TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor,
Nashville, Tennessee, 37243
1-888-891-8332 (TDEC)

Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Certification

OFFICIAL STATE USE ONLY	Site #:		Permit #:	

Section 1. Applicant Information (individual responsible for site, signs certification below)

Applicant Name (company or individual): Regent Development, LLC			SOS #: 000343007 Status: Active
Primary Contact/Signatory: David McGowan		Signatory's Title or Position: President	
Mailing Address: 6901 Lenox Village Drive - Suite 107		City: Nashville	State: TN Zip: 37211
Phone: (615) 333-9000	Fax:	E-mail: david.mcgowan@regenthomes-tn.com	

Section 2. Alternate Contact/Consultant Information (a consultant is not required)

Alternate Contact Name: Todd Olsen			
Company: Anderson, Delk, Epps & Associates, Inc.		Title or Position: Engineer	
Mailing Address: 618 Grassmere Park Drive, Suite 4		City: Nashville	State: TN Zip: 37211
Phone: (615) 331-0809	Fax: (615) 331-0110	E-mail: AndersonDelk@bellsouth.net	

Section 3. Fee (application will be incomplete until fee is received)

☐ No Fee ☒ Fee Submitted with Application Amount Submitted: $ 500

Current application fee schedules can be found at the Division of Water Resources webpage at:
https://www.tn.gov/environment/permit-permits/water-permits1/aquatic-resource-alteration-permit--arap-.html
or by calling (615) 532-0625. Please make checks payable to "Treasurer, State of Tennessee".

Billing Contact (if different from Applicant): Name: Email:

Address: Phone:

Section 4. Project Details (fill in information and check appropriate boxes)

Site or Project Name: Carothers Crossing Phase 5B		Nearest City, Town or Major Landmark: Cane Ridge Park	
Street Address or Location (include zip): 7211 Carothers Road, Nolensville, TN 37135			
County(ies): Davidson	MS4 Jurisdiction: Nashville	Latitude (dd.dddd): 35.9834	
		Longitude (dd.dddd): -86.6086	

Resources Proposed for Alteration: ☑ Stream / River ☐ Wetland ☐ Reservoir

Name of Water Resource (for more information, access *http://tdeconline.tn.gov/dwr*): Unnamed Drain to East Branch Hurricane Creek

Brief Project Description (a more detailed description is required under Section 8):
Installation of a minor road crossing on Badric Drive (35.9834, -86.6086).

Does the proposed activity require approval from the U.S. Army Corps of Engineers, the Tennessee Valley Authority, or any other federal, state, or local government agency? ☒ Yes ☐ No

If Yes, provide the permit reference numbers:

Will the activity require a 401 Water Quality Certification: ☒ Yes ☐ No

If Yes, attach any 401 WQC pre-filing meeting request documentation

Is the proposed activity associated with a larger common plan of development: ☒ Yes ☐ No

If Yes, submit site plans and identify the location and overall scope of the common plan of development.

Plans attached? ☒ Yes ☐ No

If applicable, indicate any other federal, state, or local permits that are associated with the overall project site (common plan of development) that have been obtained in the past (e.g., construction general permit and/or other ARAP):

Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Certification

Section 5. Project Schedule (fill in information and check appropriate boxes)		
Proposed start date: Unknown	Estimated end date: Unknown	
Is any portion of the activity complete now?	☐ Yes	☒ No
If yes, describe the extent of the completed portion:		

The required information in Sections 6-11 must be submitted on a separate sheet(s) and submitted in the same numbered format as presented below. If any question in not applicable, state the reason why it is not applicable.

Section 6. Description		**Attached** Yes	No
6.1	A narrative description of the scope of the project	☒	☐
6.2	USGS topographic map indicating the exact location of the project (can be a photographic copy)	☒	☐
6.3	Photographs of the resource(s) proposed for alteration with location description (photo locations should be noted on map)	☒	☐
6.4	A narrative description of the **existing** stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation	☒	☐
6.5	A narrative description of the **proposed** stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation	☒	☐
6.6	In the case of wetlands, include a wetland delineation with delineation forms and site map denoting location of data points	☐	☒
6.7	A copy of all hydrologic or jurisdictional determination documents issued for water resources on the project site	☒	☐

Section 7. Project Rationale	**Attached** Yes	No
Describe the need for the proposed activity, including, but not limited to the purpose, alternatives considered and rationale for selection of least impactful alternative, and what will be done to avoid or minimize impacts to water resources	☒	☐

Section 8. Technical Information		**Attached** Yes	No
8.1	Detailed plans, specifications, blueprints, or legible sketches of present site conditions and the proposed activity. Plans must be 8.5.x 11 inches. Additional larger plans may also be submitted to aid in application review. The detailed plans should be superimposed on existing and new conditions (e.g., stream cross sections where road crossings are proposed)	☒	☐
8.2	For the proposed activity and compensatory mitigation, provide a discussion regarding the sequencing of events and construction methods and any proposed monitoring	☒	☐
8.3	Depiction and narrative on the location and type of erosion prevention and sediment control (EPSC) measures for the proposed alterations and any other measures to treat, control, or manage impacts to waters	☒	☐

Section 9. Water Resources Degradation (degree of proposed impact)

Note that in most cases, activities that exceed the scope of the General Permit limitations are considered greater than *de minimis* degradation to water quality.

Please provide your basis for concluding the proposed activity will cause one of the following levels of water quality degradation:

- ☒ a. *De minimis* degradation, no appreciable permanent loss of resource values
- ☐ b. Greater than *de minimis* degradation (if greater than *de minimis* complete Sections 10-11)

For information and guidance on the definition of de minimis and degradation, refer to the Antidegradation Statement in Chapter 0400-40-03-.06 of the Tennessee Water Quality Criteria Rule:
https://publications.tnsosfiles.com/rules/0400/0400-40/0400-40.htm
For more information on specifics on what General Permits can cover, refer to the Natural Resources Unit webpage at:
https://www.tn.gov/environment/permit-permits/water-permits1/aquatic-resource-alteration-permit--arap-.html

Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Certification

Section 10. Detailed Alternatives Analysis		Attached Yes	Attached No
10.1	Analyze all reasonable alternatives and describe the level of degradation and permanent loss of resource value caused by each alternative. Assessment must consider options other than the "Preferred" and "No Action" alternatives. Provide associated rationale for selecting or rejecting all alternatives considered and demonstration that the least impactful practicable alternative was selected.	☐	☒
10.2	Discuss the social and economic consequences of each alternative	☐	☒
10.3	Demonstrate that the degradation associated with the preferred alternative will not violate water quality criteria for uses designated in the receiving waters, and is necessary to accommodate important economic and social development in the area	☐	☒

Section 11. Compensatory Mitigation		Attached Yes	Attached No
11.1	A detailed discussion of the proposed compensatory mitigation. Provide evidence of credit reservation if proposing to utilize a third-party provider.	☐	☒
11.2	Analysis of any proposed appreciable loss of resource value using the TN Stream Mitigation Guidelines. Provide Stream Quantification Tool (SQT) results if applicable. Include Existing Condition Score (ECS) and debit/credit calculations.	☐	☒
11.3	Describe how the compensatory mitigation would result in no net loss of resource value	☐	☒
11.4	Provide a detailed monitoring plan for the compensatory mitigation site if permittee-responsible project is proposed	☐	☒
11.5	Describe the long-term protection measures for the compensatory mitigation site if permittee-responsible project is proposed (e.g., deed restrictions, conservation easement)	☐	☒

Certification and Signature

An application submitted by a corporation must be signed by a principal executive officer; from a partnership or proprietorship, by the partner or proprietor respectively; from a municipal, state, federal or other public agency or facility, the application must be signed by either a principal executive officer, ranking elected official, or other duly authorized employee. ***I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury. The project proponent hereby requests that the certifying authority review and take action on this CWA 401 certification request within the applicable reasonable period of time.***

Printed Name	Official Title	Signature	Date
David McGowan Jr.	President		9-19-2022

Note that this form must be signed by the principal executive officer, partner or proprietor, or a ranking elected official in the case of a municipality; for details see **Certification and Signature** statement above. For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC). Submit the completed ARAP Application form (keep a copy for your records) to the appropriate EFO for the county(ies) where the proposed activity is located, addressed to **Attention: ARAP Processing**. You may also electronically submit the complete application and all associated attachments to water.permits@tn.gov.

EFO	Street Address	Zip Code	EFO	Street Address	Zip Code
Memphis	8383 Wolf Lake Drive, Bartlett	38133-4119	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Drive	38305-4316	Chattanooga	1301 Riverfront Pkwy., Ste. 206	37402
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601

Subject: COPY of Applicant TDEC 401 Water Quality Certification Pre-Filing Meeting Request Confirmation

From: "TDEC Division of Water Resources" <noreply+16dee34ceceac9f3@formstack.com>

Sent: 9/13/2022 7:11:23 AM

To: andersondelk@bellsouth.net;

Dear Applicant,

Thank you for your request for a pre-filing meeting related to an anticipated filing of a Section 401 Water Quality Certification request with the Tennessee Department of Environment and Conservation (TDEC). Due to a recent change in the federal 401 Certification Rules, a pre-filing meeting request is now required at least 30 days before submittal of a 401 Certification request for a federal permitting agency (such as the U.S. Army Corps of Engineers) to consider it to be valid (see 40 CFR § 121.4).

This automated response confirms TDEC's receipt of your request and fulfills your compliance with the federal rule 40 CFR § 121.4.

Please be sure to include this confirmation receipt in your 401 Certification request to the U.S. Army Corps of Engineers when applying for a 404 or Section 10 federal permit (see 40 CFR § 121.5).

Note that this pre-filing meeting request provision is a federal requirement and is not a part of TDEC's Aquatic Resource Alteration Permitting (ARAP) process. No further action is necessary at this time related to any ARAP application with TDEC. You do not have to wait 30 days to apply for an ARAP permit, and ARAP applications will continue to be processed by TDEC according to state rules and regulations.

Please also note that this online meeting request form that you just filled out, does not serve as an application for any state or federal permit. The Aquatic Resource Alteration Permit forms from TDEC can be found HERE.

Requiring pre-filing meetings to be held for 401 Certification requests is optional for the certifying agency (TDEC). At this time TDEC has chosen not to hold routine pre-application in-person meetings. However, if your project is large, complex, includes on-site mitigation, or otherwise has the potential to significantly impact water resources and you believe that it would be beneficial to schedule a meeting prior to applying for an ARAP permit, please visit our Regulatory Coordination Web Page for more information.

Thank you.

TDEC Division of Water Resources

FORM INFORMATION SUBMITTED:

Name: David McGowan

E-Mail: david.mcgowan@regenthomes-tn.com

Phone: (615) 333-9000

Project Name: Carothers Crossing Phase 5B

Project Location: 7211 Carothers Road, Nolensville, TN 37135

County: Davidson

Waterbody: Unnamed Drain to East Branch Hurricane Creek

Project Description: We submitted an NOI for Carothers Crossing Phase 5A, which has a proposed roadway ending at the unnamed drain to East Branch Hurricane Creek. The future Phase 5B is on the other side of the creek and will need an ARAP for roadway crossing and an ARAP for gravity sewer and water crossings. Although Carothers Crossing Phase 5B is a future phase, we were informed by the reviewer of the Carothers Crossing Phase 5A NOI (TNR 246193) that an ARAP for the future crossing in the Phase 5B (not part of the current Phase 5A NOI or construction plans) must be obtained prior to issuance of the 5A NPDES Permit. As such, we are looking to submit the ARAP for the Carothers Crossing Phase 5B creek crossing. The timing of the development for Carothers Crossing Phase 5B is unknown at this time, so there is no current proposed start of construction for Phase 5B and the crossings in the phase.

The future proposed roadway crossing at Carothers Crossing Phase 5B consists of a 2-span concrete slab bridge, 14 feet wide by 5 feet high and is 77 feet long along a 75 degree skew. The development timeframe of Phase

Date/Time Submitted: Sep 13, 2022 8:11 AM

Application for Aquatic Resource Alteration Permit (ARAP)

Carothers Crossing
Phase 5B

Property Map 188, p/o Parcel 8.00 Davidson County
7211 Carothers Road, Nolensville, TN 37135

September 19, 2022

ROADWAY CROSSING WITH UTILITY– BADRIC DRIVE

Federal, state, or local permits associated with the overall project site (common plan of development) that have been obtained in the past:

TNR243031, NR1804.314, NR1804.315, TNR244414, TNR245125

Section 6 : Description

(6.1) A narrative description of the scope of the project :

The future proposed roadway connects Carothers Crossing Phase 5A and the future Carothers Crossing Phase 5B by crossing an unnamed drain of the East Branch Hurricane Creek. We submitted an NOI for Carothers Crossing Phase 5A, which has a proposed roadway ending prior to the buffer of the unnamed drain. The proposed roadway crossing is located in and a part of the future Phase 5B; however, we were informed by the reviewer of the Phase 5A NOI (TNR 246193) that the ARAP for the future crossing must be obtained prior to the issuance of the Phase 5A NPDES Permit. As such, we are submitting this ARAP as requested for the future crossing of the future Phase 5B. The time frame for Phase 5B is unknown at this time with no proposed start of construction on the future phase.

We've met with Metro Planning to discuss the possibility of removing the crossing from the plans, but at this time they insist that the crossing is to remain for connectivity and since it is indicated on the Master Development Plan.

The proposed future crossing in the future Carothers Crossing Phase 5B is approximately 87 linear feet of a two-span, 14 feet wide by 5 feet high bottomless slab bridge (State Drawing No. STD-17-139 or equal) with telecom utility crossing. The underground telecom utility will be installed in the fill above the bridge.

(6.2) USGS topographic map indicating the exact location of the project :

See attached map

(6.3) Photographs of the resource(s) proposed for alteration with location description :

See attached photos

(6.4) A narrative description of the existing stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation :

There was no flow at the time of examination. It is well defined with bedrock and cobble substrates. The drain is roughly 17' wide with steep eroded banks covered in grass and scattered vegetation.

(6.5) A narrative description of the proposed stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation :

The existing drain characteristics upstream and downstream of the proposed bottomless slab bridge are to be maintained. The slopes along the headwall are to be stabilized using rip rap. Graded slopes are to be 3 to 1 slopes maximum.

(6.6) In the case of wetlands, include a wetland delineation with delineation forms and site map denoting location of data points :

Not applicable

(6.7) A copy of all hydrologic or jurisdictional determination documents issued for water resources on the project site :

A copy of the Hydrologic Determination and Wetland Delineations report for Carothers Crossing Phases 5A, 5B, and 10-Section 2A, prepared by BDY Natural Science Consultants on March 14, 2022, has been included in the ARAP submittal.

A copy of the Hydrologic Determination (DWR ID No.31057) for Carothers Crossing Phases 5A, 5B, and 10-Section 2A, prepared by TDEC on April 25, 2022 in response to the aforementioned determination report, has been included in the ARAP submittal.

Section 7 : Project Rationale

The purpose of the proposed project is to provide roadway and utility connection between Phase 5A and Phase 5B within the Carothers Crossing development. The existing drain runs through the length of the entire remaining site, so the crossing provides additional access within the development between both sides of the drain. Additionally, the crossing is indicated on the Approved Master Development Plan for the Carothers Crossing Urban Design Overlay (UDO).

Towards the end of 2021, the Developer originally proposed developing Phase 5 in its entirety. At that time, we considered the option of removing the crossing from the plans in order to minimize impacts to the stream since there would still be sufficient access to the entire Phase. Since the crossing is called for on the UDO Master Development Plan, we met with Metro Planning on January 13, 2022 to discuss the possibility of removing the crossing from the plans. It was deemed by Metro that they wanted the crossing to remain for connectivity, especially pedestrian connectivity, and due to the crossing being indicated on the approved Master Development Plan. At that time, the Developer decided to split Phase 5 into Phase 5A and Phase 5B and move forward with the development of Phase 5A.

The proposed roadway was designed to have the least amount of fill at the bridge location possible and a bottomless slab bridge was used to minimize the obstruction to migrating wildlife. The proposed fill is sloped at a 3 to 1 slope from the edge of sidewalk to the toe of slope. This was to minimize the width of the proposed crossing.

An alternative to the proposed slab bridge would be to install a span bridge. While this would limit the fill and the enclosure of the crossing, it would be significantly more expensive. The price of such a bridge would be more than could be justified for such a development.

Section 8 : Technical Information

(8.1) Detailed plans, specifications, blueprints, or legible sketches of present site conditions and the proposed activity. Plans must be 8.5 x 11 inches. Additional larger plans may also be submitted to aid in application review. The detailed plans should be superimposed on existing and new conditions (e.g., stream cross sections where road crossings are proposed) :

See attached detailed plans

(8.2) For the proposed activity and compensatory mitigation, provide a discussion regarding the sequencing of events and construction methods and any proposed monitoring :

Proposed Sequence of Events : 1) Install perimeter silt fence. Any flow at time of construction to be blocked off and diverted using coffer dams, geotextile tubes, and/or pumps. **2)** Area to be grubbed. Disturbance of the are to be done no greater then 20 days prior to planed grading or construction activity. **3)** Bridge footing locations are to be excavated to suitable material. All excavation to be done by hoe ram. **4)** Bridge to be constructed. **5)** Backfill along bridge sides to be done as shown on bridge plans. **6)** Remaining area to be filled as shown on approved plan. Silt fence, rip rap, and slope protection to be installed as shown on plan. All disturbed areas are to be seeded and strawed, unless planed grading activities are to resume within 14 days. 7**)** Install underground utilities in fill above bridge. **8)** Roadway construction. **9)** Final stabilization.

Construction Methods: Excavation to be done by hoe ram. Back fill around bridge to be done as shown on state standard details or bridge plan. Any unsuitable material excavated is to be removed from crossing area and disposed of properly.

(8.3) Depiction and narrative on the location and type of erosion prevention and sediment control (EPSC) measures for the proposed alterations and nay other measures to treat, control, or manage impacts to waters :

Silt fence will be used to limit the amount of sediments being discharged. 3 to 1 slopes are to be stabilized with erosion control matting, and rip rap is to be used to stabilize the slopes along the banks of the wingwalls. All work to be in the dry by the contractor using coffer dams, geotextile tubes, and/or pumps. (see attached plan)

Section 9 : Water Resources Degradation (degree of proposed impact) :

Will only cause de minimis degradation to water quality

Since there is no known start of construction date for Phase 5B and this ARAP is being submitted as requested by the reviewer of the Phase 5A NOI, there will be no degradation during the construction of Phase 5A. All Phase 5A construction activities will be outside of the 30 foot minimum buffer and a 60 foot average buffer shall be maintained during Phase 5A construction.

Section 10 : Detailed Alternative Analysis

(10.1) Analyze all reasonable alternatives and describe the level of degradation and permanent loss of resource value caused by each alternative. Assessment must consider options other than the "Preferred" and "No Action" alternatives. Provide associated rational for selecting or rejecting all alternatives considered and demonstration that the least impactful practicable alternative was selected :

See Section 9.

(10.2) Discuss the social and economic consequences of each alternative :

See Section 9.

(10.3) Demonstrate that the degradation associated with the preferred alternative will not violate water quality criteria for uses designated in the receiving waters, and is necessary to accommodate important economic and social development in the area :

See Section 9.

Section 11 : Mitigation

(11.1) A detailed discussion of the proposed compensatory mitigation. Provide evidence of credit reservation if proposing to utilize a third-party provider :

See Section 9.

(11.2) Analysis of any propsoed appreciable loss of resources value using the TN Stream Mitigation Guidelines. Provide Stream Quantification Tool (SQT) results if applicable. Existing Condition Score (ECS) and debit/credit calculations :

See Section 9.

(11.3) Describe how the compensatory mitigation would result in no net loss of resource value :

See Section 9.

