

Aquatic Resource Alteration Permit (ARAP)

Nancy Doan

TN State Route 124

Greenfield, Weakley County, Tennessee

38230

June 10, 2021





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

Applicant Name (company or individual):		SOS #:	Status:
Primary Contact/Signatory:		Signatory's Title or Position:	
Mailing Address:		City:	State: Zip:
Phone:	Fax:	E-mail:	

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

Alternate Contact Name:			
Company:		Title or Position:	
Mailing Address:		City:	State: Zip:
Phone:	Fax:	E-mail:	

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

No Fee Fee Submitted with Application Amount Submitted: \$ _____

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

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

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

Site or Project Name:		Nearest City, Town or Major Landmark:	
Street Address or Location (include Zip):			
County(ies):		MS4 Jurisdiction:	Latitude (dd.dddd):
			Longitude (dd.dddd):
Resource Proposed for Alteration:		Stream / River	Wetland Reservoir
Name of Water Resource (for more information, access http://tdeconline.tn.gov/dwr):			
Brief Project Description (a more detailed description is required under Section 8):			
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:			
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 Permit

Section 5. Project Schedule <i>(fill in information and check appropriate boxes)</i>		
Proposed Start Date:	Estimated End Date:	
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 is 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	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6.2	USGS topographic map indicating the exact location of the project <i>(can be a photographic copy)</i>	<input type="checkbox"/>	<input type="checkbox"/>
6.3	Photographs of the resource(s) proposed for alteration with location description <i>(photo locations should be noted on map)</i>	<input type="checkbox"/>	<input type="checkbox"/>
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	<input type="checkbox"/>	<input type="checkbox"/>
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	<input type="checkbox"/>	<input type="checkbox"/>
6.6	In the case of wetlands, include a wetland delineation with delineation forms and site map denoting location of data points	<input type="checkbox"/>	<input type="checkbox"/>
6.7	A copy of all hydrologic or jurisdictional determination documents issued for water resources on the project site	<input type="checkbox"/>	<input type="checkbox"/>

Section 7. Project Rationale	Attached	
	Yes	No
Describe the need for the proposed activity, including, but not limited to, the purpose, alternatives considered, and what will be done to avoid or minimize impacts to water resources	<input type="checkbox"/>	<input type="checkbox"/>

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 8.5x 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 <i>(e.g., stream cross sections where road crossings are proposed)</i>	<input type="checkbox"/>	<input type="checkbox"/>
8.2	For both the proposed activity and compensatory mitigation, provide a discussion regarding the sequencing of events and construction methods	<input type="checkbox"/>	<input type="checkbox"/>
8.3	Depiction and narrative on the location and type of erosion prevention and sediment control (EPSC) measures for the proposed alterations	<input type="checkbox"/>	<input type="checkbox"/>

<p>Section 9. Water Resources Degradation (degree of proposed impact) <i>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.</i></p> <p>Please provide your basis for concluding the proposed activity will cause one of the following levels of water quality degradation:</p> <p style="margin-left: 20px;">a. <i>De minimis degradation</i></p> <p style="margin-left: 20px;">b. <i>Greater than de minimis degradation (if greater than de minimis complete Sections 10-11)</i></p> <p><i>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 at: http://publications.tnsosfiles.com/rules/0400/0400-40/0400-40.htm</i></p> <p><i>For information on specifics on what General Permits can cover, refer to the Natural Resources Unit webpage at: http://www.tn.gov/environment/permit-permits/water-permits1/aquatic-resource-alteration-permit--arap-/permit-water-aquatic-resource-alteration-list-of-general-permits.html</i></p>

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Section 10. Detailed Alternatives Analysis		Attached	
		Yes	No
10.1	Analyze all reasonable alternatives and describe the level of degradation caused by each of the feasible alternatives	<input type="checkbox"/>	<input type="checkbox"/>
10.2	Discuss the social and economic consequences of each alternative	<input type="checkbox"/>	<input type="checkbox"/>
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	<input type="checkbox"/>	<input type="checkbox"/>

Section 11. Compensatory Mitigation		Attached	
		Yes	No
11.1	A detailed discussion of the proposed compensatory mitigation	<input type="checkbox"/>	<input type="checkbox"/>
11.2	Describe how the compensatory mitigation would result in no net loss of resource value	<input type="checkbox"/>	<input type="checkbox"/>
11.3	Provide a detailed monitoring plan for the compensatory mitigation site	<input type="checkbox"/>	<input type="checkbox"/>
11.4	Describe the long-term protection measures for the compensatory mitigation site (<i>e.g., deed restrictions, conservation easement</i>)	<input type="checkbox"/>	<input type="checkbox"/>

