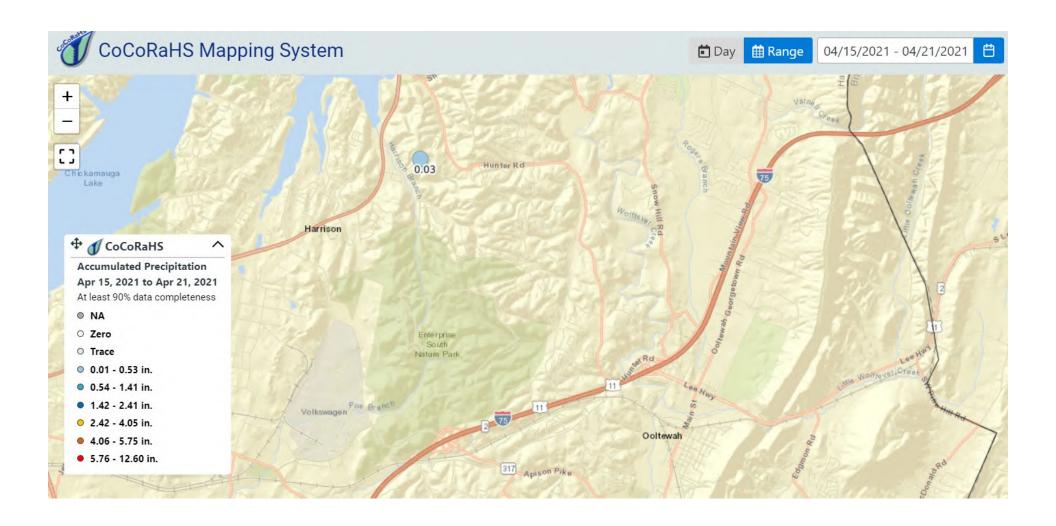
3. \_\_\_\_\_\_

5. \_\_\_\_\_ \_\_\_ \_\_\_\_ \_\_\_\_

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth Matrix		Redox Features				_		
(inches)	Color (moist)		Color (moist)		Type <sup>1</sup>	Loc <sup>2</sup>	Tex	ture Remarks
0-12	10yr 4/4	100					<u>L</u>	
	-	<del></del>		-				
		· — —						
							,	
·		·						
	-	<del></del>					-	
		<del></del>		· ——				
	oncentration, D=Dep	letion, RM=Red	duced Matrix, M	S=Masked	Sand Gra	ins.	<sup>2</sup> Locat	ion: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators:							Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol		_	Dark Surface					2 cm Muck (A10) (MLRA 147)
	pipedon (A2)	_	Polyvalue Be				148)	Coast Prairie Redox (A16)
Black His		Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2)				(MLRA 147, 148)		
	n Sulfide (A4) I Layers (A5)	_ Loamy Gleye _ Depleted Ma		-2)			Piedmont Floodplain Soils (F19) (MLRA 136, 147)	
	ck (A10) <b>(LRR N)</b>	Redox Dark		6)			(MEICA 130, 147)	
	Below Dark Surfac		Depleted Dark Surface (F7)  Very Shallow Dark Surface (TF12)					
	ark Surface (A12)						Other (Explain in Remarks)	
Sandy M	lucky Mineral (S1) (L	Iron-Mangan	_ Iron-Manganese Masses (F12) (LRR N,					
	147, 148)		MLRA 136)					
				Umbric Surface (F13) (MLRA 136, 122)				<sup>3</sup> Indicators of hydrophytic vegetation and
-	edox (S5)		Piedmont Floodplain Soils (F19) (MLRA 148)				wetland hydrology must be present,	
Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) unless disturbed or problematic.  Restrictive Layer (if observed):								
Type:			-				l la cala	da Call Broad 2 Vac No V
Depth (inches):			=				Hyar	ric Soil Present? Yes No
Remarks:								

Appendix H

**Weather Data** 



Appendix I

**Field Photography** 



Photograph 1: View of WWC-1 facing west-southwest and downstream in the northwestern portion of the Subject Property.

(35.227052, -84.997988)



Photograph 2: View of WWC-1 facing west-southwest and downstream in the northwestern portion of the Subject Property.

(35.226995, -84.998263)



Photograph 3: View of WWC-2 facing west-southwest and downstream in the northeastern portion of the Subject Property.