(11.4) Provide a detailed monitoring plan for the compensatory mitigation site if permitee-responsible project is proposed :

See Section 9.

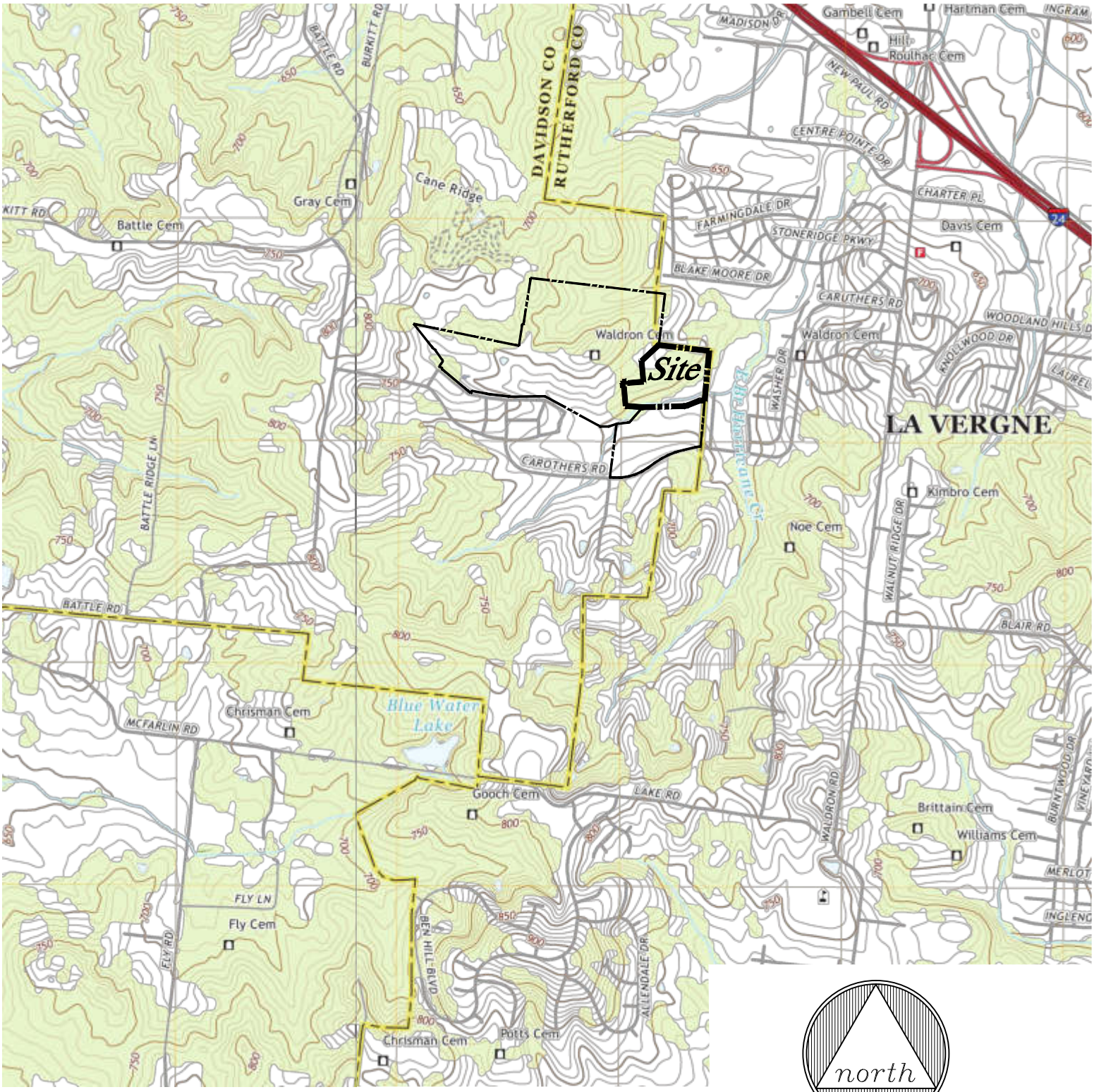
(11.5) Describe the long-term protection measures for the compensatory mitigation site if permitee-responsible project is proposed (e.g., deed restrictions, conservation easement) :

See Section 9.

NOLENSVILLE QUADRANGLE
TENNESSEE
7.5-MINUTE SERIES
2019

SMYRNA QUADRANGLE
TENNESSEE
7.5-MINUTE SERIES
2019

The National Map
US Topo



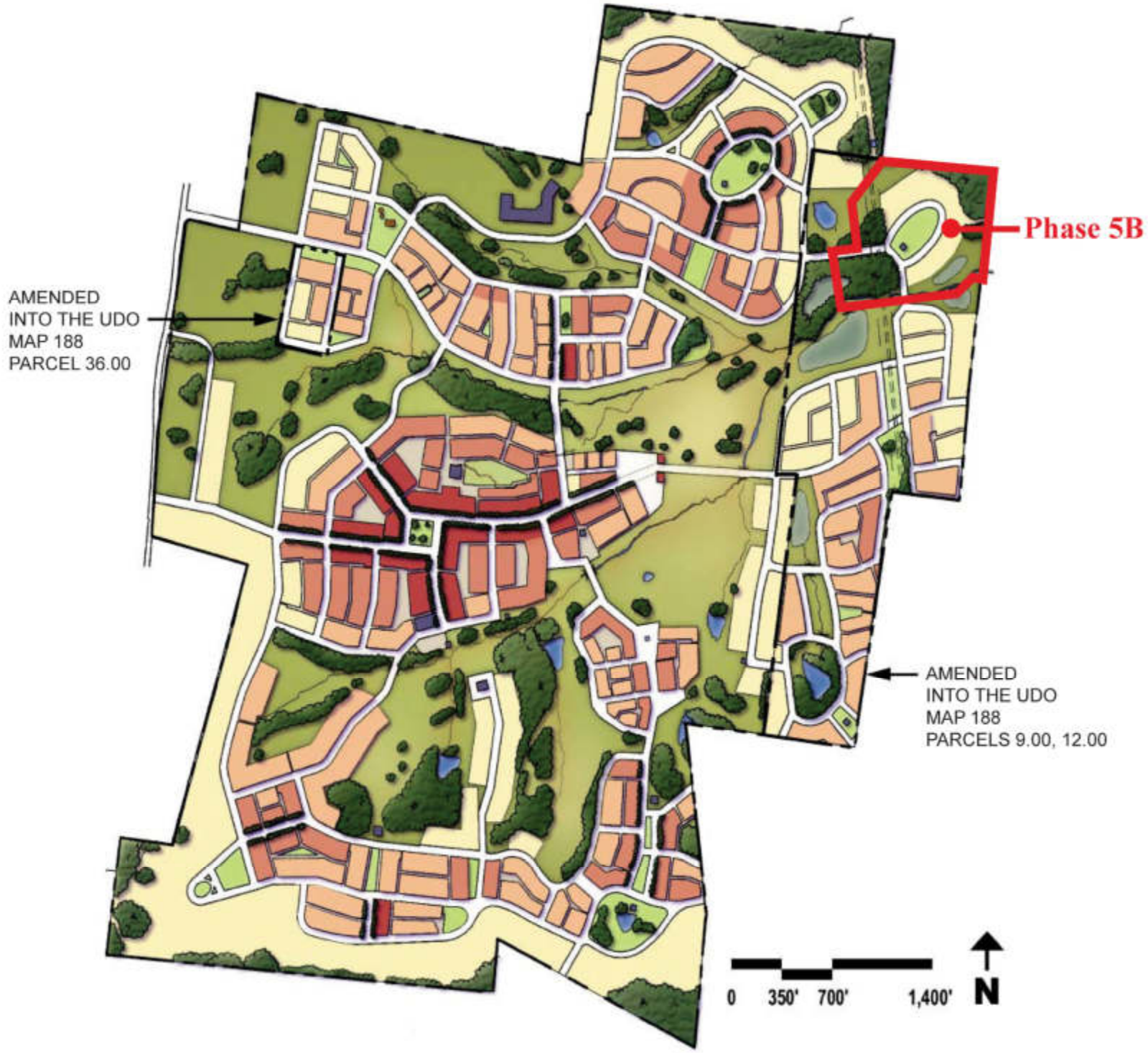
north

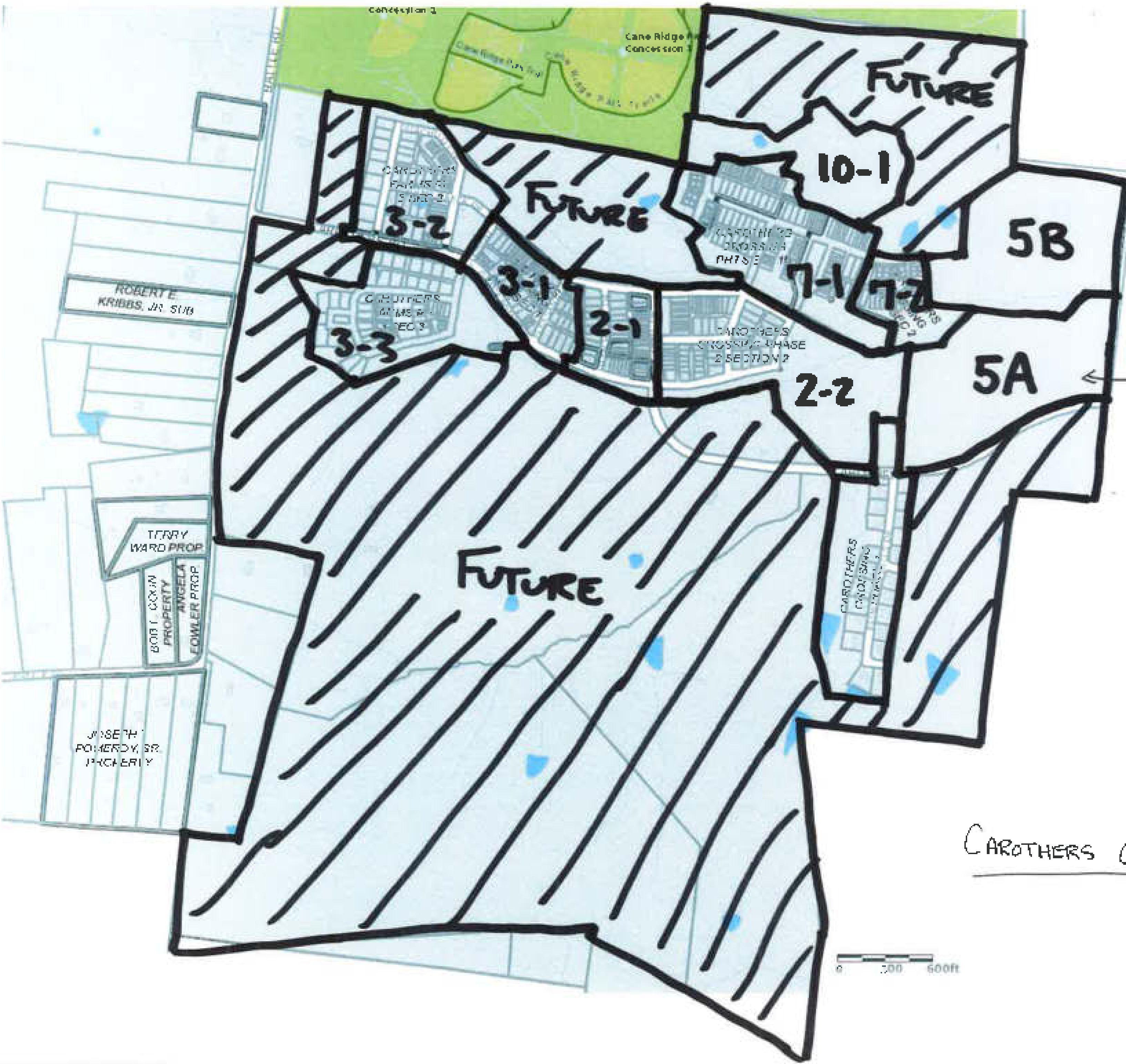
USGS
science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

2000 0 2000
Scale in Feet

CAROTHERS CROSSING~TN MASTER PLAN





← Awaiting Approvals & Permits to begin construction

Carothers Crossing UDO

Carothers Crossing Phase 5B - Proposed Road Crossing - Badric Drive

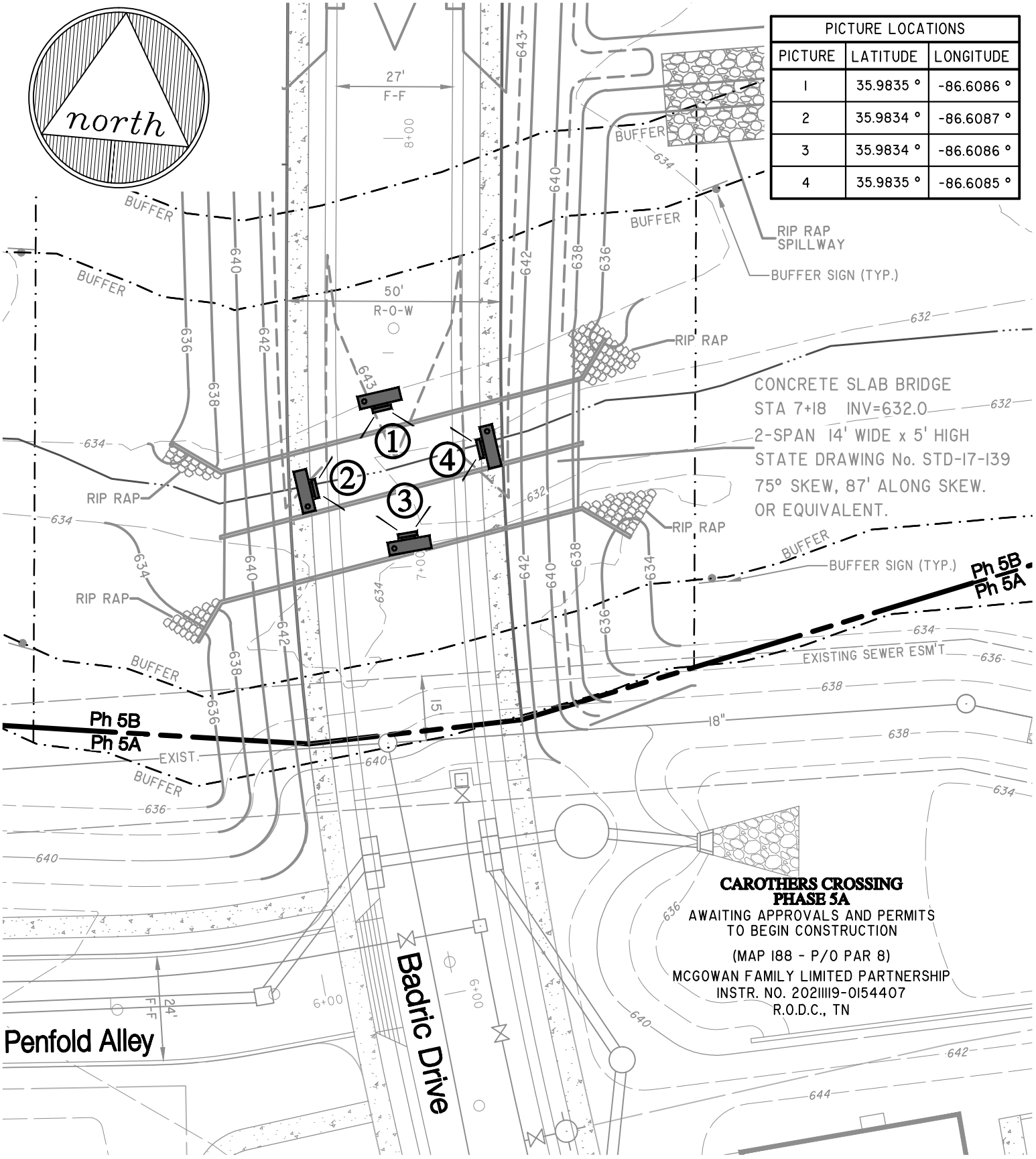
Photos taken September 19, 2022

1. Facing Right Bank (Southerly) [35.9835^{O}, -86.6086^{O}]

2. Facing Downstream (Easterly) [35.9834^{O}, -86.6087^{O}]

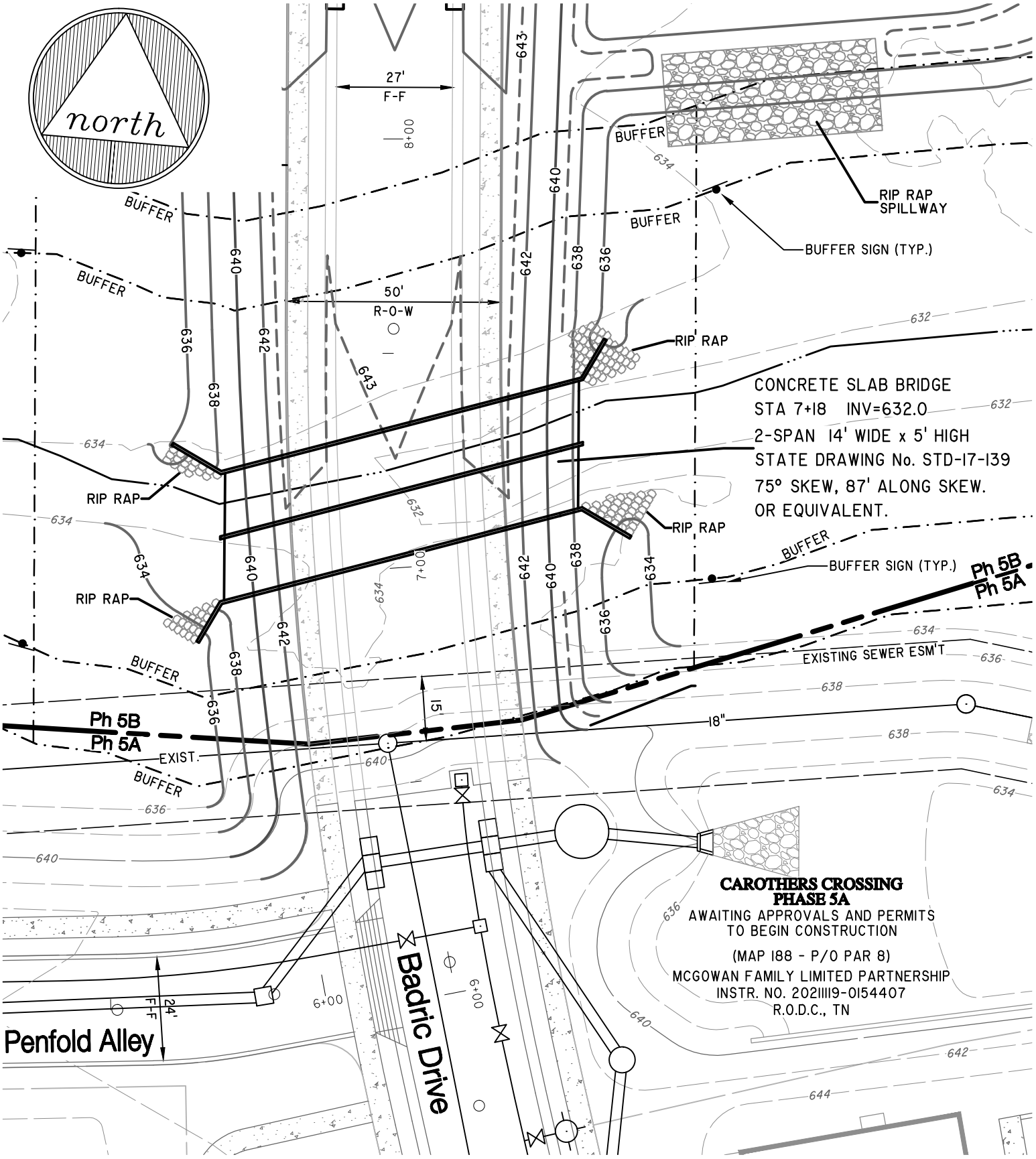
3. Facing Left Bank (Northerly) [35.9834^{O}, -86.6086^{O}]

