

HYDROLOGIC DETERMINATION REPORT

732 GREELEY DRIVE
TAX PARCEL ID 11504006300 (1.27±ACRES)
NASHVILLE, DAVIDSON COUNTY, TENNESSEE

Prepared for:

Jeremy Lyons
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Nashville, Tennessee 37205

Prepared by:

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TTL Project No. 000210803760.00

April 13, 2022



SIGNATURE OF ENVIRONMENTAL PROFESSIONALS

TTL, Inc. has performed a hydrologic determination at the subject property in accordance with the approved scope of services outlined in TTL's Proposal dated March 22, 2022 and in general conformance with the Tennessee Department of Environment and Conservation, Division of Water Pollution Control – Guidance for Making Hydrologic Determinations v. 1.5, April 2020. We appreciate this opportunity to be of service to you. If you have any questions or require additional information, please contact our office at your convenience.



Jonathan P. Hopkins, TN QHP
Project Professional

April 13, 2022

Date



Christopher Terrell, PWS
Senior Project Manager

April 13, 2022

Date

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Appendix B	Photograph Location Map and Site Photographs
Appendix C	Tennessee Department of Environment and Conservation (TDEC) Division of Water Pollution Control (WPC) Hydrologic Determination Field Data Sheets (2)
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1.0 INTRODUCTION

TTL, Inc. (TTL) was contracted by Mr. Jeremy Lyons to perform a Hydrologic Determination (HD) for watercourses located within the limits of a 1.27-acre vacant residential parcel located at 732 Greeley Drive in Nashville, Davidson County, Tennessee. The 1.27-acre parcel will hereafter be referred to in this report as the "area of review (AOR)". TTL conducted a field study of the AOR on March 26, 2022.

Activities within jurisdictional Waters of the U.S. are regulated by the U.S. Army Corps of Engineers (USACE) and the Tennessee Department of Environmental and Conservation Division of Water Resources (TDEC DWR). Authority to permit discharges (fill) within jurisdictional wetlands or non-navigable Waters of the U.S. is granted under Section 404 of the Clean Water Act (CWA) of 1972.

The purpose of this HD Study is to differentiate between streams and wet weather conveyances for TDEC DWR jurisdictional purposes. Per Tennessee Code Annotated, Section 69-3-103:

"Wet weather conveyance" means, notwithstanding any other law or rule to the contrary, man-made or natural watercourses, including natural watercourses that have been modified by channelization: (1) That flow only in direct response to precipitation runoff in their immediate locality; (2) Whose channels are at all times above the groundwater table; (3) That are not suitable for drinking water supplies; and (4) In which hydrological and biological analyses indicate that, under normal weather conditions, due to naturally occurring ephemeral or low flow there is not sufficient water to support fish, or multiple populations of obligate lotic aquatic organisms whose life cycle includes an aquatic phase of at least two months.

A "Stream" is a linear watercourse that is not a wet weather conveyance. Streams typically carry more sustained surface water flow that support ecological and geomorphologic diversity.

2.0 SITE DESCRIPTION

The AOR is a rectangular-shaped, vacant, residential parcel of land located northeast of Greeley Drive in Nashville, Davidson County, Tennessee. The property is identified in Nashville Davidson County Tax Maps as Parcel #11504006300 and is 1.27-acre in size and is listed at 732 Greeley Drive. The property is designated as a single-family residential use and is owned by Garwill, LLC and Jonathan Gantt Neill. During the site visit, the subject property was observed as a vacant,

undeveloped parcel of land. According to tax records, the AOR was previously developed with a 3,134 square foot, one story house. On March 2, 2022, a building demolition permit was issued by Metro Nashville Government to demolish the house. The AOR is located within a residential neighborhood surrounded by single family homes in West Nashville. The center of site is located at latitude 36.123246, longitude -86.879638.

As shown on the Nashville MetroMaps Parcel Data Viewer, watercourses subject of this HD are located along the southeast portion of the site and flow in a southwesterly direction toward Greeley Drive. Several small to medium-growth trees are located along either side of the watercourse.

A topographic site plan derived from the Bellevue, TN USGS Quadrangle (1:24,000) that depicts the site boundary and topographic features is included as **Figure 1**. A Site Location and Aerial Photograph plan is included as **Figure 2**.

3.0 LITERATURE AND RECORDS REVIEW

Prior to conducting the field effort, TTL reviewed readily available physical source maps and desktop records to understand hydrologic characteristics on and within the vicinity of the site. These data sources and the review findings are described below.

3.1 Topographic Map Review

TTL reviewed the USGS topographic quadrangle displayed in Figure 1 to evaluate sloping conditions and mapped watercourses in the vicinity of the AOR. TTL also evaluated 2-foot interval elevation contour lines overlain at the subject property and surrounding areas as shown on the Nashville MetroMaps Parcel Data Viewer. Most of the AOR is mapped between 510 and 520 feet above mean sea level (amsl). The watercourses evaluated as part of this HD direct surface flow toward the southwest property corner which is mapped at an elevation of approximately 500 feet amsl. Topography in the vicinity of the AOR slopes downward to the west. From the AOR, surface water drains to the west for approximately 0.5-mile prior to reaching Ewin Branch, which is a blue-line tributary to the Cumberland River. Areas to the north, south, and east of the AOR are mapped at slightly higher elevations (530-540 feet amsl). No blue-line tributaries or other aquatic features are shown on or adjacent to the review area on the topographic map reviewed. A blue-line watercourse is shown along the southwest property boundary on the MetroMaps parcel viewer.

A copy of the topographic map reviewed is included as **Figure 1**. In addition to USGS topographic maps, elevation data for the AOR and surrounding areas was obtained from the USGS 3D Elevation

Program, which is presented in an Elevation and Hillshade map included as **Figure 3**. Lower elevations are shown at the southwest property corner east of Greeley Drive and the highest elevations are shown at the northeast property corner.

3.2 NRCS Mapped Soil Types

The USDA Natural Resource Conservation Service (NRCS) maintains a database of soil types (map units) for most areas of the U.S. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit which represents a large area dominated by one or more major kind of soil. Map units are further classified with a rating of hydric, partially hydric or non-hydric. Map units are useful for planning purposes to provide an overall understanding of the soils that occur in a general area. However, due to the natural variability of the landscape, direct observation of the soils profile is necessary to identify hydric soil indicators.

A classification of hydric means that the soil components listed for a given map unit are rated as being hydric. "Predominantly hydric" means that more than 66 percent to less than 100 percent of soil components are hydric. "Partially hydric" means that more than 33 percent to less than 67 percent of soil components are hydric. "Predominantly non-hydric" means that more than 0 percent and less than 34 percent of soil components are hydric. "Not hydric" means that all soil components are rated as not hydric. A map of the soils located within the AOR and the associated hydric rating is presented in **Figure 4**.

According to the NRCS Soil Survey, the AOR and watercourses evaluated as part of this HD are entirely underlain with the Mimosa-Urban land complex which are "Non-Hydric".

3.3 National Wetland Inventory

The U.S. Fish and Wildlife Service (USFWS) created and maintains the National Wetland Inventory (NWI) database of information on the characteristics, extent, and status of the wetlands and deepwater habitats within the U.S. This information is useful for planning purposes and provides an overall understanding of hydrologic features on or around the site. The NWI classifies habitat types as marine, estuarine, riverine, lacustrine or palustrine with additional modifiers as appropriate to identify the water regime, water chemistry, soil or other characteristics-based *Classification of Wetlands and Deepwater Habitats of the U.S.* (Cowardin, 1979).