(35224969, -84.995719)



Photograph 4: View of WWC-1 facing northeast and upstream in the northeastern portion of the Subject Property. (35.224669, -84.996750)



Photograph 5: View of WWC-3 facing east and downstream in the northeastern portion of the Subject Property. (35.224675, -84.996904)



Photograph 6: View of WWC-4 facing west-southwest and downstream in the eastern portion of the Subject Property. (35.220194, -84.990964)



Photograph 7: View of WWC-4 facing west-southwest and downstream in the eastern portion of the Subject Property. (35.220046, -84.991919)



Photograph 8: View of WWC-4 facing east-northeast and upstream in the eastern portion of the Subject Property.



Photograph 9: View of Stream-1 facing northeast and upstream in the southwestern portion of the Subject Property. (35.223177, -84.998916)



Photograph 10: View of Stream-1 facing north and upstream in the western portion of the Subject Property. (35.223798, -84.998328)



Photograph 11: View of Stream-1 facing north and upstream in the western portion of the Subject Property. (35.224023, -84.998012)



Photograph 12: View of Stream-2 facing west and downstream in the central portion of the Subject Property. (35.220161, -84.994371)



Photograph 13: View of Stream-2 facing west-northwest and downstream in the central portion of the Subject Property. (35.222226, -84.994513)



Photograph 14: View of Stream-2 facing west-northwest and downstream in the central portion of the Subject Property. (35.222397, -84.995216)



Photograph 15: View of Stream-3 facing northwest and upstream in the central portion of the Subject Property. (35.222368, -84.994742)



Photograph 16: View of Stream-3 facing west-southwest and downstream in the central portion of the Subject Property. (35.222355, -84.994605)



Photograph 17: View of Stream-4 facing east and upstream in the eastern portion of the Subject Property. (35.220062, -84.992210)



Photograph 18: View of Stream-4 facing east and upstream in the eastern portion of the Subject Property. (35.219950, -84.992960)



Photograph 19: View of Stream-4 facing west and downstream in the eastern portion of the Subject Property near the property boundary.

(35.219938, -84.993766)



Photograph 20: View of Pond-1 facing north in the west-central portion of the Subject Property. (35.224620, -84.997083)



Photograph 21: View of Pond-2 facing west in the west-central portion of the Subject Property. (35.224332, -84.997222)



Photograph 22: View of Wetalnd-1 facing south in the central portion of the Subject Property. (35.221737, -84.995186)



Photograph 23: View of Wetalnd-1 facing east in the central portion of the Subject Property. (35.221492, -84.995337)



Photograph 24: View of soil located within Wetland-1. (Data Point-3)



Photograph 25: View of soil located outside of Wetland-1. (Data Point-2)



Photograph 26: View of Wetalnd-2 facing west in the central portion of the Subject Property. (35.221891, -84.994071)



Photograph 27: View of Wetalnd-2 facing west-northwest in the central portion of the Subject Property. (35.221898, -84.994084)



Photograph 28: View of soil located within Wetland-2. (Data Point-8)



Photograph 29: View of soil located outside of Wetland-2. (Data Point-9)



Photograph 30: View of Wetland-3 facing south in the west-central portion of the Subject Property. (35.223957, -84.997561)



Photograph 31: View of Wetland-3 facing east in the west-central portion of the Subject Property. (35.224003, -84.997447)



Photograph 32: View of soil located within Wetland-3. (Data Point-12)



Photograph 33: View of soil located outside of Wetland-3. (Data Point-13)



Photograph 34: View of Wetland-4 facing west-southwest in the west-central portion of the Subject Property. (35.224037, -84.997578)



Photograph 35: View of Wetland-4 facing northeast in the west-central portion of the Subject Property. (35.224027, -84.997637)



Photograph 36: View of soil located within Wetland-4. (Data Point-16)



Photograph 37: View of soil located outside of Wetland-4. (Data Point-17)

### [EXTERNAL] 21-124: Morgan Farms

#### Derek Blackwood <mapengr@epbfi.com>

Wed 5/17/2023 11:41 AM

To: Cali Dobbins < Cali.Dobbins@tn.gov>; Hannah L. Biggs < Hannah.L.Biggs@tn.gov>

Cc: Mccall Price <mccallprice@epbfi.com>

\*\*\* This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email - STS-Security. \*\*\*

Cali & Hannah,

Please see the below plans & supporting documentation for the proposed CGP & ARAP permit review for Morgan Farms for review. I will have checks delivered as soon as possible. Let me know if you have any questions or need any additional information.

### **Morgan Farms**

Thank you,

Derek Blackwood, P.E. MAP Engineers, LLC 7380 Applegate Lane Chattanooga, TN 37421 (423) 855-5554