Certification and Signature			
<p>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.</p> <p><i>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.</i></p>			
<p>_____</p> <p>Printed Name</p>	<p>_____</p> <p>Official Title</p>	<p>_____</p> <p style="background-color: yellow;">Signature</p>	<p>_____</p> <p>Date</p>

Submitting the form and obtaining more information. 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 ARAP 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



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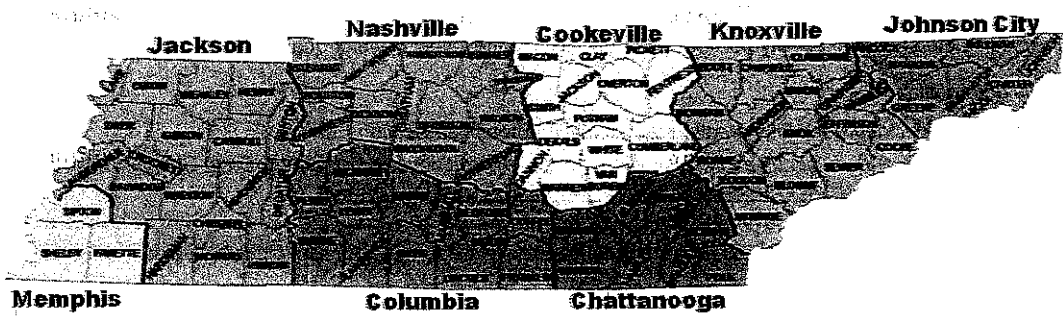
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<p><u>Nancy Doan</u> Printed Name</p>	<p><u>Owner</u> Official Title</p>	<p><u><i>Nancy Doan</i></u> Signature</p>	<p><u>June 9, 2021</u> Date</p>

Submitting the form and obtaining more information. 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 ARAP 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.

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Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601



6.1 PROJECT SCOPE

Nancy Doan is proposing a stream crossing for a road to access her chicken houses. The road crossing will include placing 40 linear feet of 24" HDPE pipe in a tributary to Doland Branch. The flowline will be installed 4" below the existing stream beds to ensure no impedance of the stream flow.

The project is located south of TN State Route 124, east of Greenfield, TN. The location is more accurately described as N 36.154544W -88.746297.

6.2 USGS TOPOGRAPHIC MAP

See attached

6.3 PHOTOGRAPHS OF THE RESOURCES

See attached

6.4 EXISTING STREAM CONDITIONS

The stream crossing has a 6 feet wide channel that carries 4 to 6 inches of water as a typical flow and would be dry during drought seasons. The stream begins to the northeast and flows to the west at 1 - 1.5% slopes across the property to Doland Branch.

The soil types around the stream are Loring silt loams. The Loring Series is a well-drained, strongly sloping uplands ranging from 0 to 20 percent. This component is found on strongly sloping uplands and stream terraces. The Unified Soil Classification for this soil is CL. Surface runoff is high and internal drainage is slow. This soil has a RUSLE erodibility factor (K) of 0.55.

The existing vegetation consists mostly of Sorghum Halepense (Johnson Grass) and Lamium Amplexicaule (Henbit) along with other perennial grasses and herbaceous plants. There is also existence of annual weeds like Conyza Canadensis (Mares Tail) and Palmer Amaranth (pigweed) common in agricultural fields.

6.5 PROPOSED STEAM CONDITIONS

The proposed stream condition will be to mimic the existing conditions in all ways possible. 40 feet of the streambed will be replaced by a 24" diameter HDPE pipe installed 4 to 6 inches below the existing stream's flow line to allow for a wider channel to exist within the pipe.

If water is present in the stream at time of construction contractor shall erect a coffer dam using sand bags or some other non-erodible barricade to temporarily impound and pump the stream around the working area.

Riprap shall be installed below the existing flow line of the stream. No part of the riprap apron shall impede the flow of water.

All disturbed soils will be sowed with native perennials as directed by the TN Erosion and Sediment Control Handbook, Fourth Edition, for Region 1 poorly drained soils. These perennials include, but are not limited too: Browntop Millet, Switch grass, little bluestem, Virginia wild rye, purpletop, patridge pea and black-eye susan.

6.6 WETLANDS

No wetlands have been delineated on this site.