TTL reviewed the NWI data for the AOR using the USFWS NWI Wetlands Mapper to determine the potential for watercourses to exist on the site. No aquatic features are mapped within the limits of the AOR or on adjacent properties to the AOR as shown on the NWI map. The NWI map reviewed as part of this assessment is presented in **Figure 5** with this report.

3.4 Hydrologic Unit Code (HUC)

Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to 12 digits based on the six levels of classification in the hydrologic system (USGS & USDA 2013). The U.S. is divided and sub-divided into successively smaller hydrologic units which are classified into six levels: region, sub-region, basin, sub-basin, watershed, and sub-watershed. The AOR is located within the Indian Creek-Cumberland River 12-digit HUC subwatershed (051302020306) which falls within the Lower Cumberland-Sycamore 8-digit HUC sub-basin (05130202). A copy of the HUC Map is included as **Figure 6**.

3.5 Normal Weather Conditions

As part of this project TTL evaluated the normal weather conditions of the review area to understand whether aquatic features in the landscape may exhibit certain characteristics related to current and past hydrologic regimes. TTL utilized the USACE Antecedent Precipitation Tool (APT) Version 1.0 to evaluate climatological parameters and determine whether precipitation and other climatic variables are within the normal periodic range (i.e., seasonally and annually) for the review area. Based on our review of information obtained from the APT data tool, the review area had experienced “Wetter than Normal” weather conditions prior to our site visit. Additionally, TTL reviewed climatological data from the Belle Meade 1.7 WNW weather station which revealed that 1.98-inches of rainfall had occurred in the 7 days prior to our site visit. Copies of the APT output and the climatological data are included in **Appendix A**.

4.0 SITE RECONNAISSANCE & WATERCOURSE EVALUATION

A Qualified Hydrologic Professional (QHP) with TTL conducted fieldwork on March 26, 2022. Weather conditions were clear, sunny and approximately 55° Fahrenheit. Photographs taken during field activities and a plan-view figure showing where the photographs were taken are included in **Appendix B**. During the field investigation, two watercourses were observed along the southeast property margin.

One watercourse (hereafter referred to as S-1) runs parallel with the southeast property boundary and directs surface flow to the southwest toward Greeley Drive. At the southwest property corner, surface water from S-1 enters into a culvert pipe that extends beneath Greeley Drive and continues into a concrete-lined drainage channel on the west-adjacent residential property. A second watercourse (referred to as S-2) flows from a south-adjacent residential property onto the AOR for approximately 20 feet prior to converging with S-1 at lat/long 36.123033, -86.879596. On the day

of assessment, TTL evaluated the watercourses using a hydrologic determination field data sheet (Version 1.5) produced by the TDEC DWR for performing hydrologic determinations. The field sheet contains two categories of indicators for assessing/scoring the characteristics of the watercourse. There are nine primary indicators that serve as conclusive evidence that a watercourse is either a wet weather conveyance or a stream. If none of the 9 primary indicators are met, there are 28 secondary indicators which are assigned a numeric score based on the observed strength (obviousness) of the indicator in the watercourse. If the total score of all the secondary indicators is less than 19, the watercourse is considered a wet weather conveyance. If the score is 19 or greater, the watercourse is considered a stream. Characteristics of each watercourse are described in Table 1 below.

Table 1: Watercourse Descriptions

Map ID	Length (LF)	HD Secondary Indicator Score	Classification
S-1	310	9	WWC/ Ephemeral
S-2	21	13.5	WWC/ Ephemeral

During the site reconnaissance, TTL flagged the center (thalweg) of the watercourses and used a Global Positioning System (GPS) to collect latitude/longitude coordinates at each flag. Based on the GPS data locations, the general configuration of the watercourses is shown in **Figure 7**. With exception to 1-2 small pools of water at the convergence point of S-1 and S-2, the entire S-1 channel was observed dry during our site visit. No defined channel was observed upgradient to the S-1 channel.

One pool of surface water was observed within the S-2 channel approximately 10 feet prior to its convergence with S-1. Several planarians were observed beneath rocks in this pool; however, no other macroinvertebrates were observed. No hydric soil indicators were observed in soils excavated from either of the channels.

5.0 CONCLUSIONS

Based on evaluation of the subject watercourse using the secondary indicators, ***both watercourses located along the southeast property margin (S-1 & S-2) are considered “wet weather conveyances”***. Copies of the completed field data sheets are included as **Appendix C**. According to the TDEC DWPC rules, HDs are considered valid for no more than five years, or the term of a permit that is based on the HD. No wetlands, ponds, or other watercourses were observed within the limits of the AOR during our fieldwork.

Please note that this submittal is designed to classify the regulatory status of the subject watercourse with respect to the TDEC DWR and may not represent the jurisdictional status as determined by the USACE. Based on our site observations, the watercourses may have a continuous direct surface connection to downstream navigable waters; and therefore, may be jurisdictional by the USACE.

The HD described in this report is based on TTL's interpretation of information contained in TDEC DWPC's *Guidance for Making Hydrologic Determinations (Version 1.5)*. Prior to any alterations of the subject watercourse or preparation of plans relating to our HD, TTL recommends that our report be submitted to TDEC DWR for concurrence. If TDEC or the USACE are not engaged regarding the classification of the subject watercourse, TTL is not responsible for penalties or fines levied for violating state and/or federal regulations. A copy of Jurisdictional Request Form for the USACE Nashville District Office is included in **Appendix D**.

6.0 REFERENCES

Tennessee Department of Environment and Conservation Division of Water Pollution Control, April 2020, *Guidance for Making Hydrologic Determinations*, Version 1.5. Chapter 1200-4-3 General Water Quality Criteria.

Nashville Planning Department Metro Planning Commission MetroGIS Parcel Dataviewer. <https://maps.nashville.gov/ParcelViewer/>, accessed March 2022.

National Oceanic and Atmospheric Association (NOAA) Climatic Data Center, Climatology of the United States. <http://cdo.ncdc.noaa.gov/climatenormals/clim81/TNnorm.pdf>

Natural Resources Conservation Service National Water and Climate Center, Field Office Technical Guide, Soil Climate Analysis Network. <https://www.wcc.nrcs.usda.gov/about>

U.S. Department of Agriculture, Natural Resources Conservation Service. Web Soil Survey. Accessed at: <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>. March 2022.

U.S. Fish and Wildlife. National Wetland Inventory Mapper. Accessed at: www.fws.gov/wetlands/Data/Mapper.html. March 2022.

U.S.G.S. Topographic Maps for the Bellevue, Tennessee Quadrangle, dated 2019.