4. Facing Upstream (Westerly) [35.9835^{O}, -86.6085^{O}]



CAROTHERS CROSSING - PHASE 5B
PROPOSED CROSSING
PICTURE LOCATION EXHIBIT

SCALE: 1" = 30'

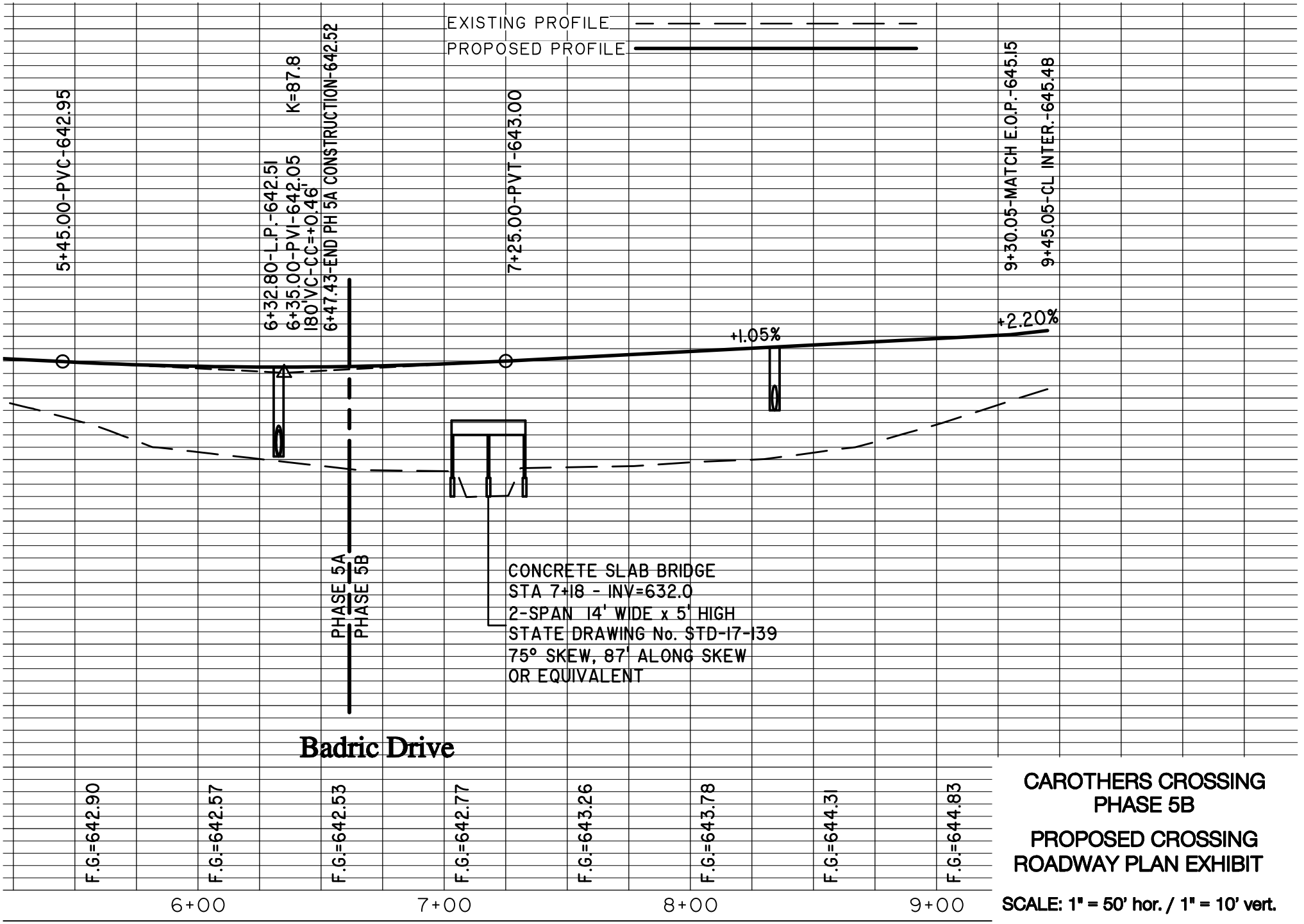


0 30 60 90

feet

CAROTHERS CROSSING - PHASE 5B
PROPOSED CROSSING
GRADING PLAN EXHIBIT

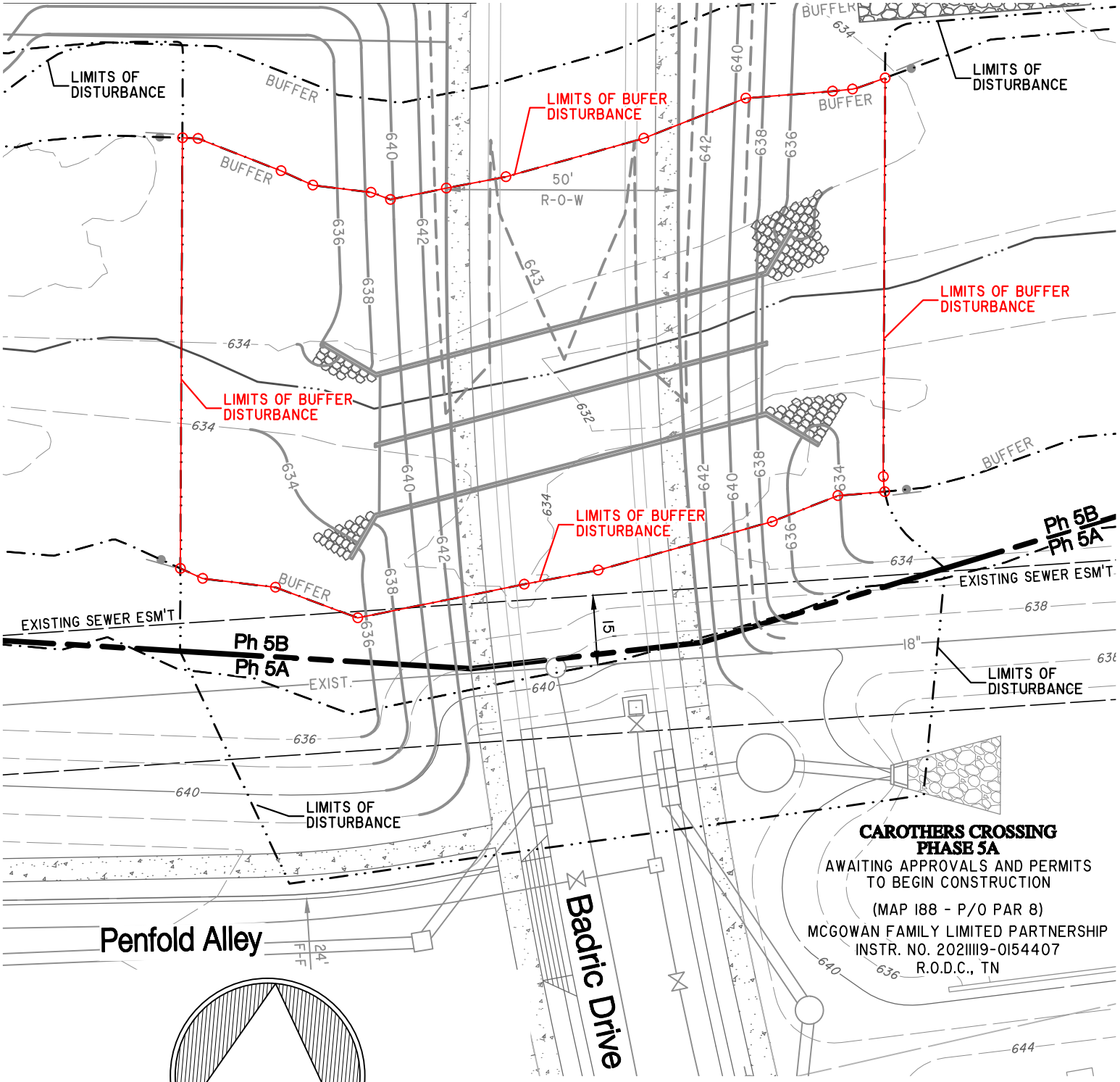
SCALE: 1" = 30'

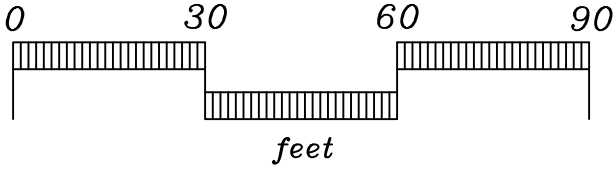


CAROTHERS CROSSING
PHASE 5B

PROPOSED CROSSING
ROADWAY PLAN EXHIBIT

SCALE: 1" = 50' hor. / 1" = 10' vert.

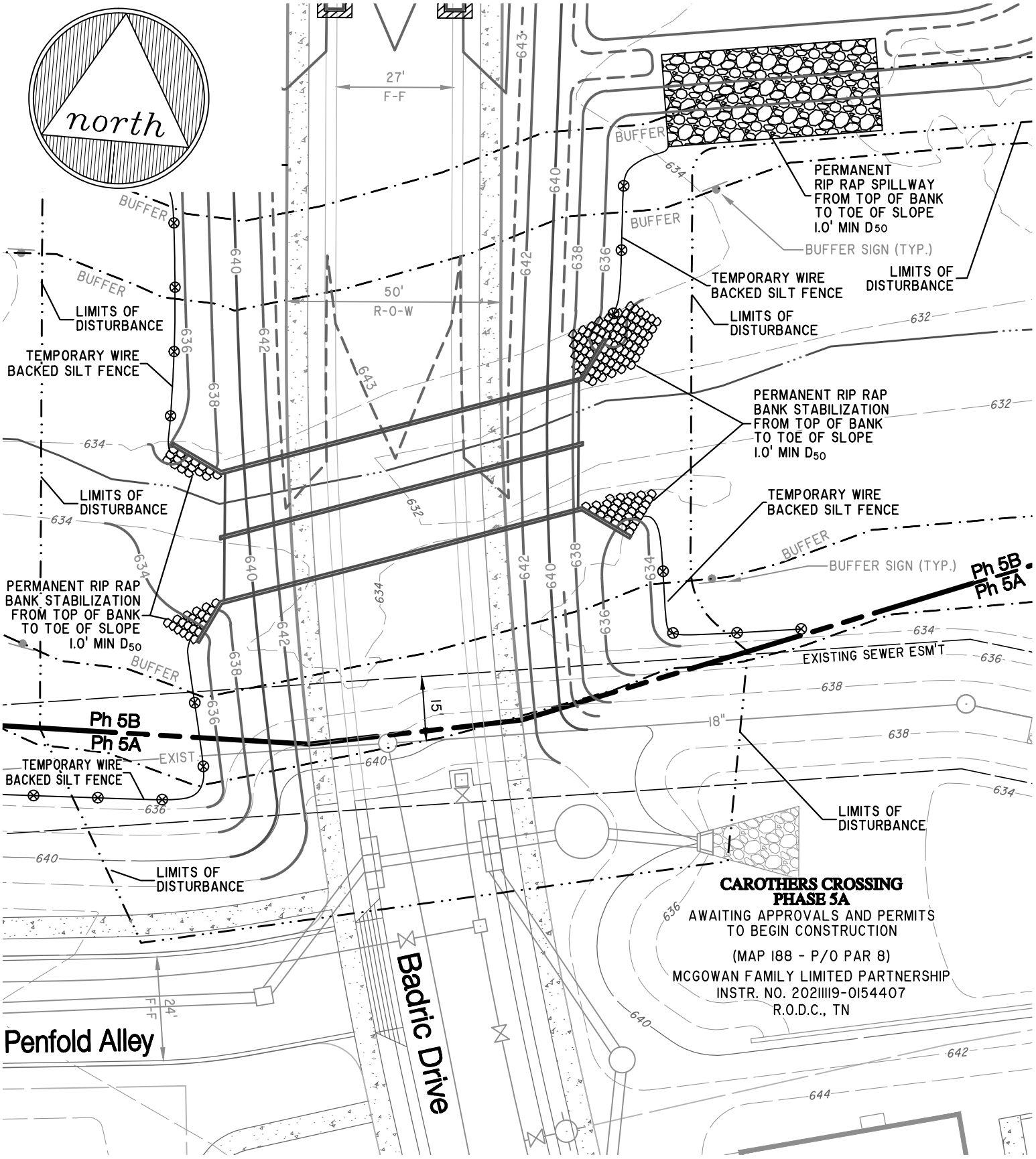




CAROTHERS CROSSING - PHASE 5B
PROPOSED CROSSING
ARAP LIMITS OF DISTURBANCE EXHIBIT

SCALE: 1" = 30'

NOTE: ARAP AREA IS OUTLINED IN RED AND INDICATES PROPOSED WORK TO BE DONE WITHIN THE ZONE I BUFFER



0 30 60 90

feet

CAROTHERS CROSSING - PHASE 5B
PROPOSED CROSSING
EROSION PLAN EXHIBIT

SCALE: 1" = 30'

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
Nashville Environmental Field Office
711 R.S. Gass Boulevard
Nashville, TN 37216
Phone 615-687-7000 Statewide 1-888-891-8332 Fax 615-687-7078

April 25, 2022

David McGowan
6901 Lenox Village Drive,
Suite 107 Nashville, TN
37211 615-333-9000
davidmcgowan@regenthomestn.com

Re: Hydrologic Determination (DWR ID No.31057)
Carothers Crossing, Phases 5A, 5B, and 10-Section 2A,
Nashville, Davidson County, Tennessee

Dear Landowner:

On March 14, 2022, the Division of Water Resources (division) received a jurisdictional waters report submitted on your behalf by Silas Mathes with, BDY Environmental LLC. These water features are located on property located at: 35.984833, -86.611243 (Lat/Long), in Nashville, Davidson County, Tennessee. Please note that all geographic coordinates provided in this letter have a limited precision and should be considered approximate.

Please see the attached map and table for a summary of the jurisdictional determinations made by the division for the water features on site. These determinations are based on the information and documentation in the submitted report as well as the division's observations, rules, and guidance regarding hydrologic determinations.

Alterations to streams, wetlands, or other waters may only be performed under the coverage of, and conformance to, a valid *Aquatic Resource Alteration Permit (ARAP)* issued by the division, except where authorized by Rule. ARAP applications and provisions are available on-line at http://www.tn.gov/environment/article/permit-water-aquatic-resource-alteration-permit.

Any alterations to wet weather conveyances must be made in accordance with the requirements of Tenn. Code Ann. § 69-3-108(q).

Hydrologic determinations are advised and governed by Tennessee Department of Environment and Conservation (TDEC) rules and regulations, and therefore only apply to the State's

permitting process. Because these and other various water features on-site may potentially also be considered jurisdictional Waters of the United States, any alterations to them should only be performed after consultation with the U.S. Army Corps of Engineers.

Discharges and alterations to sinkholes may require the submittal of an application and written authorization under the provisions of TDEC Rules. You may contact Mr. Brian Ham at (615) 532- 9224 to help identify permit requirements related to sinkhole alterations.

If the disturbed area of this project is one acre or greater, coverage under the *General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)* will be required from this division before any clearing or earth moving activities are started. Information on the construction stormwater permit is available online at http://www.tn.gov/environment/article/permit-water-npdes-stormwater-construction-permit.

I appreciate the opportunity to assess the water features on site prior to site plan finalization and initiation of construction activities. Because natural variation and human activities can alter hydrologic conditions, the division reserves the right to reassess the status of the water features in the future.

Thank you for your interest in water quality in Tennessee. If you have any questions or need additional information, please contact me at 615-714-0730 or by email at Virginia.Lawrence@tn.gov.

Sincerely,

Division of Water Resources

cc:

U.S. Army Corp of Engineers, NashvilleRegulatory@usace.army.mil
Michael Hunt, Davidson County MS4, michael.hunt@nashville.gov

Feature Name	Classisfcation	Lat/Long Start	Lat/Long End
D-1	Stream	35.982581, -86.611935	35.983838, -86.607611
D-2	Wet Weather Conveyance	35.983137, -86.61043	35.983388, -86.610213
D-3	Wet Weather Conveyance	35.986219, -86.610917	35.986176, -86.610652
WTL-A	Wetland	35.986159, -86.610434	
WTL-B	Wetland	35.984464, -86.611223	
ISOPND-A	Not waters of the State	35.984833, -86.611243	
ISOPND-B	Not waters of the State	35.984525, -86.61201	

Figure 2. Aquatic Resources Overview Map.
Carothers Crossing, Phases 5A, 5B, and 10-Section 2A
Carothers Road
Nashville, Davidson County, Tennessee

BDY NATURAL SCIENCES CONSULTANTS

March 14, 2022

Via electronic mail

Mr. Timmy Jennette
Tennessee Department of Environment & Conservation
Division of Water Resources
711 R.S. Gass Blvd.
Nashville, Tennessee 37243

Re: Hydrologic Determinations and Wetland Delineations
East Branch Hurricane Creek and Unnamed Tributaries
Carothers Crossing Phases 5A, 5B, and 10-Section 2A
Carothers Road
Nashville, Davidson County, Tennessee

Dear Mr. Jennette:

BDY Environmental LLC (BDY) has conducted hydrologic determinations for 3 watercourses on approximately 52-acres located north of Carothers Road in the Carothers Crossing Residential Development (Phases 5 and 10) in Nashville, Davidson County, Tennessee. We are forwarding the accompanying Hydrologic Determination Field Data Sheets, figures, and representative photographs, which are provided in support of our determinations that the assessed watercourses are either wet-weather conveyances or streams, as defined by Tennessee statute and associated administrative regulations.[1,2]

BDY also conducted delineations for 2 wetlands identified on the site based on guidelines established in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0).* Tables, maps, field data sheets, and photos supporting these delineations are also included in this report.

This report is submitted on behalf the project engineer, Anderson Delk Epps and Associates at the request of the property owner/developer:

Regent Development, LLC
David McGowan
6901 Lenox Village Drive, Suite 107
Nashville, TN 37211
615-333-9000
davidmcgowan@regenthomestn.com

The purpose of this report is to obtain TDEC's concurrence with these hydrologic determinations and wetland delineations to inform site planning for a proposed residential development. The project may require watercourse and/or wetland alterations; however, the developer is considering

[1] Tennessee Code Annotated §69-3-103 (38) & (43) (A-D)
[2] TDEC Rules of the Tennessee Water Quality Control Board 1200-04-03-.04 (23, 28)

practicable design alternatives to minimize or avoid impacts pending the determination of jurisdiction.

Project Site

The site consists of Phases 5A, 5B, and 10-Section 2A of the Carothers Crossing residential development. The subject phases comprise approximately 52 acres of mixed hardwood and eastern red cedar forest, with a TVA utility line corridor in the eastern portion of the site, and a large, currently unused detention area and pasture in the southern portion of the site. Site topography is characterized by a rolling central ridge and a west-east trending stream valley. Small karst depressions are scattered across the site. Two farm ponds are located on the site. Surrounding land use consists of forest to the north, ongoing Carothers Crossing development areas to the west, and residential subdivisions to the east. Water features on the site have diminished resource value due to erosion from historic agricultural and silvicultural practices.