6.7 JURISDICTIONAL DETERMINATIONS

A Hydrologic Determination was performed by Mason Peale, of L.I. Smith. The Hydraulic Determination Report is attached. The stream and wet weather conveyances are shown on the plans.

SECTION 7: PROJECT RATIONALE

Nancy Doan has plans to erect chicken houses on the southeast side of the stream addressed in this ARAP. She needs to construct a stream crossing in order to have access to her chicken houses. The stream dissects the property making access without a stream crossing unfeasible. Extra EPSC measures will be taken to protect the stream (See Section 8.3).

8.1 DETAILED PLANS, SPECIFICATIONS, ETC OF PRESENT SITE CONDITIONS

See attached

8.2 CONSTRUCTION SEQUENCING

All work to install these stream crossings will take place no less than 48 hours after any rain event totaling more than 0.1 of an inch. Additional wait time may be needed to minimize the effects to the stream during the construction process. At no time during construction should the flow of water in the stream be blocked or impeded.

1. Install wire silt fence and enhanced rock check dams along the working area of the stream.
2. If water is present in the stream at time of construction, contractor shall erect a coffer dam using sand bags or some other non-erodible barricade to temporarily impound and pump the stream around the working area.
3. Minimal excavation will be conducted in the stream as necessary to install the pipes 4"-6" below the existing flowline. Excavated material will be hauled offsite or placed and spread behind the protection of the silt fence at least 30 feet from the stream.
4. The pipes will be installed in the streambed and will be backfilled with a class 1 material (Per ASTM D2321) and compacted to a 95% SPD (Per ASTM D698).
5. Once adequate fill material is placed around the pipes, riprap will be used to armor the ends of the pipe and silt fence will be installed above the armoring to prevent any siltation entering the stream from additional fill material.
6. A 6' x 20' riprap pad will be placed at the outlet end of the pipe. A 6' x 10' riprap pad will be placed at the inlet end of the pipe.
7. Riprap shall be installed below the existing flow line of the stream. No part of the riprap apron shall impede the flow of water.
8. Once all fill material has been placed, the top driving surface will be stabilized with a dense grade crushed aggregate. Side slopes will be stabilized with perennial grass and/or herbaceous seed and straw mulch in accordance with Tennessee's Erosion and Sediment Control Handbook, Fourth Edition.