FIGURES

Figure 1	Site Location and Topographic Map
Figure 2	Site Location and Aerial Photograph Map
Figure 3	LiDAR Elevation & Hillshade Map
Figure 4	Natural Resources Conservation Services (NRCS) Map with Hydric Rating
Figure 5	National Wetland Inventory (NWI) Map
Figure 6	Hydrologic Unit Code Map
Figure 7	Hydrologic Determination Map

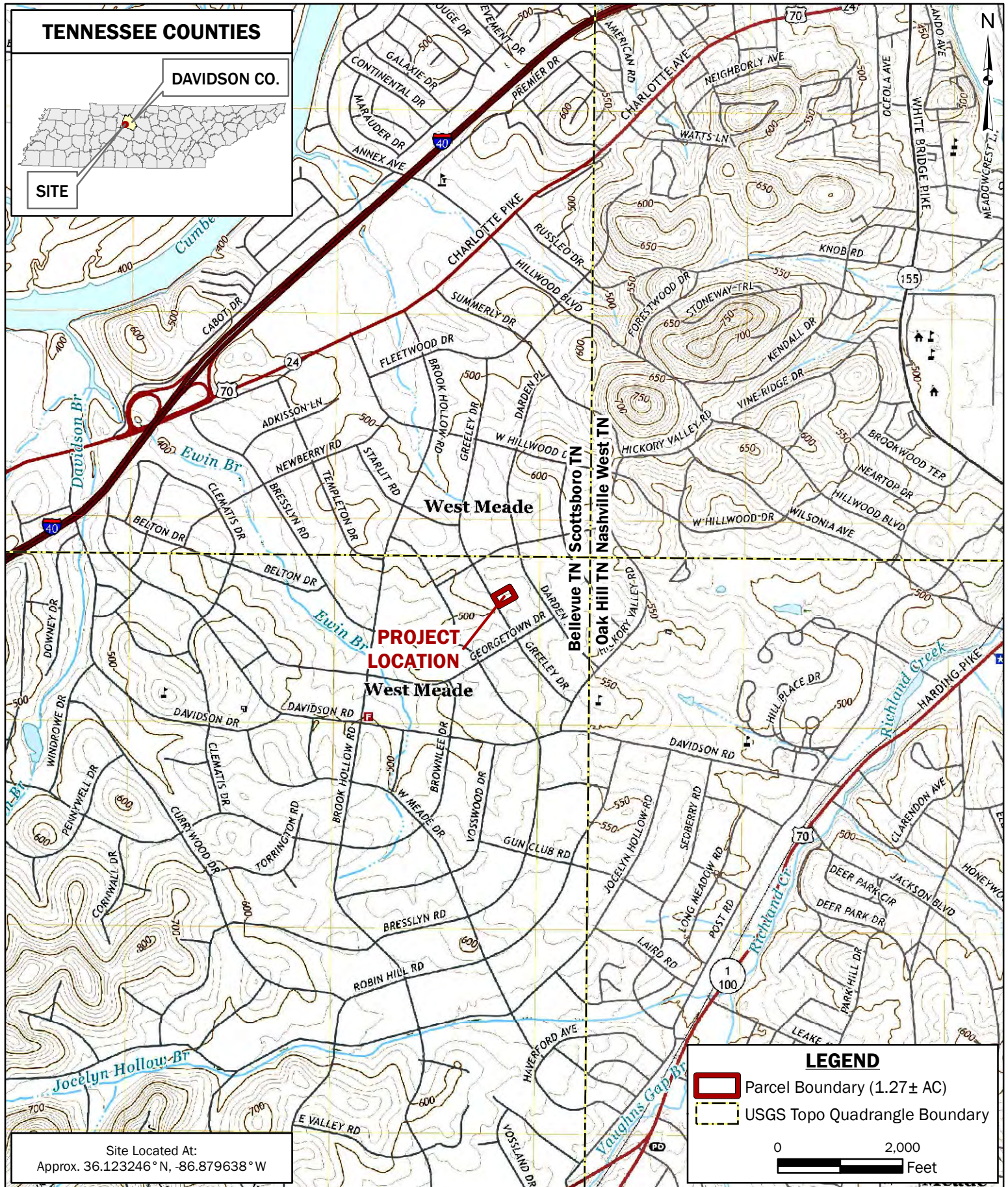


FIGURE 1: SITE LOCATION & TOPOGRAPHIC MAP

JEREMY LYONS - 732 GREELEY DRIVE
HYDROLOGIC DETERMINATION
NASHVILLE, DAVIDSON COUNTY, TENNESSEE

BASEMAP: Bellevue, Tennessee, USGS 7.5 Minute Quadrangle Map, 2019 (10-ft Contour Interval).

DRAWN BY: DEK
CHECKED BY: JPH
DRAWING DATE: 4/12/2022
REVISION DATE: N/A
TTL JOB NO.: 21-08-03760.00
APPROX. SCALE: 1 in = 2,000 ft



FIGURE 2: SITE LOCATION & AERIAL PHOTOGRAPH

JEREMY LYONS - 732 GREELEY DRIVE

HYDROLOGIC DETERMINATION

NASHVILLE, DAVIDSON COUNTY, TENNESSEE

BASEMAP: Maxar Technologies, Vivid Advanced Imagery, 11/7/2021 (0.5 m Resolution).