The site is mapped on the US Geological Survey (USGS) Smyrna 7.5-minute Topographic Quadrangle (see Figure 1). The topographic map depicts a single stream, a tributary to East Branch Hurricane Creek, in the southern portion of the site. The site lies within the Hurricane Creek watershed, 12-digit hydrologic unit code (HUC) [051302030304]. East Branch Hurricane Creek is listed by TDEC as impaired due to sedimentation/siltation from development/channelization, and due to alteration in streamside or littoral vegetative covers due to channelization. The US Fish and Wildlife Service National Wetland Inventory (NWI) Mapper identifies the same unnamed tributary to East Branch Hurricane Creek as the USGS Topo and additionally depicts 2 farm ponds (PUBH) on the site (see attached NWI overview map). A soil map from the Natural Resources Conservation Service (NRCS) Web Soil Survey is also included with this letter. Based on a review of NRCS soils data, no hydric soils are mapped on the site. Soils mapped along watercourses are the Arrington silt loam, the Talbott-Rock outcrop complex, and the Hampshire silt loam.

Hydrologic Determinations

Silas Mathes (TNQHP #1112-TN13) and Hali Steinmann conducted the hydrologic determinations of the 3 watercourses within the subject site's boundaries on June 17 and June 22, 2021. Table 1 lists the dates for each watercourse assessment as well as previous rainfall as measured at the Nashville International Airport.

Table 1: HD/Wetland Assessment Dates and Previous Rainfall

Date Assessed	Featuress	7 Day Previous Rain (in.)	48 Hour Previous Rain (in.)	90 Day Climate Analysis
6/17/2021	D-2, Wetland A	0.20	0	Normal
6/22/2021	D-1, D-3, Wetland B	0.26	0.07	Normal

March 14, 2022
Mr. Timmy Jennette
Carothers Crossing Phases 5A, 5B, and 10-Section 2A HD Letter Report

A 90-day antecedent precipitation analysis data sheet and raw precipitation data are attached. Summary sheets generated by the US Army Corps of Engineers Antecedent Precipitation Tool are also included.

BDY identified 2 wet weather conveyances and 1 jurisdictional stream (see Table 2 immediately following this letter). Both of the site's wet weather conveyances are shallow channels dominated by soil substrate well above subsurface bedrock. D-2 is an artificial stormwater outlet channel leading from a large detention pond on the site. D-3 is a short erosional feature that loses definition above Wetland A. These channels exhibit poor to moderate bed and bank differentiation with limited to no connection to subsurface flow inputs. During site visits, wet weather conveyances were dry and BDY observed no macrobenthos.

D-1 is a well defined, obvious stream with bedrock and cobble substrates and multiple connections to subsurface seepage. BDY observed fish and multiple populations of wood- and stone-case building caddisfly larvae in D-1.

Representative photographs of the watercourses are attached. Figure 3A provides photo locations. Hydrologic Determination Field Data Sheets for the assessed watercourses are also included.

Non-Jurisdictional Farm Ponds

Two artificial, isolated farm ponds are located on the Site. Neither feature has inlet or outlet channels. Both features have large, constructed berms to hold back water, and appear to retain water throughout the year, sourced from direct precipitation and gathered sheetflow. Both ponds have clay liners. As the features are isolated from groundwater and surface water connections, we assert that they are not jurisdictional and respectfully ask for your concurrence.

Wetlands

BDY identified and delineated 2 jurisdictional wetlands on the site. These wetlands were delineated utilizing the protocols outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* and in *NRCS Field Indicators of Hydric Soils in the United State Version 8.2, 2018.* BDY field mapped wetland boundaries using a sub-meter accuracy GPS unit with positioning corrections tied to the TN Department of Transportation reference network. BDY also completed wetland determination data forms for 2 upland locations near the delineated wetlands.

Both wetlands are shallow seasonally saturated features with no inlet or outlet channels. Wetland A consists of a small valley blocked by the utility line easement on the site and the berm of a silted pond further downslope. Wetland B is a shallow depression with vehicle ruts that collects shallow hillslope seepage on compacted soils below the steep berm of Isolated Pond A.

March 14, 2022
Mr. Timmy Jennette
Carothers Crossing Phases 5A, 5B, and 10-Section 2A HD Letter Report

A summary table for the two wetlands and their corresponding upland sample pits is included as Table 3 immediately following the body of this letter. Eastern Mountains and Piedmont Wetland Determination Data Forms completed during the delineation are included with this report and photos are also provided in the attached photo page. Photo locations are mapped on Figure 3A and wetland delineation points and sample pit locations are mapped on Figure 3B.

Request for Concurrence

We attest that all information submitted herein and in the accompanying attachments is true, accurate, and complete. We appreciate your review of this information and request your concurrence of our jurisdictional determination. Please contact us at (615) 812-8960 if we may provide additional information or address your questions regarding our findings.

Very truly yours,

BDY ENVIRONMENTAL LLC

Silas Mathes
Project Scientist, TNQHP #1112-TN13

March 14, 2022
Mr. Timmy Jennette
Carothers Crossing Phases 5A, 5B, and 10-Section 2A HD Letter Report

TABLE 2: Hydrologic Determination Summary for Carothers Crossing Phases 5A, 5B, and 10-Section 2A

Watercourse	Jurisdictional Status	From	To	Length on Site	Description	Watershed Acres
D-1	Perennial Stream	35.982581, -86.611935	35.983838, -86.607611	1513	East Branch Hurricane Creek	538
D-2	Wet Weather Conveyance	35.983137, -86.61043	35.983388, -86.610213	113	Artificial Detention Pond Outlet	14
D-3	Wet Weather Conveyance	35.986219, -86.610917	35.986176, -86.610652	81	Erosional Channel, Loses Definition above WTL-A	10.25

TABLE 3: Wetland and Pond Summary for Carothers Crossing Phases 5A, 5B, and 10-Section 2A

Feature	Jurisdictional Status	Description	Acres	Coordinates
WTL-A	Wetland	Palustrine forested feature and former pond in small valley constricted by utility right of way.	0.088	35.986159, -86.610434
WTL-B	Wetland	Shallow hillslope seepage feature at base of steep pond berm.	0.025	35.984464, -86.611223
ISOPND-A	Isolated Pond	Artificially bermed farm pond with clay liner and no inlet or outlet channels.	0.35	35.984833, -86.611243
ISOPND-B	Isolated Pond	Artificially bermed and excavated farm pond with clay liner and no inlet or outlet channels.	0.348	35.984525, -86.61201
UPL-A	Upland Sample Pit		--	35.986272, -86.610494
UPL-B	Upland Sample Pit		--	35.984379, -86.611037

McGowan Family Limited Partnership
6901 Lenox Village Drive – Suite 107
Nashville, TN 37211

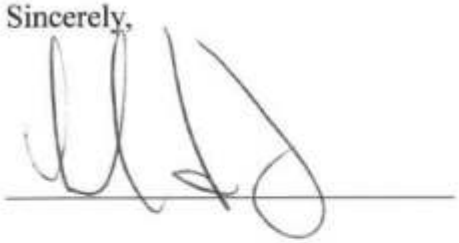
July 15, 2021

Tennessee Department of Environment & Conservation
Division of Water Resources
711 R.S. Gass Boulevard
Nashville, Tennessee 37243

To Whom it May Concern,

As the owner of the property at 7211 Carothers Road in Davidson County (Metro Parcel ID 18800000800), I, David McGowan Jr. having full authority to sign on behalf of McGowan Family Limited Partnership, am authorizing and give permission for TDEC to visit the site for the purpose of verifying a hydrologic determination report being submitted by BDY Environmental.

Sincerely,



Phone : 615-333-9000

Email : david mcgowan@regenthomes-tn.com

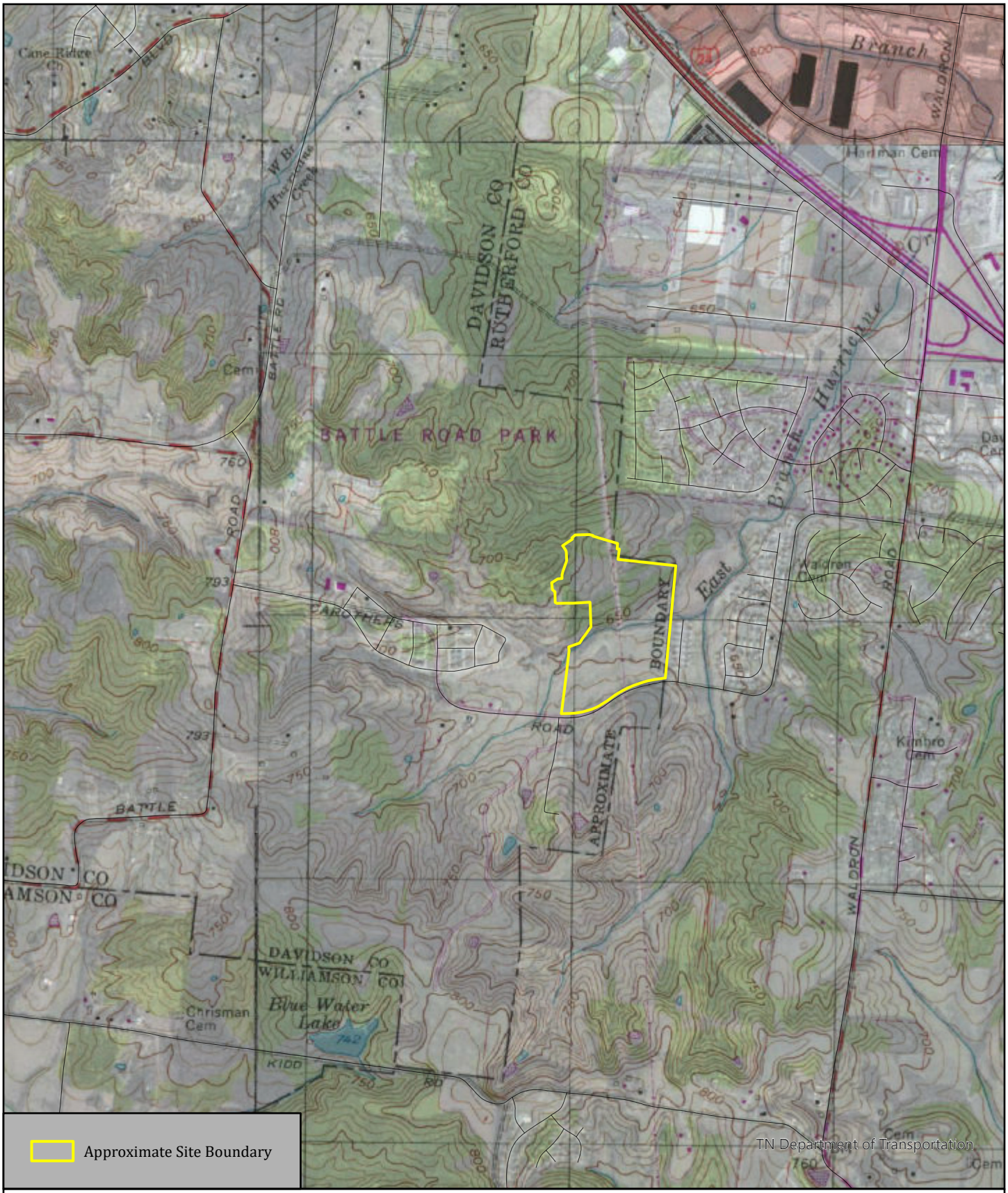


Figure 1. Site Locator Map.
Carothers Crossing, Phases 5A, 5B, and 10-Section 2A
Carothers Road
Nashville, Davidson County, Tennessee

0 1,000 2,000 Feet

N

Date: 3/13/2022
NAD 1983 2011 StatePlane Tennessee FIPS 4100 Ft US
86.61467°W 35.98445°N
Prepared for: Anderson Delk Epps
Prepared by: SEM
Sources: BDY Site Visits on 6/11/2021 and 6/17/2021

BDY NATURAL SCIENCES CONSULTANTS
2607 Westwood Drive, Nashville, Tennessee | 615.460.9797 | www.bdy-inc.com

Figure 2. Aquatic Resources Overview Map.
Carothers Crossing, Phases 5A, 5B, and 10-Section 2A
Carothers Road
Nashville, Davidson County, Tennessee

0 160 320 Feet

N

Date: 3/11/2022
NAD 1983 2011 StatePlane Tennessee FIPS 4100 Ft US
86.60995°W 35.98347°N
Prepared for: Anderson Delk Epps
Prepared by: SEM
Sources: BDY Site Visits on 6/11/2021 and 6/17/2021

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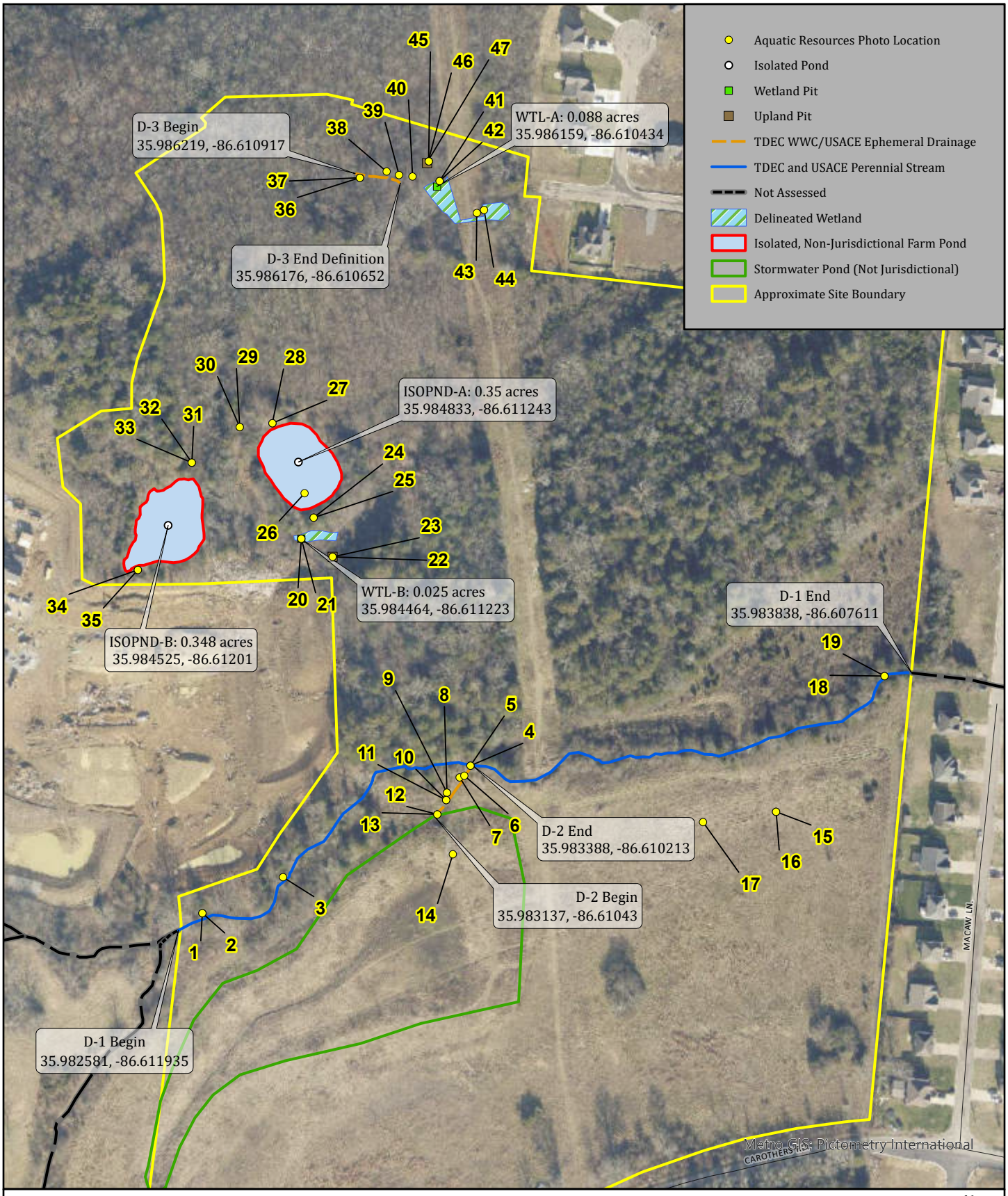

Figure 3A. Aquatic Resources Detail Map with Photo Locations.
Carothers Crossing, Phases 5A, 5B, and 10-Section 2A
Carothers Road
Nashville, Davidson County, Tennessee

0 140 280 Feet

N

Date: 3/11/2022
NAD 1983 2011 StatePlane Tennessee FIPS 4100 Ft US
86.61002°W 35.98419°N
Prepared for: Anderson Delk Epps
Prepared by: SEM
Sources: BDY Site Visits on 6/11/2021 and 6/17/2021

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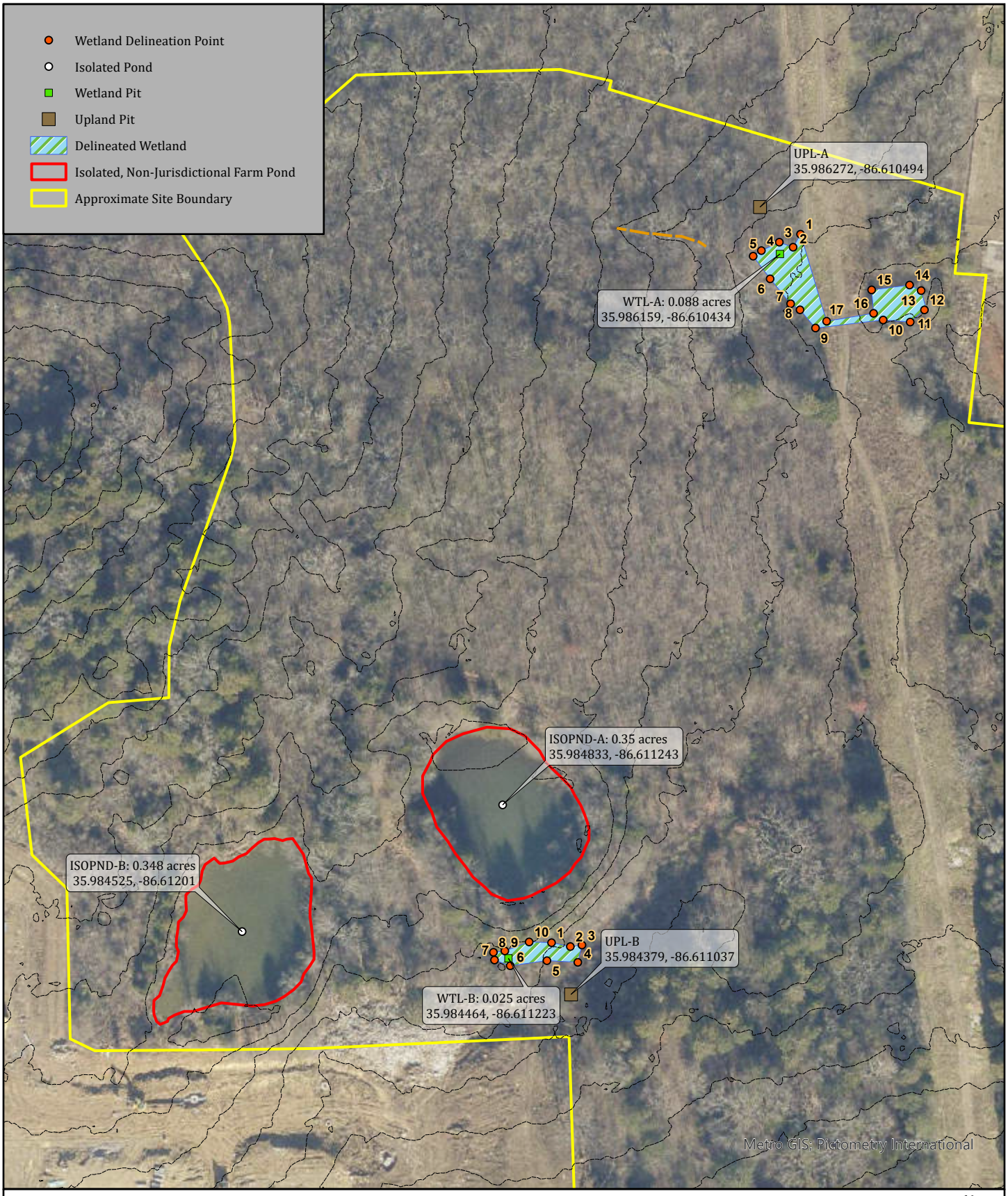

Figure 3B. Aquatic Resources Detail Map with Wetland Delineation Points.
Carothers Crossing, Phases 5A, 5B, and 10-Section 2A
Carothers Road
Nashville, Davidson County, Tennessee

0 70 140 Feet

N

Date: 3/13/2022
NAD 1983 2011 StatePlane Tennessee FIPS 4100 Ft US
86.61124°W 35.98533°N
Prepared for: Anderson Delk Epps
Prepared by: SEM
Sources: BDY Site Visits on 6/11/2021 and 6/17/2021

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1 View of D-1 entering site, facing upstream/west.