8.3 EPSC

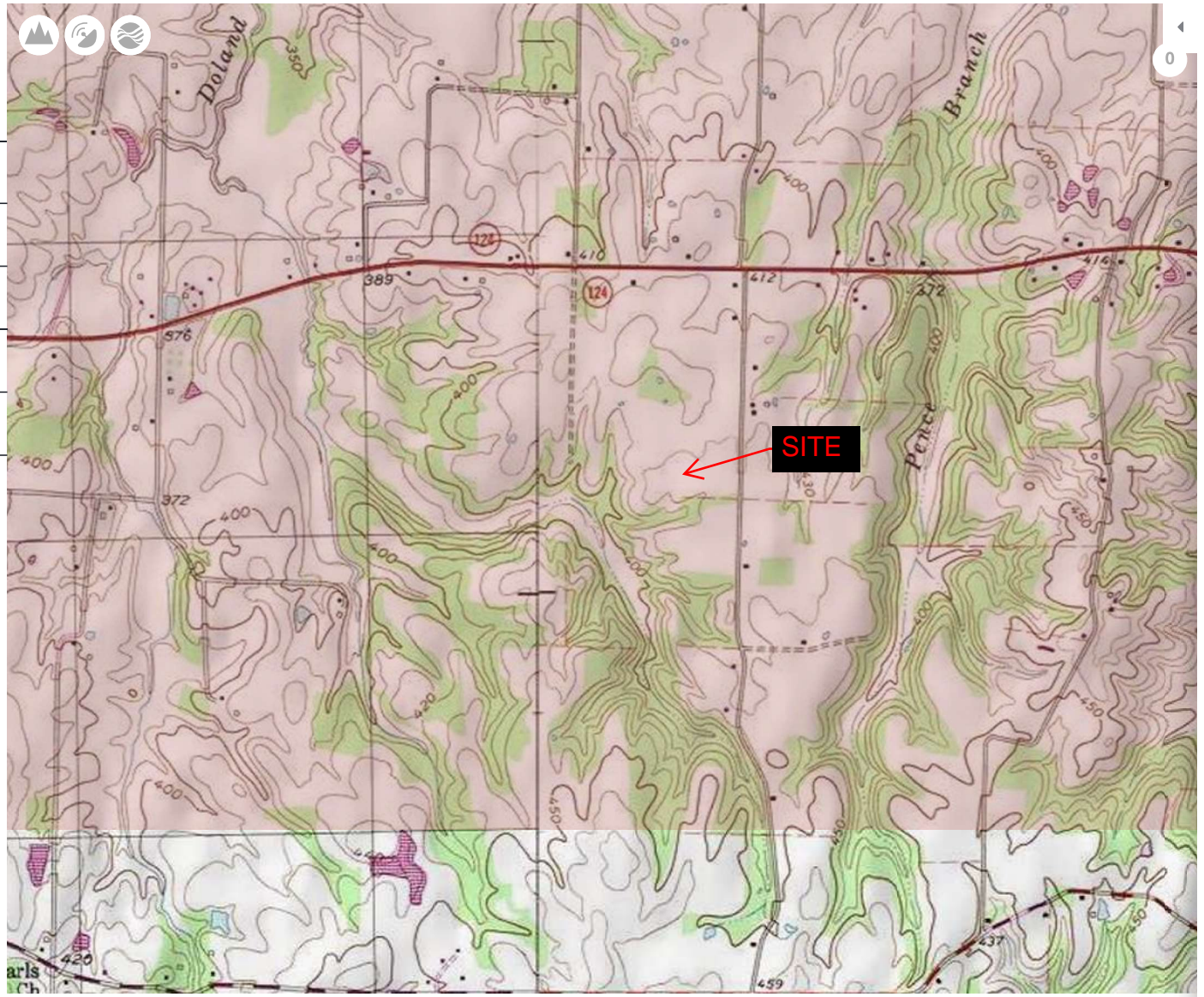
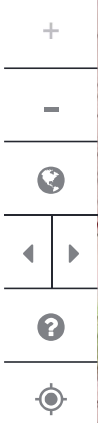
Wire Backed Silt Fence will be installed along the stream banks to prevent sediment from reaching the stream. Riprap armoring will be installed around the ends of the pipe to prevent any scouring. A 6' x 20' riprap pad will be placed at the outlet end of the pipe. A 6' x 20' riprap pad will be placed at the outlet end of the pipe. Silt fence will also be placed around the stream and on the fill material above the pipe to ensure that siltation entering the stream is negated. Permanent seeding will be sowed and mulch applied to the finished slopes of the fill material to achieve stabilization.

SECTION 9: WATER RESOURCE DEGRADATION

This construction project is expected to cause de minimis degradation to the water quality of the Unnamed Stream.

SECTION 6.2: USGS TOPO MAP

topoView



SITE



Lat: 36° 9' 12" N Long: 88° 44' 57" W
DMS DD MGR UTM
Scale 1:18,056
Map Records: 22

SECTION 6.3: SITE PHOTOS



6.3.1 EXISTING STREAM AT CROSSING LOCATION, FACING EAST



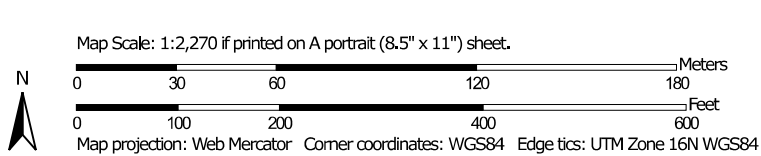
6.3.2 STANDING AT EXISTING CROSSING, FACING SOUTHWEST (DOWNSTREAM)

SECTION 6.4: SOILS MAP

























Hydrologic Soil Group—Weakley County, Tennessee
(SITE)










Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)	 C
Area of Interest (AOI)	 C/D
Soils	 D
Soil Rating Polygons	 Not rated or not available
A	
A/D	
B	
B/D	
C	
C/D	
D	
Not rated or not available	
Soil Rating Lines	 A
A	 A/D
B	 B
B/D	 B/D
C	 C
C/D	 C/D
D	 D
Not rated or not available	
Soil Rating Points	 A
A	 A/D
B	 B
B/D	 B/D

Water Features	 Streams and Canals
Transportation	 RAILS
	 Interstate Highways
	 US Routes
	 Major Roads
	 Local Roads
Background	 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Weakley County, Tennessee
Survey Area Data: Version 16, Sep 16, 2019