DRAWN BY: DEK

CHECKED BY: JPH

DRAWING DATE: 4/12/2022

REVISION DATE: N/A

TTL JOB NO.: 21-08-03760.00

APPROX. SCALE: 1 in = 100 ft

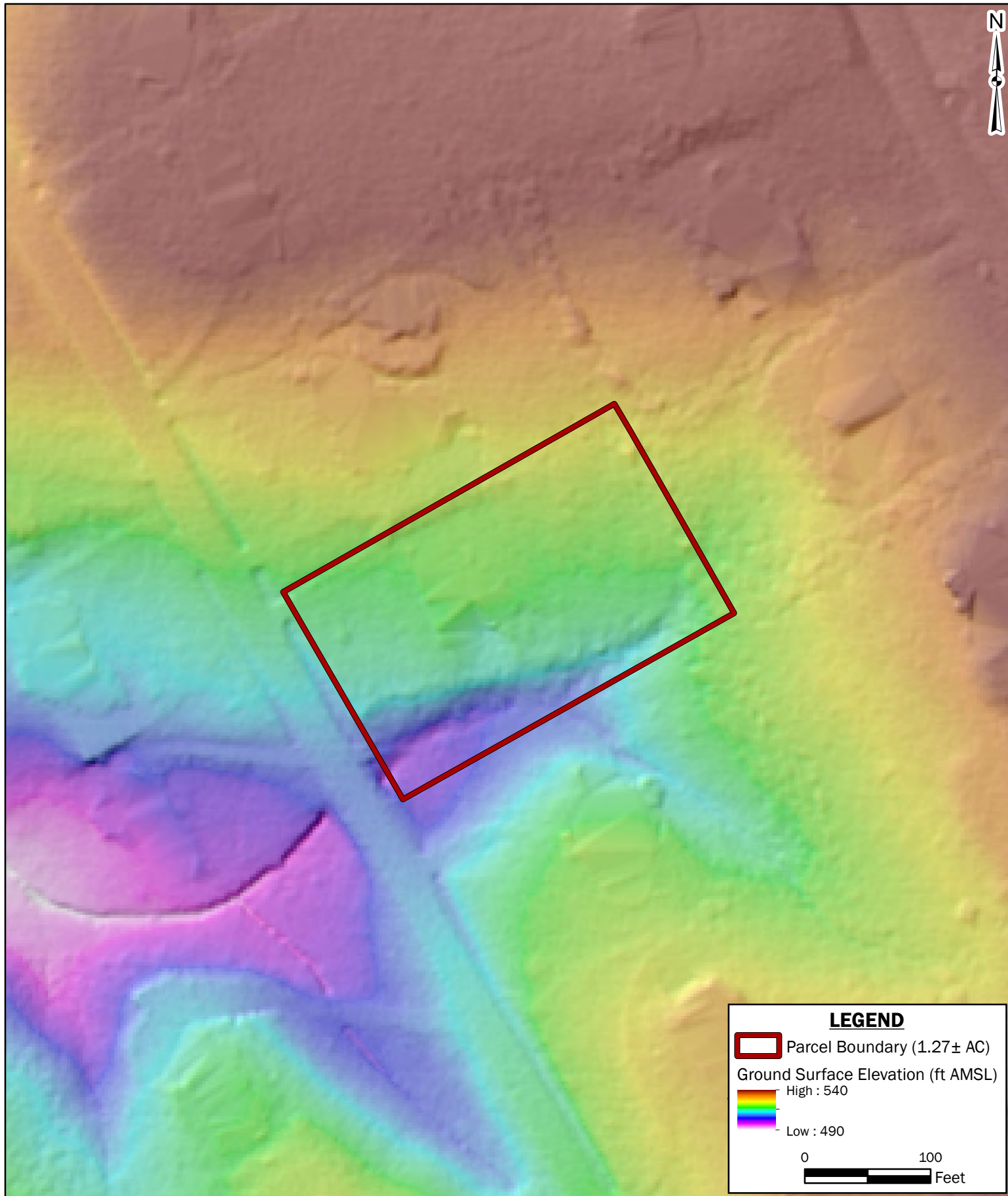


FIGURE 3: LIDAR ELEVATION & HILLSHADE MAP

JEREMY LYONS - 732 GREELEY DRIVE
HYDROLOGIC DETERMINATION
NASHVILLE, DAVIDSON COUNTY, TENNESSEE

BASEMAP: USGS 3D Elevation Program (3DEP) LiDAR Elevation & Hillshade Derivative, 2016 (1 m Resolution).

DRAWN BY: DEK

CHECKED BY: JPH

DRAWING DATE: 4/12/2022

REVISION DATE: N/A

TTL JOB NO.: 21-08-03760.00

APPROX. SCALE: 1 in = 100 ft



FIGURE 4: NRCS HYDRIC SOIL RATING MAP

JEREMY LYONS - 732 GREELEY DRIVE
HYDROLOGIC DETERMINATION
NASHVILLE, DAVIDSON COUNTY, TENNESSEE

BASEMAP: Maxar Technologies, Vivid Advanced Imagery, 11/7/2021 (0.5 m Resolution).

DRAWN BY: DEK

CHECKED BY: JPH

DRAWING DATE: 4/12/2022

REVISION DATE: N/A

TTL JOB NO.: 21-08-03760.00

APPROX. SCALE: 1 in = 100 ft



FIGURE 5: NATIONAL WETLAND INVENTORY (NWI) MAP

JEREMY LYONS - 732 GREELEY DRIVE
HYDROLOGIC DETERMINATION
NASHVILLE, DAVIDSON COUNTY, TENNESSEE

BASEMAP: Maxar Technologies, Vivid Advanced Imagery, 11/7/2021 (0.5 m Resolution).

DRAWN BY: DEK

CHECKED BY: JPH

DRAWING DATE: 4/12/2022

REVISION DATE: N/A

TTL JOB NO.: 21-08-03760.00

APPROX. SCALE: 1 in = 100 ft

	LEVEL	HUC	NAME
REGION	1	05	Ohio Region
SUBREGION	2	0513	Cumberland
BASIN	3	051302	Lower Cumberland
SUBBASIN	4	05130202	Lower Cumberland-Sycamore
WATERSHED	5	0513020203	Whites Creek-Cumberland River
SUBWATERSHED	6	051302020306	Indian Creek-Cumberland River

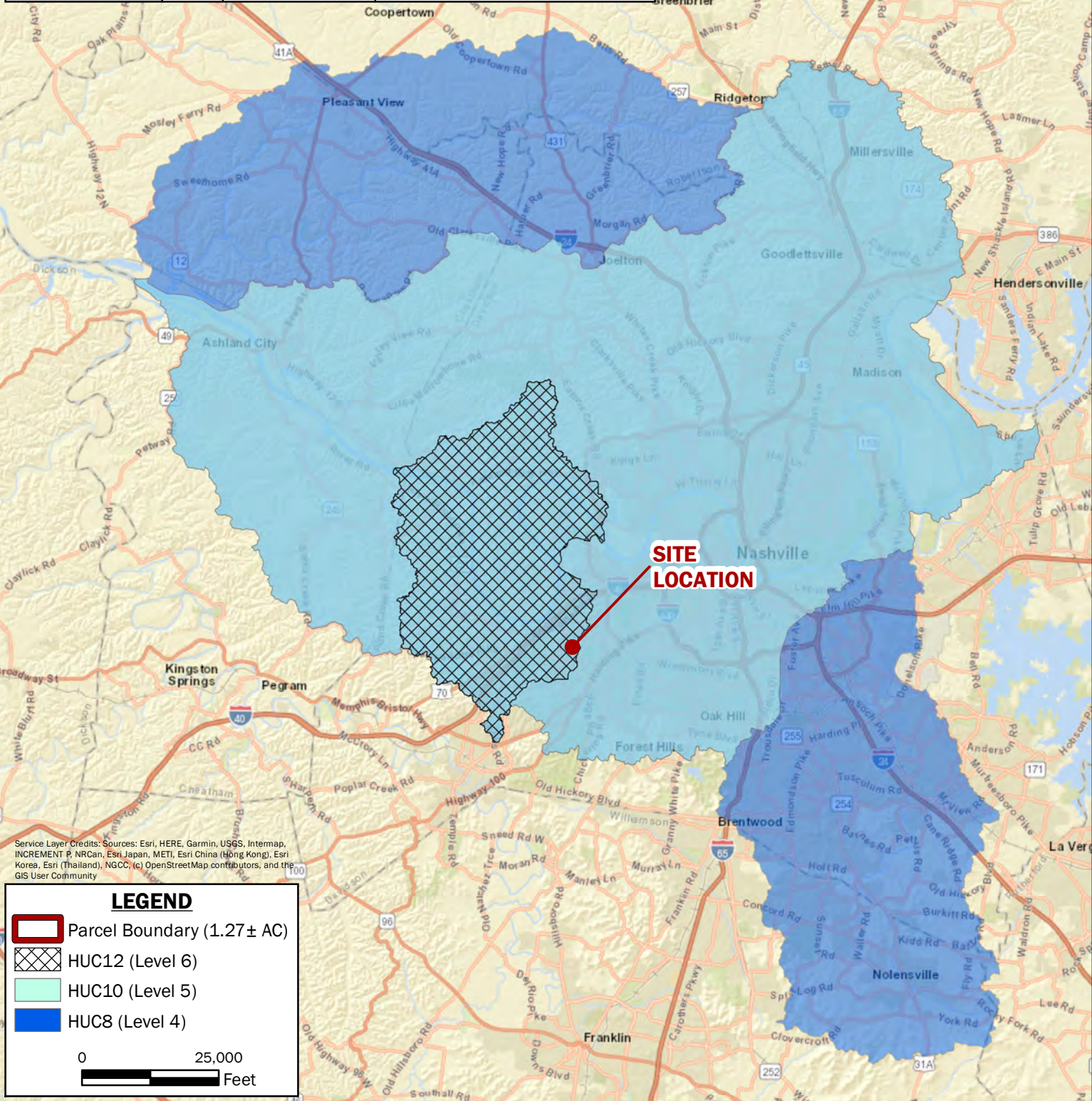




FIGURE 6: HUC MAP

JEREMY LYONS - 732 GREELEY DRIVE

HYDROLOGIC DETERMINATION

NASHVILLE, DAVIDSON COUNTY, TENNESSEE

BASEMAP: ESRI World Street Map (See Service Layer Credits).