2 View of D-1 entering site, facing downstream/east.

3 View of D-1 upper reach, facing downstream/northeast.

4 View of D-1 mid-reach with D-2 confluence in image foreground (downstream/east to image right).

5 View of heavily vegetated D-2 at D-1 confluence, facing upslope/south.

6 View of heavily vegetated D-2 lower reach, facing upslope/southwest.

7 View of heavily vegetated lower reach of D-2, facing downslope/northeast with rip-rap in background.

8 View of D-2 mid reach, facing downslope/northeast.

9 View of D-2 mid-reach substrate, facing down.

10 View of D-2 upper reach with rip rap substrate, below detention pond outlet, facing downslope/northeast.

11 View of D-2 upper reach, facing upslope/southwest along detention pond embankment.

12 View of detention pond outlet culvert, facing upslope/southwest.

13 View of substrate and vegetation in D-1 below culvert outlet, facing down.

14 Overview of large detention pond, facing southwest.

15 View of upland area south of D-1, facing west.

16 View of upland area south of D-1, facing east.

17 View of upland soils within floodplain area south of D-1, facing down.

18 View of D-1 exiting site, facing downstream/east.

19 View of D-1 at site boundary, facing upstream/west.

20 Overview of WTL-B and sample pit, facing east.

21 View of soil profile at WTL-B sample pit, facing down.

22 View of UPL-B sample pit location, facing southwest.

23 View of soil profile at UPL-B.

24 View of steep, artificial pond embankment separating Pond ISOPND-A from WTL-B, facing northeast/downslope to image right.

25 View of ISOPND-A, facing north/upslope.

26 View of clay liner in ISOPND-A.

27 View of upper, northern end of ISOPND-A and soil profile with clay liner, facing south.

28 View of ISOPND-A soil profile with clay liner starting at approximately 7 inches, facing down.

29 View of rocky, upland area absent of channel definition above ISOPND-A, facing upslope/northwest.

30 View of rocky, upland area absent of channel definition above ISOPND-A, facing downslope/southeast.

31 View of ISOPND-B from northern corner of feature, facing downslope/south.

32 View of clay liner depth (starting at 10 inches) in upper portion of ISOPND-B, facing down.

33 View of clay liner from upper portion of ISOPND-B, facing down.

34 View of southern portion of ISOPND-B, facing north.

35 View of southern edge of ISOPND-B, facing south.

36 View of D-3 at origin, facing upslope/west.

37 View of D-3 below origin, facing downslope/east.

38 View of lower portion of D-3, facing upslope/west.

39 View of D-3 end of definition point, facing downslope/east.

40 Overview of upper, western portion of WTL-A, facing downslope/east.

41 View of WTL-A sample pit area, facing west.

42 View of WTL-A soil profile, facing down.

43 Overview of WTL-A eastern portion with former farm pond, facing east/downslope.

44 View of ponded portion of WTL-A, facing east.

45 View of soil profile at Upland A sample pit.

46 Overview of Upland Pit A vicinity, facing southeast.

47 View of Upland-A sample pit vegetation, facing down.

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: East Branch Hurricane Creek	Date/Time: 6/22/2021 18:19
Assessors/Affiliation: Silas Mathes (1112-TN13)	Project ID : D-1
Site Name/Description: Carothers Crossing, Phases 5 and 10	
Site Location: Carothers Road, Nashville, Davidson County	
HUC (12 digit): Hurricane Creek (051302030304)	Lat/Long: from: 35.982581, -86.611935 to: 35.983838, -86.607611
Previous Rainfall (7-days) : 0.26 in. Prev. 7 Days (0.07 in. Prev. 48 hrs)	
Precipitation this Season vs. Normal : abnormally wet elevated ~~average~~ low abnormally dry unknown Source of recent & seasonal precip data : NOAA GHCND Nashville Airport	
Watershed Size : 538.5 acres	County: Davidson
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded/Carters Limestone Source: NRCS/TDEC 24K Geoquad	
Surrounding Land Use : Forest and Residential Subdivision	
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe ~~Moderate~~ Slight Absent	

Primary Field Indicators Observed

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

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

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

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

Overall Hydrologic Determination = Stream

Secondary Indicator Score (if applicable) = 0 OR ✓ N/A

Justification / Notes :

Well defined, bedrock substrate stream with obvious connection to groundwater, multiple caddisfly species, and fish. Alterations from surrounding residential development and historic ag practices.

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 0)	**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 = 0)	**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	N/A
16. Leaf litter in channel (January – September)	1.5	1	0.5	0	N/A
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 = 0)	**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	0	1	2	3
24. Amphibians	0	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 presence of aquatic or wetland plants.

Total Points = 0

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

Notes :

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: East Branch Hurricane Creek	Date/Time: 6/22/2021 18:01
Assessors/Affiliation: Silas Mathes (1112-TN13)	Project ID : D-2
Site Name/Description: Carothers Crossing, Phases 5 and 10	
Site Location: Carothers Road, Nashville, Davidson County	
HUC (12 digit): Hurricane Creek (051302030304)	Lat/Long: from: 35.983137, -86.61043 to: 35.983388, -86.610213
Previous Rainfall (7-days) : 0.26 in. Prev. 7 Days (0.07 in. Prev. 48 hrs)	
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown Source of recent & seasonal precip data : NOAA GHCND Nashville Airport	
Watershed Size : 14.1 acres	County: Davidson
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded/Carters Limestone Source: NRCS/TDEC 24K Geoquad	
Surrounding Land Use : Forest and Residential Subdivision	
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe Moderate Slight Absent	

Primary Field Indicators Observed

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

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

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

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

Overall Hydrologic Determination = Wet Weather Conveyance

Secondary Indicator Score (if applicable) = 2.5 OR N/A

Justification / Notes :

Short, fescue-lined artificial swale leading from large detention pond. Soil exposed in bed in only two locations. Rip-rap present at either end of reach. No biology indicators present. No evidence of subsurface seep connections; channel flows very infrequently and is elevated above typical pool level of detention area (detention pond does not appear to receive flows from impervious areas or other stormwater infrastructure). Mowed infrequently.

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 1.5)	**Absent**	**Weak**	**Moderate**	**Strong**
1. Continuous bed and bank	0 ✓	1	2	3
2. Sinuous channel	Ø ✓	1	2	3
3. In-channel structure: riffle-pool sequences	Ø	1	2	3
4. Sorting of soil textures or other substrate	Ø	1	2	3
5. Active/relic floodplain	Ø	0.5	1	1.5
6. Depositional bars or benches	Ø	1	2	3
7. Braided channel	Ø	1	2	3
8. Recent alluvial deposits	Ø	0.5	1	1.5
9. Natural levees	Ø	1	2	3
10. Headcuts	Ø	1	2	3
11. Grade controls	Ø	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 = 0.5)	**Absent**	**Weak**	**Moderate**	**Strong**	
14. Subsurface flow/discharge into channel	Ø	1	2	3	
15. Water in channel and >48 hours since sig. rain	Ø	1	2	3	N/A
16. Leaf litter in channel (January – September)	1.5	1	0.5	0	N/A ✓
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 = 0.5)	**Absent**	**Weak**	**Moderate**	**Strong**
20. Fibrous roots in channel bed [1]	3	2	1	Ø
21. Rooted plants in the thalweg [1]	3	2	1	Ø
22. Crayfish in stream (exclude in floodplain)	Ø	1	2	3
23. Bivalves/mussels	Ø	1	2	3
24. Amphibians	Ø	0.5	1	1.5
25. Macrobenthos (record type & abundance)	Ø	1	2	3
26. Filamentous algae; periphyton	Ø	1	2	3
27. Iron oxidizing bacteria/fungus	Ø	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 = 2.5

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

Notes :

1. Artificial stormwater swale leading from large detention pond; poorly defined banks with bed almost completely covered by upland vegetation (fescue). 2. One bend 3. No riffles or pools present. 10/11. No headcuts. 12. Weak natural valley (side of larger floodplain). 14/15 No water present, no evidence of subsurface inputs. Detention structure rarely outlets to channel. 16. No trees present within detention pond or area surrounding channel. 17. minor stains on grass. 18. minor amount of in-channel wrack at bottom of reach. 20. Strong fibrous roots throughout. 21. Fescue chokes thalweg. 22-27 not present. 28. FAC scattered at bottom.

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: East Branch Hurricane Creek	Date/Time: 6/17/2021 14:02
Assessors/Affiliation: Silas Mathes (1112-TN13)	Project ID : D-3
Site Name/Description: Carothers Crossing, Phases 5 and 10	
Site Location: Carothers Road, Nashville, Davidson County	
HUC (12 digit): Hurricane Creek (051302030304)	Lat/Long: from: 35.986219, -86.610917 to: 35.986176, -86.610652
Previous Rainfall (7-days) : 0.2 in. Prev. 7 Days (0 in. Prev. 48 hrs)	
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown Source of recent & seasonal precip data : NOAA GHCND Nashville Airport	
Watershed Size : 3.2 acres	County: Davidson
Soil Type(s) / Geology : Hampshire silt loam, 5 to 12 percent slopes, eroded/Carters Limestone	Source: NRCS/TDEC 24K Geoquad
Surrounding Land Use : Forest and Residential Subdivision	
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe Moderate Slight Absent	

Primary Field Indicators Observed

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

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

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

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

Overall Hydrologic Determination = Wet Weather Conveyance

Secondary Indicator Score (if applicable) = 10.25 OR N/A

Justification / Notes :

Short, erosional, soil-substrate channel that loses definition at slope break. No evidence of seepage inputs, sorting, or macrobenthos observed. Erosion from historic ag practices.

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 5)	**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 = 3.25)	**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	N/A
16. Leaf litter in channel (January – September)	1.5	1	0.5	0	N/A
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 = 2)	**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	0	1	2	3
24. Amphibians	0	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 presence of aquatic or wetland plants.

Total Points = 10.25

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

Notes :

1. soil bed moderately defined until slope break; banks poorly defined. 2. straight. 3. no pools or riffles--one long run. 7. soil bed marginally different from surrounding profile, but no coarse material present. 10. one at top. 11. moderate longevity root grade controls. 16. 10% leaf litter. 18 at bottom, not outside channel. 19. Hydric soil present in 10' length at bottom of reach where channel loses definition. 21. Scattered FAC and UPL species, trees at bottom of reach. 28. infrequent FAC.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Carothers Crossing, Phases 5 and 10 City/County: Nashville/Davidson Sampling Date: 6/17/2021
Applicant/Owner: Regent State: Tennessee Sampling Point: WTL-A
Investigator(s): Silas Mathes/Hali Steinmann Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%) 3
Subregion (LRR or MRLA): MRLA 123 Lat.: 35.986159 Long.: -86.610434 Datum: WGS84
Soil Map Unit Name: Hampshire silt loam, 5 to 12 percent slopes, eroded/Talbott-Bar NWI Classification: PUBHx
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology Yes significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	WTL-A

Remarks: (Explain alternative procedures here or in a separate report.)

Gentle slope with hydric soils and mixed FACU/FAC vegetation, includes small silted farm pond.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No X	Depth (inches): ____	**Wetland Hydrology Present?**	
Water table present?	Yes ____	No X	Depth (inches): ____		
Saturation present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____		Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Drainage from small, shallow valley slowed by downslope powerline easement maintenance and small farm pond.

VEGETATION - Use scientific names of plants

Sampling Point: WTL-A

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Celtis laevigata*	75	Y	FACW
2	*Maclura pomifera*	5	N	UPL
3	*Robinia pseudoacacia*	4	N	FACU
4	*Fraxinus pennsylvanica*	2	N	FACW
5				
6				
7				
8				
9				
10				
		86	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Celtis laevigata*	15	Y	FACW
2	*Fraxinus pennsylvanica*	6	Y	FACW
3	*Ligustrum sinense*	2	N	FACU
4				
5				
6				
7				
8				
9				
10				
		23	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex cherokeensis*	20	Y	FACW
2	*Toxicodendron radicans*	20	Y	FAC
3	*Elymus virginicus*	15	Y	FACW
4	*Ligustrum sinense*	12	N	FACU
5	*Symphoricarpos orbiculatus*	8	N	FACU
6	*Parthenocissus quinquefolia*	4	N	FACU
7	*Solidago gigantea*	4	N	FACW
8	*Desmodium paniculatum*	3	N	FACU
9	*Quercus rubra*	1	N	FACU
10				
11				
12				
13				
14				
15				
		87	= Total Cover	

Woody Vine Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Toxicodendron radicans*	15	Y	FAC
2	*Parthenocissus quinquefolia*	15	Y	FACU
3	*Smilax rotundifolia*	4	N	FAC
4	*Vitis vulpina*	2	N	FAC
5				
		36	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	17	43
Sapling/Shrub Stratum	5	12
Herb Stratum	17	44
Woody Vine Stratum	7	18

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across all Strata: 8 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 87.50% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	137	x 2 =	274	
FAC species	41	x 3 =	123	
FACU species	49	x 4 =	196	
UPL species	5	x 5 =	25	
Column totals	232	(A)	618	(B)

Prevalence Index = B/A = 2.66

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/shrub - Woody plants 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 vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Sapling/shrub stratum also contains 4% Poncirus trifoliata (NI)

SOIL **Sampling Point:** WTL-A

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-2	10YR 3/2	95	7.5YR 4/4	5	C	PL/M	silt loam	
2-8	10YR 4/2		7.5YR 4/6	8	C	M	silt loam	Mn Masses
8-11	10YR 5/4		7.5YR 4/6	5	C	M	silty clay loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:*

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Carothers Crossing, Phases 5 and 10 City/County: Nashville/Davidson Sampling Date: 6/22/2021
Applicant/Owner: Regent State: Tennessee Sampling Point: WTL-B
Investigator(s): Silas Mathes Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%) 3
Subregion (LRR or MRLA): MRLA 123 Lat.: 35.984464 Long.: -86.611223 Datum: WGS84
Soil Map Unit Name: Stiversville loam, 5 to 12 percent slopes, eroded NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology Yes significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	WTL-B

Remarks: (Explain alternative procedures here or in a separate report.)

Artificial seepage wetland at base of steep isolated farm pond berm. Disturbed by tractor ruts.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	____	No	X	Depth (inches):	____
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	0

Wetland Hydrology Present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Seepage has collected in rutted area below steep earthen dam of isolated farm pond.

VEGETATION - Use scientific names of plants

Sampling Point: WTL-B

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus pennsylvanica*	15	Y	FACW
2	*Celtis laevigata*	5	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		20	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex vulpinoidea*	60	Y	OBL
2	*Microstegium vimineum*	10	N	FAC
3	*Carex frankii*	5	N	OBL
4	*Boehmeria cylindrica*	2	N	FACW
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		77	= Total Cover	

Woody Vine Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Rosa carolina*	2		FACU
2				
3				
4				
5				
		2	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	4	10
Herb Stratum	15	39
Woody Vine Stratum	0	1

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	65	x 1 =	65
FACW species	22	x 2 =	44
FAC species	10	x 3 =	30
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column totals	99 (A)		147 (B)

Prevalence Index = B/A = 1.48

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/shrub - Woody plants 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 vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

No trees in feature.

SOIL **Sampling Point:** WTL-B

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	2.5Y 5/1	85	5YR 4/6	15	C	PL/M	silty clay	
6-10	5YR 4/6	90	2.5Y 4/1	10	D	M	silty clay	
10-12+	5YR 4/6	100					clay	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:*

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: Clay
Depth (inches): 10

Hydric soil present? Y

Remarks:
Rutted by heavy equipment, creating concavity within last 5 years that traps shallow hillslope seepage.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Carothers Crossing, Phases 5 and 10 City/County: Nashville/Davidson Sampling Date: 6/17/2021
Applicant/Owner: Regent State: Tennessee Sampling Point: UPL-A
Investigator(s): Silas Mathes/Hali Steinmann Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%) 2
Subregion (LRR or MRLA): MRLA 123 Lat.: 35.986272 Long.: -86.610494 Datum: WGS84
Soil Map Unit Name: Hampshire silt loam, 5 to 12 percent slopes, eroded NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	UPL-A

Remarks: (Explain alternative procedures here or in a separate report.)

Upland pit taken on slope above WTL-A

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No ____	Depth (inches): ____	**Wetland Hydrology Present?**	
Water table present?	Yes ____	No ____	Depth (inches): ____		
Saturation present? (includes capillary fringe)	Yes ____	No ____	Depth (inches): ____		N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No indicators

VEGETATION - Use scientific names of plants

Sampling Point: UPL-A

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Celtis occidentalis*	50	Y	FACU
2	*Maclura pomifera*	30	Y	UPL
3				
4				
5				
6				
7				
8				
9				
10				
		80	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Celtis occidentalis*	20	Y	FACU
2	*Maclura pomifera*	20	Y	UPL
3	*Fraxinus pennsylvanica*	8	N	FACW
4				
5				
6				
7				
8				
9				
10				
		48	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Toxicodendron radicans*	65	Y	FAC
2	*Symphoricarpos orbiculatus*	15	N	FACU
3	*Lonicera japonica*	6	N	FACU
4	*Fraxinus pennsylvanica*	3	N	FACW
5	*Ligustrum sinense*	3	N	FACU
6	*Potentilla indica*	3	N	FACU
7	*Geum canadense*	2	N	FACU
8	*Parthenocissus quinquefolia*	2	N	FACU
9	*Boehmeria cylindrica*	1	N	FACW
10				
11				
12				
13				
14				
15				
		100	= Total Cover	

Woody Vine Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Toxicodendron radicans*	10	Y	FAC
2	*Smilax bona-nox*	5	Y	FACU
3	*Vitis vulpina*	5	Y	FAC
4				
5				
		20	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	16	40
Sapling/Shrub Stratum	10	24
Herb Stratum	20	50
Woody Vine Stratum	4	10

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 8 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 37.50% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	12	x 2 =	24	
FAC species	80	x 3 =	240	
FACU species	106	x 4 =	424	
UPL species	50	x 5 =	250	
Column totals	248	(A)	938	(B)

Prevalence Index = B/A = 3.78

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/shrub - Woody plants 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 vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Poncirus trifoliata (NI) is 5% of sapling/shrub stratum; Lonicera mackii (NI) is 10% of sapling shrub stratum.

SOIL **Sampling Point:** UPL-A

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-12	10YR 3/4	100					silt-loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:*

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
No redox.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Carothers Crossing, Phases 5 and 10 City/County: Nashville/Davidson Sampling Date: 6/22/2021
Applicant/Owner: Regent State: Tennessee Sampling Point: UPL-B
Investigator(s): Silas Mathes Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%) 3
Subregion (LRR or MRLA): MRLA 123 Lat.: 35.984379 Long.: -86.611037 Datum: WGS84
Soil Map Unit Name: Stiversville loam, 5 to 12 percent slopes, eroded NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	UPL-B

Remarks: (Explain alternative procedures here or in a separate report.)