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

Date(s) aerial images were photographed: Feb 10, 2016—Oct 17, 2017

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
LoB2	Loring silt loam, 2 to 5 percent slopes, eroded	C/D	10.6	47.2%
LoC3	Loring silt loam, 5 to 8 percent slopes, severely eroded	D	6.3	28.0%
LoD3	Loring silt loam, 8 to 12 percent slopes, severely eroded	D	4.4	19.6%
Rt	Routon silt loam, 0 to 2 percent slopes	C/D	1.2	5.3%
Totals for Area of Interest			22.4	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

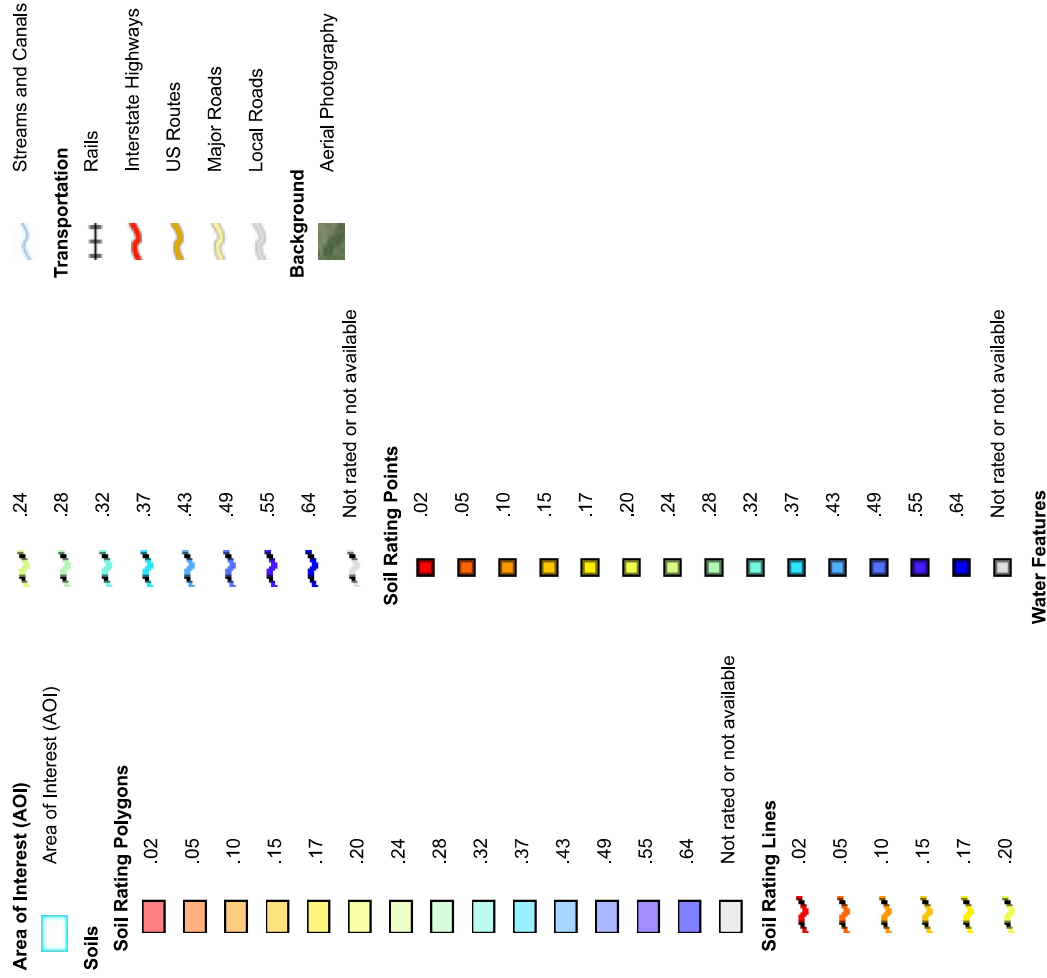
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

MAP LEGEND



MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.
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 Web Soil Survey URL:
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Soil Survey Area: Weakley County, Tennessee
 Survey Area Data: Version 16, Sep 16, 2019

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

Date(s) aerial images were photographed: Feb 10, 2016—Oct 17, 2017

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K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
LoB2	Loring silt loam, 2 to 5 percent slopes, eroded	.55	10.6	47.2%
LoC3	Loring silt loam, 5 to 8 percent slopes, severely eroded	.55	6.3	28.0%
LoD3	Loring silt loam, 8 to 12 percent slopes, severely eroded	.55	4.4	19.6%
Rt	Routon silt loam, 0 to 2 percent slopes	.49	1.2	5.3%
Totals for Area of Interest			22.4	100.0%

Description

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

SECTION 8.1: DETAILED PLANS AND SPECS