DRAWN BY: DEK
CHECKED BY: JPH
DRAWING DATE: 4/12/2022
REVISION DATE: N/A
TTL JOB NO.: 21-08-03760.00
APPROX. SCALE 1 in = 25,000 ft

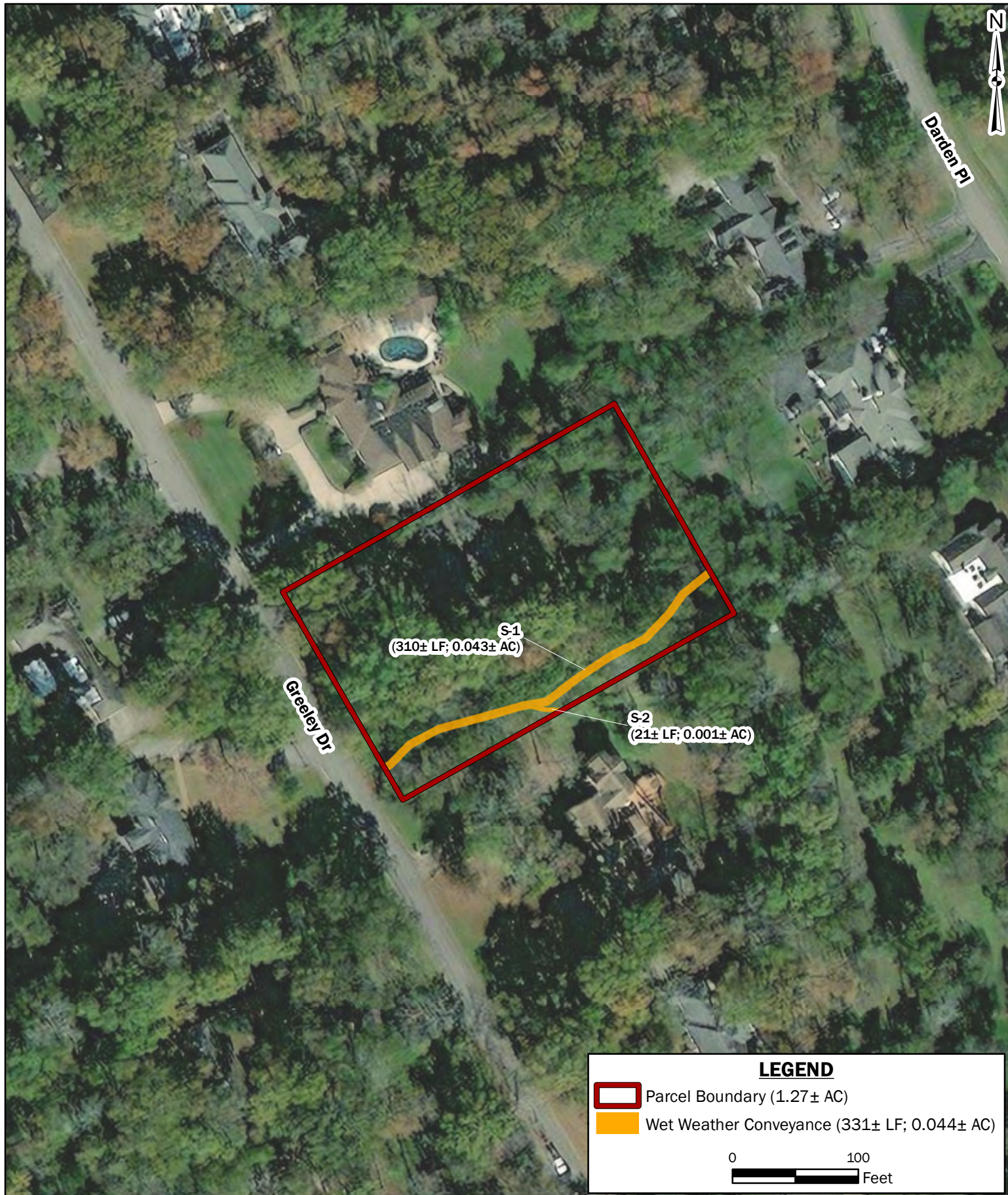


FIGURE 7: AQUATIC RESOURCES MAP

JEREMY LYONS - 732 GREELEY DRIVE

HYDROLOGIC DETERMINATION

NASHVILLE, DAVIDSON COUNTY, TENNESSEE

BASEMAP: Maxar Technologies, Vivid Advanced Imagery, 11/7/2021 (0.5 m Resolution).

DRAWN BY: DEK

CHECKED BY: JPH

DRAWING DATE: 4/12/2022

REVISION DATE: N/A

TTL JOB NO.: 21-08-03760.00

APPROX. SCALE: 1 in = 100 ft

APPENDIX A

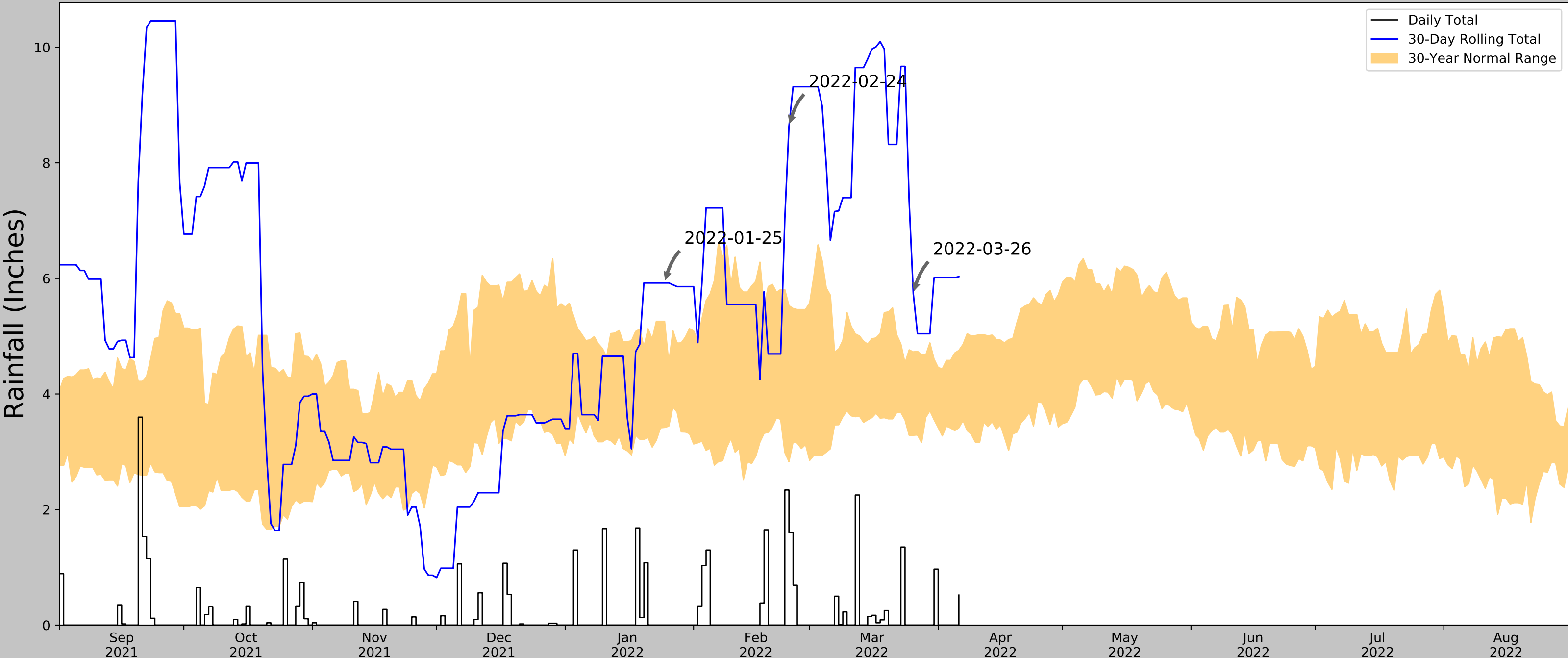
Antecedent Precipitation Tool &
Climatological Data