Upland pit taken below WTL-A, artificial seepage area.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No ____	Depth (inches): ____	**Wetland Hydrology Present?**	
Water table present?	Yes ____	No ____	Depth (inches): ____		
Saturation present? (includes capillary fringe)	Yes ____	No ____	Depth (inches): ____		N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology indicators.

VEGETATION - Use scientific names of plants

Sampling Point: UPL-B

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Juglans nigra*	30	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		30	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus rubra*	20	Y	FAC
2	*Celtis occidentalis*	20	Y	FACU
3	*Juglans nigra*	15	Y	FACU
4	*Fraxinus pennsylvanica*	4	N	FACW
5				
6				
7				
8				
9				
10				
		59	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Viola sororia*	40	Y	FAC
2	*Geum canadense*	4	N	FACU
3	*Microstegium vimineum*	4	N	FAC
4	*Eupatorium serotinum*	2	N	FAC
5	*Boehmeria cylindrica*	2	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		52	= Total Cover	

Woody Vine Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Vitis vulpina*	8	Y	FAC
2	*Parthenocissus quinquefolia*	3	Y	FACU
3				
4				
5				
		11	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	6	15
Sapling/Shrub Stratum	12	30
Herb Stratum	10	26
Woody Vine Stratum	2	6

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 42.86% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	6	x 2 =	12	
FAC species	74	x 3 =	222	
FACU species	72	x 4 =	288	
UPL species	0	x 5 =	0	
Column totals	152	(A)	522	(B)

Prevalence Index = B/A = 3.43

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

Sapling/shrub - Woody plants 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 vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Edge of clearing--few mature trees present.

SOIL **Sampling Point:** UPL-B

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-3	10YR 3/3	100					silty clay	
3-12	10YR 3/6	100					silty clay	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:*

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
No redox observed.

Name of Site: **Carothers Crossing**

Date of Site Visit: **6/17/2021** **6/22/2021**

Previous 7 Day Rainfall Total: **0.2** **0.26** inches

Previous 48-hr Rainfall Total: **0** **0.07** inches

Weather Station Norms from https://w2.weather.gov/climate/xmacis.php?wfo=ohx

Actual Rainfall from https://w2.weather.gov/climate/xmacis.php?wfo=ohx

Monthly Standard Deviation obtained online at https://w2.weather.gov/climate/xmacis.php?wfo=ohx

Calculation Based on Nashville Int'l Airport Rainfall Amounts with Nashville Int'l Airport Normals and Std. Deviations

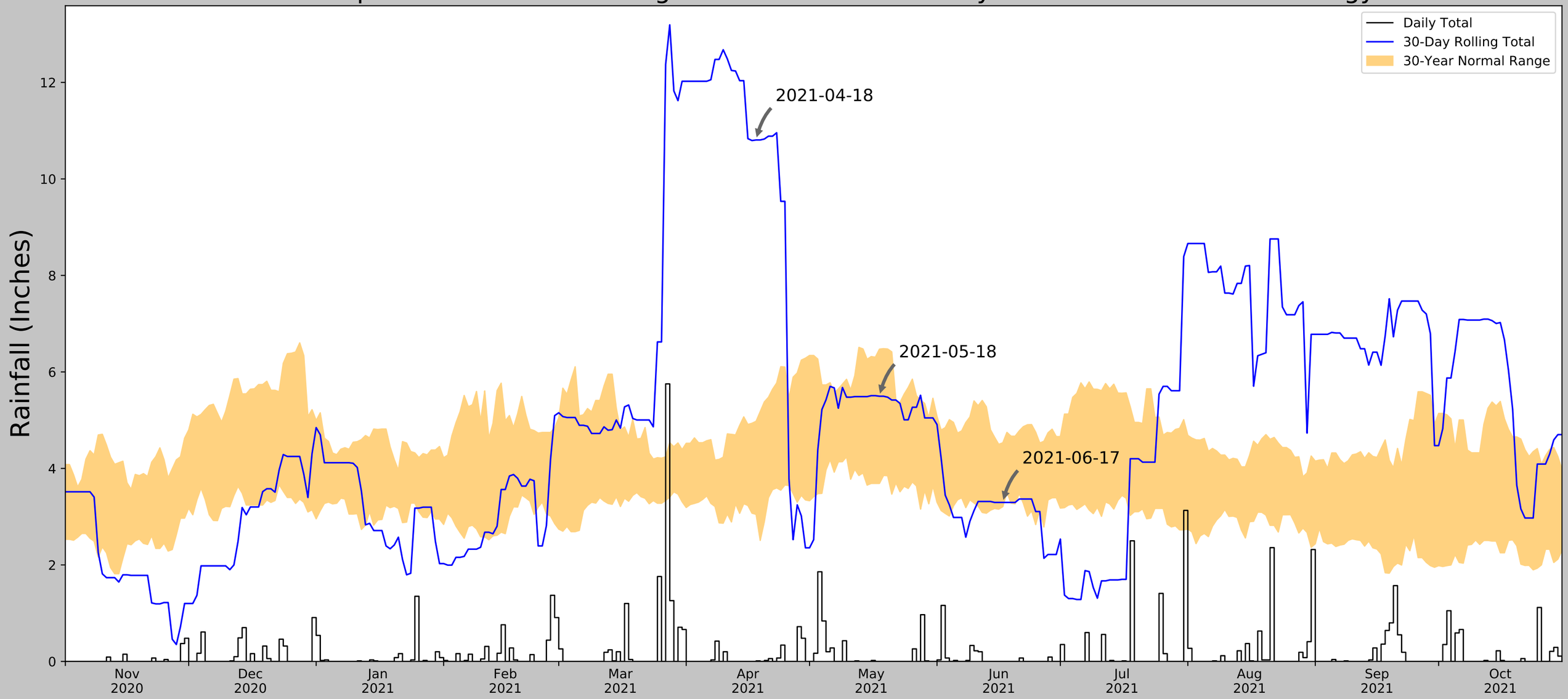
Calculation of Normal Weather Conditions

		Long-Term Rainfall Records								
	Month	Minus one Std. Dev. (dry)	Normal (mean inches)	Plus One Std. Dev. (wet)	Actual Rainfall	Condition (Low, Average, Elevated)	Condition Value*	Month Weight Value	Condition Value Calculation	Std. Deviation
1st Month Prior	May	2.92	5.02	7.12	5.05	Average	2	x 3	6	2.10
2nd Month Prior	April	2.81	4.72	6.63	2.35	Low	1	x2	2	1.91
3rd Month Prior	March	2.15	4.52	6.89	12.28	Elevated	3	x1	3	2.37
								Sum=	11	

If sum is:	
6 to 9	then prior period has been abnormally dry
10 to 14	then prior period has been normal (average)
15 to 18	then prior period has been abnormally wet

Condition Value:*	
Low=	1
Average=	2
Elevated=	3

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



Coordinates	35.983137, -86.61043
Observation Date	2021-06-17
Elevation (ft)	638.84
Drought Index (PDSI)	Moderate wetness
WebWIMP H_2O Balance	Dry Season

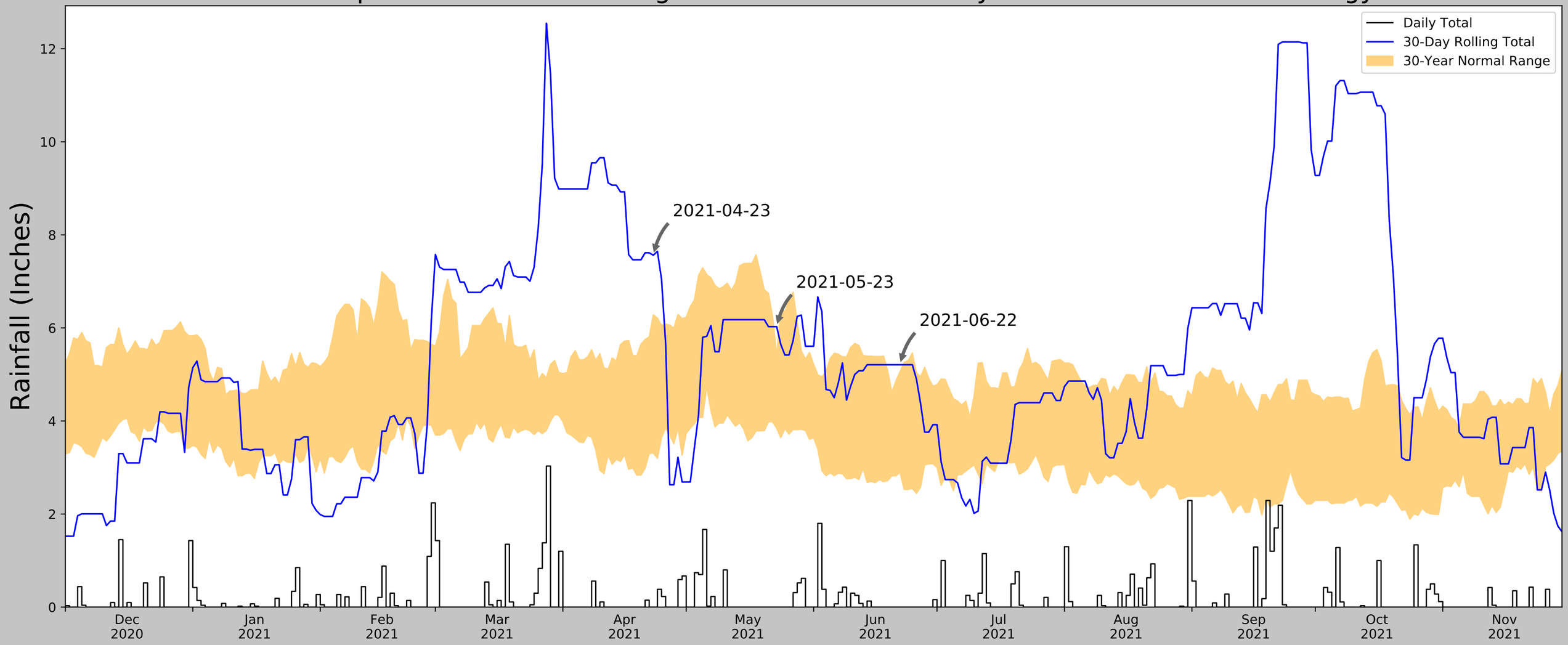
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-06-17	3.207874	4.530709	3.295276	Normal	2	3	6
2021-05-18	3.688976	6.472441	5.496063	Normal	2	2	4
2021-04-18	3.048032	4.977166	10.807087	Wet	3	1	3
Result							Normal Conditions - 13

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

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

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
NASHVILLE INTL AP	36.1189, -86.6892	600.066	10.361	38.774	5.064	11353	90

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



Coordinates	35.983137, -86.61043
Observation Date	2021-06-22
Elevation (ft)	638.84
Drought Index (PDSI)	Moderate wetness
WebWIMP H_2O Balance	Dry Season

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

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

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHAPEL HILL 8.6 ENE	35.6873, -86.5623	780.84	20.617	142.0	12.205	184	0
SHELBYVILLE 5.5 N	35.57, -86.46	780.84	29.764	142.0	17.62	1102	0
UNIONVILLE 0.2SW	35.616, -86.5873	702.1	25.4	63.26	13.037	534	0
ASHLAND CITY 5.6 ENE	36.306, -86.966	764.108	29.853	125.268	17.173	609	0
HERMITAGE 3.1 SE	36.1606, -86.5893	570.866	12.318	67.974	6.38	7	0
BRENTWOOD 2.5 NE	36.0261, -86.7624	725.066	8.998	86.226	4.825	40	0
KINGSTON SPRINGS 0.3 ENE	36.0984, -87.0963	581.037	28.289	57.803	14.365	2323	0
KINGSTON SPRINGS 1.4 SW	36.0806, -87.1165	734.908	29.067	96.068	15.873	119	90
BRENTWOOD 5.4 ENE	36.0163, -86.695	606.955	5.253	31.885	2.531	1	0
NASHVILLE 3.5 SW	36.1422, -86.8357	521.982	16.706	116.858	9.47	1	0
BELLE MEADE 1.7 WNW	36.1089, -86.8822	581.037	17.493	57.803	8.883	5	0
NASHVILLE 3.8 SW	36.1339, -86.8356	504.921	16.331	133.919	9.536	1	0
BELLE MEADE 3.1 N	36.144, -86.858	488.845	17.741	149.995	10.645	3	0
HERMITAGE 2.6 E	36.1941, -86.5764	501.969	14.699	136.871	8.626	4	0
MADISON 0.9 NE	36.2721, -86.7006	550.853	20.59	87.987	11.077	1	0
SPRING HILL 4.7 S	35.6747, -86.9076	810.039	27.042	171.199	16.798	1	0
BRENTWOOD 3.5 WNW	36.014, -86.8462	810.039	13.351	171.199	8.294	2	0
LEBANON 2.0 WNW	36.2176, -86.3571	597.113	21.505	41.727	10.575	1	0
LEBANON 4.2 ENE	36.223, -86.249	538.058	26.111	100.782	14.381	1	0
LEBANON 2.7 ENE	36.2253, -86.2785	558.071	24.966	80.769	13.251	1	0
CHRISTIANA 5W	35.7047, -86.4869	750.0	20.444	111.16	11.472	1044	0

Select Other Date

[Explanation of the Preliminary Monthly Climate Data (F6) Product]

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - http://www.ncdc.noaa.gov.

WFO Monthly/Daily Climate Data

```
000
CXUS55 KOHX 011210
CF6BNA
PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

                                    STATION:   NASHVILLE
                                    MONTH:     FEBRUARY
                                    YEAR:      2021
                                    LATITUDE:   36  7 N
                                    LONGITUDE:  86 41 W

  TEMPERATURE IN F:       :PCPN:    SNOW:  WIND      :SUNSHINE: SKY     :PK WND
==============================================================================
1   2   3   4   5  6A  6B    7    8   9   10  11  12  13   14  15   16   17  18
                                  12Z  AVG MX 2MIN
DY MAX MIN AVG DEP HDD CDD  WTR  SNW DPTH SPD SPD DIR MIN PSBL S-S WX    SPD DR
==============================================================================

 1  41  32  37  -2  28   0 0.02  0.1    0 14.1 22 320   M    M   9        35 350
 2  42  29  36  -3  29   0 0.00    T    0 12.4 20 360   M    M   7        32 360
 3  46  27  37  -2  28   0 0.00  0.0    0  4.3 12 360   M    M   2        18 320
 4  55  27  41   2  24   0 0.16  0.0    0 12.3 29 190   M    M   8 1      42 190
 5  50  30  40   1  25   0 0.00  0.0    0  6.2 16 280   M    M   4        23 290
 6  50  33  42   2  23   0 0.02  0.0    0  4.0 13 170   M    M   8        15 170
 7  41  26  34  -6  31   0 0.15    T    0  7.9 18  10   M    M   6 1      23 360
 8  49  26  38  -2  27   0 0.00  0.0    0  4.0 12 160   M    M   7 18     18 150
 9  57  34  46   6  19   0    T  0.0    0  5.3 15  10   M    M   9 18     18 360
10  63  37  50  10  15   0 0.05  0.0    0  5.5 15 360   M    M   9 1      22 310
11  37  30  34  -7  31   0 0.31  0.0    0 10.5 16  10   M    M  10 18     26 350
12  31  28  30 -11  35   0 0.00  0.0    0  9.8 15 360   M    M  10 18     23 320
13  30  23  27 -14  38   0    T  0.0    0  9.2 16 360   M    M  10 168    23 320
14  26  23  25 -16  40   0 0.17  0.1    T 10.4 18  10   M    M  10 146    28 350
15  26  16  21 -21  44   0 0.76  1.7    2 10.8 18  40   M    M  10 14568   24 290
16  18  11  15 -27  50   0    T    T    2  6.7 14 280   M    M  10 18     27 150
17  28  15  22 -20  43   0 0.28  2.8    4  6.2 13  60   M    M  10 145    15  60
18  31  23  27 -15  38   0 0.03  0.5    4  8.1 14 340   M    M  10 168    32  90
19  36  15  26 -17  39   0 0.00  0.0    4  5.1 12 340   M    M   3 18     24 100
20  42  13  28 -15  37   0 0.00  0.0    4  2.6  8 160   M    M   0 128    13 180
21  56  24  40  -3  25   0    T  0.0    2  8.8 25 190   M    M   4 18     35 180
22  57  37  47   3  18   0 0.14  0.0    0  8.7 21 200   M    M   5 1      33 190
23  70  38  54  10  11   0 0.00  0.0    0  7.2 17 270   M    M   0        25 270
24  75  43  59  15   6   0    T  0.0    0  9.5 20 190   M    M   4        28 190
25  62  41  52   8  13   0 0.00  0.0    0  9.4 15  10   M    M   5        21  10
26  60  46  53   8  12   0 0.44  0.0    0  7.1 17 170   M    M  10 13     25 140
27  61  55  58  13   7   0 1.37  0.0    0  4.5 17 300   M    M  10 13     26 300
28  75  56  66  21   0   1 0.91  0.0    0 13.5 26 320   M    M   9 123    39 310
==============================================================================
SM 1315  838       736   1  4.81  5.2    224.1          M      199
==============================================================================
AV 47.0 29.9                              8.0 FASTST   M    M   7    MAX(MPH)
                                MISC ---->    29 190                42 190
==============================================================================
NOTES:
# LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

                                    STATION:   NASHVILLE
                                    MONTH:     FEBRUARY
                                    YEAR:      2021
                                    LATITUDE:   36  7 N
                                    LONGITUDE:  86 41 W

[TEMPERATURE DATA]      [PRECIPITATION DATA]       SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 38.4   TOTAL FOR MONTH:   4.81    1 = FOG OR MIST
DPTR FM NORMAL:  -3.3   DPTR FM NORMAL:    0.87    2 = FOG REDUCING VISIBILITY
HIGHEST:     75 ON 28,24  GRTST 24HR  1.67 ON 26-27      TO 1/4 MILE OR LESS
LOWEST:      11 ON 16                                  3 = THUNDER
                        SNOW, ICE PELLETS, HAIL    4 = ICE PELLETS
                        TOTAL MONTH:   5.2 INCHES  5 = HAIL
                        GRTST 24HR   2.8 ON 17-17  6 = FREEZING RAIN OR DRIZZLE
                        GRTST DEPTH:   4 ON 20,19  7 = DUSTSTORM OR SANDSTORM:
                                                       VSBY 1/2 MILE OR LESS
                                                   8 = SMOKE OR HAZE
[NO. OF DAYS WITH]      [WEATHER - DAYS WITH]      9 = BLOWING SNOW
                                                   X = TORNADO
MAX 32 OR BELOW:   7    0.01 INCH OR MORE:  14
MAX 90 OR ABOVE:   0    0.10 INCH OR MORE:  10
MIN 32 OR BELOW:  18    0.50 INCH OR MORE:   3
MIN  0 OR BELOW:   0    1.00 INCH OR MORE:   1

[HDD (BASE 65) ]
TOTAL THIS MO.   736    CLEAR  (SCALE 0-3)   4
DPTR FM NORMAL    83    PTCLDY (SCALE 4-7)   8
TOTAL FM JUL 1  2637    CLOUDY (SCALE 8-10) 16
DPTR FM NORMAL  -301

[CDD (BASE 65) ]
TOTAL THIS MO.     1
DPTR FM NORMAL     1    [PRESSURE DATA]
TOTAL FM JAN 1     1    HIGHEST SLP 30.50 ON 20
DPTR FM NORMAL     1    LOWEST  SLP 29.63 ON  4

[REMARKS]
#FINAL-02-21#
```

Select Other Date

[Explanation of the Preliminary Monthly Climate Data (F6) Product]

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - http://www.ncdc.noaa.gov.