Climatological Data for BELLE MEADE 1.7 WNW, TN (CoCoRaHS) - March 2022

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2022-03-01	M	M	M	M	M	0.00	0.0	M
2022-03-02	M	M	M	M	M	0.00	0.0	M
2022-03-03	M	M	M	M	M	0.00	0.0	M
2022-03-04	M	M	M	M	M	0.00	0.0	M
2022-03-05	M	M	M	M	M	0.00	0.0	M
2022-03-06	M	M	M	M	M	0.00	0.0	M
2022-03-07	M	M	M	M	M	0.49	M	M
2022-03-08	M	M	M	M	M	0.06	M	M
2022-03-09	M	M	M	M	M	S	M	M
2022-03-10	M	M	M	M	M	M	M	M
2022-03-11	M	M	M	M	M	0.31A	M	M
2022-03-12	M	M	M	M	M	S	M	M
2022-03-13	M	M	M	M	M	M	M	M
2022-03-14	M	M	M	M	M	0.31A	M	M
2022-03-15	M	M	M	M	M	0.00	0.0	M
2022-03-16	M	M	M	M	M	S	M	M
2022-03-17	M	M	M	M	M	M	M	M
2022-03-18	M	M	M	M	M	M	M	M
2022-03-19	M	M	M			0.57A	M	M
2022-03-20	M	M	M			0.00	0.0	M
2022-03-21	M	M	M			0.00	0.0	M
2022-03-22	M	M	M			0.00	0.0	M
2022-03-23	M	M	M			1.41	M	M
2022-03-24	M	M	M			0.00	0.0	M
2022-03-25	M	M	M			0.00	0.0	M
2022-03-26	M	Day of Assessment 3-26-2022				0.00	0.0	M
2022-03-27	M	M	M	M	M	0.00	0.0	M
2022-03-28	M	M	M	M	M	0.00	0.0	M
2022-03-29	M	M	M	M	M	0.00	0.0	M
2022-03-30	M	M	M	M	M	M	M	M
2022-03-31	M	M	M	M	M	1.02	M	M
Average Sum	M	M	M	M	M	4.17	0.0	M

Previous 7-days
rainfall = 1.98-inches

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



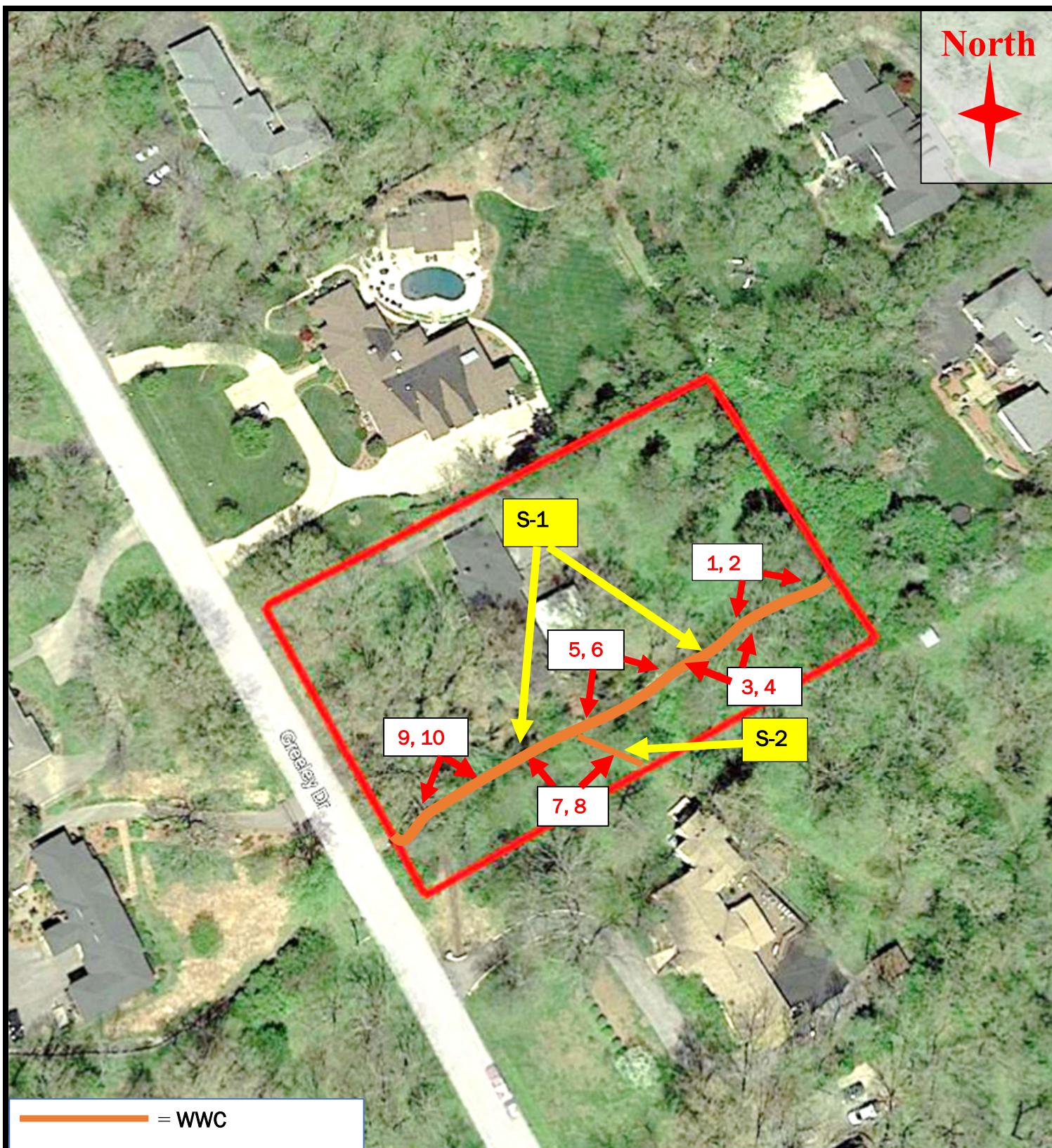
Coordinates	36.123219, -86.879651
Observation Date	2022-03-26
Elevation (ft)	516.61
Drought Index (PDSI)	Extreme wetness (2022-02)
WebWIMP H ₂ O Balance	Wet Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-03-26	3.285433	4.727559	5.732284	Wet	3	3	9
2022-02-24	2.82874	5.528347	8.629922	Wet	3	2	6
2022-01-25	3.420866	5.257874	5.92126	Wet	3	1	3
Result							Wetter than Normal - 18

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
WARNER PARK	36.0608, -86.9064	625.0	4.564	108.39	2.548	6901	90
BELLE MEADE 1.7 WNW	36.1089, -86.8822	581.037	1.0	64.427	0.514	394	0
NASHVILLE 7.6 WSW	36.1108, -86.8987	604.003	1.366	87.393	0.734	37	0
BELLE MEADE 3.1 N	36.144, -86.858	488.845	1.877	27.765	0.897	15	0
NASHVILLE 4.4 WSW	36.1397, -86.8531	472.113	1.869	44.497	0.924	7	0
BELLE MEADE 0.4 W	36.0981, -86.8628	544.948	1.974	28.338	0.944	6	0
NASHVILLE 3.8 SW	36.1339, -86.8356	504.921	2.567	11.689	1.185	1	0
NASHVILLE SHELBY PARK	36.1708, -86.7358	500.0	8.673	16.61	4.047	4	0
NASHVILLE BERRY FLD	36.1136, -86.6781	560.039	11.269	43.429	5.56	665	0
NASHVILLE INTL AP	36.1189, -86.6892	600.066	10.634	83.456	5.673	3323	0

APPENDIX B

Photograph Location Map and Site Photographs



Source: Google Earth--Image date (4/2018). Photos taken March 26, 2022

App. scale 1-inch= 50 feet

TTL

Hydrologic Determination

Parcel # 11504006300 (1.27-acre)
732 Greeley Drive
Nashville, Davidson County, Tennessee

TTL Project # 0002108037601.00

Wet Weather Conveyance

Photograph location map—
Numbers correspond with photographs on the
following pages.

Hydrologic Determination

Hydrologic Determination – TTL Project No. 000210803760.00
732 Greeley Drive • Nashville, Davidson County, Tennessee
Photos taken March 26, 2022



Photo 1 – View upstream of S-1. (36.123287,-86.879138)



Photo 2 – View of the S-1 channel facing downstream. (36.123287,-86.879138)

Hydrologic Determination

Hydrologic Determination – TTL Project No. 000210803760.00
732 Greeley Drive • Nashville, Davidson County, Tennessee
Photos taken March 26, 2022



Photo 3 –View of S-1 facing upstream. (36.123191,-86.879349)



Photo 4 – View of S-1 facing downstream (36.123191,-86.879349).

Hydrologic Determination

Hydrologic Determination – TTL Project No. 000210803760.00
732 Greeley Drive • Nashville, Davidson County, Tennessee
Photos taken March 26, 2022



Photo 5 – View of fibrous roots within the S-1 channel. (36.123146,-86.879446)



Photo 6 – View of S-1 facing upstream. (36.123146,-86.879446)

TTL

Hydrologic Determination

Hydrologic Determination – TTL Project No. 000210803760.00
732 Greeley Drive • Nashville, Davidson County, Tennessee
Photos taken March 26, 2022



Photo 7 – View of the S-2 watercourse as it flows towards S-1. (36.123024,-86.879582)



Photo 8 – Planarians observed beneath rock substrate where S-2 flows into S-1.
(36.123024,-86.879582)

TTL

Hydrologic Determination

Hydrologic Determination – TTL Project No. 000210803760.00
732 Greeley Drive • Nashville, Davidson County, Tennessee
Photos taken March 26, 2022



Photo 9 – View of S-1 downstream of the S-2 convergence. (36.122945,-86.879845)



Photo 10 – Another view of S-1 downstream of the S-2 convergence. (36.122945,-86.879845)

APPENDIX C

Tennessee Department of Environment and Conservation (TDEC) Division of Water
Pollution Control (WPC) Hydrologic Determination Field Data Sheets

Hydrologic Determination Field Data Sheet **S-1**

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Ewin Branch/Davidson Branch		Date/Time: 3/26/22, 900
Assessors/Affiliation: Jonathan Hopkins (TTL, Inc.) TN QHP #1017-TN11		Project ID :TTL project # 000210803821.00
Site Name/Description: Greeley Drive HD (1.27±acre parcel)		
Site Location: 732 Greeley Drive, Nashville, TN, 37205		
HUC (12 digit): 051302020306 (Cumberland River--Indian Creek)		Lat/Long: Start=36.123285/-86.879191 End=36.122905/-86.879965
Previous Rainfall (7-days) :1.98-inches, (0.0-in prev 48-hours)		
Precipitation this Season vs. Normal : abnormally wet <u>elevated*</u> average low abnormally dry unknown		
Source of recent & seasonal precip data : Climatological data for Belle Meade 1.7 WNW Weather Station (CoCoRaHAs) March 2022 and antecedent precipitation tool (APT) based on NOAA Climatology network		
Watershed Size : app 2-3±acres	County: Davidson	
Soil Type(s) / Geology: Mimosa-Urban Land Complex (MsD), 2 to 15% slopes (non-hydric), Source: NRCS Web Soil Survey. Leipers and Catheys Formations (Geologic Map-Bellevue Quadrangle, 1:24,000 scale)		
Surrounding Land Use: residential		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes): Severe Moderate Slight <u>Absent</u>		

Primary Field Indicators Observed

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

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = WWC
Secondary Indicator Score (if applicable) = 9.0

Justification / Notes: *Per the U.S. Corps of Engineers Antecedent Precipitation Tool (APT), the area of investigation received "wetter than normal" 3 months prior to the day of our assessment. The S-2 channel converges with S-1 at 36.123033,-86.879596 and a small pool of water was observed at this point. The rest of the S-1 channel was observed dry.

No defined channel observed upstream of S-1.

Secondary Field Indicator Evaluation (S-1 cont'd)

A. Geomorphology (Subtotal = <u>5</u>)		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)	2	3
4. Sorting of soil textures or other substrate		0	(1)	2	3
5. Active/relic floodplain		(0)	0.5	1	1.5
6. Depositional bars or benches		(0)	1	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	(1)	2	3
11. Grade controls		0	(0.5)	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 = (0)		Yes = 3	

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

C. Biology (Subtotal = <u>2</u>)		Absent	Weak	Moderate	Strong
20. Fibrous roots in <u>channel bed</u> ¹		3	2	(1)	0
21. Rooted plants in <u>the thalweg</u> ¹		3	2	(1)	0
22. Crayfish in stream (exclude in floodplain)		(0)	1	2	3
23. Bivalves/mussels		(0)	1	2	3
24. Amphibians		(0)	0.5	1	1.5
25. Macroinvertebrates (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 <u>channel bed</u> ²		(0)	0.5	1	1.5

¹ Focus is on the presence of terrestrial plants.