WFO Monthly/Daily Climate Data

```
450
CXUS55 KOHX 030156
CF6BNA
PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

                                    STATION:   NASHVILLE
                                    MONTH:     MARCH
                                    YEAR:      2021
                                    LATITUDE:   36  7 N
                                    LONGITUDE:  86 41 W

  TEMPERATURE IN F:       :PCPN:    SNOW:  WIND      :SUNSHINE: SKY     :PK WND
=================================================================================
1   2   3   4   5  6A  6B    7    8   9   10  11  12  13   14  15   16   17  18
                                   12Z  AVG MX 2MIN
DY MAX MIN AVG DEP HDD CDD  WTR  SNW DPTH SPD SPD DIR MIN PSBL S-S WX    SPD DR
=================================================================================

 1  58  38  48   2  17   0 0.26  0.0    0  9.3 22 350   M    M  10 1      30 350
 2  55  35  45  -1  20   0 0.00  0.0    0  6.3 13  30   M    M   7        22 300
 3  64  32  48   2  17   0 0.00  0.0    0  1.2 12 330   M    M   0        14 330
 4  69  35  52   6  13   0 0.00  0.0    0  5.9 14  20   M    M   0        20  20
 5  50  37  44  -3  21   0 0.00  0.0    0 11.4 17  50   M    M   6        24  40
 6  56  34  45  -2  20   0 0.00  0.0    0  8.9 21  30   M    M   3        28  20
 7  63  28  46  -1  19   0 0.00  0.0    0  3.8 15 360   M    M   1        19  10
 8  70  31  51   3  14   0 0.00  0.0    0  5.1 15 200   M    M   2 8      21 190
 9  73  36  55   7  10   0 0.00  0.0    0  7.2 18 180   M    M   4 8      25 170
10  74  48  61  13   4   0 0.00  0.0    0 11.9 23 200   M    M   5        32 190
11  76  60  68  20   0   3 0.00  0.0    0 14.5 23 190   M    M   8        33 180
12  71  57  64  15   1   0 0.19  0.0    0  6.7 15 360   M    M  10 18     23 200
13  57  53  55   6  10   0 0.24  0.0    0  6.8 15 170   M    M  10 1      20 180
14  67  53  60  11   5   0 0.01  0.0    0  7.1 15  50   M    M   9        20  90
15  68  54  61  11   4   0 0.20  0.0    0  8.3 20 160   M    M   8 1      26 180
16  79  56  68  18   0   3 0.00  0.0    0  6.1 13 310   M    M   8 1      19 280
17  66  57  62  12   3   0 1.20  0.0    0  9.7 18 140   M    M  10 13     25 160
18  65  45  55   4  10   0 0.04  0.0    0  9.0 21 260   M    M   9 18     31 260
19  54  41  48  -3  17   0    T  0.0    0 12.8 22  40   M    M   7 18     28  30
20  67  40  54   3  11   0 0.00  0.0    0  6.8 15  10   M    M   3        20  30
21  69  33  51  -1  14   0 0.00  0.0    0  3.3 12  90   M    M   2        15 100
22  71  47  59   7   6   0 0.00  0.0    0  5.0 16 130   M    M   6        21 160
23  67  57  62  10   3   0    T  0.0    0 14.6 23 170   M    M   8        38 160
24  77  55  66  14   0   1 0.00  0.0    0  9.0 17 210   M    M   4        26 190
25  73  54  64  11   1   0 1.76  0.0    0  8.8 26 170   M    M   7 13     36 180
26  74  51  63  10   2   0 0.00  0.0    0  3.8 10 280   M    M   2        18 270
27  66  53  60   7   5   0 5.75  0.0    0  6.8 28 200   M    M   9 1358   43 190
28  64  41  53  -1  12   0 1.26  0.0    0 11.7 24 330   M    M   6 13     35 320
29  65  36  51  -3  14   0 0.00  0.0    0  3.5 10 170   M    M   0        16 170
30  77  45  61   7   4   0 0.71  0.0    0 11.6 25 180   M    M   6 13     35 180
31  64  44  54   0  11   0 0.66  0.0    0 10.8 23  10   M    M   7 13     35 340
=================================================================================
SM 2069 1386       288   7 12.28  0.0    247.7          M      177
=================================================================================
AV 66.7 44.7                          8.0 FASTST   M    M   6    MAX(MPH)
                                MISC ---->    28 200                43 190
=================================================================================
NOTES:
# LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

                                    STATION:   NASHVILLE
                                    MONTH:     MARCH
                                    YEAR:      2021
                                    LATITUDE:   36  7 N
                                    LONGITUDE:  86 41 W

[TEMPERATURE DATA]      [PRECIPITATION DATA]       SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 55.7   TOTAL FOR MONTH:  12.28    1 = FOG OR MIST
DPTR FM NORMAL:   5.7   DPTR FM NORMAL:    8.17    2 = FOG REDUCING VISIBILITY
HIGHEST:    79 ON 16    GRTST 24HR  6.90 ON 27-28      TO 1/4 MILE OR LESS
LOWEST:     28 ON  7                               3 = THUNDER
                        SNOW, ICE PELLETS, HAIL    4 = ICE PELLETS
                        TOTAL MONTH:   0.0 INCH    5 = HAIL
                        GRTST 24HR  0.0            6 = FREEZING RAIN OR DRIZZLE
                        GRTST DEPTH:  0            7 = DUSTSTORM OR SANDSTORM:
                                                       VSBY 1/2 MILE OR LESS
                                                   8 = SMOKE OR HAZE
[NO. OF DAYS WITH]      [WEATHER - DAYS WITH]      9 = BLOWING SNOW
                                                   X = TORNADO
MAX 32 OR BELOW:   0    0.01 INCH OR MORE:  12
MAX 90 OR ABOVE:   0    0.10 INCH OR MORE:  10
MIN 32 OR BELOW:   3    0.50 INCH OR MORE:   6
MIN  0 OR BELOW:   0    1.00 INCH OR MORE:   4

[HDD (BASE 65) ]
TOTAL THIS MO.   288    CLEAR  (SCALE 0-3)   9
DPTR FM NORMAL  -185    PTCLDY (SCALE 4-7)  14
TOTAL FM JUL 1  2925    CLOUDY (SCALE 8-10)  8
DPTR FM NORMAL  -486

[CDD (BASE 65) ]
TOTAL THIS MO.     7
DPTR FM NORMAL    -1    [PRESSURE DATA]
TOTAL FM JAN 1     8    HIGHEST SLP 30.57 ON  8
DPTR FM NORMAL     0    LOWEST  SLP 29.54 ON 18

[REMARKS]
#FINAL-03-21#
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Select Other Date

[Explanation of the Preliminary Monthly Climate Data (F6) Product]

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - http://www.ncdc.noaa.gov.

WFO Monthly/Daily Climate Data

```
979
CXUS55 KOHX 011110
CF6BNA
PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

                                    STATION:   NASHVILLE
                                    MONTH:     APRIL
                                    YEAR:      2021
                                    LATITUDE:   36  7 N
                                    LONGITUDE:  86 41 W

  TEMPERATURE IN F:       :PCPN:    SNOW:  WIND      :SUNSHINE: SKY     :PK WND
=================================================================================
1   2   3   4   5  6A  6B    7    8   9   10  11  12  13   14  15   16   17  18
                                  12Z  AVG MX 2MIN
DY MAX MIN AVG DEP HDD CDD  WTR  SNW DPTH SPD SPD DIR MIN PSBL S-S WX    SPD DR
=================================================================================

 1  49  35  42 -13  23   0 0.00  0.0    0 11.9 17 330   M    M   1        31 350
 2  53  30  42 -13  23   0 0.00  0.0    0  4.7 14  70   M    M   0        20 330
 3  66  31  49  -6  16   0 0.00  0.0    0  4.0 14 180   M    M   1        17 200
 4  75  39  57   1   8   0 0.00  0.0    0  4.1 12 280   M    M   1        16 290
 5  79  47  63   7   2   0 0.00  0.0    0  5.4 17 180   M    M   1        23 180
 6  82  55  69  13   0   4 0.00  0.0    0  5.6 18 200   M    M   4 8      25 200
 7  82  58  70  14   0   5 0.03  0.0    0 10.4 24 260   M    M   7        45 270
 8  77  58  68  11   0   3 0.42  0.0    0 10.2 25 200   M    M   6 1      38 210
 9  84  52  68  11   0   3 0.00  0.0    0 10.6 23 180   M    M   5        32 170
10  72  56  64   7   1   0 0.20  0.0    0 11.1 21 210   M    M   7 18     34 210
11  73  50  62   4   3   0 0.00  0.0    0 10.3 23 280   M    M   2        37 280
12  79  50  65   7   0   0 0.00  0.0    0  3.3 14 340   M    M   1        19 330
13  74  53  64   6   1   0    T  0.0    0  5.0 14  40   M    M   6        18  50
14  61  53  57  -2   8   0    T  0.0    0  6.1 15 360   M    M   8        22  30
15  64  49  57  -2   8   0 0.00  0.0    0  9.5 17  20   M    M   5        22  20
16  66  40  53  -6  12   0 0.00  0.0    0  2.0 12  90   M    M   6        17  70
17  65  48  57  -3   8   0    T  0.0    0  5.4 16 310   M    M   8        22 310
18  66  42  54  -6  11   0 0.01  0.0    0  2.7 10 320   M    M   6 1      20 330
19  72  44  58  -2   7   0 0.00  0.0    0  4.3 12 320   M    M   3 18     17 320
20  75  40  58  -2   7   0 0.02  0.0    0  8.0 25 330   M    M   4        37 320
21  54  35  45 -16  20   0 0.06    T    0  8.7 16 320   M    M   6 1      24 280
22  63  35  49 -12  16   0 0.00  0.0    0  4.5 15 290   M    M   4        23 280
23  63  44  54  -7  11   0 0.07  0.0    0  4.4 10 120   M    M   9        15 140
24  67  51  59  -3   6   0 0.34  0.0    0  8.5 21 100   M    M  10 13     29 100
25  72  48  60  -2   5   0 0.00  0.0    0  6.2 14 360   M    M   5 18     19 360
26  80  45  63   1   2   0 0.00  0.0    0  5.4 17 160   M    M   4        22 170
27  84  61  73  11   0   8 0.00  0.0    0  9.0 24 190   M    M   5        36 200
28  74  64  69   6   0   4 0.72  0.0    0  4.6 18 170   M    M   9 13     29 200
29  71  59  65   2   0   0 0.48  0.0    0  8.0 16 210   M    M   8 1      26 200
30  78  51  65   2   0   0 0.00  0.0    0  7.5 20 360   M    M   2 1      27 340
=================================================================================
SM 2120 1423       198  27  2.35    T    201.4          M      144
=================================================================================
AV 70.7 47.4                             6.7 FASTST   M    M   5    MAX(MPH)
                                MISC ---->  # 25 200                45 270
=================================================================================
NOTES:
# LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

                                    STATION:   NASHVILLE
                                    MONTH:     APRIL
                                    YEAR:      2021
                                    LATITUDE:   36  7 N
                                    LONGITUDE:  86 41 W

[TEMPERATURE DATA]      [PRECIPITATION DATA]       SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 59.1   TOTAL FOR MONTH:   2.35    1 = FOG OR MIST
DPTR FM NORMAL:   0.0   DPTR FM NORMAL:   -1.65    2 = FOG REDUCING VISIBILITY
HIGHEST:    84 ON 27, 9  GRTST 24HR  0.84 ON 28-29      TO 1/4 MILE OR LESS
LOWEST:     30 ON  2                               3 = THUNDER
                        SNOW, ICE PELLETS, HAIL    4 = ICE PELLETS
                        TOTAL MONTH:  T            5 = HAIL
                        GRTST 24HR   T   ON 21-21  6 = FREEZING RAIN OR DRIZZLE
                        GRTST DEPTH:  0            7 = DUSTSTORM OR SANDSTORM:
                                                       VSBY 1/2 MILE OR LESS
                                                   8 = SMOKE OR HAZE
[NO. OF DAYS WITH]      [WEATHER - DAYS WITH]      9 = BLOWING SNOW
                                                   X = TORNADO
MAX 32 OR BELOW:   0    0.01 INCH OR MORE:  10
MAX 90 OR ABOVE:   0    0.10 INCH OR MORE:   5
MIN 32 OR BELOW:   2    0.50 INCH OR MORE:   1
MIN  0 OR BELOW:   0    1.00 INCH OR MORE:   0

[HDD (BASE 65) ]
TOTAL THIS MO.   198    CLEAR  (SCALE 0-3)   9
DPTR FM NORMAL   -19    PTCLDY (SCALE 4-7)  18
TOTAL FM JUL 1  3123    CLOUDY (SCALE 8-10)  3
DPTR FM NORMAL  -506

[CDD (BASE 65) ]
TOTAL THIS MO.    27
DPTR FM NORMAL   -10    [PRESSURE DATA]
TOTAL FM JAN 1    35    HIGHEST SLP 30.59 ON  2
DPTR FM NORMAL   -10    LOWEST  SLP 29.54 ON 10

[REMARKS]
#FINAL-04-21#
```

Select Other Date

[Explanation of the Preliminary Monthly Climate Data (F6) Product]

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - http://www.ncdc.noaa.gov.

WFO Monthly/Daily Climate Data

```
315
CXUS55 KOHX 011110
CF6BNA
PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

                                    STATION:   NASHVILLE
                                    MONTH:     MAY
                                    YEAR:      2021
                                    LATITUDE:   36  7 N
                                    LONGITUDE:  86 41 W

  TEMPERATURE IN F:       :PCPN:    SNOW:  WIND      :SUNSHINE: SKY     :PK WND
================================================================================
1   2   3   4   5  6A  6B    7    8   9   10  11  12  13   14  15   16   17  18
                                   12Z  AVG MX 2MIN
DY MAX MIN AVG DEP HDD CDD  WTR  SNW DPTH SPD SPD DIR MIN PSBL S-S WX    SPD DR
================================================================================

 1  80  48  64  -1   1   0 0.00  0.0    0  4.6 13  20   M    M   3        16  10
 2  74  56  65  -1   0   0 0.17  0.0    0  5.6 15 160   M    M   9 1      21 180
 3  82  65  74   8   0   9 1.86  0.0    0  7.5 15 220   M    M   6 13     26 230
 4  80  63  72   6   0   7 0.84  0.0    0 10.5 21 190   M    M   9 13     39 290
 5  68  48  58  -8   7   0 0.20  0.0    0  7.6 17 360   M    M   7 18     23 350
 6  72  45  59  -8   6   0 0.28  0.0    0  3.9 31 310   M    M   4 13     48 310
 7  71  47  59  -8   6   0 0.00  0.0    0  7.7 17 300   M    M   2        26 300
 8  68  55  62  -5   3   0 0.00  0.0    0  4.8 14 170   M    M   7        20 250
 9  73  54  64  -4   1   0 0.43  0.0    0 10.8 25 180   M    M   9 13     38 180
10  60  48  54 -14  11   0 0.00  0.0    0  6.2 13  20   M    M   9 18     16  20
11  72  45  59  -9   6   0    T  0.0    0  8.4 17  30   M    M   6 1      23  60
12  69  51  60  -8   5   0 0.01  0.0    0 12.1 21  30   M    M   5        32 360
13  72  44  58 -11   7   0 0.00  0.0    0  5.5 16 360   M    M   2        21  10
14  75  42  59 -10   6   0 0.00  0.0    0  2.6 13  60   M    M   2        23 100
15  79  46  63  -6   2   0 0.00  0.0    0  3.5 12 250   M    M   5        21 250
16  80  59  70   1   0   5 0.02  0.0    0  4.1 13 200   M    M   8        18 210
17  80  57  69  -1   0   4 0.00  0.0    0  7.3 18 180   M    M   8        24 190
18  76  64  70   0   0   5 0.00  0.0    0  8.9 21 150   M    M   9        28 130
19  84  67  76   6   0  11    T  0.0    0 10.4 23 150   M    M   8        31 140
20  86  63  75   5   0  10 0.00  0.0    0  8.6 23 170   M    M   3        31 150
21  86  60  73   2   0   8 0.00  0.0    0  6.8 18 160   M    M   4        27 150
22  87  61  74   3   0   9 0.00  0.0    0  2.8  9 180   M    M   7        12 120
23  91  61  76   5   0  11 0.00  0.0    0  2.8  9 340   M    M   4 1      14 280
24  91  62  77   5   0  12 0.00  0.0    0  1.9  9  20   M    M   6 8      15  10
25  93  63  78   6   0  13 0.00  0.0    0  4.7 16 200   M    M   3 18     27 220
26  83  66  75   3   0  10 0.26  0.0    0  5.3 14 260   M    M   7 1      23 220
27  87  64  76   4   0  11    T  0.0    0  3.6 13 310   M    M   7 12     20 200
28  81  57  69  -3   0   4 0.97  0.0    0  8.4 21 310   M    M   9 18     33 310
29  62  53  58 -15   7   0 0.01  0.0    0 10.0 18  10   M    M  10 18     23 360
30  74  52  63 -10   2   0 0.00  0.0    0  7.1 16  10   M    M   4        22  40
31  81  50  66  -7   0   1 0.00  0.0    0  2.0 15 230   M    M   4        29 200
================================================================================
SM 2417 1716        70 130  5.05  0.0    196.0          M      186
================================================================================
AV 78.0 55.4                        6.3 FASTST   M    M   6    MAX(MPH)
                                MISC ---->    31 310                48 310
================================================================================
NOTES:
# LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

                                    STATION:   NASHVILLE
                                    MONTH:     MAY
                                    YEAR:      2021
                                    LATITUDE:   36  7 N
                                    LONGITUDE:  86 41 W

[TEMPERATURE DATA]      [PRECIPITATION DATA]       SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 66.7   TOTAL FOR MONTH:   5.05    1 = FOG OR MIST
DPTR FM NORMAL:  -2.6   DPTR FM NORMAL:    0.03    2 = FOG REDUCING VISIBILITY
HIGHEST:    93 ON 25    GRTST 24HR  2.03 ON  2- 3      TO 1/4 MILE OR LESS
LOWEST:     42 ON 14                               3 = THUNDER
                        SNOW, ICE PELLETS, HAIL    4 = ICE PELLETS
                        TOTAL MONTH:   0.0 INCH    5 = HAIL
                        GRTST 24HR  0.0            6 = FREEZING RAIN OR DRIZZLE
                        GRTST DEPTH:  0            7 = DUSTSTORM OR SANDSTORM:
                                                       VSBY 1/2 MILE OR LESS
                                                   8 = SMOKE OR HAZE
[NO. OF DAYS WITH]      [WEATHER - DAYS WITH]      9 = BLOWING SNOW
                                                   X = TORNADO
MAX 32 OR BELOW:   0    0.01 INCH OR MORE:  11
MAX 90 OR ABOVE:   3    0.10 INCH OR MORE:   8
MIN 32 OR BELOW:   0    0.50 INCH OR MORE:   3
MIN  0 OR BELOW:   0    1.00 INCH OR MORE:   1

[HDD (BASE 65) ]
TOTAL THIS MO.    70    CLEAR  (SCALE 0-3)   4
DPTR FM NORMAL    28    PTCLDY (SCALE 4-7)  19
TOTAL FM JUL 1  3193    CLOUDY (SCALE 8-10)  8
DPTR FM NORMAL  -170

[CDD (BASE 65) ]
TOTAL THIS MO.   130
DPTR FM NORMAL   -47    [PRESSURE DATA]
TOTAL FM JAN 1   165    HIGHEST SLP 30.43 ON 22
DPTR FM NORMAL   -76    LOWEST  SLP 29.65 ON  3