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

Total Points = 9.0

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

Notes:

Besides a small pool of water where S-2 flows into S-1, the entire S-1 channel was observed dry.

S-1 flows from the subject property to the SW beneath Greeley Drive and continues into a concrete-lined ditch on an adjacent residential property to the east.

Hydrologic Determination Field Data Sheet **S-2**

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Ewin Branch/Davidson Branch		Date/Time: 3/26/22, 1000
Assessors/Affiliation: Jonathan Hopkins (TTL, Inc.) TN QHP #1017-TN11		Project ID :TTL project # 000210803821.00
Site Name/Description: Greeley Drive HD (1.27±acre parcel)		
Site Location: 732 Greeley Drive, Nashville, TN, 37205		
HUC (12 digit): 051302020306 (Cumberland River--Indian Creek)		Lat/Long: Start=36.123007/-86.879841 End=36.123033/-86.879596
Previous Rainfall (7-days) :1.98-inches, (0.0-in prev 48-hours)		
Precipitation this Season vs. Normal : abnormally wet <u>elevated</u> average low abnormally dry unknown		
Source of recent & seasonal precip data : Climatological data for Belle Meade 1.7 WNW Weather Station (CoCoRaHAs) March 2022 and antecedent precipitation tool (APT) based on NOAA Climatology network		
Watershed Size : per USGS Streamstats, app 25.6±acres		County: Davidson
Soil Type(s) / Geology: Mimosa-Urban Land Complex (MsD), 2 to 15% slopes (non-hydric), Source: NRCS Web Soil Survey. Leipers and Catheys Formations (Geologic Map-Bellevue Quadrangle, 1:24,000 scale)		
Surrounding Land Use: residential		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes): Severe Moderate <u>Slight**</u> Absent		

Primary Field Indicators Observed

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

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = WWC
Secondary Indicator Score (if applicable) = 13.5

Justification / Notes: *Per the U.S. Corps of Engineers Antecedent Precipitation Tool (APT), the area of investigation received "wetter than normal" 3 months prior to the day of our assessment. Prior to flowing onto the subject property, S-2 flows through a maintained residential yard. Hydrology/morphology have been slightly altered. S-2 flows onto the SE side of the property and directs surface flow to the NW for approximately 25 feet prior to converging with S-1

Secondary Field Indicator Evaluation (S-2 cont'd)

A. Geomorphology (Subtotal = <u>5.5</u>)				
	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)	2	3
4. Sorting of soil textures or other substrate	0	(1)	2	3
5. Active/relic floodplain	(0)	0.5	1	1.5
6. Depositional bars or benches	0	(1)	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)	1	2	3
11. Grade controls	0	(0.5)	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 = (0)		Yes = 3	

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

C. Biology (Subtotal = <u>5.0</u>)				
	Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed ¹	3	2	(2)	1
21. Rooted plants in the thalweg ¹	3	2	(2)	1
22. Crayfish in stream (exclude in floodplain)	(0)	1	2	3
23. Bivalves/mussels	(0)	1	2	3
24. Amphibians	(0)	0.5	1	1.5
25. Macroinbenthos (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 presence of aquatic or wetland plants.

Total Points = 13.5

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

Notes:

A single pool of standing water was observed in the S-2 channel as it flows onto the subject property. A few planarians observed beneath rock substrate; however, no other macroinvertebrates observed. No significant flowing water observed in the channel.

No surface water was observed in the S-1 channel downstream of S-2.

APPENDIX D

USACE Nashville District Jurisdictional Request Form



Nashville District Request for a Jurisdictional Determination Form

This format can be used when you want to determine if areas on your property fall under regulatory requirements of the U.S. Army Corps of Engineers (Corps). Please supply the following information and supporting documents described below. This form can be filled out online and then printed. **It must be signed by the property owner** to be considered a formal request. We require original signatures; faxes are not acceptable. Submitting this request authorizes the Corps to field inspect the property site, if necessary, to help in the determination process. The Corps may also request a delineation of water resources on a property to be submitted. The printed form and supporting documents should be mailed to:

U.S. Army Corps of Engineers
Nashville District
3701 Bell Road
Nashville, TN 37214
Phone: (615) 369-7500

Property Owner Contact Information

Name: Garwell LLC and Jonathan Neill

Address: 208 Key Court
Brentwood, TN 37027

Telephone: _____

Fax: _____

Email: _____

Owner Representative Contact Information

Name and Company: Jonathan Hopkins - TTL INC.

Address: 5010 Linbar Drive, Suite 153
Nashville, TN 37211

Telephone: 615-727-1823

Fax: _____

Email: jhopkins@ttlusa.com

SUBJECT PROPERTY INFORMATION

Address: 732 Greeley Drive
Nashville, TN 37205

County: Davidson State: Tennessee

Lat/Long in Decimal Degrees: 36.123246 °N -86.879638 °W

Approximate size of property in acres: 1.27

The subject property is: (check as many as applicable)

☒ cleared (if checked, how long?) 50 yrs ☐ wooded ☐ pasture ☐ agricultural field

The water resources on the subject property include: (check as many as applicable)

☒ Streams How many? 2 Estimated lengths S-1=310 LF, S-2=21 ft

☐ Ponds How many? _____ Estimated acres _____

☐ Wetlands How many? _____ Estimated acres _____

☐ Other Water Resources (ditches, swales, etc.) How many? _____

Is the property in an incorporated area? ☒ Yes or ☐ No

If it is in an incorporated area, please provide the name of the city/town Nashville, TN

Is the property subject to a conservation easement or deed restriction? ☐ Yes or ☒ No

Was the property used as mitigation for a previously permitted project by the Corps? ☐ Yes or ☒ No

Is the property neighboring, adjacent to and/or bordering a project previously permitted by the Corps?
☐ Yes or ☐ No or ☒ Unknown

For the previous 3 questions, where answered Yes, please explain and provide the name of the project, permit number, permittee name, or permitted property address, if available:

MAPS: Please provide a map or plat (aerial photo, city or county map, soil survey photo, USGS Quad map, etc.) that accurately identifies the physical boundaries of the property. If the property is farmland, it may be necessary for you to contact the Natural Resources Conservation Service for a wetland delineation before you can request a jurisdictional determination.

If you are considering doing work on the property, please identify on a map or in a separate drawing the footprint, location, type of potential work, and water resources. This information will assist us in the determination process and reduce unnecessary delays of processing subsequent permits, if required.

OPTIONAL DOCUMENTATION: Photographs can greatly assist in the review process and often make a field visit unnecessary. We must see complete coverage of the property and/or the water resource in question, including the grass and trees.

If the property and/or the water resource in question are to be surveyed or delineated, we suggest waiting for the survey or delineation to be completed and include a copy with your request. Any other data you can include may help, such as land use or cropping history for the past five years, drainage improvements, etc.

PROCEDURE: We will review all available data within our office and attempt to provide a quick, accurate response to your request. Many determinations require a field site visit, which always takes more time to complete.

Signature of Owner

Date

Disclaimer: *The information requirement for a jurisdictional determination as presented in this form is not an exhaustive list. The U.S. Army Corps of Engineers may request additional information not described in this request form.*

TTL