[REMARKS]
#FINAL-05-21#
```

Select Other Date

[Explanation of the Preliminary Monthly Climate Data (F6) Product]

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - http://www.ncdc.noaa.gov.

WFO Monthly/Daily Climate Data

```
000
CXUS55 KOHX 261110
CF6BNA
PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

                                    STATION:   NASHVILLE
                                    MONTH:     JUNE
                                    YEAR:      2021
                                    LATITUDE:   36  7 N
                                    LONGITUDE:  86 41 W

  TEMPERATURE IN F:       :PCPN:    SNOW:  WIND      :SUNSHINE: SKY     :PK WND
=================================================================================
1   2   3   4   5  6A  6B    7    8   9   10  11  12  13   14  15   16   17  18
                                   12Z  AVG MX 2MIN
DY MAX MIN AVG DEP HDD CDD  WTR  SNW DPTH SPD SPD DIR MIN PSBL S-S WX    SPD DR
=================================================================================

 1  79  62  71  -3   0   6 0.03  0.0    0  5.1 13 170   M    M   9        18 280
 2  74  65  70  -4   0   5 1.16  0.0    0  9.8 18 180   M    M   9 13     25 170
 3  83  64  74   0   0   9 0.07  0.0    0  6.4 15 320   M    M   7 13     25 290
 4  85  60  73  -1   0   8 0.00  0.0    0  2.9 10 110   M    M   5 12     14 110
 5  90  64  77   2   0 12 0.02  0.0    0  2.5 13 180   M    M   5        17 200
 6  81  71  76   1   0 11    T  0.0    0  7.0 22 180   M    M   9        28 180
 7  85  70  78   3   0 13    T  0.0    0  7.1 18 180   M    M   8        24 170
 8  85  71  78   3   0 13 0.02  0.0    0  9.8 24 190   M    M   7 3      30 180
 9  81  71  76   0   0 11 0.33  0.0    0  5.6 15 190   M    M   9 18     22 180
10  86  71  79   3   0 14 0.22  0.0    0  5.6 18 300   M    M   9 138    25 300
11  88  73  81   5   0 16 0.20  0.0    0  4.8 10 260   M    M   8 13     16 290
12  95  71  83   7   0 18    T  0.0    0  5.1 14 320   M    M   4 18     19 340
13  96  72  84   7   0 19 0.00  0.0    0  4.7 13 340   M    M   5 1      17  20
14  95  76  86   9   0 21 0.00  0.0    0  5.9 14  10   M    M   2        19 310
15  86  65  76  -1   0 11 0.00  0.0    0  9.8 24  10   M    M   2        34  20
16  89  61  75  -2   0 10 0.00  0.0    0  7.5  M   M   M    M   2         M   M
17  92  64  78   0   0 13 0.00  0.0    0  3.0 10  90   M    M   4        14  70
18  92  70  81   3   0 16 0.00  0.0    0  7.2 18 190   M    M   4        26 190
19  87  69  78   0   0 13 0.00  0.0    0  7.2 20 170   M    M   7        26 190
20  93  67  80   2   0 15 0.00  0.0    0  5.4 13 250   M    M   4        21 250
21  89  69  79   1   0 14 0.07  0.0    0  8.9 28 310   M    M   7 18     43 300
22  81  63  72  -7   0  7 0.00  0.0    0  7.3 16  10   M    M   3        26  20
23  84  56  70  -9   0  5 0.00  0.0    0  2.9 10 150   M    M   2        15  90
24  92  62  77  -2   0 12 0.00  0.0    0  8.1 18 160   M    M   4        24 180
25  87  74  81   2   0 16 0.00  0.0    0 12.4 22 160   M    M   7        31 160
=================================================================================
SM 2175 1681         0 308  2.12  0.0    162.0          M      142
=================================================================================
AV 87.0 67.2                              6.5 FASTST   M    M   6    MAX(MPH)
                               MISC ---->    28 310                43 300
=================================================================================
NOTES:
# LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

                                    STATION:   NASHVILLE
                                    MONTH:     JUNE
                                    YEAR:      2021
                                    LATITUDE:   36  7 N
                                    LONGITUDE:  86 41 W

[TEMPERATURE DATA]      [PRECIPITATION DATA]       SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 77.1   TOTAL FOR MONTH:   2.12    1 = FOG OR MIST
DPTR FM NORMAL:   0.6   DPTR FM NORMAL:   -1.49    2 = FOG REDUCING VISIBILITY
HIGHEST:    96 ON 13    GRTST 24HR  1.19 ON  1- 2      TO 1/4 MILE OR LESS
LOWEST:     56 ON 23                               3 = THUNDER
                        SNOW, ICE PELLETS, HAIL    4 = ICE PELLETS
                        TOTAL MONTH:   0.0 INCH    5 = HAIL
                        GRTST 24HR  0.0            6 = FREEZING RAIN OR DRIZZLE
                        GRTST DEPTH:  0            7 = DUSTSTORM OR SANDSTORM:
                                                       VSBY 1/2 MILE OR LESS
                                                   8 = SMOKE OR HAZE
[NO. OF DAYS WITH]      [WEATHER - DAYS WITH]      9 = BLOWING SNOW
                                                   X = TORNADO
MAX 32 OR BELOW:   0    0.01 INCH OR MORE:   9
MAX 90 OR ABOVE:   8    0.10 INCH OR MORE:   4
MIN 32 OR BELOW:   0    0.50 INCH OR MORE:   1
MIN  0 OR BELOW:   0    1.00 INCH OR MORE:   1

[HDD (BASE 65) ]
TOTAL THIS MO.     0    CLEAR  (SCALE 0-3)   4
DPTR FM NORMAL     0    PTCLDY (SCALE 4-7)  16
TOTAL FM JUL 1  3193    CLOUDY (SCALE 8-10)  5
DPTR FM NORMAL  -171

[CDD (BASE 65) ]
TOTAL THIS MO.   308
DPTR FM NORMAL    18    [PRESSURE DATA]
TOTAL FM JAN 1   473    HIGHEST SLP M ON M
DPTR FM NORMAL   -58    LOWEST  SLP 29.75 ON 21

[REMARKS]
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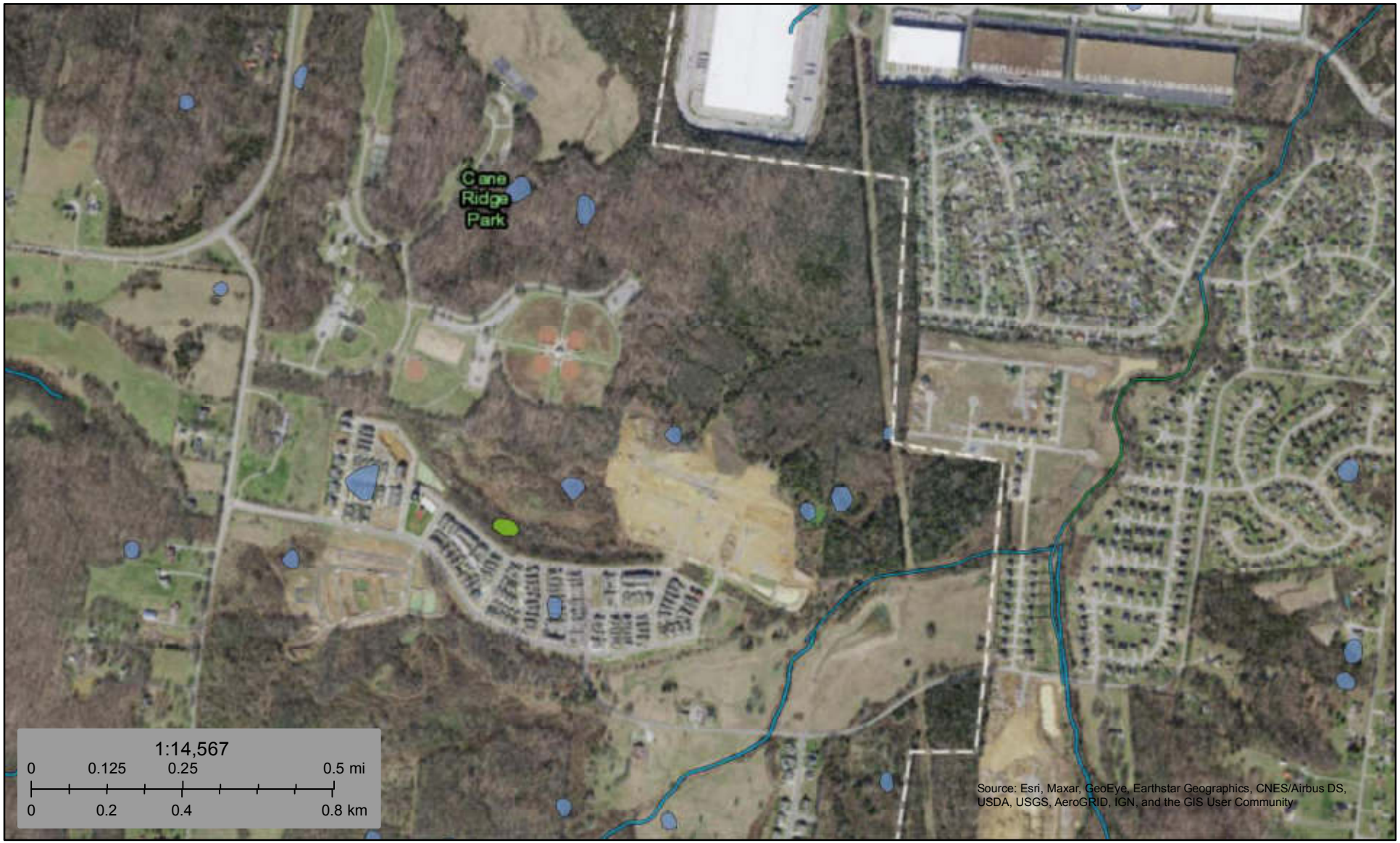
U.S. Fish and Wildlife Service
National Wetlands Inventory

Carothers Crossing Area NWI Map

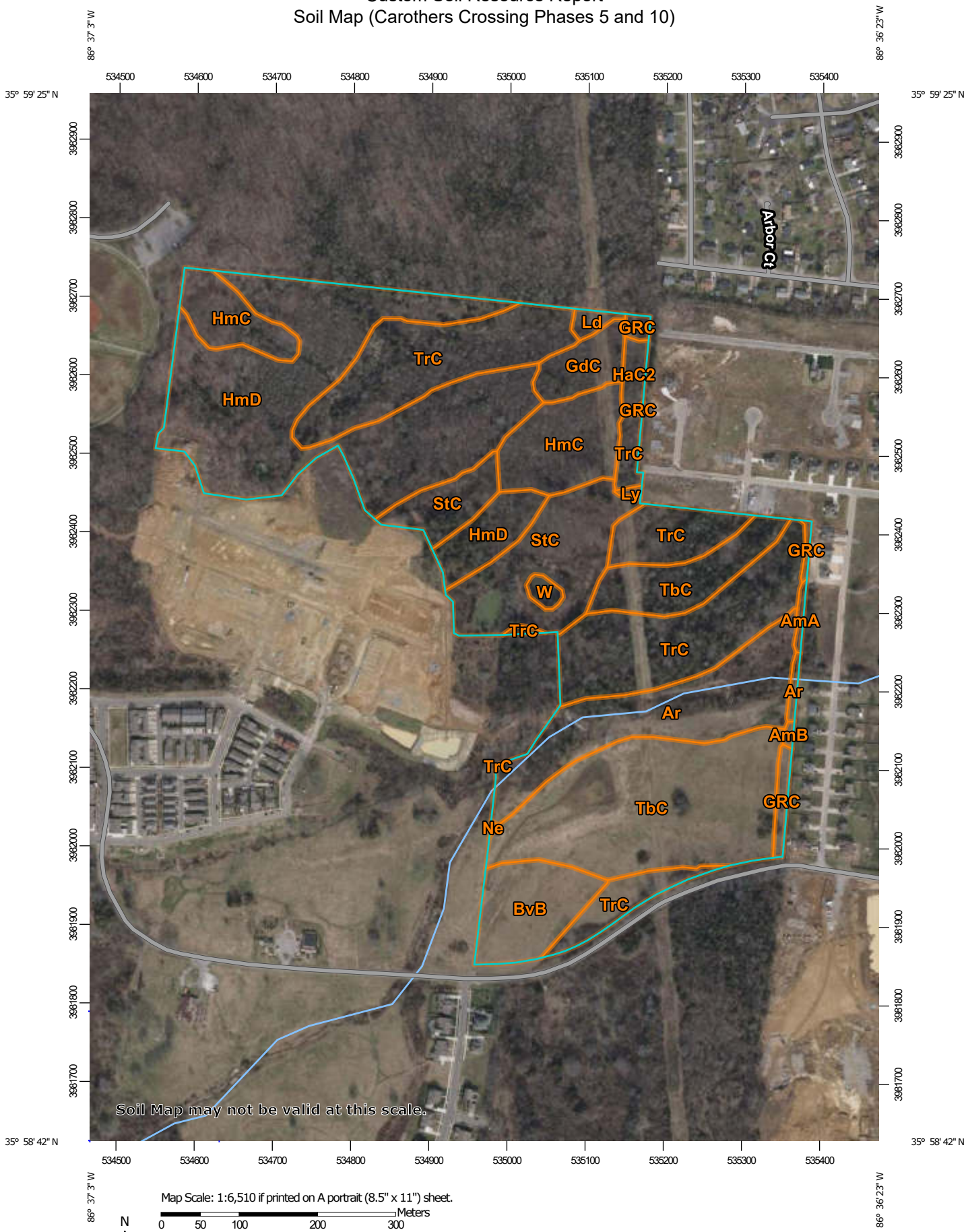


July 15, 2021

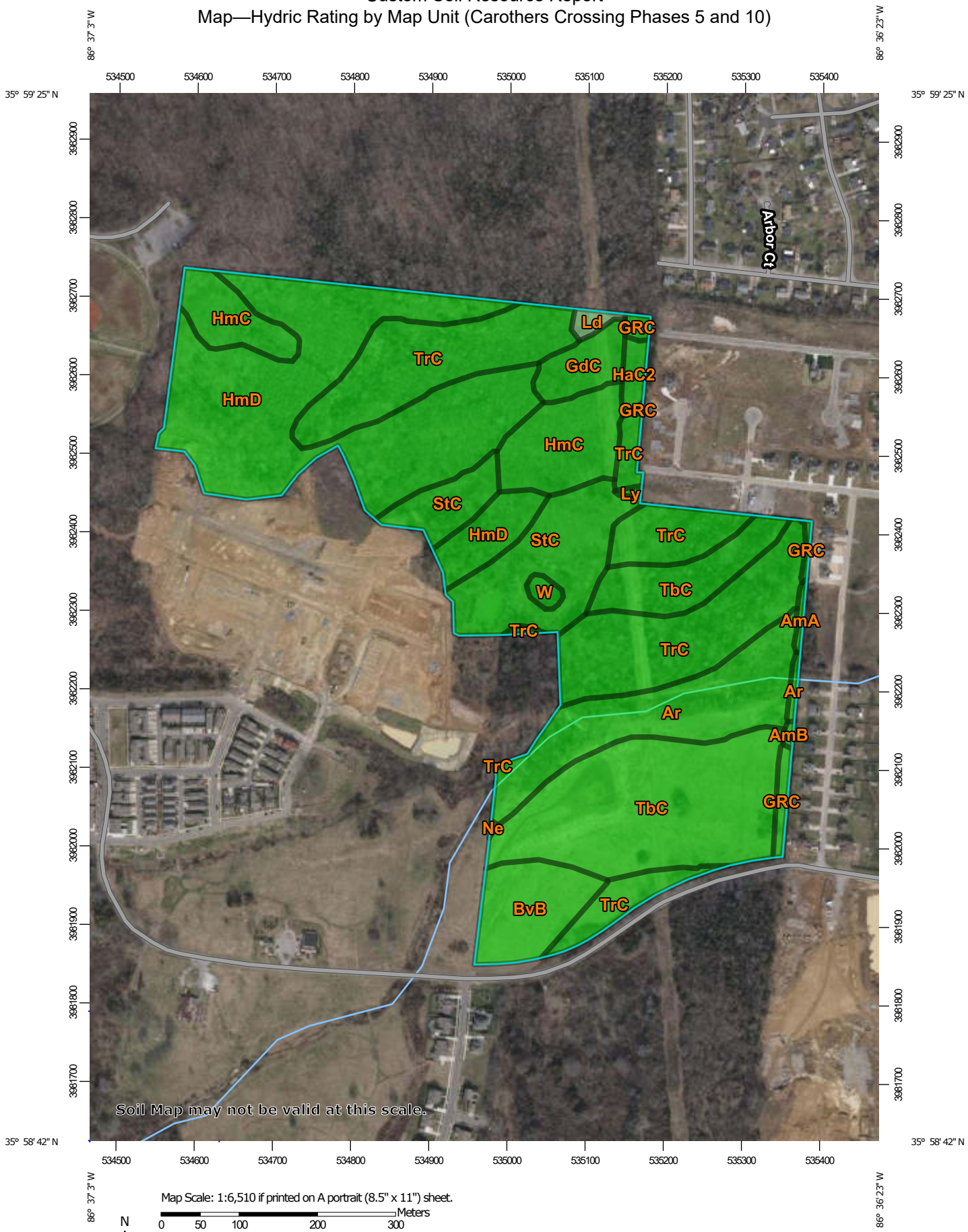
Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Soil Map (Carothers Crossing Phases 5 and 10)



Map—Hydric Rating by Map Unit (Carothers Crossing Phases 5 and 10)



Table—Hydric Rating by Map Unit (Carothers Crossing Phases 5 and 10)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ar	Arrington silt loam, 0 to 2 percent slopes, occasionally flooded	0	7.8	8.8%
BvB	Bradyville silt loam, 2 to 5 percent slopes	0	3.8	4.3%
GdC	Gladeville-Rock outcrop complex, 2 to 15 percent slopes, extremely stony	0	1.9	2.1%
HmC	Hampshire silt loam, 5 to 12 percent slopes, eroded	0	6.5	7.3%
HmD	Hampshire silt loam, 12 to 20 percent slopes, eroded	0	21.5	24.3%
Ld	Lindell silt loam, 0 to 2 percent slopes, occasionally flooded	4	0.4	0.4%
Ne	Newark silt loam	8	0.0	0.0%
StC	Stiversville loam, 5 to 12 percent slopes, eroded	0	8.3	9.3%
TbC	Talbott silt loam, 2 to 10 percent slopes	0	16.3	18.4%
TrC	Talbott-Rock outcrop complex, 5 to 15 percent slopes	0	19.1	21.5%
W	Water	0	0.3	0.4%
Subtotals for Soil Survey Area			**85.8**	**96.9%**
Totals for Area of Interest			**88.6**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AmA	Armour silt loam, 0 to 2 percent slopes	0	0.2	0.2%
AmB	Armour silt loam, 2 to 5 percent slopes	0	0.1	0.1%
Ar	Arrington silt loam, 0 to 2 percent slopes, occasionally flooded	0	0.2	0.2%
GRC	Gladeville-Rock outcrop complex, 2 to 15 percent slopes, extremely stony	0	0.9	1.0%
HaC2	Hampshire silt loam, 5 to 12 percent slopes, eroded	0	0.7	0.7%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ly	Lynnville silt loam	0	0.1	0.1%
TrC	Talbott-Barfield-Rock outcrop complex, 2 to 12 percent slopes	0	0.7	0.7%
Subtotals for Soil Survey Area			**2.8**	**3.1%**
Totals for Area of Interest			**88.6**	**100.0%**

Rating Options—Hydric Rating by Map Unit (Carothers Crossing Phases 5 and 10)

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower