

Quality Assurance Review

Project Information

Route: SR-1
Termini: Bridge over Branch LM 2.89 (IA)
County: Haywood
PIN: 124503.00
Preparer: Abby Harris

Certification

By signing below, you certify that this document has been reviewed for compliance with all applicable environmental laws, regulations and procedures. The document has been evaluated for quality, accuracy, and completeness, and that all source material has been verified, compiled and included in the attachments and technical appendices.

Reviewer:	Joe Santangelo	Signature:	Joseph D. Santangelo <small>Digitally signed by Joseph D. Santangelo Date: 2018.10.08 14:48:43 -05'00'</small>
Title:	Environmental Supervisor	Comment:	Revisions required

Reviewer:	Joe Santangelo	Signature:	Joseph D. Santangelo <small>Digitally signed by Joseph D. Santangelo Date: 2018.10.09 08:36:25 -05'00'</small>
Title:	Environmental Supervisor	Comment:	Approved

Reviewer:	Enter Reviewer Name	Signature:	
Title:	Enter Reviewer Title	Comment:	Enter Comment

Reviewer:	Enter Reviewer Name	Signature:	
Title:	Enter Reviewer Title	Comment:	Enter Comment

Reviewer:	Enter Reviewer Name	Signature:	
Title:	Enter Reviewer Title	Comment:	Enter Comment

Programmatic Categorical Exclusion

State Route (SR) 1

Bridge over Branch Log Mile (LM) 2.89

Unincorporated (West of Stanton)

Haywood County

PIN 128113.04

Submitted Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4332(2)

Environmental Commitments

Owner	Commitment
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**Ecology
EDEC001**

In accordance with the MOA [Memorandum of Agreement] Between USFWS [U.S. Fish and Wildlife Service], FHWA [Federal Highway Administration], and TDOT [Tennessee Department of Transportation] Addressing Cliff Swallow and Barn Swallow Nesting Sites, 9/30/2015, cliff swallow and barn swallow nests, eggs, or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests can be removed or destroyed, and measures implemented to prevent future nest building at the site (e.g., closing off area using netting).

Project Information

General Information

Route: State Route (SR) 1
Termini: Bridge over Branch Log Mile (LM) 2.89
Municipality: Unincorporated (West of Stanton)
County: Haywood
PIN: 128113.04
Plans: Transportation Investment Report (TIR)
Date of Plans: 04/02/2018

Project Funding

Planning Area: Southwest Tennessee Rural Planning Organization (RPO)
STIP/TIP: 1799003 - National Highway Performance Program (NHPP) Grouping

Funding Source	Preliminary Engineering	Right-of-Way	Construction
Federal	BR-NH-1(383)	BR-NH-1(383)	BR-NH-1(383)
State	38002-1217-94	38002-2217-94	38002-3217-94

Project Location

Project Location Map PIN 124503.00 Haywood County SR-1 Bridge over Branch (LM 2.89)



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

0.15 0.075 0 0.15 0.3 0.45 0.6 Miles

Project Overview

Introduction

The Tennessee Department of Transportation (TDOT), in cooperation with the Federal Highway Administration (FHWA), is proposing to replace the SR-1 bridge over Branch at LM 2.89 in Haywood County.

Background

Every two years, TDOT performs a comprehensive inspection and subsequent evaluation of all public bridges across the state in order to determine the status of their working condition and operating limits to ensure that they are in accordance with the Federal Highway Administration (FHWA) National Bridge Inspection Standards (NBIS). These inspections are recorded and published in the National Bridge Inventory (NBI) Tennessee Inventory and Appraisal Report. One of the components of this evaluation is the designation of a sufficiency rating. A sufficiency rating is calculated for each individual bridge that is used to carry vehicular traffic. Ratings are measured on a scale of 0 to 100. A rating of 100 corresponds to a bridge that qualifies as an “entirely sufficient bridge,” while a rating of 0 denotes a bridge that is “entirely deficient.” Bridges that receive a sufficiency rating of less than 80.0 are eligible for rehabilitation; bridges that earn a rating below 50.0 are eligible for replacement. Another component of the NBI are the condition ratings. Condition ratings are used to describe the existing, in-place bridge as compared to the as-built condition. The physical condition of the deck, superstructure, and substructure components of a bridge are evaluated for a condition rating. Condition ratings are assigned codes ranging from 0-9, with 0 being failed condition and 9 being excellent condition.

According to the NBI, Tennessee Inventory and Appraisal Report published on 07/27/2018 (located in the Technical Appendices), the SR-1 bridge over Branch at LM 2.89 received a sufficiency rating of 35.7. The bridge's superstructure received a condition rating of 4, or poor condition, indicating advanced section loss, deteriorating, spalling or scour. The bridge's deck and sub structure received a condition rating of 5, or fair condition, indicating that all primary structural elements are sound by may have minor section loss, cracking, spalling or scour. The bridge's stream channel and channel protection received a condition rating of 6, or satisfactory condition, indicating the structural elements show some minor deterioration.

This project contains an official detour route of 26.8 miles in length which exceeds the 25 mile threshold for a rural detour route prompting Federal Highway Administration (FHWA) coordination/approval; however, a local detour route of 21 miles is also proposed which allows this document to be processed as a Programmatic Categorical Exclusion (PCE). Correspondence with FHWA is located in the Technical Appendices.

This project was initiated and developed under project identification number (PIN) 124503.00. Since then, the PIN has changed to 128113.04. The environmental documentation and technical studies reflect the initial project number 124503.00. Correspondence reflecting this change is located in the Technical Appendices.

Project Development

Need

The proposed project is needed to address insufficient structural elements of the SR-1 bridge over Branch as indicated by the assigned condition ratings and overall sufficiency rating of 35.7.

Purpose

The purpose of the proposed project is to improve structural elements of the SR-1 bridge over Branch by replacing the existing bridge.

Range of Alternatives

Other than the selected design, were any alternative build designs developed for this project?

No

No-Build

In the development of design solutions that address the needs outlined above and achieve the purpose of the project, TDOT evaluated the potential consequences should the project not be implemented. This option, known as the No-Build alternative, assumed the continuation of current conditions and set the baseline from which the impacts of the selected design were compared.

The No-Build Alternative was not selected as it does not meet the purpose and need of the project.

Public Involvement

Has there been any public involvement for the project?

No

Project Design

Existing Conditions and Layout

Based on the TIR dated 04/02/2018, located in the Technical Appendices, the project bridge is classified as a Rural Arterial Road carrying two 12-foot lanes, one in either direction, and consists of a single span precast concrete slab. The structure has an out-to-out width of 34 feet-five inches and an overall structure length of 46 feet (Figure 1 below). The project bridge was constructed in 1926 and was rehabilitated in 1959.

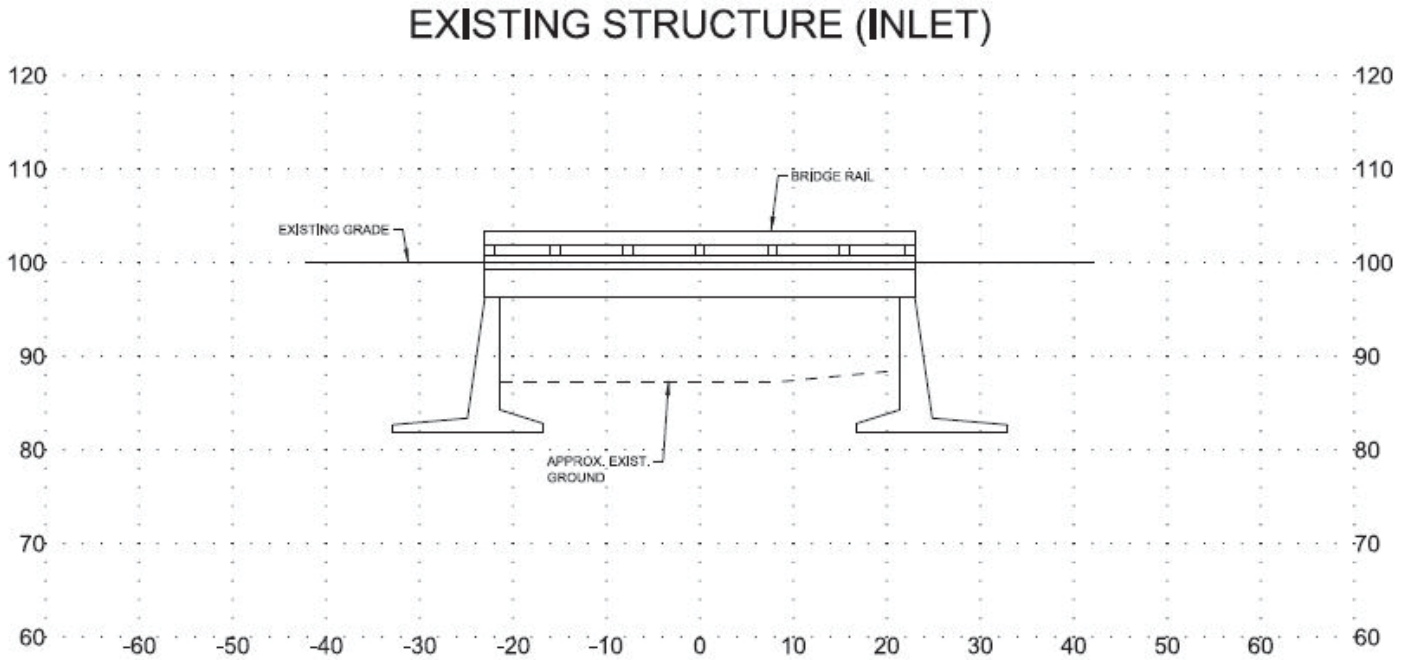


Figure 1. Existing structure from TIR (04/02/2018).

Proposed Project Description

According to the TIR dated 04/02/2018, the proposed alignment and grade for the replacement structure will remain the same as the existing structure including the 45-degree skew with the river channel and speed limit of 55 miles per hour (mph). The proposed structure consist of two 12-foot travel lanes with eight-foot shoulders and guardrail, giving the structure an out-to-out width of 45 feet-six inches. The project will extend 150 feet from the structure to the east and to the west to install guardrail and to taper the paved shoulders back to the existing roadway (Figure 2 on the following page).

Proposed Typical Section

Based on the TIR dated 04/02/2018, the proposed typical section would consist of a reinforced concrete box bridge with two barrels with a length of 18 feet and a total clearance of 16 feet giving a total structure length of 38 feet-four inches (Figure 3 on the following page).

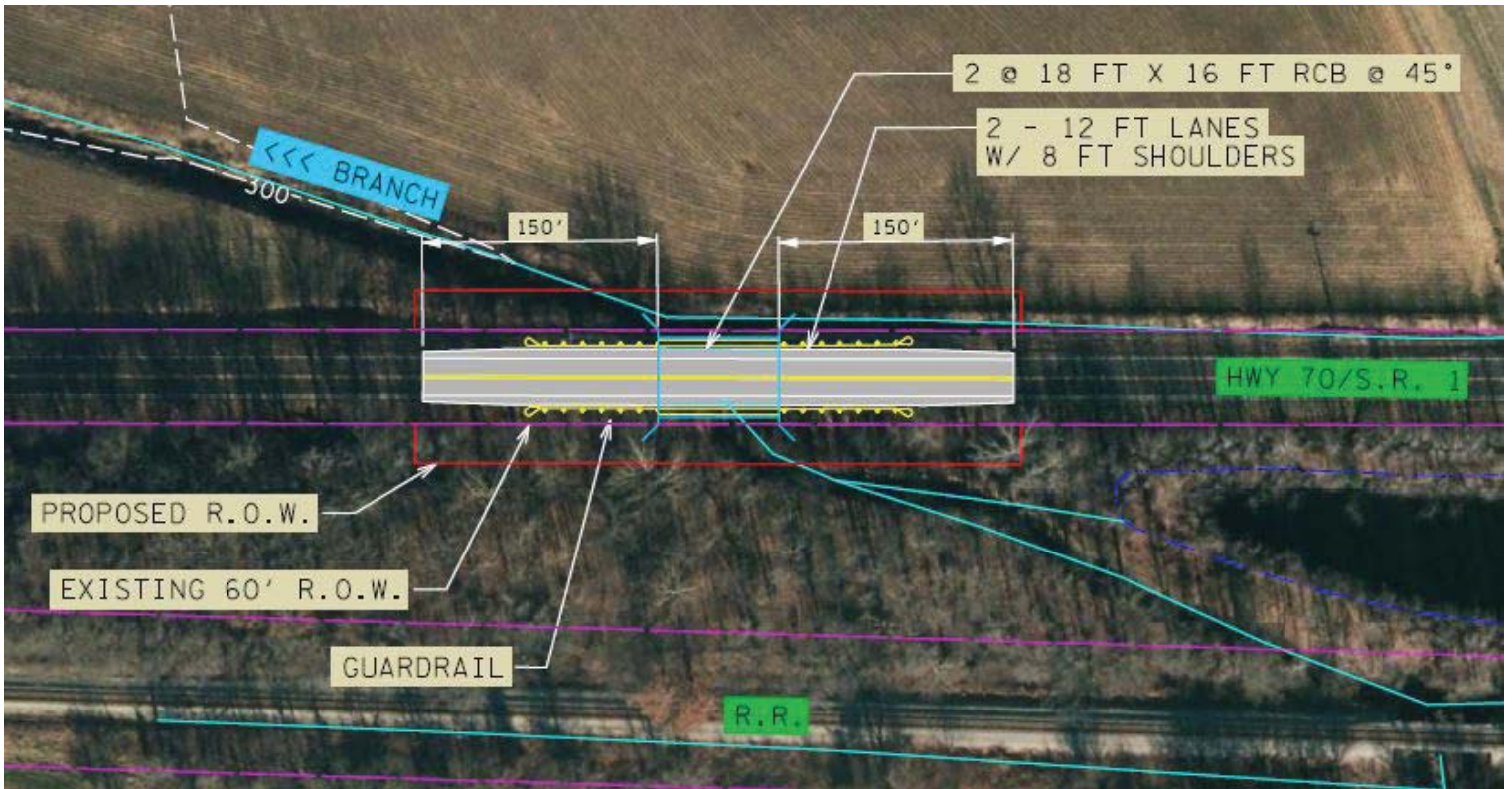


Figure 2. Proposed Bridge Aerial from TIR 04/02/2018.

PROPOSED STRUCTURE (INLET)

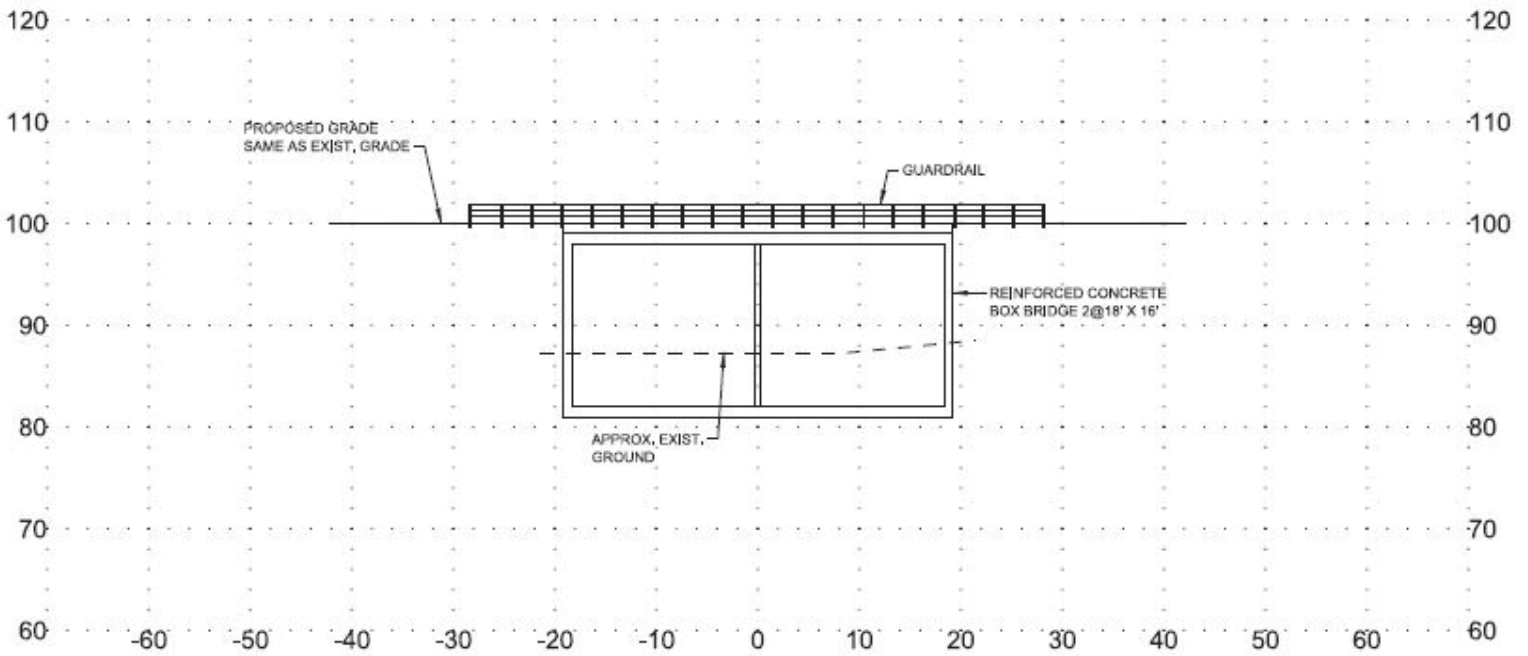


Figure 3. Proposed Structure from TIR 04/02/2018.

Right-of-Way

Does this project require the acquisition of right-of-way or easements?

Yes

Right-of-Way Acquisition Table

Permanent Acquisition			Temporary Acquisition		
R.O.W Acquisition	Drainage Easements	Total	Slope Easements	Construction Easements	Total
0.34	0.00	0.34	0.00	0.00	0.00

*Measured in acres

According to the TIR dated 04/02/2018, "it is estimated that two tracts of land will be affected, resulting in approximately 0.34 acres of right-of-way acquisition. It is also estimated that underground and overhead utilities will need to be relocated."

Displacements and Relocations

Will this project result in residential, business or non-profit displacements and relocations?

No

Changes in Access Control

Will changes in access control impact the functional utility of any adjacent parcels?

No

Traffic and Access Disruption

At this time, are traffic control measures and temporary access information available?

Yes

Will this project involve traffic control measures that may result in major traffic disruptions?

No

According to the TIR, two detour routes will be utilized for the proposed project. The official detour route has a length of 26.8 miles, or 32 minutes. From the project location, this detour would follow SR-1 northeast for 2 miles to SR-179. The detour would continue northwest along SR-179 for 9.8 miles to SR-14. The detour would then continue southwest along SR-14 for 2.9 miles to SR-59. The detour would continue south along SR-59 for 5.9 miles where it would reconnect with SR-1. The detour would continue six miles northeast on SR-1 back to the project location.

The local route detour has a length of 21 miles, or 25 minutes. This detour would follow SR-1 northeast for 2 miles to SR-179. The route would then follow SR-179 northwest 7.2 miles to Charleston-Mason Road. From there, the route would follow Charleston-Mason Road south to reconnect to SR-1. The detour would continue 5.6 miles northeast on SR-1 back to the project location.

Environmental Studies

Water Resources

Are there any water resources, wetlands or natural habitat located within the project area?

Yes

Labels	Type *	Function	Quality	Impacts **		
				Permanent	Temporary	Total
Wetlands						
WTL-1	Slope	Wildlife Habitat, Drainage		0.26 ac.	0.68 ac.	0.94 ac.
					Total	0.94 ac.

Labels	Type *	Function	Quality	Impacts **		
				Permanent	Temporary	Total
Streams						
STR-1	Intermittent		Undetermined at this time	270 ft		270 ft
WWC-1	WWC		Undetermined at this time	173 ft		173 ft
WWC-2	WWC		Undetermined at this time	243 ft		243 ft
WWC-3	WWC		Undetermined at this time	365 ft		365 ft
					Total	1,051 ft

* Identification of features has not been reviewed by regulatory agencies and determinations of stream type could possibly be changed.

** Estimated impacts are considered "Preliminary" and will not be completely accurate until the time of Permit Application.

Mitigation of impacts to streams or any other fluvial systems will be accomplished through the avoidance and minimization of potential impacts during the design process. Permanent stream alterations such as relocations, impoundments or channel modification will be mitigated on-site to the extent possible in order to return the channel to its most probable natural state. Impacts that cannot be mitigated on-site will be subject to a compensatory mitigation plan that may include restoration of a comparable resource or application of an in-lieu fee program.

Protected Species

Is the GPNEA (2017) Consultation or the TDEC-DNA (2015) MOA applicable to this project?

No

Rare Species Dataviewer:

The TDEC Rare Species Dataviewer was reviewed on 07/30/2018.

Rare Species List			
Species Name	Status	Species Potential within Right-of-Way	Accommodations
Prairie False-foxglove <i>Agalinis heterophylla</i>	State	Low Potential: Not observed during visit	BMP's
Reniform Sedge <i>Carex reniformis</i>	State	Low Potential: Not observed during visit	BMP's

As indicated in the Environmental Studies Report (ESR), located in the Technical Appendices, the Rare Species Dataviewer indicated one threatened or endangered species within a one mile radius of the project limits, and one within a one to four mile radius. These species are shown in the table above. Barn swallows (*Hirundo rustica*), a migratory bird species, were encountered within the project area. An environmental commitment has resulted in this find and is located on the green sheet at the front of the document.

U.S. Fish and Wildlife Service (USFWS):

Coordination with the USFWS was completed on 08/15/2018.

Coordination with the USFWS on 08/15/2018, located in the Technical Appendices, states, "Upon review of the information provided and our database, we believe that the requirements of section 7 of the Endangered Species Act (Act) of 1973, as amended, are fulfilled for all species that currently receive protection under the Act. Obligations under section 7 of the Act should be reconsidered if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action."

Tennessee Wildlife Resources Agency (TWRA):

Coordination with TWRA was completed on 08/30/2018.

Coordination with the TWRA on 08/30/2018, located in the Technical Appendices, states, "The implementation of standard BMP's will be sufficient to satisfy the needs of the Tennessee Wildlife Resources Agency for this proposed project."

Floodplain Management

Flood Zone: Zone X (White) - Area Determined to be Outside the 500-year Floodplain.

The project is not in a FEMA floodway, floodplain, or study area, and is located on Flood Insurance Rate Map (FIRM) in Haywood County, Panel 310 of 400, Map # 47075C0310D. A portion of the FEMA FIRM is included in the Attachments.

Air Quality

Transportation Conformity:

Correspondence dated 08/09/2018 with TDOT's Air Quality and Noise Section states, "This project is in Haywood County which is in attainment for all regulated criteria pollutants. Therefore, conformity does not apply to this project."

Mobile Source Air Toxics (MSAT):

The correspondence referenced above states, "This project qualifies as a categorical exclusion under 23 CFR 771.117 and, therefore, does not require an evaluation of MSATs per FHWA's [Federal Highway Administration] 'Interim Guidance Update on Air Toxic Analysis in NEPA [National Environmental Policy Act] Documents' dated October 2016."

Noise

In accordance with FHWA requirements and TDOT's Noise Policy this project is determined to be **Type III**

No significant noise impacts are anticipated for this project and a noise study is not needed.

Farmland

Is this project exempt from the provisions of the Farmland Protection Policy Act (FPPA)? **Yes**

FPPA Exemption: Small Acreage (3 acres or less for an existing bridge or interchange)

Section 4(f)

Does this project involve the use of property protected by Section 4(f) (49 USC 303)? **No**

Section 6(f)

Does this project involve the use of property assisted by the L&WCF? **No**

Cultural Resources

Does the Interstate Highway exemption or MOU between TDOT and the SHPO (2015) apply? **No**

Are NRHP listed or eligible cultural resources within the project Area of Potential Effect (APE)? **No**

Historic/Architectural Concurrence:

Concurrence from the TN State Historic Preservation Office (TN-SHPO) was received on 08/29/2018.

Correspondence with the TN-SHPO dated 08/29/2018, located in the Technical Appendices, states, "no architectural resources eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act."

Archaeology Concurrence:

Concurrence from the TN State Historic Preservation Office (TN-SHPO) was received on 08/06/2018.

Correspondence with the TN-SHPO dated 08/06/2018, located in the Technical Appendices, states, "no archaeological resources eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act."

Native American Consultation

Does this project require Native American consultation?

Yes

Native American Consultation was requested on 09/04/2018.

Native American Consultation					
Sent	Response		Sent	Response	
<input type="checkbox"/>	<input type="checkbox"/>	Absentee Shawnee Tribe of Oklahoma	<input type="checkbox"/>	<input type="checkbox"/>	Muscogee (Creek) Nation
<input type="checkbox"/>	<input type="checkbox"/>	Cherokee Nation	<input type="checkbox"/>	<input type="checkbox"/>	Poarch Band of Creek Indians
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Chickasaw Nation	<input type="checkbox"/>	<input type="checkbox"/>	Quapaw Tribe of Oklahoma
<input type="checkbox"/>	<input type="checkbox"/>	Choctaw Nation of Oklahoma	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Shawnee Tribe
<input type="checkbox"/>	<input type="checkbox"/>	Eastern Band of Cherokee Indians	<input type="checkbox"/>	<input type="checkbox"/>	Thlopthlocco Tribal Town
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Eastern Shawnee Tribe of Oklahoma	<input checked="" type="checkbox"/>	<input type="checkbox"/>	United Keetoowah Band of Cherokee Indians
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Kialegee Tribal Town	<input type="checkbox"/>	<input type="checkbox"/>	Other

Chickasaw Nation:

The response was received on 10/03/2018.

The response dated 10/03/2018 from the Chickasaw Nation, located in the Technical Appendices, states, "We accept the invitation to consult under Section 106 of the National Historic Preservation Act. The Chickasaw Nation supports the proposed undertakings and is presently unaware of any specific historic properties, including those of traditional religious and cultural significance, in the project area. In the event the agency becomes aware of the need to enforce other statutes we request to be notified under ARPA, AIRFA, NEPA, NAGPRA, NHPA and Professional Standards." A final report was sent to the Chickasaw Nation in fulfillment of their request.

Shawnee Tribe:

The response was received on 04/06/2018.

The response dated 04/06/2018 from the Shawnee Tribe, located in the Technical Appendices, states, "The Shawnee Tribe's Tribal Historic Preservation Department concurs that no known historic properties will be negatively impacted by this project. We have no issues or concerns at this time, but in the event that archaeological materials are encountered during construction, use, or maintenance of this location, please re-notify us at that time as we would like to resume immediate consultation under such a circumstance."

Environmental Justice

Are there any disproportionately high or adverse effects on low-income or minority populations? **No**

The proposed project does not have the potential to cause disproportionately high or adverse effects on low-income or minority populations.

Hazardous Materials

Does the project involve any asbestos containing materials? **No**

Does the project involve any other hazardous material sites? **No**

Bicycle and Pedestrian

Does this project include accommodations for bicycles and pedestrians? **Yes**

Correspondence dated 07/27/2018 with TDOT's Multimodal Transportation Resources Division, located in the Technical Appendices, states, "This project accommodates bicyclists with wide shoulders."

Environmental Commitments

Does this project involve any environmental commitments? **Yes**

Additional Environmental Issues

Are there any additional environmental concerns involved with this project?

No

Conclusion

Review Determination

Determination: Programmatic Categorical Exclusion

This federal-aid highway project qualifies for a Categorical Exclusion under 23 C.F.R 771.117(d) and does not exceed the thresholds listed in Section IV(A)(1)(b) of the 2016 Programmatic Agreement between the Federal Highway Administration, Tennessee Division and the Tennessee Department of Transportation. The Department has determined that the specific conditions and criteria for these CEs are satisfied and that significant environmental impacts will not result from this action. This project is therefore designated as a Programmatic Categorical Exclusion and does not require Administration approval.

Reference Material

All source material used in support of the information and conclusions presented in this document are included in the attachments and technical appendices. The attachments are located at the end of the environmental document and include information on funding, agency concurrence, applicable agency agreements, and special commitment support. The technical appendices are compiled as a separate document and include the project plans, technical reviews, reports and any other additional information.

Preparer Certification

By signing below, you certify that this document has been prepared in compliance with all applicable environmental laws, regulations and procedures. You can attest to the document's quality, accuracy, and completeness, and that all source material has been compiled and included in the attachments and technical appendices.

Abby Harris  Digitally signed by Abby Harris
Date: 2018.10.09 08:14:55 -05'00'

Document Preparer

Document Approval

By signing below, you officially concur that this document is in compliance with all applicable environmental laws, regulations and procedures. You have reviewed and verified the document's quality, accuracy, and completeness and that all source material has been compiled and included in the attachments and technical appendices.

Joseph D. Santangelo  Digitally signed by Joseph D. Santangelo
Date: 2018.10.09 08:35:41 -05'00'

Tennessee Department of Transportation

Attachments

Acronyms

AADT	Annual Average Daily Traffic	NRCS	Natural Resources Conservation Service
ADA	Americans with Disabilities Act	NRHP	National Register of Historic Places
APE	Area of Potential Effect	PCE	Programmatic Categorical Exclusion
BMP	Best Management Practice	PIN	Project Identification Number
CAA	Clean Air Act	PM	Particulate Matter
CE	Categorical Exclusion	PND	Pond
CEQ	Council on Environmental Quality	RCRA	Resource Conservation and Recovery Act
CFR	Code of Federal Regulations	ROW	Right-of-Way
CMAQ	Congestion Mitigation and Air Quality	ROD	Record of Decision
DEIS	Draft Environmental Impact Statement	RPO	Rural Planning Organization
FEMA	Federal Emergency Management Agency	SIP	State Implementation Plan
FONSI	Finding of No Significant Impact	SNK	Sinkhole
EA	Environmental Assessment	SR	State Route
EIS	Environmental Impact Statement	STIP	State Transportation Improvement Program
EJ	Environmental Justice	STR	Stream
EPA	Environmental Protection Agency	TDEC	TN Department of Environment and Conservation
EPH	Ephemeral Stream	TDOT	Tennessee Department of Transportation
FHWA	Federal Highway Administration	TIP	Transportation Improvement Program
FIRM	Flood Insurance Rate Map	SHPO	State Historic Preservation Office
FPPA	Farmland Protection Policy Act	TPO	Transportation Planning Organization
GHG	Greenhouse Gas	TVA	Tennessee Valley Authority
GIS	Geographic Information System	TWRA	Tennessee Wildlife Resources Agency
IAC	Interagency Consultation	USDOT	U.S. Department of Transportation
LWCF	Land and Water Conservation Fund	USACE	U.S. Army Corps of Engineers
LOS	Level of Service	USFWS	U.S. Fish and Wildlife Service
MOA	Memorandum of Agreement	UST	Underground Storage Tank
MOU	Memorandum of Understanding	VMT	Vehicle Miles Traveled
MPO	Metropolitan Planning Organization	VPD	Vehicles Per Day
MSAT	Mobile Source Air Toxics	WWC	Wet Weather Conveyance
NEPA	National Environmental Policy Act		

State Transportation Improvement Program

STIP Project List

STIP #
TDOT PIN #
LENGTH IN MILES
LEAD AGENCY

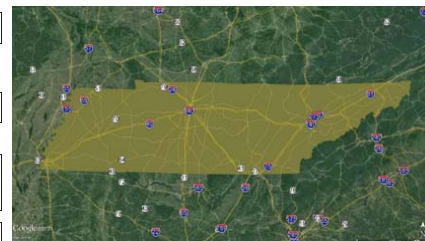
COUNTY
TOTAL PROJECT COST

ROUTE

TERMINI

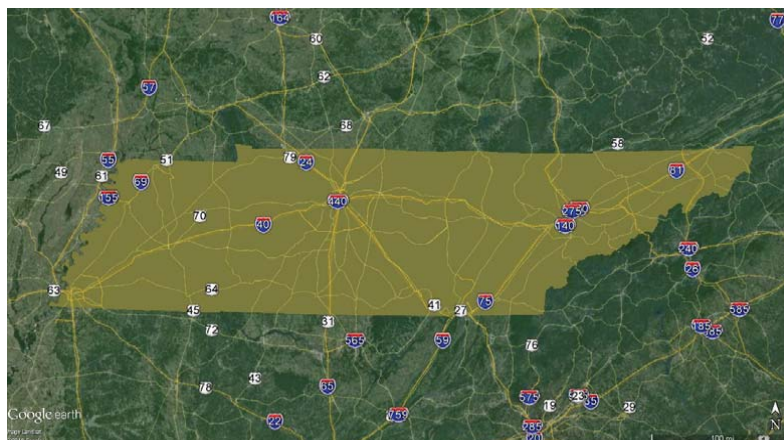
PROJECT DESCRIPTION

REMARKS



COUNTY MAP

FY	PHASE	FUNDING	TOTAL FUNDS	FED FUNDS	STATE FUNDS	LOCAL FUNDS
2017	PE, ROW, CONST	NHPP	167,800,000	134,240,000	33,560,000	
2018	PE, ROW, CONST	NHPP	167,800,000	134,240,000	33,560,000	
2019	PE, ROW, CONST	NHPP	167,800,000	134,240,000	33,560,000	
2020	PE, ROW, CONST	NHPP	167,800,000	134,240,000	33,560,000	



VICINITY MAP

ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

Appendices

Grouping Category	Function of Grouping Activities	Allowable Work Types
<p>National Highway Performance Program (NHPP) Grouping</p> <p>STIP# 1799003</p>	<p>Projects for the preservation and improvement of the conditions and performance of the National Highway System (NHS), including</p> <ul style="list-style-type: none"> • Rehabilitation, resurfacing, restoration, preservation, and operational improvements, • Traffic operations, • Bridge and tunnel improvements, • Safety improvements, • Bicycle and pedestrian improvements, and • Environmental mitigation. 	<ul style="list-style-type: none"> • Minor rehabilitation, pavement resurfacing, preventative maintenance, restoration, and pavement preservation treatments to extend the service life of highway infrastructure, including pavement markings and improvements to roadside hardware or sight distance • Highway improvement work including slide repair, rock fall mitigation, drainage repairs, or other preventative work necessary to maintain or extend the service life of the existing infrastructure in a good operational condition • Minor operational and safety improvements to intersections and interchanges such as adding turn lanes, addressing existing geometric deficiencies, and extending on/off ramps • Capital and operating costs for intelligent transportation systems (ITS) and traffic monitoring, management, and control facilities and programs: <ul style="list-style-type: none"> ○ Infrastructure-based intelligent transportation systems (ITS) capital improvements ○ Traffic Management Center (TMC) operations and utilities ○ Freeway service patrols ○ Traveler information • Bridge and tunnel construction (no additional travel lanes), replacement, rehabilitation, preservation, protection, inspection, evaluation, and inspector training and inspection and evaluation of other infrastructure assets, such as signs, walls, and drainage structures • Development and implementation of a State Asset Management Plan including data collection, maintenance and integration, software costs, and equipment costs that support the development of performance-based management systems for infrastructure • Rail-highway grade crossing improvements • Highway safety improvements: <ul style="list-style-type: none"> ○ Installation of new or improvement of existing guardrail ○ Installation of traffic signs and signals/lights ○ Spot safety improvements • Sidewalk improvements • Pedestrian and/or bicycle facilities • Traffic calming and traffic diversion improvements • Noise walls • Wetland and/or stream mitigation • Environmental restoration and pollution abatement • Control of noxious weeds and establishment of native species

U.S. Fish and Wildlife Service Coordination

Dustin Tucker

From: John Griffith <john_griffith@fws.gov>
Sent: Wednesday, August 15, 2018 12:32 PM
To: Dustin Tucker
Cc: Randall E. Mann; Lou Timms; Jared McCoy; Rita M. Thompson
Subject: RE: [EXTERNAL] Haywood County, SR-1, 124503.00

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

Dustin,
??

Thank you for requesting our review of the proposed SR-1 Bridge replacement over an unnamed tributary to Little Muddy Creek at LM 2.89 in Haywood County, Tennessee.?? Upon review of the information provided and our database, we are not aware of any federally listed or proposed species that would be impacted by the project.?? Therefore, based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act (Act) of 1973, as amended, are fulfilled for all species that currently receive protection under the Act.?? Obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

??

TDOT's standard construction BMPs would be implemented during the project. Regular inspections and cleaning of sediment structures will ensure the maximum level of sediment control.?? If structures fail or are found to be inadequate, work should cease and not resume until appropriate corrective measures have been taken.?? Equipment staging and maintenance areas should be developed an adequate distance from the stream to avoid entry of petroleum-based pollutants into the water.?? Concrete and cement dust must also be kept out of the water as they alter chemical properties and can be toxic to aquatic species. This email will serve as our official project response.?? Please let me know if we can offer further assistance.?? Thanks,

??

John Griffith
Transportation Biologist
U.S. Fish and Wildlife Service
Tennessee Field Office
931-525-4995 (office)
931-528-7075 (fax)
??

Tennessee Wildlife Resource Agency Coordination

Dustin Tucker

From: Casey Parker
Sent: Thursday, August 30, 2018 2:00 PM
To: Dustin Tucker; TDOT Env.LocalPrograms
Cc: Rob Todd
Subject: RE: Request for Comment; Haywood County; SR-1 Bridge Replacement, PIN 124503.00

Subject: Request for Comment; Haywood County; SR-1 Bridge Replacement, PIN 124503.00

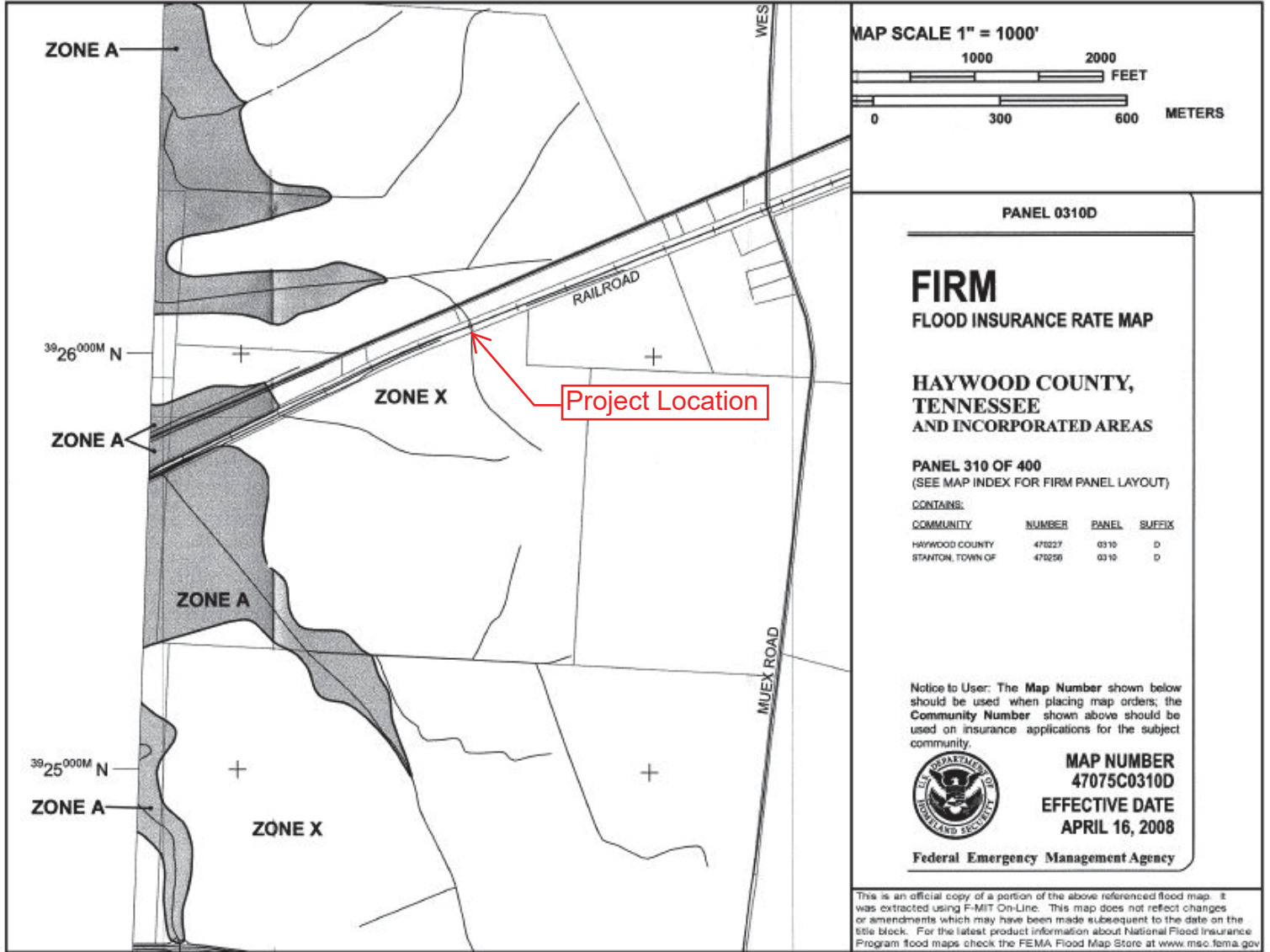
Mr. Dustin Tucker,

I have reviewed the information that you provided regarding the proposed bridge replacement on SR-1 in Haywood County, Tennessee. The implementation of standard BMP's will be sufficient to satisfy the needs of the Tennessee Wildlife Resources Agency for this proposed project. Thank you for the opportunity to review and comment, please contact me if you need further assistance.

Casey Parker - Wildlife Biologist
Liaison to TDOT & Federal Highway Administration
Tennessee Wildlife Resources Agency
Environmental Services Division
Email: casey.parker@tn.gov



Floodplain Map





TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

August 29, 2018

Ms. Katherine Looney
Tennessee Department of Transportation
505 Deaderick St
Suite 900
Nashville, TN 37243-1402

RE: FHWA / Federal Highway Administration, Replacement of the SR 1 Bridge over Branch, Log Mile 2.89/ PIN 124503.00, , Haywood County, TN

Dear Ms. Looney:

In response to your request, we have reviewed the architectural survey report and accompanying documentation submitted by you regarding the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering the information provided, we concur that no architectural resources eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Questions or comments may be directed to Casey Lee (615 253-3163).

Your cooperation is appreciated.

Sincerely,

A handwritten signature in cursive script that reads "E. Patrick McIntyre, Jr.".

E. Patrick McIntyre
Executive Director and
State Historic Preservation Officer

EPM/cjl



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STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

August 6, 2018

Mr. Phillip R. Hodge
Tennessee Department of Transportation
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243-1402

RE: FHWA / Federal Highway Administration, Improvements to SR-1 Bridge over Branch, L.M. 2.89, Haywood County, TN

Dear Mr. Hodge:

In response to your request, we have reviewed the archaeological report of investigations and accompanying documentation submitted by you regarding the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering the information provided, we find that no archaeological resources eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Complete and/or updated Tennessee Site Survey Forms should be submitted to the Tennessee Division of Archaeology for all sites recorded and/or revisited during the current investigation. Questions or comments may be directed to Jennifer Barnett (615) 687-4780.

Your cooperation is appreciated.

Sincerely,

A handwritten signature in cursive script that reads "E. Patrick McIntyre, Jr.".

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/jmb

Environmental Commitments

Project Commitments



Counties: Haywood **Route:** SR-1 **PIN:** 124503.00
Termini: Bridge over Branch LM 2.89 (IA)
POA: Cavaness, Tabitha **Public Involvement Level:** 0 **Turn In Date:** 11/25/2020

Filter Criteria
 Division Section: All Search:

Commitment ID	Commitment Type	Source Division (Section)	Commitment Description	Plans Report	Status
EDHZ001	Environment	Environmental Division, Hazardous Materials	An Asbestos	<input checked="" type="checkbox"/>	Pending
EDEC001	Environment	Environmental Division, Ecology	In accordance with the	<input type="checkbox"/>	Pending

Message from webpage

In accordance with the MOA Between USFWS, FHWA, and TDOT Addressing Cliff Swallow and Barn Swallow Nesting Sites, 9/30/2015, cliff swallow and barn swallow nests, eggs, or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests can be removed or destroyed, and measures implemented to prevent future nest building at the site (e.g., closing off area using netting)./In accordance with the MOA Between USFWS, FHWA, and TDOT Addressing Cliff Swallow and Barn Swallow Nesting Sites, 9/30/2015, cliff swallow and barn swallow nests, eggs, or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests can be removed or destroyed, and measures implemented to prevent future nest building at the site (e.g., closing off area using netting).

Commitment Details

Commitment Description: In accordance with the MOA Between USFWS, FHWA, and TDOT Addressing Cliff Swallow and Barn Swallow Nesting Sites, 9/30/2015, cliff swallow and barn swallow nests, eggs, or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests can be removed or destroyed, and measures implemented to prevent future nest building at the site (e.g.,

Commitment History Remark:

Station/Location: Bridge over Branch

GPS: **Commitment To:** USFWS **Long Term Maintenance Commitment:** No

Consideration Made On: 9/12/2018 **Commitment Created By:** **Commitment Created On:**

Commitment Made Active: **Commitment Completed:**

Technical Appendices

Programmatic Categorical Exclusion

State Route 1 (SR-1)

Bridge over Branch Log Mile (LM) 2.89

Unincorporated (West of Stanton)

Haywood County

PIN 128113.04

Project Development

NATIONAL BRIDGE INVENTORY TENNESSEE INVENTORY AND APPRAISAL REPORT



BRIDGE ID NUMBER: **38SR0010003**
 BRIDGE OWNER: **STATE OF TENNESSEE**
 FIPS CODE: **00000**
 ROAD NAME: **HWY. 70 E.**
 CROSSING: **BRANCH**
 LOCATION: **1 M S OF SR179**

COUNTY: **HAYWOOD**
 ROUTE: **SR001**
 SPECIAL CASE: **0**
 COUNTY SEQUENCE: **1**
 LOG MILE: **2.89**
 SUFFICIENCY RATING: **35.7**

IDENTIFICATION

(16a,b) LATITUDE: **N 35.45514 DEGREES**
 (17a,b) LONGITUDE: **W 89.42672 DEGREES**
 (98a) BORDER BRIDGE STATE CODE: **N/A**
 (98b) PERCENT SHARE: **N/A**
 (99) BORDER BRIDGE NUMBER: **NOT APPLICABLE**

BRIDGE TYPE AND MATERIAL

(43a) MAIN SPAN MATERIAL: **CONCRETE**
 (44a) APPR SPAN MATERIAL: **NOT APPLICABLE**
 (45) NUMBER OF MAIN SPANS: **1**
 (46) NUMBER OF APPROACH SPANS: **0**
 (107) TYPE OF DECK: **CONCRETE CAST-IN-PLACE**
 (108) TYPE OF WEARING SURFACE AND DECK PROTECTION:
 A) TYPE OF SURFACE: **ASPHALT**
 B) TYPE MEMBRANE: **NONE**
 C) TYPE PROTECTION: **NONE**

AGE AND SERVICE

(27) YEAR THE BRIDGE WAS BUILT: **1926**
 (106) YEAR THE BRIDGE WAS REHABILITATED: **1959**
 (42a) SERVICE ON BRIDGE: **HIGHWAY**
 (42b) UNDER BRIDGE: **WATERWAY**
 (28a) NUMBER OF LANES CARRIED BY BRIDGE: **2**
 (28b) NUMBER OF LANES UNDER THE BRIDGE: **0**

GEOMETRIC DATA

(48) MAXIMUM SPAN LENGTH: **41.3 FT**
 (49) TOTAL BRIDGE LENGTH: **45.9 FT**
 (50a) LEFT SIDEWALK WIDTH: **0.0 FT**
 (50b) RIGHT SIDEWALK WIDTH: **0.0 FT**
 (51) BRIDGE CURB TO CURB WIDTH: **28.2 FT**
 (52) BRIDGE OUT TO OUT WIDTH: **34.4 FT**
 (32) APPROACH ROADWAY (W/ SHLDS) WIDTH: **29.9 FT**
 (33) BRIDGE MEDIAN: **NO MEDIAN**
 (34) BRIDGE SKEW: **45 DEGREES**
 (35) BRIDGE FLARE: **NO FLARE**
 (520) MIN VERTICAL CLEARANCE OVER RD: **NO RESTRICTION**
 (47) MIN HORIZONTAL CLEARANCE ON ROADWAY: **28.2 FT**
 (54a) VERT UNDERCLR: **NOT A HIGHWAY OR RAILROAD**
 (54b) MIN VERTICAL UNDERCLEARANCE: **NOT APPLICABLE**
 (55a) HORZ UNDERCLR: **NOT A HIGHWAY OR RAILROAD**
 (55b) MIN HORZ UNDERCLR ON RIGHT: **NOT APPLICABLE**
 (56) MIN HORZ UNDERCLR ON LEFT: **NOT APPLICABLE**

NAVIGATION DATA

(38) NAV CONTROL: **NO NAVIGATION CONTROL**
 (39) NAVIGATION VERTICAL CLEARANCE: **N/A**
 (116) LIFT BRIDGE VERT CLEARANCE: **N/A**
 (40) NAVIGATION HORZ CLEARANCE: **N/A**

CLASSIFICATION

(112) MEETS NBIS BRIDGE LENGTH: **YES**
 (104) NATIONAL HIGHWAY SYSTEM: **NOT A NHS ROUTE**
 (26) FUNCTIONAL CLASS: **RURAL ARTERIAL**
 (101) PARALLEL BRIDGE: **NO PARALLEL BRIDGE**
 (102) TRAFFIC DIR: **2-WAY TRAFFIC**
 (103) TEMPORARY BRIDGE: **NOT APPLICABLE**
 (110) NATIONAL TRUCK ROUTE: **NOT ON TRUCK NETWORK**
 (37) HISTORICAL CLASS: **BRIDGE IS NOT ELIGIBLE FOR THE NATIONAL REGISTER**

CONDITION RATINGS

(58) DECK: **5**
 (59) SUPERSTRUCTURE: **4**
 (60) SUBSTRUCTURE: **5**
 (61) STREAM CHANNEL AND CHANNEL PROTECTION: **6**
 (62) CULVERT CONDITION (IF APPLICABLE): **N**

DESIGN LOAD AND WEIGHT POSTING

(31) DESIGN LOADING: **H-15-44**
 WEIGHT POSTING (2 AXLE VEHICLES): **ALL LEGAL LOADS**
 WEIGHT POSTING (3 OR MORE AXLES): **ALL LEGAL LOADS**
 (70) BRIDGE POSTING CODE: **5**
 (41) WT POSTING STATUS: **WEIGHT POSTED**

APPRAISAL

(67) STRUCTURAL EVALUATION: **4**
 (68) DECK GEOMETRY: **5**
 (69) UNDERCLEARANCE RATING: **N**
 (71) WATERWAY ADEQUACY: **8**
 (72) APPROACH ROADWAY ALIGNMENT: **8**
 (36) TRAFFIC SAFETY FEATURES: **0101**
 (113) SCOUR CONDITION RATING: **3**

RECOMMENDED IMPROVEMENTS

(75) TYPE OF WORK: **BRIDGE REPLACEMENT**
 (76) LENGTH OF BRIDGE IMPROVEMENT: **67.9 FT**
 (94) BRIDGE IMPROVEMENT COST: **\$500,000.00**
 (95) ROADWAY IMPROVEMENT COST: **\$51,000.00**
 (96) TOTAL PROJECT COST: **\$751,000.00**
 (97) YEAR OF IMPROVEMENT COST ESTIMATE: **2018**

INSPECTION DATES

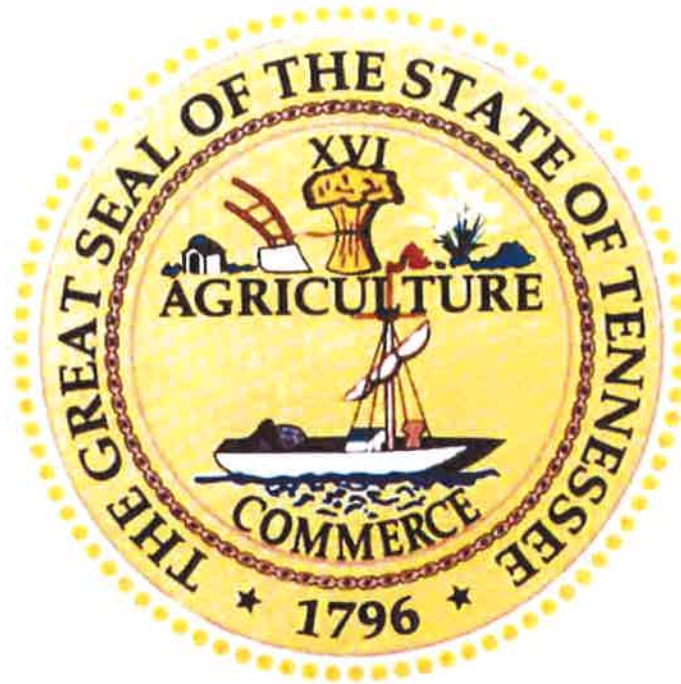
(90) DATE OF LAST REGULAR INSPECTION: **11/1/2017**
 (91) REGULAR INSPECTION FREQUENCY (MONTHS): **24**
 (93b) DATE OF LAST UNDERWATER INSP (MO/YR): **N/A**
 (92b) UNDERWATER INSP FREQUENCY (MONTHS): **N**
 (93c) DATE OF SPECIAL INSPECTION (MO/YR): **N/A**
 (92c) SPECIAL INSP FREQUENCY (MONTHS): **N**

**PRODUCED PURSUANT TO
PUBLIC RECORDS REQUEST**
 This document is covered by 23 USC §409
 and its production pursuant to a public
 document records request does not
 waive the provisions of §409

PUBLICATION DATE

27-Jul-18

TENNESSEE
DEPARTMENT OF TRANSPORTATION



TRANSPORTATION INVESTMENT REPORT
IMPROVE Act

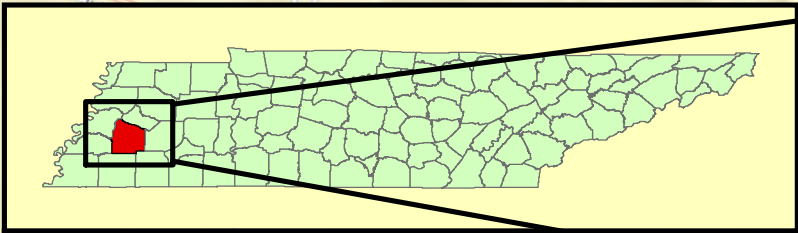
State Route 1
Bridge over Branch,
Log Mile 2.89 Haywood County
PIN 124503.00

PREPARED BY KCI TECHNOLOGIES INC. FOR THE
TENNESSEE DEPARTMENT OF TRANSPORTATION

Approved by Toby Cantel Date 04-02-18 Approved by Paul Wynn Date 4/2/18
Chief of Environment and Planning Deputy Commissioner and Chief Engineer

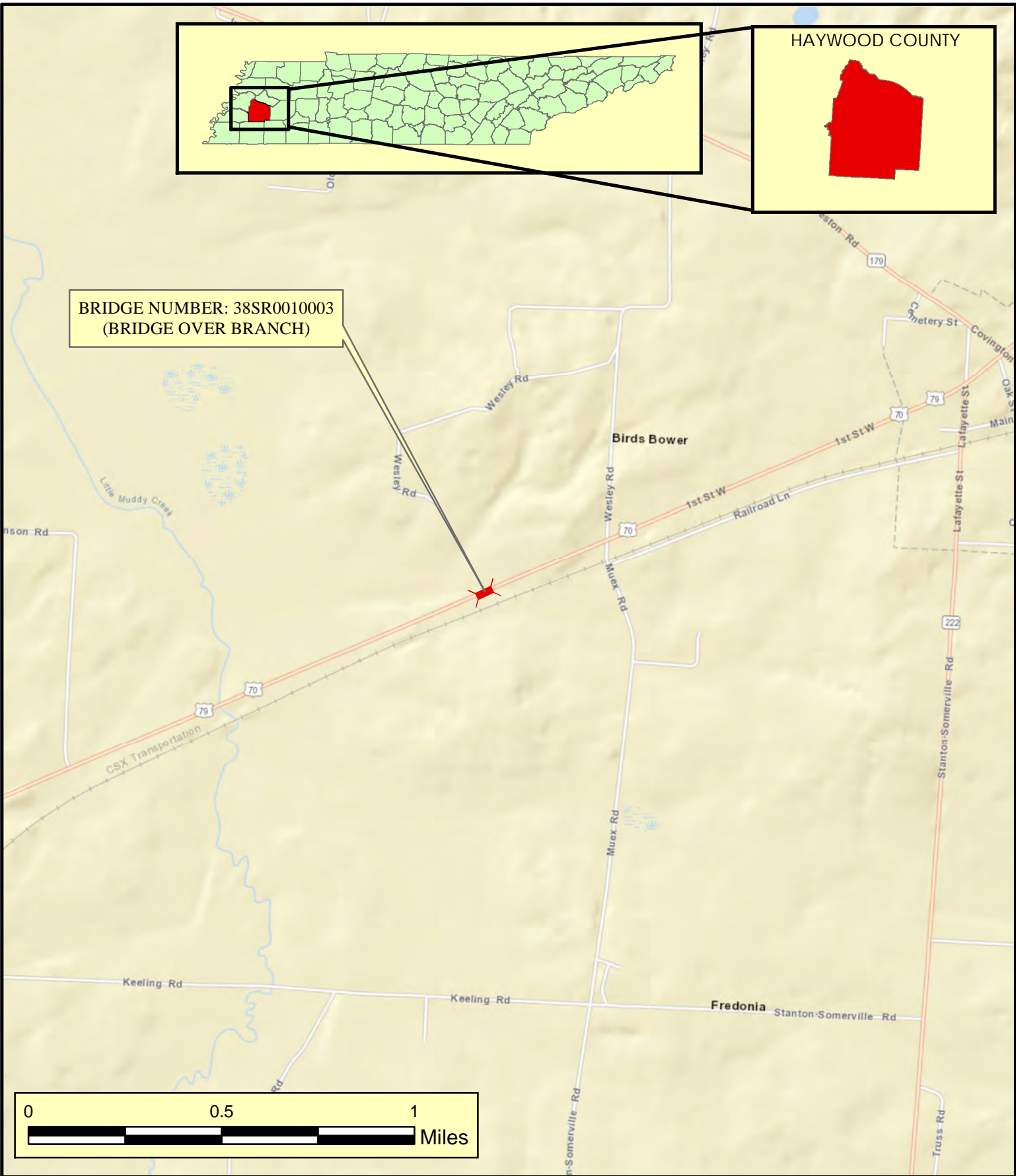
Approved by:	Signature	DATE
TRANSPORTATION DIRECTOR STRATEGIC TRANSPORTATION INVESTMENTS DIVISION		3-26-18
ENGINEERING DIRECTOR DESIGN DIVISION		3/22/18
ENGINEERING DIRECTOR STRUCTURES DIVISION		3/27/18

This document is covered by 23 USC § 409 and its production pursuant to fulfilling public planning requirements does not waive the provisions of § 409.



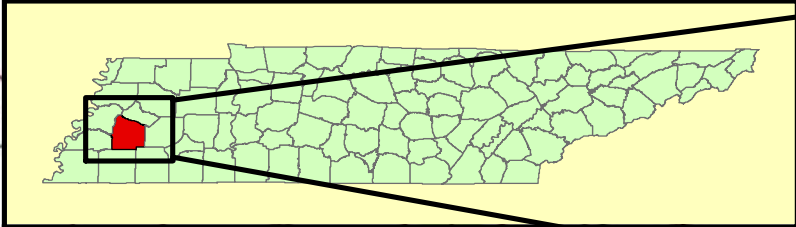
HAYWOOD COUNTY

BRIDGE NUMBER: 38SR0010003
(BRIDGE OVER BRANCH)

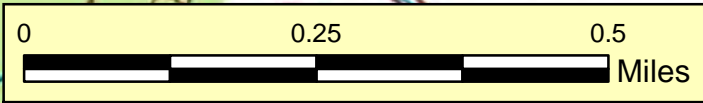
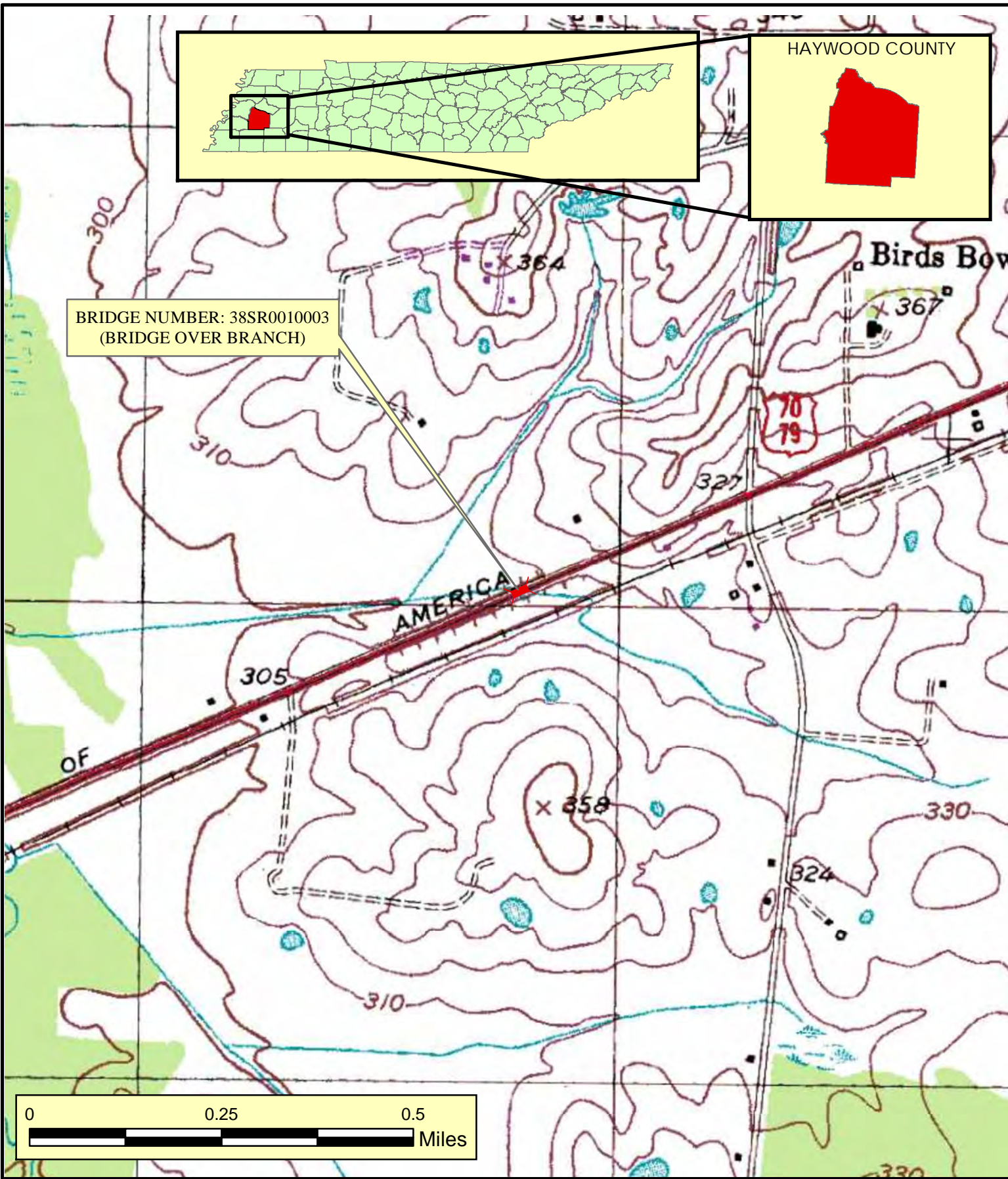


AREA MAP
BRIDGE TIR
STATE ROUTE 1 (US HWY 70)
BRIDGE OVER BRANCH (LM 2.89)
HAYWOOD COUNTY



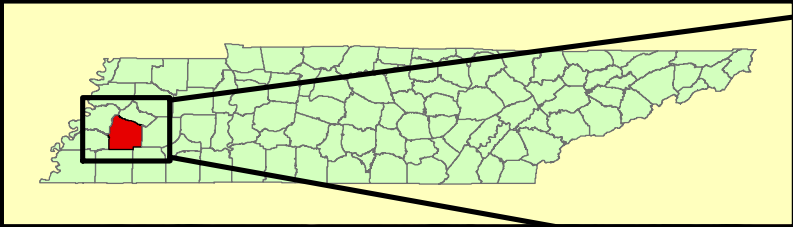


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(BRIDGE OVER BRANCH)

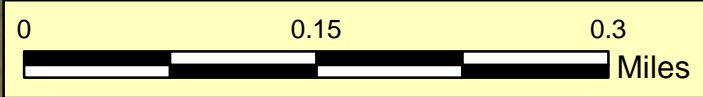


TOPO MAP
BRIDGE TIR
STATE ROUTE 1 (US HWY 70)
BRIDGE OVER BRANCH (LM 2.89)
HAYWOOD COUNTY





BRIDGE NUMBER: 38SR0010003
(BRIDGE OVER BRANCH)



PROJECT MAP
BRIDGE TIR
STATE ROUTE 1 (US HWY 70)
BRIDGE OVER BRANCH (LM 2.89)
HAYWOOD COUNTY





STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION
SUITE 1000, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TN 37243
(615) 741-2208

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

MEMORANDUM

TO: Steve Allen, Transportation Director
Strategic Transportation Investments Division

FROM: David Duncan P.E., C.E. Manager 1
Strategic Transportation Investments Division

DATE: March 9, 2018

SUBJECT: TIR Field Review (IMPROVE Act)
State Route 1/US-70 (SR001), Bridge over Branch
Bridge ID: 38SR0010003
Log Mile 2.89
Haywood County
PIN: 124503.00

A field review was held for the above-mentioned project on January 11, 2018.

The existing structure, built in 1926, is a single span precast concrete slab bridge crossing a branch of Muddy Creek. The structure has an out-to-out width of 34 feet 5 inches. The overall structure length is 46 feet, and the sufficiency rating for this structure is 37.6 based on the Bridge Inspection Report from December 17, 2015.

The discharges for the drainage basin were determined using StreamStats, which used a drainage area of 0.52 square miles. The 10-year discharge rate (Q10) was 512 cubic feet per second (cfs), Q50 was 676 cfs, and Q100 was 742 cfs.

The bridge project will potentially need a bat survey to be performed and an endangered plant study since these studies may be required by TWRA as part of the project.

The proposed alignment and grade for the replacement structure will remain the same as the existing structure including the 45-degree skew with the river channel. There is a 55 mph posted speed limit on State Route 1, which will also be the design speed based on the tangent alignment.

The TDOT Hydraulics Section has recommended that the proposed structure be a reinforced concrete box bridge with two (2) barrels with a length of 18 feet and a total clearance of 16 feet (2 @ 18' x 16') giving a total structure length of 38 feet 4 inches per TDOT structures standard STD-17-88. It is estimated that two (2) tracts of land will be affected resulting in approximately 0.34 acres of right-of-way (ROW) acquisition. It is also estimated that underground and overhead utilities will need to be relocated. Construction phasing for both bridges on State Route 1 (Bridge over Muddy Creek at LM 2.13 and Bridge over Branch at LM 2.89) need to accommodate access to the property located in between the two (2) bridges in Haywood County. Detour routes are provided in report. The official detour will be the only detour route that is signed.

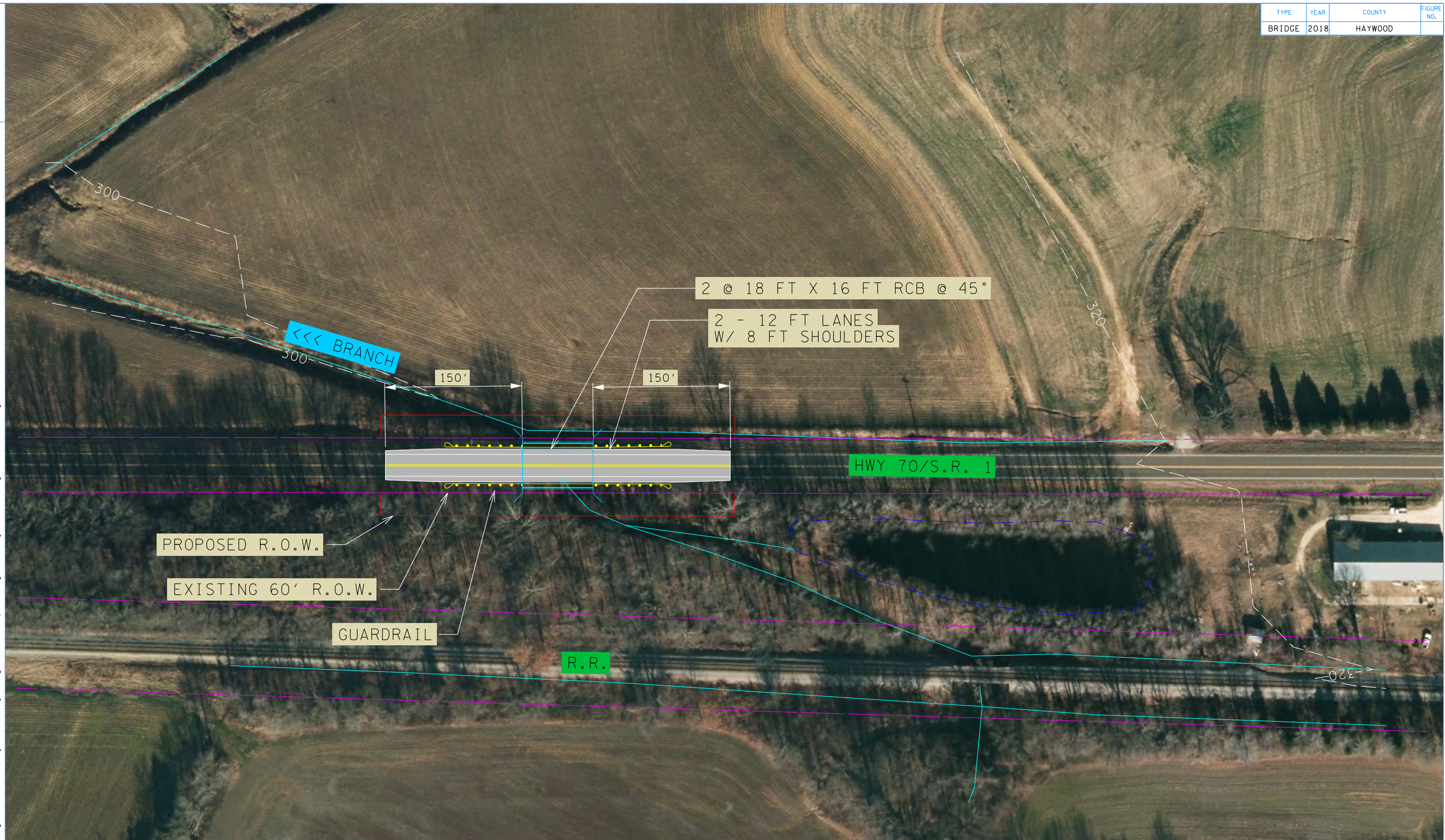
The route has a base year 2022 AADT of 1,650 and a design year 2042 AADT of 1,980. The existing structure and roadway approaches consist of two (2) 12-foot travel lanes. The route is classified as a Rural Arterial Road and Standard Drawing RD01-TS-3 was used for design considerations. Based on Table II from the standard drawing, it is recommended that the proposed curb-to-curb width over the structure will be 40 feet based on a design year AADT between 1,500-2,000 and a design speed of 55 MPH. Therefore, the typical section on the proposed structure will consist of two (2) 12-foot travel lanes with eight (8) foot shoulders and guardrail per TDOT structures standard STD-17-7 giving an out-to-out structure width of 45 feet 6 inches. The project will extend 150 feet from the structure to the east and to the west in order to install guardrail and to taper the paved shoulders back into the existing roadway.

The total cost for the estimated required approach work, estimated replacement and estimated preliminary engineering for this bridge replacement is approximately \$763,000.

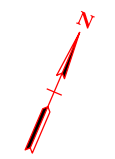
cc: File

TENNESSEE D.O.T.
S.T.I.D.
FILE NO. _____

TYPE	YEAR	COUNTY	FIGURE NO.
BRIDGE	2018	HAYWOOD	



3/23/2018 3:48:37 PM M:\2018\1604080.03 (TDOT TIR - Bridge over Branch, Haywood County)\Design\Sheets\Proposed Alignment Haywood Co.Bridge Over Branch.dgn



BRIDGE TIR

STATE ROUTE 1 (US HWY 70)
BRIDGE OVER BRANCH @ L.M. 2.89
HAYWOOD COUNTY

55 MPH DESIGN SPEED

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
S.T.I.D.

BRIDGE REPLACEMENT
SR001
L.M. 2.89

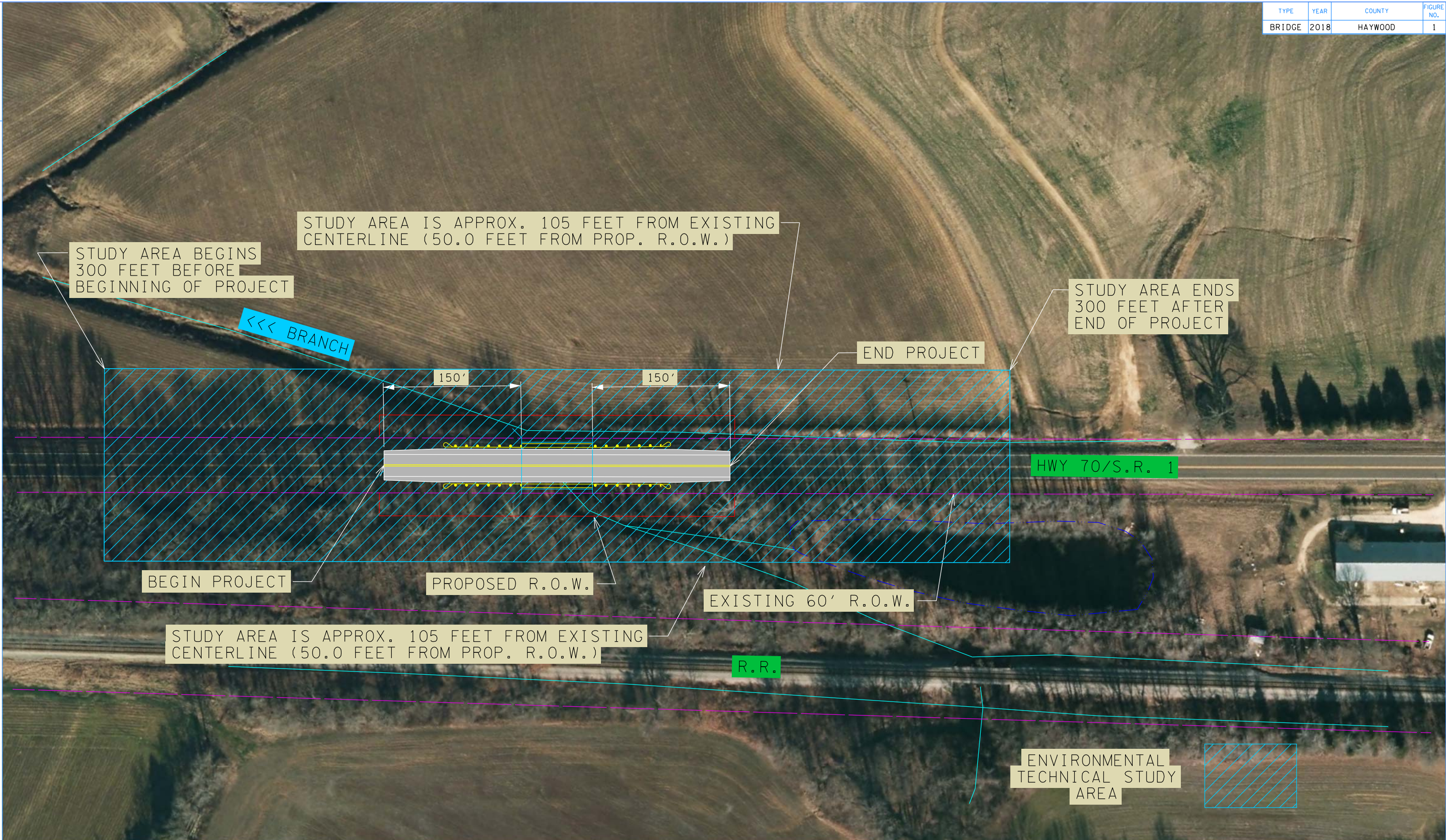
TYPE	YEAR	COUNTY	FIGURE NO.
BRIDGE	2018	HAYWOOD	1

TENNESSEE D.O.T.

S.T.I.D.

FILE NO. _____

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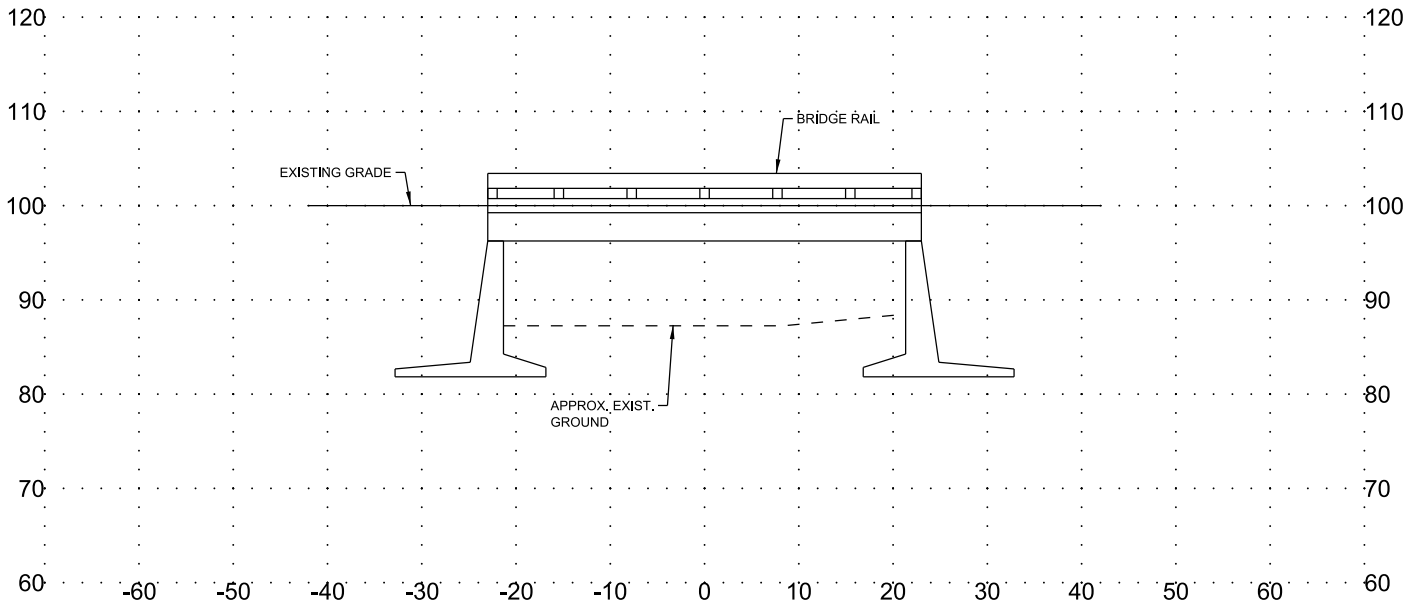
ENVIRONMENTAL TECHNICAL STUDY AREA

STATE ROUTE 1 (US HWY 70)
BRIDGE OVER BRANCH @ L.M. 2.89
HAYWOOD COUNTY

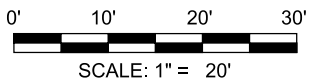
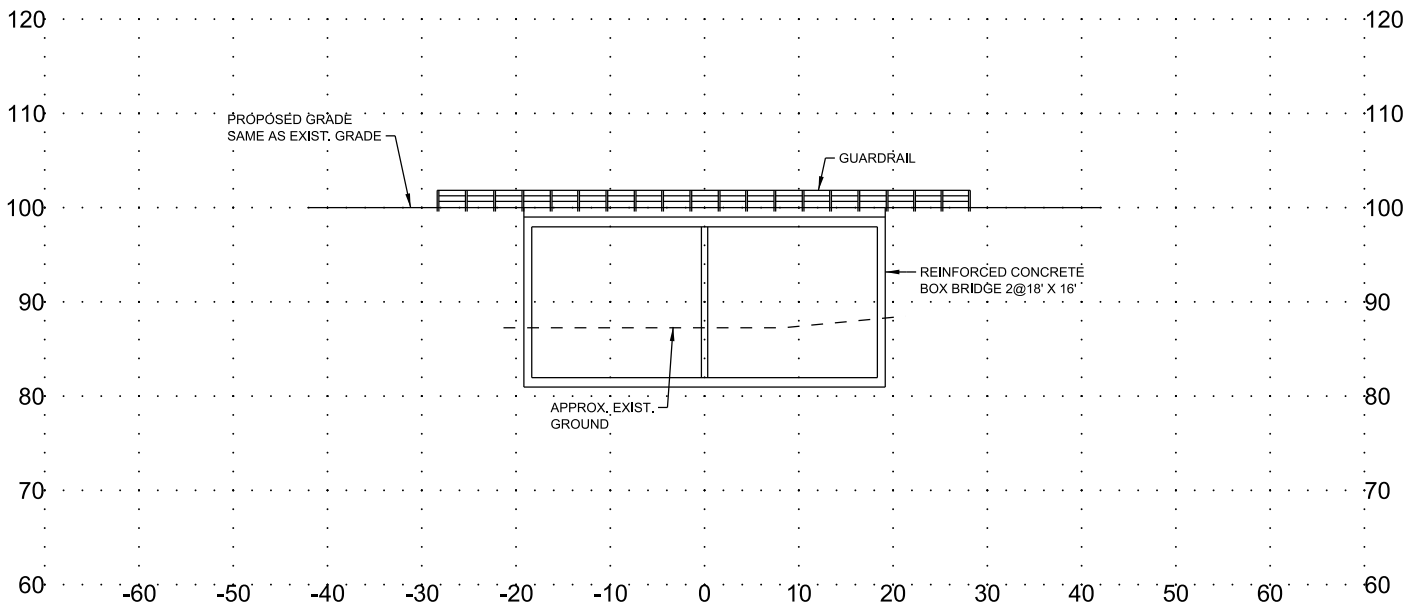
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
S.T.I.D.

FIGURE 1
BRIDGE REPLACEMENT
SR001
L.M. 2.89

EXISTING STRUCTURE (INLET)

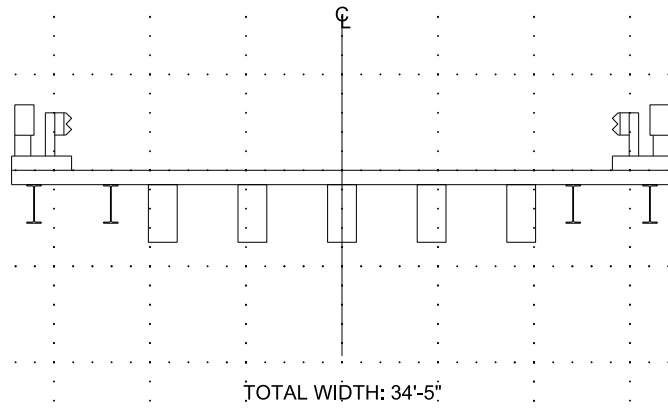


PROPOSED STRUCTURE (INLET)

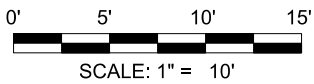
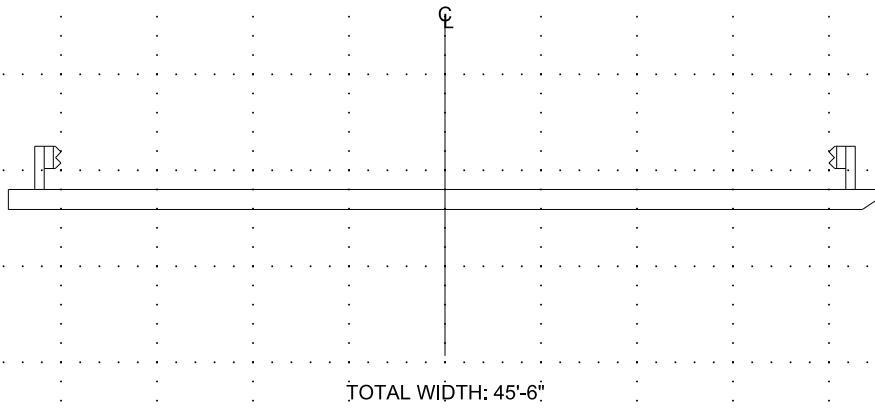


PROPOSED PROFILE
STATE ROUTE 1 (US HWY 70) HAYWOOD COUNTY
BRIDGE OVER BRANCH @ L.M. 2.89
BRIDGE ID: 38SR0010003

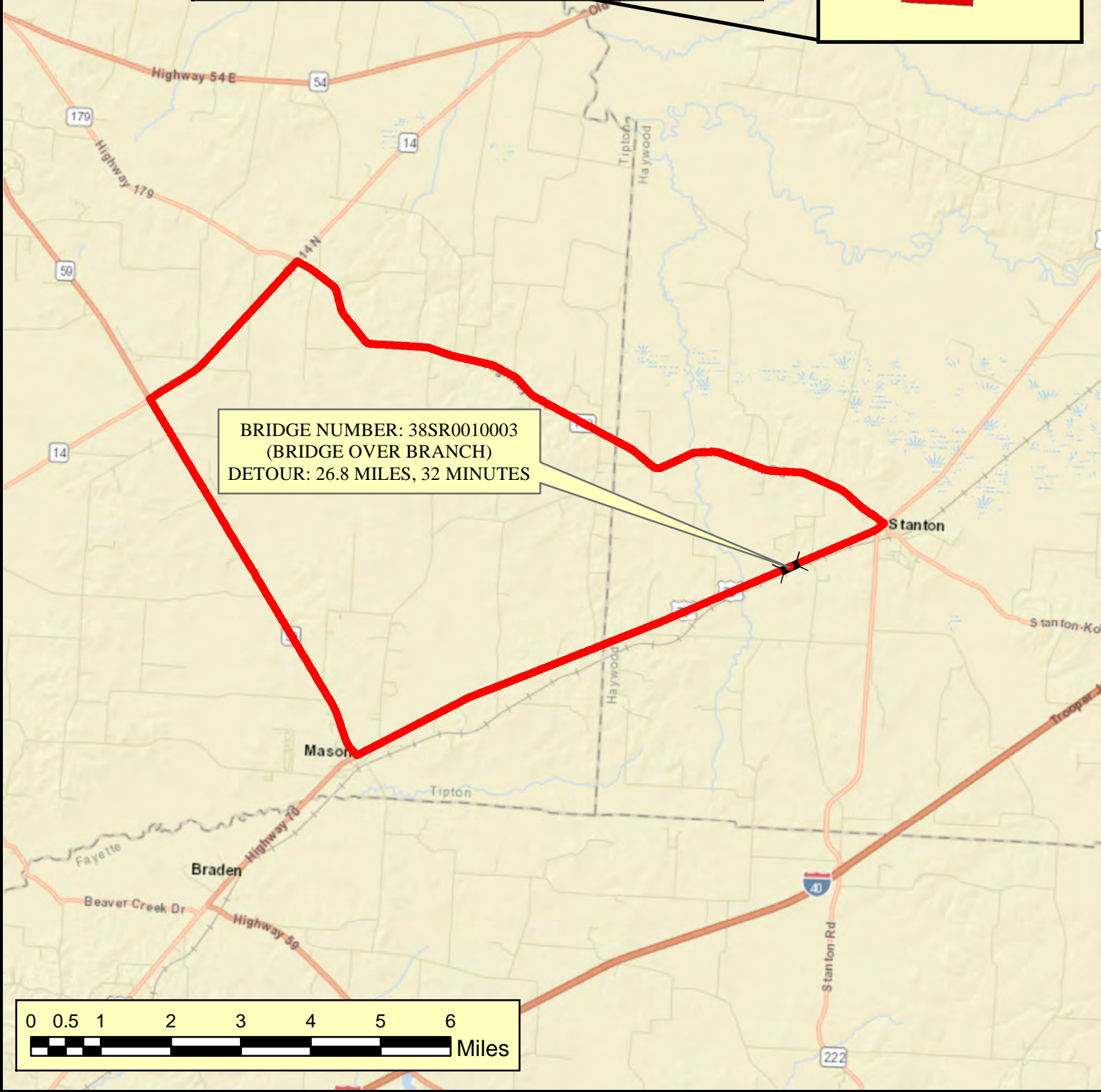
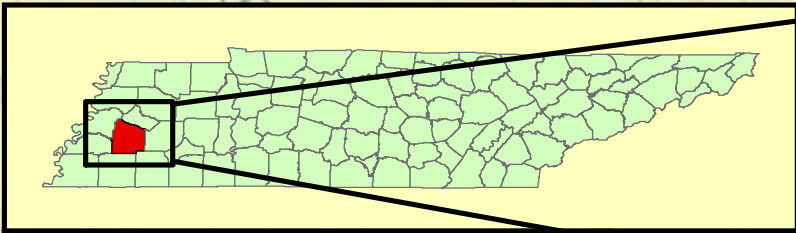
EXISTING STRUCTURE



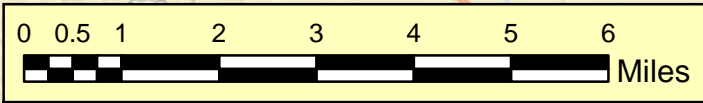
PROPOSED STRUCTURE



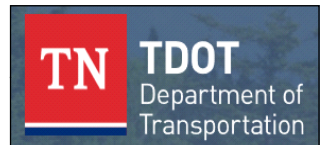
PROPOSED TYPICAL SECTION
STATE ROUTE 1 (US HWY 70) HAYWOOD COUNTY
BRIDGE OVER BRANCH L.M. 2.89
BRIDGE ID: 38SR0010003

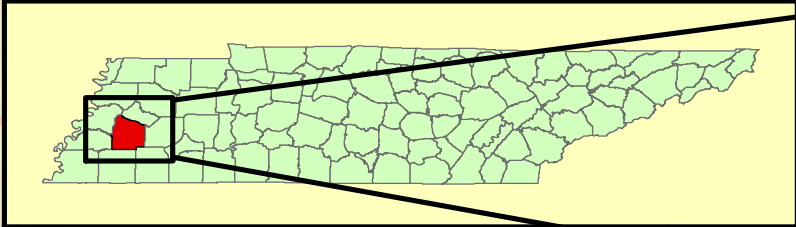


BRIDGE NUMBER: 38SR0010003
(BRIDGE OVER BRANCH)
DETOUR: 26.8 MILES, 32 MINUTES

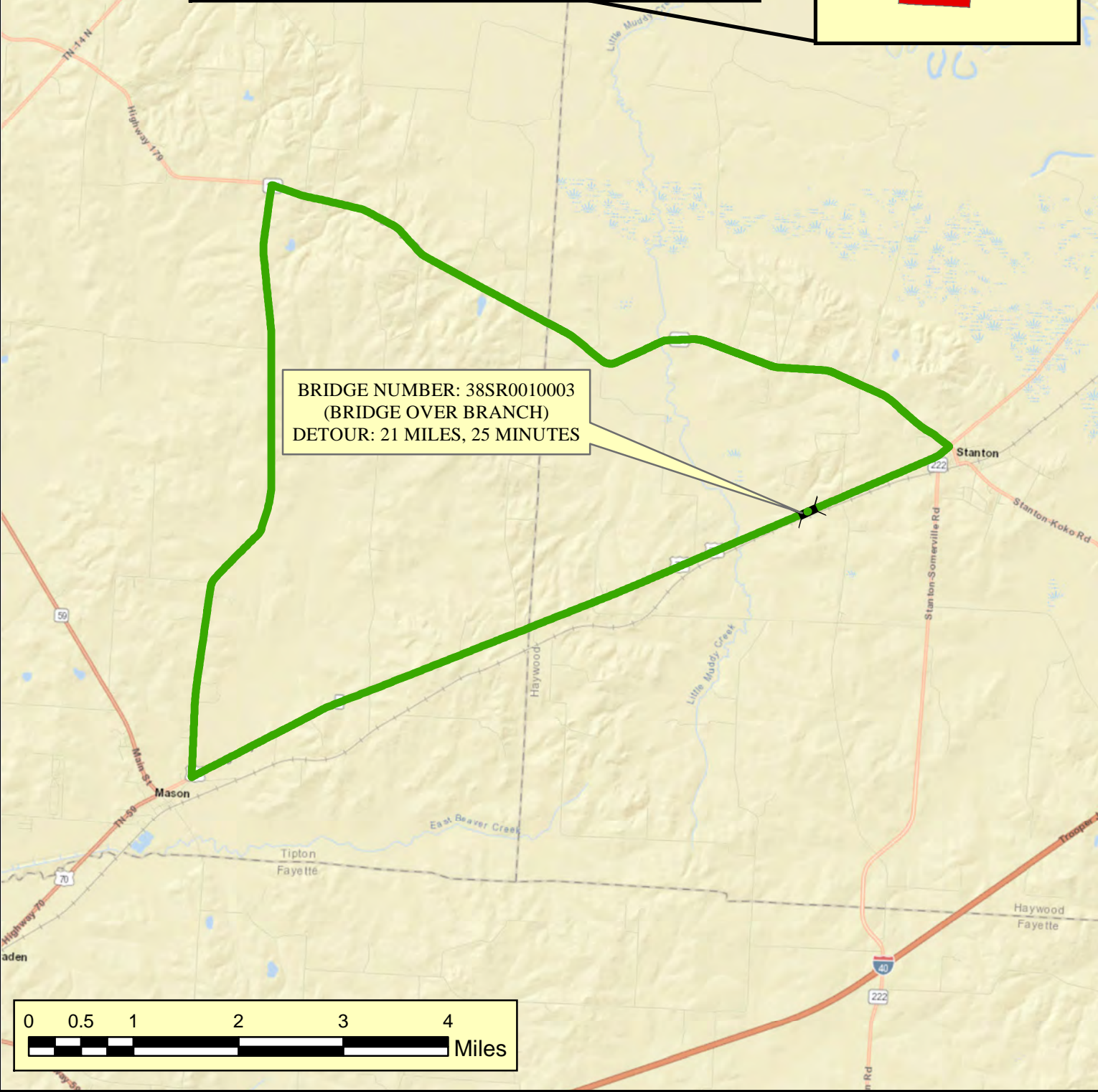


OFFICIAL DETOUR MAP
BRIDGE TIR
STATE ROUTE 1 (US HWY 70)
BRIDGE OVER BRANCH (LM 2.89)
HAYWOOD COUNTY

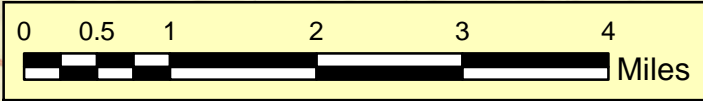




HAYWOOD COUNTY



BRIDGE NUMBER: 38SR0010003
(BRIDGE OVER BRANCH)
DETOUR: 21 MILES, 25 MINUTES



LOCAL ROUTE DETOUR MAP
BRIDGE TIR
STATE ROUTE 1 (US HWY 70)
BRIDGE OVER BRANCH (LM 2.89)
HAYWOOD COUNTY



COST ESTIMATE SUMMARY

Route: SR001 STATE ROUTE 1 (U.S. HIGHWAY 70)
Description: REPLACEMENT OF BRIDGE OVER BRANCH
County: HAYWOOD
Length: 0.064 MILES
Date: March 9, 2018



DESCRIPTION	LOCAL	STATE	FEDERAL	TOTAL
	0%	100%	0%	
Construction Items				
Pavement Removal	\$0	\$6,100	\$0	\$6,100
Asphalt Paving	\$0	\$31,000	\$0	\$31,000
Concrete Pavement	\$0	\$0	\$0	\$0
Drainage	\$0	\$5,900	\$0	\$5,900
Appurtenances	\$0	\$0	\$0	\$0
Structures	\$0	\$214,700	\$0	\$214,700
Fencing	\$0	\$0	\$0	\$0
Signalization	\$0	\$0	\$0	\$0
Railroad Crossing or Separation	\$0	\$0	\$0	\$0
Earthwork	\$0	\$88,800	\$0	\$88,800
Clearing and Grubbing	\$0	\$10,600	\$0	\$10,600
Seeding & Sodding	\$0	\$3,200	\$0	\$3,200
Rip-Rap or Slope Protection	\$0	\$0	\$0	\$0
Guardrail	\$0	\$25,100	\$0	\$25,100
Signing	\$0	\$400	\$0	\$400
Pavement Markings	\$0	\$1,700	\$0	\$1,700
Maintenance of Traffic	\$0	\$16,000	\$0	\$16,000
Mobilization (5%)	\$0	\$20,200	\$0	\$20,200
Other Items = 10%	\$0	\$42,400	\$0	\$42,400
Const. Contingency = 15%	\$0	\$37,700	\$0	\$37,700
Construction Estimate	\$0	\$503,800	\$0	\$503,800
Interchanges & Unique Intersections				
Roundabouts	\$0	\$0	\$0	\$0
Interchanges	\$0	\$0	\$0	\$0
Right-of-Way & Utilities				
	LOCAL	STATE	FEDERAL	TOTAL
	0%	100%	0%	
Right-of-Way	\$0	\$61,100	\$0	\$61,100
Utilities	\$0	\$71,300	\$0	\$71,300
Preliminary & Construction Engineering and Inspection				
Prelim. Eng. 10%	\$0	\$63,600	\$0	\$63,600
Const. Eng. & Inspec. 10%	\$0	\$63,600	\$0	\$63,600
Total Project Cost	\$0	\$763,400	\$0	\$ 763,000

PAY ITEM SUMMARY

TDOT PAY ITEM	TDOT DESCRIPTION	UNIT	TOOL QUANTITIES	ADDITIONAL QUANTITIES	TOOL QUANTITIES + ADDITIONAL QUANTITIES	Statewide UNIT COST	TOTAL COST
Pavment Removal							
415-01.02	Cold Planning Bituminous Pavement	SY	788		788	\$ 7.63	\$ 6,015.21
PAVEMENT REMOVAL TOTAL (ROUNDED)							\$ 6,100
Asphalt Roads							
303-01	Mineral Aggregate, Type A Base, Grading D	TON	600		600	\$ 32.05	\$ 19,235.58
402-01	Bituminous Material For Prime Coat (PC)	TON	1		1	\$ 713.46	\$ 519.53
402-02	Aggregate For Cover Material (PC)	TON	3		3	\$ 66.09	\$ 173.70
403-01	Bituminous Material For Tack Coat (TC)	TON	0		0	\$ 781.26	\$ 186.67
411-01.07	ACS (PG64-22) GR "E"	TON	42		42	\$ 112.44	\$ 4,765.36
411-02.10	ACS Mix(PG70-22) Grading D	TON	52		52	\$ 115.30	\$ 6,022.65
PAVING TOTAL (ROUNDED)							\$ 31,000
Concrete Roads							
CONCRETE RAMPS AND ROADWAYS TOTAL (ROUNDED)							\$ -
Drainage							
607-05.02	24" Concrete Pipe Culvert (Class III)	LF	42		42	\$ 85.50	\$ 3,590.85
611-07.01	Class A Concrete (Pipe Endwalls)	CY	2		2	\$ 1,054.36	\$ 1,901.22
611-07.02	Steel Bar Reinforcement (Pipe Endwalls)	LB	171		171	\$ 2.31	\$ 395.80
DRAINAGE TOTAL (ROUNDED)							\$ 5,900
Appurtenances							
ROADWAY AND PAVEMENT APPURTENANCES TOTAL (ROUNDED)							\$ -
Earthwork & Mineral							
105-01	Constrction Stakes, Lines, and Grades	LS	1	-0.8	0.2	\$ 112,407.96	\$ 22,481.59
203-01	Road & Drainage Excavation (Unclassified)	CY	2260		2260	\$ 16.78	\$ 37,935.73
203-03	Borrow Excavation (Unclassified)	CY	1884		1884	\$ 15.04	\$ 28,323.13
EARTHWORK & MINERAL TOTAL (ROUNDED)							\$ 88,800
Structures							
N/A	Removal of Bridge	SF	1582		1582	\$ 20.00	\$ 31,648.00
N/A	New Bridge (Box)	SF	1743		1743	\$ 105.00	\$ 182,978.25
STRUCTURES TOTAL (ROUNDED)							\$ 214,700
Interchanges and Unique Intersections							
INTERCHANGES AND UNIQUE INTERSECTIONS TOTAL (ROUNDED)							\$ -
Lighting & Signalization							
LIGHTING & SIGNALIZATION TOTAL (ROUNDED)							\$ -
Guardrail							
705-01.01	Guardrail at Bridge Ends	LF	100		100	\$ 73.64	\$ 7,364.49
705-02.02	Single Guardrail (Type 2)	LF	163		162.624	\$ 18.82	\$ 3,060.28
705-04.07	Tan Energy Absg Term (NCHRP, 350, TL3)	EA	5	-1	4	\$ 2,352.59	\$ 9,410.38
705-04.09	Earth Pad for Type 38 GR End Treatment	EA	5	-1	4	\$ 1,294.80	\$ 5,179.21
GUARDRAIL TOTAL (ROUNDED)							\$ 25,100
Seeding and Sodding							
801-01	Seeding (With Mulch)	UNIT	26		26	\$ 78.14	\$ 2,021.75
801-01.07	Temporary Seeding (With Mulch)	UNIT	19		19	\$ 29.93	\$ 580.75
801-02	Seeding (Without Mulch)	UNIT	19		19	\$ 28.50	\$ 552.97
SODDING TOTAL (ROUNDED)							\$ 3,200
Maintenance of Traffic							
N/A	Traffic Control	LS	1		1		\$ 15,500.00
712-02.02	Interconnected Portable Barrier Rail	LF	15		15	\$ 31.96	\$ 472.52
MAINTENANCE OF TRAFFIC TOTAL (ROUNDED)							\$ 16,000
Signs							
Not Listed	Signs (Construction)	LS	1		1	\$ -	\$ 400
SIGNING TOTAL (ROUNDED)							\$ 400
Pavement Markings							
716-13.06	Spray Thermo P.M. (40 mil 4")	LM	0.6		0.6	\$ 2,887.70	\$ 1,617.11
PAVEMENT MARKINGS TOTAL (ROUNDED)							\$ 1,700
Fencing							
FENCE TOTAL (ROUNDED)							\$ -
Rip-Rap							
RIP-RAP & SLOPE PROTECTION TOTAL (ROUNDED)							\$ -
Clearing and Grubing							
201-01	Clearing and Grubbing	LS		0.04	0.04	\$ 264,380.06	\$ 10,575.20
CLEAR AND GRUBBING TOTAL (ROUNDED)							\$ 10,600.00
Railroad At-Grade Crossing							
RAILROAD CROSSING OR SEPARATION TOTAL (ROUNDED)							\$ -
Utilities							
N/A	Overhead Distribution	LM	0.064		0.064	\$ 375,000	\$ 24,000
N/A	Underground Communication	LM	0.064		0.064	\$ 500,000	\$ 32,000
N/A	Underground Water	LM	0.064		0.064	\$ 237,600	\$ 15,206
UTILITIES TOTAL (ROUNDED)							\$ 71,300.00
Right-of-Way							
N/A	Right-of-Way	LS	1		1	\$ 61,090.91	\$ 61,090.91
RIGHT-OF-WAY TOTAL (ROUNDED)							\$ 61,100.00

BRIDGE TIR

Haywood
State Route 1

LOCATION			
Bridge #:	38SR0010003	Feature Crossed:	Branch
Road Name:	State Route 1	Log mile:	2.89
Route ID:	SR001	System:	5-STP Rural, State
City:	Stanton	Functional Class:	Rural Arterial
County:	Haywood	State Project Number	38002-0217-94
PIN:	124503.00		

ROADWAY		
	Existing	Proposed (Preliminary Design Estimate)
Design Standard		RD01-TS-3 / 2011 Green Book
Route Characteristics		
AADT:	1650	1980
AADT Year:	2022	2042
Terrain:	Rolling	Rolling
No. Lanes:	2	2
Speed(Posted):	55	55
Speed (Design):		55
Approach Character.		
Lane Width (ft):	12	12
Shoulder Width (ft):	4	8
ROW Width (ft):	60	110
ROW Tracts Affected		2
ROW Required (acre)		0.34
Cross Section Width (ft):	24/32/60	24/40/110
Approach Length (ft):		150' (east), 150' (west)
Alignment:	tangent	tangent
Grade:		grade to remain the same as existing
Surface Material:	Pavement	Pavement
Sidewalks (R/L):	No	No
App. Lower Than Structure	No	No
Utilities (list)	UG: Water, FOC OH: Electric	N/A
Utilities to be Relocated	N/A	UG: Water, FOC OH: Electric
Comments		

BRIDGE TIR

Haywood
State Route 1

STRUCTURE		
	Existing	Proposed (Preliminary Design Estimate)
Bridge Characteristics		
Year Built	1926	
Load Limit	16 tons(inspection report), 40 tons(signed)	
Sufficiency Rating	37.6	
Skew	45	45
Structure Type	Concrete Deck Girder/Steel Beam	Reinforced Concrete Box
Structures in Channel	No	No
Length (ft)	46	38.3
No. Spans (App./Main)	0 1	0 1
Width (curb to curb) (ft)	28.2	40
Width (o to o) (ft)	34.4	45.5
Sidewalks on Structure	No	No
Vert. Clearance (ft)	9	11.7
Superstructure Depth (in)	86	39.5
Girder Depth (in)	38	n/a
Finish Grade-Low Girder (in)	47	12.5
High Water Marks	N/A	
Bridge Rail Type	Concrete w/ Guardrail	Guardrail
Bridge Rail Height (ft)	2.67	2.25
Indication Overtopping	No	
Local Scour	No	
Obstructions	No	
Other Structures	N/A	N/A
Comments	App 2 cracking & spalling. Left emb wash. Span A/C spalling & left/right curb spalling. Deck fine cracks to surface steel. Steel I-beams section loss & hole in flange. Con I-beams scattered cracks, surface steel & spalled to steel areas. Abut. 1 2" joint crack & in channel. Abut. 2 1" joint crack.	

BRIDGE TIR

Haywood
State Route 1

FLOW RATES (from USGS StreamStats)

Drainage Area (sq. miles)	0.52
10 Year Discharge Rate (Q10) cfs	512
50 Year Discharge Rate (Q50) cfs	676
100 Year Discharge Rate (Q100) cfs	742

CHANNEL

Depth (ft)	N/A
Width of Normal Flow (ft)	15
Depth of Normal Flow (ft)	N/A
Skew of Channel with Roadway	90
Type of Material in Stream Bed	clay, sand, and silt
Type of Vegetation on Banks	low growth, large timber, grass, dead trees
Are Channel Banks Stable	No
Signs of Stream Aggradation	No
Signs of Stream Degradation	No
Drift or Drift Potential	No
Comments	

FLOODPLAIN

Skew Same as Channel	Yes
Symmetrical About Channel	Yes
Approx. Floor Elevations	N/A
Type of Vegetation in Floodplain	low growth, large timber, grass
Any Buildings in Floodplain	No
Flood Information From Locals	N/A
Comments	

MAINTENANCE OF TRAFFIC

Method of Maintaining Traffic	temporary detour
Description	<u>Official Detour:</u> Detour thru-traffic east of bridge onto State Route 179 heading west, next onto State Route 14 heading south, then onto State Route 59 heading east, lastly back onto State Route 1 heading west. Detour thru-traffic west of bridge using the same route in reverse order. This is the only detour route that will be signed.
Comments	<u>Detour for Local Traffic:</u> Detour thru-traffic east of bridge onto State Route 179 heading west, next onto Charleston-Mason Rd heading south, then back onto State Route 1 heading west. Detour thru-traffic west of bridge using the same route in reverse order. Construction phasing for both bridges on State Route 1 (Bridge over Muddy Creek at LM 2.13 and Bridge over Branch at LM 2.89) need to accommodate access to the property located in between the two (2) bridges in Haywood County.

**TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: 38002-1217-94 ROUTE: S.R. 1
 COUNTY: HAYWOOD CITY: _____
 PROJECT PIN NUMBER: 124503.00
 PROJECT DESCRIPTION: HWY. 70 E. BRIDGE OVER BRANCH (L.M. 2.89)
BRIDGE ID: 38SR0010003

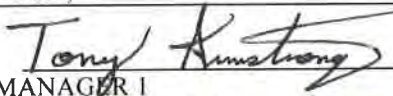
DIVISION REQUESTING:

MAINTENANCE PAVEMENT DESIGN
 S.T.I.D. STRUCTURES
 PROG. DEVELOPMENT & ADM. SURVEY & ROADWAY DESIGN
 PUBLIC TRANS. & AERO. TRAFFIC SIGNAL DESIGN
 OTHER
 YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: _____
 PROJECTED LETTING DATE: _____

TRAFFIC ASSIGNMENT:

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
1,650	2022	1,980	218	11	2042	65-35	9	13		

REQUESTED BY: NAME DAVID DUNCAN DATE 11/6/17
 DIVISION S.T.I.D.
 ADDRESS 505 DEADERICK STREET
NASHVILLE, TN. 37243

REVIEWED BY: TONY ARMSTRONG  DATE 11-30-17
 TRANSPORTATION MANAGER I
 SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: JIM WATERS  DATE 12/1/17
 ASSISTANT DIRECTOR
 SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

THIS TRAFFIC BASED ON 2017 CYCLE COUNTS. THE DESIGN YEAR TRAFFIC IS BASED ON GROWTH RATE FROM THE ADAM COMPUTER PROGRAM.

DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.

NOTE: FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADTs OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.

SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.

(REV. 2/22/17)

ZONE A

39°26'00" N

ZONE A

39°25'00" N

ZONE A

ZONE A

ZONE X

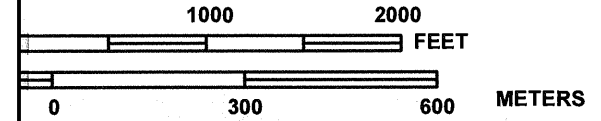
ZONE X

WES

RAILROAD

MUEX ROAD

MAP SCALE 1" = 1000'



PANEL 0310D

FIRM
FLOOD INSURANCE RATE MAP

**HAYWOOD COUNTY,
TENNESSEE
AND INCORPORATED AREAS**

PANEL 310 OF 400
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

<u>COMMUNITY</u>	<u>NUMBER</u>	<u>PANEL</u>	<u>SUFFIX</u>
HAYWOOD COUNTY	470227	0310	D
STANTON, TOWN OF	470256	0310	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



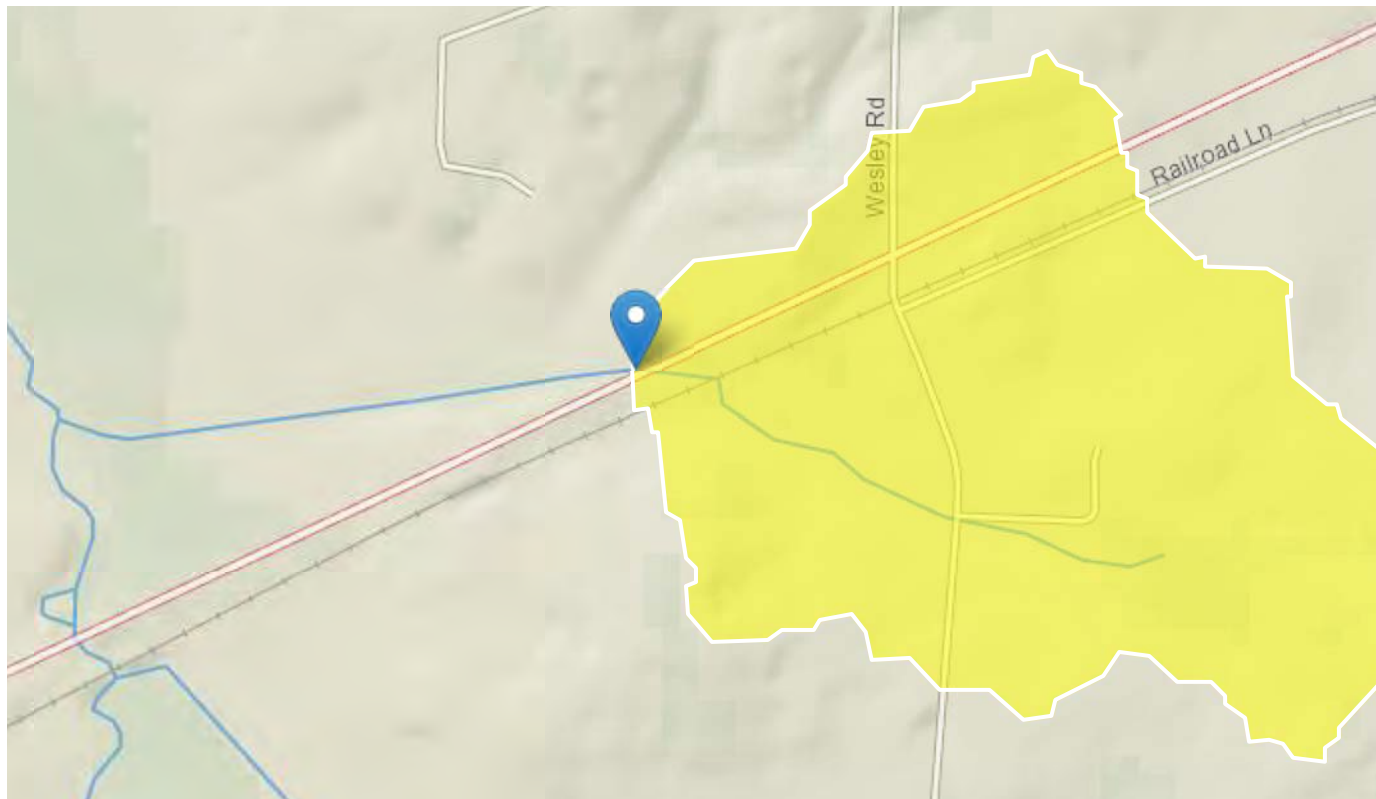
MAP NUMBER
47075C0310D
EFFECTIVE DATE
APRIL 16, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

StreamStats Report

Region ID: TN
 Workspace ID: TN20180105165149004000
 Clicked Point (Latitude, Longitude): 35.45529, -89.42674
 Time: 2018-01-05 10:51:19 -0600



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CONTKA	Area that contributes flow to a point on a stream	0.52	square miles
DRNAREA	Area that drains to a point on a stream	0.52	square miles
RECESS	Number of days required for streamflow to recede one order of magnitude when hydrograph is plotted on logarithmic scale	32	days per log cycle
PERMGTE2IN	Percent of area underlain by soils with permeability greater than or equal to 2 inches per hour	37.002	percent
CLIMFAC2YR	Two-year climate factor from Lichy and Karlinger (1990)	2.402	dimensionless
SOILPERM	Average Soil Permeability	1.07	inches per hour

Peak-Flow Statistics Parameters [DAOnly Area 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CONTDA	Contributing Drainage Area	0.52	square miles	0.76	2308

Peak-Flow Statistics Disclaimers [DAOnly Area 4]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Peak-Flow Statistics Flow Report [DAOnly Area 4]

Statistic	Value	Unit
2 Year Peak Flood	309	ft ³ /s
5 Year Peak Flood	433	ft ³ /s
10 Year Peak Flood	512	ft ³ /s
25 Year Peak Flood	607	ft ³ /s
50 Year Peak Flood	676	ft ³ /s
100 Year Peak Flood	742	ft ³ /s
500 Year Peak Flood	893	ft ³ /s

Peak-Flow Statistics Citations

Law, G.S., and Tasker G.D., 2003, Flood-Frequency Prediction Methods for Unregulated Streams of Tennessee, 2000: U.S. Geological Survey Water-Resources Investigations Report 03-4176, 79p. (<http://pubs.usgs.gov/wri/wri034176/>)

Low-Flow Statistics Parameters [Low Flow West Region 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.52	square miles	2	2405
RECESS	Recession Index	32	days per log cycle	32	350
PERMGTE2IN	Percent permeability gte 2 in per hr	37.002	percent	2	98

Low-Flow Statistics Disclaimers [Low Flow West Region 2009 5159]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [Low Flow West Region 2009 5159]

Statistic	Value	Unit
7 Day 10 Year Low Flow	0.000579	ft ³ /s
30 Day 5 Year Low Flow	0.00169	ft ³ /s

Low-Flow Statistics Citations

Law, G.S., Tasker, G.D., and Ladd, D.E., 2009, Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009-5159, 212 p., 1 pl. (<http://pubs.usgs.gov/sir/2009/5159/>)

Annual Flow Statistics Parameters [Low Flow West Region 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.52	square miles	2	2405
RECESS	Recession Index	32	days per log cycle	32	350
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.402	dimensionless	2.307	2.455
PERMGTE2IN	Percent permeability gte 2 in per hr	37.002	percent	2	98

Annual Flow Statistics Disclaimers [Low Flow West Region 2009 5159]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Annual Flow Statistics Flow Report [Low Flow West Region 2009 5159]

Statistic	Value	Unit
Mean Annual Flow	0.604	ft ³ /s

Annual Flow Statistics Citations

Law, G.S., Tasker, G.D., and Ladd, D.E., 2009, Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009-5159, 212 p., 1 pl. (<http://pubs.usgs.gov/sir/2009/5159/>)

Seasonal Flow Statistics Parameters [Low Flow West Region 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.52	square miles	2	2405
RECESS	Recession Index	32	days per log cycle	32	350
PERMGTE2IN	Percent permeability gte 2 in per hr	37.002	percent	2	98

Seasonal Flow Statistics Disclaimers [Low Flow West Region 2009 5159]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Seasonal Flow Statistics Flow Report [Low Flow West Region 2009 5159]

Statistic	Value	Unit
Summer Mean Flow	0.0901	ft ³ /s

Seasonal Flow Statistics Citations

Law, G.S., Tasker, G.D., and Ladd, D.E., 2009, Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009-5159, 212 p., 1 pl. (<http://pubs.usgs.gov/sir/2009/5159/>)

Flow-Duration Statistics Parameters [Low Flow West Region 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.52	square miles	2	2405
RECESS	Recession Index	32	days per log cycle	32	350
PERMGTE2IN	Percent permeability gte 2 in per hr	37.002	percent	2	98
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.402	dimensionless	2.307	2.455
SOILPERM	Average Soil Permeability	1.07	inches per hour	0.97	2.44

Flow-Duration Statistics Disclaimers [Low Flow West Region 2009 5159]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Flow-Duration Statistics Flow Report [Low Flow West Region 2009 5159]

Statistic	Value	Unit
99.5 Percent Duration	0.000532	ft ³ /s
99 Percent Duration	0.00085	ft ³ /s
98 Percent Duration	0.00121	ft ³ /s
95 Percent Duration	0.00182	ft ³ /s
90 Percent Duration	0.00258	ft ³ /s
80 Percent Duration	0.00428	ft ³ /s
70 Percent Duration	0.00715	ft ³ /s
60 Percent Duration	0.0147	ft ³ /s
50 Percent Duration	0.0253	ft ³ /s
40 Percent Duration	0.0545	ft ³ /s
30 Percent Duration	0.159	ft ³ /s
20 Percent Duration	0.522	ft ³ /s
10 Percent Duration	1.12	ft ³ /s

Flow-Duration Statistics Citations

Law, G.S., Tasker, G.D., and Ladd, D.E., 2009, Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009-5159, 212 p., 1 pl. (<http://pubs.usgs.gov/sir/2009/5159/>)

CHECK LIST OF DETERMINANTS FOR LOCATION STUDY

If any of the following facilities or ESE categories are located within the project area or corridor, place an "x" in the blank opposite the item. Where more than one alternate is to be considered, place its letter designation in the blank.

1. Agricultural land usage	X
2. Airport (existing or proposed)	
3. Commercial area, shopping center	
4. Floodplains	X
5. Forested land	
6. Historical, cultural, or natural landmark	
7. Industrial park, factory	
8. Institutional usages	
a. School or other educational institution	
b. Church or other religious institution (Cemetery)	
c. Hospital or other medical facility	
d. Public building, e.g., fire station	
e. Defense installation	
9. Recreation usages	
a. Park or recreational area	
b. Game preserve or wildlife area	
10. Residential establishment	
11. Urban area, town, city, or community	X
12. Waterway, lake, pond, river, stream, spring	X
Permit required:	
Coast Guard	
Section 404	X
TVA Section 26a review	
NPDES	X
Aquatic Resource Alteration	X
13. Other	
14. Location coordinated with local officials	
15. Railroad crossings	
16. Hazardous materials site	

BRIDGE TIRHaywood
State Route 1

SITE VISIT ATTENDEES			DATE: 1/11/2018
Name	Organization	Phone	Email
David Duncan	TDOT (STID)	615-532-6131	david.a.duncan@tn.gov
Joseph Clement	TDOT (STID)	615-770-1035	joseph.clement@tn.gov
Willie Coleman	TDOT Utilities	731-935-0160	willie.coleman@tn.gov
Robert Hope	TDOT Survey	731-935-0241	robert.hope@tn.gov
Branden Garcia	TDOT Operations	731-695-5776	branden.garcia@tn.gov
Burt Hutchins	R4 Project Dev.	731-935-0142	burt.hutchins@tn.gov
Nicholas Stephens	R4 Project Dev.	731-935-0133	nicholas.stephens@tn.gov
Evelyn DiOrio	R4 Env. Tech	731-935-0302	evelyn.diorio@tn.gov
Eric Philipps	R4 Env. Tech	731-935-0174	eric.philipps@tn.gov
Derek Ryan	R4 Traffic		derek.ryan@tn.gov
Brandon Taylor	KCI	615-559-0158	brandon.taylor@kci.com
Daniel Keener	KCI	980-288-6763	daniel.keener@kci.com
Drew Randolph	KCI	615-559-0157	drew.randolph@kci.com



Bridge Number



Upstream



Downstream



Inlet



Outlet



Floodplain Upstream



View of Floodplain Downstream from West of Bridge



Looking West from Bridge



Looking East from Bridge



Eastbound Approach to Bridge



Westbound Approach to Bridge



Weight Limit Sign at East Approach



Extensive Corrosion on I-Beams at Inlet



West Abutment Decay and Cracking



Extensive Corrosion of inner I-Beam at Inlet



Extensive Corrosion of inner I-Beam at Inlet



Washout and Vegetation on West Abutment at Inlet



Severe Corrosion of Flange in Outer I-Beam at Outlet



Pavement Cracking and Spalling along Surface from West Abutment



Spalling and Cracking along Surface



Poor conditions of Railing and Shoulder (Vegetation and Decay)



Fiber Optic Cable Utility Sign, Southwest of Bridge



Utility Poles on North side (Downstream) of Bridge



West Abutment



East Abutment



Bridge Beams

From: [Fottrell, Gary \(FHWA\)](#)
To: [Joseph Santangelo](#)
Cc: [Sharon Sanders](#); [Abby Harris](#); [Klint Rommel](#); [Tammy Sellers](#); [Susannah Kniazewycz](#)
Subject: RE: SR-1 (US-70) Bridge over Branch - Haywood County
Date: Thursday, August 9, 2018 4:03:17 PM
Attachments: [image001.png](#)

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

Hi Joe, since there is a feasible detour route that is 21 miles in length, which we can assume the locals will utilize, you can process this as a PCE.

Thanks,
Gary

From: Joseph Santangelo [mailto:Joseph.Santangelo@tn.gov]
Sent: Thursday, August 9, 2018 3:12 PM
To: Fottrell, Gary (FHWA) <Gary.Fottrell@dot.gov>
Cc: Sharon Sanders <Sharon.Sanders@tn.gov>; Abby Harris <Abby.Harris@tn.gov>
Subject: SR-1 (US-70) Bridge over Branch - Haywood County

Hi Gary,

We have a bridge replacement project (PIN 124503.00) along SR -1 (US-70) over Branch (west of Stanton in Region 4) which will require an Official Detour Route of 26.8 miles (see Page 11 of 38 of the attached Planning Report). As you know, this is only 1.8 miles over the 25 mile threshold for a rural detour route. Additionally, the Local Detour Route will be 21 miles in length (see Page 12 of 38 of the attached Planning Report). Please advise as to whether TDOT can process the Environmental Document as a PCE or if it will require FHWA coordination/approval.

Thank you,



Joe Santangelo | Environmental Supervisor
Environmental Division – NEPA Section
James K. Polk Building, 9th Floor
505 Deaderick Street
Nashville, TN 37243
p. 615-253-1454
joseph.santangelo@tn.gov

From: [Joseph Santangelo](#)
To: [Abby Harris](#); [Brittany Hyder](#); [Crystal Alfaro](#)
Cc: [Sharon Sanders](#)
Subject: Design-Build Bridge Projects
Date: Wednesday, October 3, 2018 1:10:38 PM
Attachments: [image001.png](#)
Importance: High

All,

The PINs have recently changed for all of these projects. Please see below and update your tracking reports and project files accordingly.

If you have projects that have been approved under the old PIN, I'm awaiting guidance on how to proceed...

Brittany – 124139.00 – New PIN: 128113.01

Crystal – 124285.00 – New PIN: 128113.02

Abby – 124505.00 – New PIN: 128113.03

Abby – 124503.00 – New PIN: 128113.04

Abby – 124637.00 – New PIN: 128113.05

Crystal – 124712.00 – New PIN: 128113.06

Thank you,



Joe Santangelo | Environmental Supervisor
Environmental Division – NEPA Section
James K. Polk Building, 9th Floor
505 Deaderick Street
Nashville, TN 37243
p. 615-253-1454
Joseph.Santangelo@tn.gov

Ecology

Environmental Studies Request

Project Information

Route: SR-1
Termini: Bridge over Branch LM 2.89
County: Haywood
PIN: 124503.00

Request

Request Type: Initial Environmental Study
Project Plans: Transportation Investment Report
Date of Plans: 04/02/2018
Location: Email Attachment

Certification

Requestor: Abby Harris
Title: TESS - NEPA

Signature:

Abby Harris

Digitally signed by Abby
Harris
Date: 2018.07.27
11:08:07 -05'00'

Environmental Study

Technical Section

Section: Ecology

Study Results

An ecological study of the area presented in the transportation investment report dated 4/2/2018 resulted in 1 stream, 3 wet weather conveyances, and 1 wetland. Please see the impact table in the environmental boundaries report for estimated impacts to features in the area. Barn swallow nests were also found under the bridge.

Commitments

Did the study of this project result in any environmental commitments?

Yes

Cliff swallow and barn swallow nests, eggs, or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests can be removed or destroyed, and measures implemented to prevent future nest building at the site (e.g., closing off area using netting).

Additional Information

Is there any additional information or material included with this study?

Yes

Type: Environmental Boundaries Report (EBR)

Location: FileNet

Certification

Responder: Dustin Tucker

Title: TESS Advanced

Signature: Dustin
Tucker

Digitally signed by
Dustin Tucker
Date: 2018.09.07
13:53:47 -05'00'



Environmental Boundaries Report

SR-1 Bridge over Branch, LM 2.89

Project No.: 38002-0217-94

PIN: 124503.00

Haywood County, Tennessee

**Prepared by:
Tennessee Department of Transportation – TDOT
Region 4**

Environmental Boundaries Report Index

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Species Review	Page 31
Special Notes	Page 37
Marked-up Plan Sheets	Page 38
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**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
REGION 4 PROJECT DEVELOPMENT DIVISION
300 BENCHMARK PLACE
JACKSON, TENNESSEE 38301
(731) 935-0139**

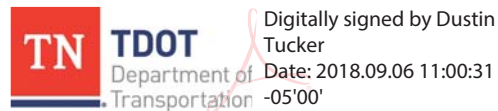
JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

MEMORANDUM

To: Gary Scruggs
Design Division

From: Dustin Tucker
Environmental Tech Office, Region 4



Date: September 4, 2018

Subject: **Environmental Boundaries For:** Haywood County, SR-1, Bridge over
Branch, LM 2.89
PE: 38002-0217-94 **PIN:** 124503.00

Due to a larger technical study area being established by a transportation investment report dated 4/2/2018, a new ecological evaluation of the subject project has been conducted with the following results:

SPRINGS/STREAMS

There is **one (1)** stream that was observed within the project limits.

- Information concerning the quality and amount of impact can be found in the attached impact table.

WET WEATHER CONVEYANCES/UPLAND DRAINAGE FEATURES

There are **three (3)** wet weather conveyances that were observed within the project limits.

WETLANDS

There is **one (1)** wetland that was observed within the project limits.

- Information concerning the quality and amount of impact can be found in the attached impact table. A TRAM was completed for this wetland.

Other Features

One (1) pond was observed within the project limits.

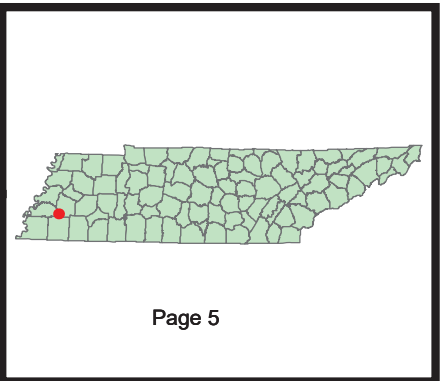
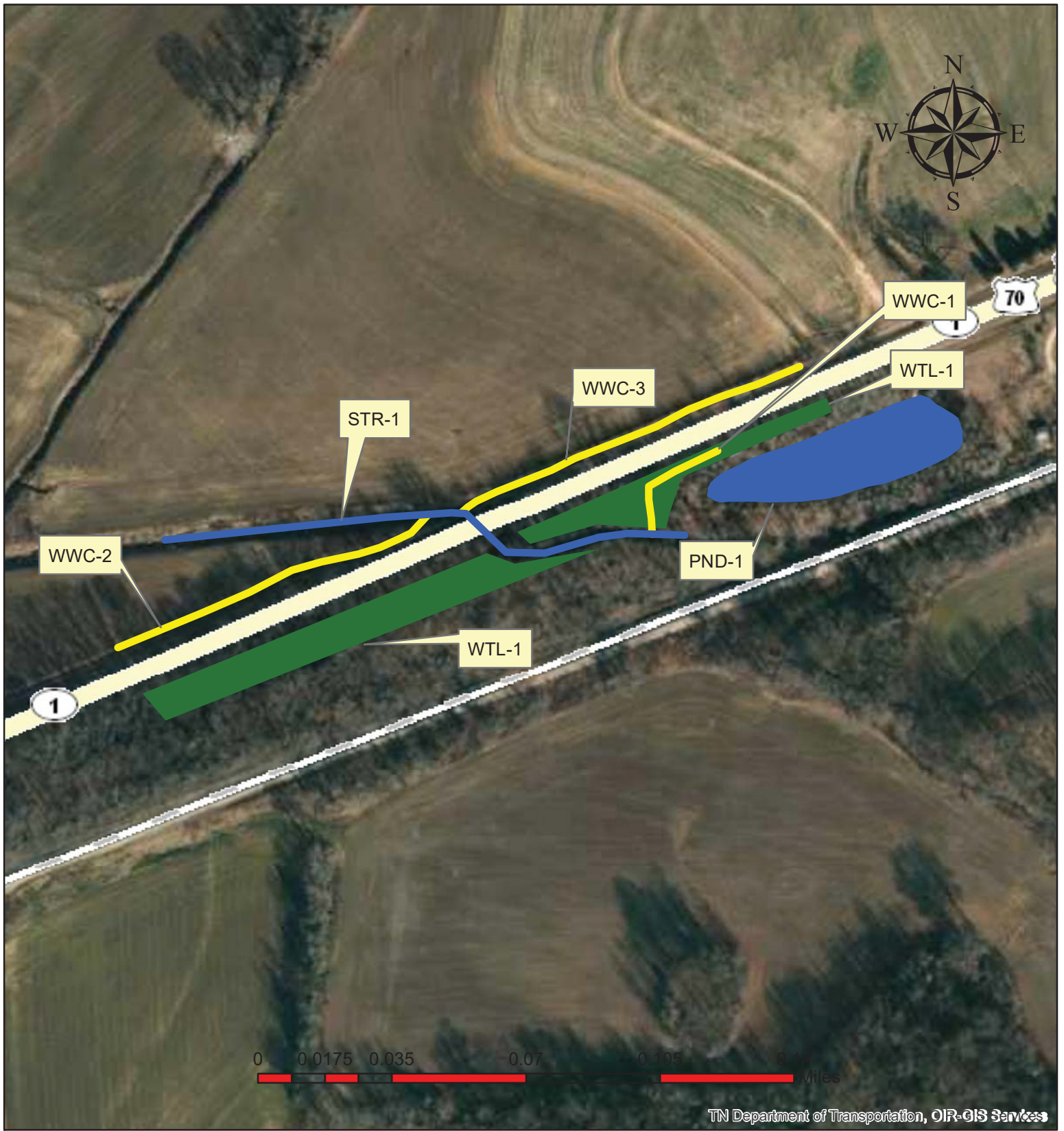
PROTECTED SPECIES

A search of the TDEC rare species database was performed on July 30, 2018. Coordination with TWRA and USFWS is included. Please add the special notes to the plans concerning commitments for protected species.

Your assistance is appreciated. If you have any questions or comments, please contact Dustin Tucker in the Region 4 Environmental Tech Office at 731-935-0101 or dustin.tucker@tn.gov.

xc: Tabitha Cavaness
Dennis Moultrie
Seth Hendren
Randall Mann
Lou Timms
Jared McCoy
Abby Harris
Glen Blakenship
James Boyd
John Hewitt
D.J. Wiseman
Michael White
Khalid Ahmed
Sharon Sanders

TDOT.ENV.NEPA
R4.ENVTechOffice
TDOT. Env. Ecology
TDOT. Env Mitigation
TDOT.Env Permits



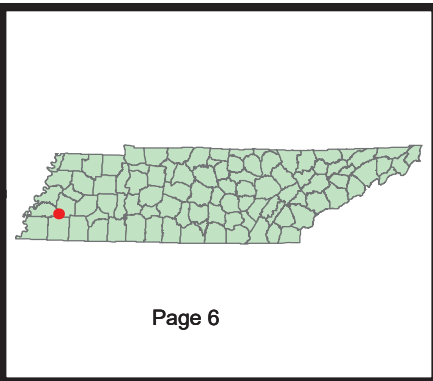
SR-1, Bridge over Branch, Log Mile 2.89
Haywood County

P.E. 38002-0217-94
PIN 124503.00





USGS



SR-1, Bridge over Branch, Log Mile 2.89
Haywood County

P.E. 38002-0217-94
PIN 124503.00



Labels	Type *	Function	Quality	Impacts **		
				Permanent	Temporary	Total
Wetlands						
WTL-1	Slope	Wildlife Habitat, Drainage		0.26 ac.	0.68 ac.	0.94 ac.
					Total	0.94 ac.

Labels	Type *	Function	Quality	Impacts **		
				Permanent	Temporary	Total
Streams						
STR-1	Intermittent		Undetermined at this time	270 ft		270 ft
WWC-1	WWC		Undetermined at this time	173 ft		173 ft
WWC-2	WWC		Undetermined at this time	243 ft		243 ft
WWC-3	WWC		Undetermined at this time	365 ft		365 ft
					Total	1,051 ft

* Identification of features has not been reviewed by regulatory agencies and determinations of stream type could possibly be changed.

** Estimated impacts are considered "Preliminary" and will not be completely accurate until the time of Permit Application.

Table 1. Calculation of Normal Weather Conditions /Stanton, TN-2018

	Long-term Rainfall Records					Actual Rainfall	Condition	Condition Value	Month Weight Value	Product of Previous two columns
	Month	Std. Dev.	Minus one Std. Dev (DRY)	Normal (Mean Inches)	Plus One Std. Dev. (WET)					
1st month prior	June	2.17	1.63	3.8	5.97	4.5	Normal	2	3	6
2nd Month prior	May	2.73	2	4.73	7.46	3.5	Normal	2	2	4
3rd month prior	April	2.48	2.7	5.18	7.66	7.5	Normal	2	1	2
									Sum	12

Note:	
If sum is:	
6-9	then prior period has been drier than normal
10-14	then prior period has been normal
15-18	then prior period has been wetter than normal

Condition Value	
Dry =	1
Normal =	2
Wet=	3

Conclusions:

Prior period has had normal rainfall.

Ecology Field Data Sheet: Water Resources

Project:		SR-1 Bridge Over Branch Log Mile 2.85, Haywood County					
Biologist:	Dustin Tucker	Affiliation:	TDOT	Date:	7/30/2018		
1-Station: from plans	No Plans						
2-Map label and name	STR-1						
3-Latitude/Longitude	35.455086, -89.426689						
4-Potential impact	Encapsulation/Fill						
5-Feature description:							
-channel identification	perennial stream	<input checked="" type="checkbox"/> intermittent stream	ephemeral stream	wwc			
-HD score (if applicable)							
-OHWM indicators	bed & banks <input checked="" type="checkbox"/>	deposition <input checked="" type="checkbox"/>	presence of litter / debris <input checked="" type="checkbox"/>	scour <input checked="" type="checkbox"/>	veg absent, bent, matted <input checked="" type="checkbox"/>		
	change in plant community <input checked="" type="checkbox"/>	destruction of terrestrial veg <input type="checkbox"/>	multiple observed flow events <input type="checkbox"/>	sediment sorting <input checked="" type="checkbox"/>	water staining <input checked="" type="checkbox"/>		
	change in soil character <input checked="" type="checkbox"/>	leaf litter disturbed absent <input checked="" type="checkbox"/>	natural line impressed on bank <input checked="" type="checkbox"/>	shelving <input type="checkbox"/>	wracking <input checked="" type="checkbox"/>		
-sinuosity	absent <input type="checkbox"/>	weak <input type="checkbox"/>	moderate <input type="checkbox"/>	strong <input type="checkbox"/>			
-channel bottom width	15 ft.		-top of bank width	25 ft.			
- avg. gradient of stream (%)	Low						
-bank height and slope ratio	LDB - 10 ft.		RDB - 10 ft.				
-water flow	fast <input type="checkbox"/>	moderate <input type="checkbox"/>	slow <input type="checkbox"/>	isolated pools <input checked="" type="checkbox"/>	none <input type="checkbox"/>		
-water depth (riffles / pools)	1 in.		water width (riffles / pools)	.5 ft.			
-bank stability: LDB, RDB	LDB: Stable <input type="checkbox"/>	Eroding <input checked="" type="checkbox"/>	Undercutting <input checked="" type="checkbox"/>	Sloughing <input checked="" type="checkbox"/>	Exposed Roots <input checked="" type="checkbox"/>		
	RDB: Stable <input type="checkbox"/>	Eroding <input checked="" type="checkbox"/>	Undercutting <input checked="" type="checkbox"/>	Sloughing <input checked="" type="checkbox"/>	Exposed Roots <input checked="" type="checkbox"/>		
-dominant riparian species: ------(LDB /RDB)-----	LDB: Sweetgum, Slippery Elm						
	RDB: Sycamore, Sasafrass, Elm						
-habitat assessment score	63						
	epifaunal substrate	9	channel alteration	6			
	channel substrate	10	channel sinuosity	6			
	pool variability	4	bank stability	LDB	2	RDB	2
	sediment deposition	8	bank vegetative protection	LDB	3	RDB	3
	channel flow status	3	riparian veg zone width	LDB	1	RDB	6
-benthos	Water Strider						
-fish	Observed						
-algae or other aquatic life	Tadpoles and Frogs Observed						
6-photo numbers	1 & 2						
7-rainfall information	.25 in. in last 7 days						
8-HUC -12 Code & Name	080102080511 Little Muddy Creek-Wesley Lake						
9-Confirmed by:							
10-Assessed	yes <input type="checkbox"/>	no <input checked="" type="checkbox"/>					
11-ETW	yes <input type="checkbox"/>	no <input checked="" type="checkbox"/>					
12-303 (d) List	yes <input type="checkbox"/>	siltation <input type="checkbox"/>	habitat: <input type="checkbox"/>	other: <input type="checkbox"/>			
	no <input checked="" type="checkbox"/>						
13-Notes	TN08010208946_0999 Barn Swallows with nests						

Ecology Field Data Sheet: Water Resources

Project:		SR-1 Bridge Over Branch Log Mile 2.85, Haywood County					
Biologist:	Dustin Tucker	Affiliation:	TDOT	Date:	7/30/2018		
1-Station: from plans	No Plans						
2-Map label and name	WWC-1						
3-Latitude/Longitude	35.455318, -89.425998						
4-Potential impact	Encapsulation/Fill						
5-Feature description:							
-channel identification	perennial stream	intermittent stream	ephemeral stream	WWC			
-HD score (if applicable)	11						
-OHWM indicators	bed & banks <input type="checkbox"/>	deposition <input type="checkbox"/>	presence of litter / debris <input type="checkbox"/>	scour <input type="checkbox"/>	veg absent, bent, matted <input type="checkbox"/>		
	change in plant community <input type="checkbox"/>	destruction of terrestrial veg <input type="checkbox"/>	multiple observed flow events <input type="checkbox"/>	sediment sorting <input type="checkbox"/>	water staining <input type="checkbox"/>		
	change in soil character <input type="checkbox"/>	leaf litter disturbed absent <input type="checkbox"/>	natural line impressed on bank <input type="checkbox"/>	shelving <input type="checkbox"/>	wracking <input type="checkbox"/>		
-sinuosity	absent <input type="checkbox"/>	weak <input checked="" type="checkbox"/>	moderate <input type="checkbox"/>	strong <input type="checkbox"/>			
-channel bottom width	2 ft.		-top of bank width		5 ft.		
- avg. gradient of stream (%)	Low						
-bank height and slope ratio	LDB - 2.5 ft.			RDB - 3 ft.			
-water flow	fast <input type="checkbox"/>	moderate <input type="checkbox"/>	slow <input type="checkbox"/>	isolated pools <input type="checkbox"/>	none <input checked="" type="checkbox"/>		
-water depth (riffles / pools)	water width (riffles / pools)						
-bank stability: LDB, RDB	LDB: Stable <input type="checkbox"/>	Eroding <input checked="" type="checkbox"/>	Undercutting <input type="checkbox"/>	Sloughing <input type="checkbox"/>	Exposed Roots <input checked="" type="checkbox"/>		
	RDB: Stable <input type="checkbox"/>	Eroding <input checked="" type="checkbox"/>	Undercutting <input type="checkbox"/>	Sloughing <input type="checkbox"/>	Exposed Roots <input checked="" type="checkbox"/>		
-dominant riparian species: ------(LDB /RDB)-----	LDB: Sycamore, Sweetgum, Virginia Creeper, Mulberry						
	RDB: Persimmon, Sweetgum, Virginia Creeper						
-habitat assessment score	0						
	epifaunal substrate		channel alteration				
	channel substrate		channel sinuosity				
	pool variability		bank stability		LDB	RDB	
	sediment deposition		bank vegetative protection		LDB	RDB	
	channel flow status		riparian veg zone width		LDB	RDB	
-benthos	None						
-fish	None						
-algae or other aquatic life	None						
6-photo numbers	8 & 9						
7-rainfall information	.25 in. in last 7 days						
8-HUC -12 Code & Name	080102080511 Little Muddy Creek-Wesley Lake						
9-Confirmed by:							
10-Assessed	yes <input type="checkbox"/>	no <input type="checkbox"/>					
11-ETW	yes <input type="checkbox"/>	no <input type="checkbox"/>					
12-303 (d) List	yes <input type="checkbox"/>	siltation <input type="checkbox"/>	habitat: <input type="checkbox"/>	other: <input type="checkbox"/>			
	no <input type="checkbox"/>						
13-Notes							

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.4

County: Haywood	Named Waterbody: UNT to Little Muddy Creek	Date/Time: 7-30-2018
Assessors/Affiliation: Dustin Tucker	Project ID: 124503.00	
Site Name/Description: WWC-1		
Site Location: South of 70/79 and West of Muex Rd.		
USGS quad: Stanton	HUC (12 digit): 080102080511	Lat/Long: 35.455318, -89.425998
Previous Rainfall (7-days) : .25 in.		
Precipitation this Season vs. Normal : very wet wet average dry drought unknown		
Source of recent & seasonal precip data : NOAA		
Watershed Size : <.10 Square Miles	Photos: Yes	Number : 8 & 9
Soil Type(s) / Geology : Collins silt loam, occasionally flooded		
Surrounding Land Use : Agricultural/Residential		
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	✓	WWC
2. Defined bed and bank absent, dominated by upland vegetation / grass	✓	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✓	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✓	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precipitation in local watershed	✓	Stream
9. Evidence watercourse has been used as a supply of drinking water	✓	Stream

NOTE : If any Primary Indicators 1-9 = "Yes", then STOP; absent directly contradictory evidence, determination is complete.

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 1.4*

Overall Hydrologic Determination = WWC

Secondary Indicator Score (if applicable) = 11

Justification / Notes :

Secondary Field Indicator Evaluation

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

B. Hydrology (Subtotal =)		3	Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	0		0	1	2	3
15. Water in channel and >48 hours since sig. rain	0		0	1	2	3
16. Leaf litter in channel (January – September)	0.5		1.5	1	0.5	0
17. Sediment on plants or on debris	0.5		0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines)	0.5		0	0.5	1	1.5
19. Hydric soils in stream bed or sides of channel			Yes = 1.5			

C. Biology (Subtotal =)		2	Absent	Weak	Moderate	Strong
20. Fibrous roots in channel ¹	0		3	2	1	0
21. Rooted plants in channel ¹	2		3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0		0	0.5	1	1.5
23. Bivalves/mussels	0		0	1	2	3
24. Amphibians	0		0	0.5	1	1.5
25. Macroinvertebrates (record type & abundance)	0		0	1	2	3
26. Filamentous algae; periphyton	0		0	1	2	3
27. Iron oxidizing bacteria/fungus	0		0	0.5	1	1.5
28. Wetland plants in channel ²	0		0	0.5	1	2

¹ Focus is on the presence of upland plants. ² Focus is on the presence of aquatic or wetland plants.

Total Points = 11
<i>Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points</i>

Notes : Flow seems to come off of the highway and flows down to STR-1. This feature appears to be just a dry ditch that flows through WTL-1.

Ecology Field Data Sheet: Water Resources

Project:		SR-1 Bridge Over Branch Log Mile 2.85, Haywood County					
Biologist:	Dustin Tucker	Affiliation:	TDOT	Date:	7/30/2018		
1-Station: from plans	No Plans						
2-Map label and name	WWC-2						
3-Latitude/Longitude	35.454884, -89.427635						
4-Potential impact	Encapsulation/Fill						
5-Feature description:							
-channel identification	perennial stream	intermittent stream	ephemeral stream	WWC			
-HD score (if applicable)	12						
-OHWM indicators	bed & banks <input type="checkbox"/>	deposition <input type="checkbox"/>	presence of litter / debris <input type="checkbox"/>	scour <input type="checkbox"/>	veg absent, bent, matted <input type="checkbox"/>		
	change in plant community <input type="checkbox"/>	destruction of terrestrial veg <input type="checkbox"/>	multiple observed flow events <input type="checkbox"/>	sediment sorting <input type="checkbox"/>	water staining <input type="checkbox"/>		
	change in soil character <input type="checkbox"/>	leaf litter disturbed absent <input type="checkbox"/>	natural line impressed on bank <input type="checkbox"/>	shelving <input type="checkbox"/>	wracking <input type="checkbox"/>		
-sinuosity	absent <input type="checkbox"/>	weak <input checked="" type="checkbox"/>	moderate <input type="checkbox"/>	strong <input type="checkbox"/>			
-channel bottom width	1.5 ft.		-top of bank width	10 ft.			
- avg. gradient of stream (%)	Low						
-bank height and slope ratio	LDB - 7 ft.			RDB - 7 ft.			
-water flow	fast <input type="checkbox"/>	moderate <input type="checkbox"/>	slow <input type="checkbox"/>	isolated pools <input type="checkbox"/>	none <input checked="" type="checkbox"/>		
-water depth (riffles / pools)	water width (riffles / pools)						
-bank stability: LDB, RDB	LDB: Stable <input type="checkbox"/>	Eroding <input checked="" type="checkbox"/>	Undercutting <input type="checkbox"/>	Sloughing <input checked="" type="checkbox"/>	Exposed Roots <input checked="" type="checkbox"/>		
	RDB: Stable <input type="checkbox"/>	Eroding <input checked="" type="checkbox"/>	Undercutting <input type="checkbox"/>	Sloughing <input checked="" type="checkbox"/>	Exposed Roots <input checked="" type="checkbox"/>		
-dominant riparian species: ------(LDB /RDB)-----	LDB: Johnson Grass, Bermuda						
	RDB: Johnson Grass, Bermuda						
-habitat assessment score	0						
	epifaunal substrate		channel alteration				
	channel substrate		channel sinuosity				
	pool variability		bank stability		LDB	RDB	
	sediment deposition		bank vegetative protection		LDB	RDB	
	channel flow status		riparian veg zone width		LDB	RDB	
-benthos	None						
-fish	None						
-algae or other aquatic life	Frogs Observed						
6-photo numbers	10 & 11						
7-rainfall information	.25 in. in last 7 days						
8-HUC -12 Code & Name	080102080511 Little Muddy Creek-Wesley Lake						
9-Confirmed by:							
10-Assessed	yes <input type="checkbox"/>	no <input type="checkbox"/>					
11-ETW	yes <input type="checkbox"/>	no <input type="checkbox"/>					
12-303 (d) List	yes <input type="checkbox"/>	siltation <input type="checkbox"/>	habitat: <input type="checkbox"/>	other: <input type="checkbox"/>			
	no <input type="checkbox"/>						
13-Notes							

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.4

County: Haywood	Named Waterbody: UNT to Little Muddy Creek	Date/Time: 7/30/2018
Assessors/Affiliation: Dustin Tucker	Project ID: 124503.00	
Site Name/Description: WWC-2	Site Location: North of 70/79 and west of Wesley Rd.	
USGS quad: Stanton	HUC (12 digit): 080102080511	Lat/Long: 35.454884, -89.427635
Previous Rainfall (7-days) : .25 in.		
Precipitation this Season vs. Normal : very wet wet average dry drought unknown		
Source of recent & seasonal precip data : NOAA		
Watershed Size : <.10 Square Miles	Photos: Yes	Number : 10 & 11
Soil Type(s) / Geology : Collins silt loam, occasionally flooded		
Surrounding Land Use : Agricultural/Residential		
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	✓	WWC
2. Defined bed and bank absent, dominated by upland vegetation / grass	✓	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✓	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✓	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precipitation in local watershed	✓	Stream
9. Evidence watercourse has been used as a supply of drinking water	✓	Stream

NOTE : If any Primary Indicators 1-9 = “Yes”, then STOP; absent directly contradictory evidence, determination is complete.

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 1.4*

Overall Hydrologic Determination = WWC

Secondary Indicator Score (if applicable) = 12

Justification / Notes :

Secondary Field Indicator Evaluation

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

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

C. Biology (Subtotal =)		3	Absent	Weak	Moderate	Strong
20. Fibrous roots in channel ¹	1		3	2	1	0
21. Rooted plants in channel ¹	1		3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0		0	0.5	1	1.5
23. Bivalves/mussels	0		0	1	2	3
24. Amphibians	0.5		0	0.5	1	1.5
25. Macroinvertebrates (record type & abundance)	0		0	1	2	3
26. Filamentous algae; periphyton	0		0	1	2	3
27. Iron oxidizing bacteria/fungus	0		0	0.5	1	1.5
28. Wetland plants in channel ²	0.5		0	0.5	1	2

¹ Focus is on the presence of upland plants. ² Focus is on the presence of aquatic or wetland plants.

Total Points = 12
Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

Ecology Field Data Sheet: Water Resources

Project:		SR-1 Bridge Over Branch Log Mile 2.85, Haywood County					
Biologist:	Dustin Tucker	Affiliation:	TDOT	Date:	7/30/2018		
1-Station: from plans	No Plans						
2-Map label and name	WWC-3						
3-Latitude/Longitude	35.455502, -89.426003						
4-Potential impact	Encapsulation/Fill						
5-Feature description:							
-channel identification	perennial stream	intermittent stream	ephemeral stream	WWC			
-HD score (if applicable)	12.5						
-OHWM indicators	bed & banks <input type="checkbox"/>	deposition <input type="checkbox"/>	presence of litter / debris <input type="checkbox"/>	scour <input type="checkbox"/>	veg absent, bent, matted <input type="checkbox"/>		
	change in plant community <input type="checkbox"/>	destruction of terrestrial veg <input type="checkbox"/>	multiple observed flow events <input type="checkbox"/>	sediment sorting <input type="checkbox"/>	water staining <input type="checkbox"/>		
	change in soil character <input type="checkbox"/>	leaf litter disturbed absent <input type="checkbox"/>	natural line impressed on bank <input type="checkbox"/>	shelving <input type="checkbox"/>	wracking <input type="checkbox"/>		
-sinuosity	absent <input type="checkbox"/>	weak <input checked="" type="checkbox"/>	moderate <input type="checkbox"/>	strong <input type="checkbox"/>			
-channel bottom width	2 ft.		-top of bank width		10 ft.		
- avg. gradient of stream (%)	Low						
-bank height and slope ratio	LDB - 7 ft.			RDB - 7 ft.			
-water flow	fast <input type="checkbox"/>	moderate <input type="checkbox"/>	slow <input type="checkbox"/>	isolated pools <input type="checkbox"/>	none <input checked="" type="checkbox"/>		
-water depth (riffles / pools)	water width (riffles / pools)						
-bank stability: LDB, RDB	LDB: Stable <input type="checkbox"/>	Eroding <input checked="" type="checkbox"/>	Undercutting <input type="checkbox"/>	Sloughing <input checked="" type="checkbox"/>	Exposed Roots <input checked="" type="checkbox"/>		
	RDB: Stable <input type="checkbox"/>	Eroding <input checked="" type="checkbox"/>	Undercutting <input type="checkbox"/>	Sloughing <input checked="" type="checkbox"/>	Exposed Roots <input checked="" type="checkbox"/>		
-dominant riparian species: ------(LDB /RDB)-----	LDB: Johnson Grass, Bermuda						
	RDB: Johnson Grass, Bermuda						
-habitat assessment score	0						
	epifaunal substrate		channel alteration				
	channel substrate		channel sinuosity				
	pool variability		bank stability		LDB	RDB	
	sediment deposition		bank vegetative protection		LDB	RDB	
	channel flow status		riparian veg zone width		LDB	RDB	
-benthos	None						
-fish	None						
-algae or other aquatic life	Frogs Observed						
6-photo numbers	12						
7-rainfall information	.25 in. in last 7 days						
8-HUC -12 Code & Name	080102080511 Little Muddy Creek-Wesley Lake						
9-Confirmed by:							
10-Assessed	yes <input type="checkbox"/>	no <input type="checkbox"/>					
11-ETW	yes <input type="checkbox"/>	no <input type="checkbox"/>					
12-303 (d) List	yes <input type="checkbox"/>	siltation <input type="checkbox"/>	habitat: <input type="checkbox"/>	other: <input type="checkbox"/>			
	no <input type="checkbox"/>						
13-Notes							

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.4

County: Haywood	Named Waterbody: UNT to Little Muddy Creek	Date/Time: 7/30/2018
Assessors/Affiliation: Dustin Tucker, TDOT	Project ID: 124503.00	
Site Name/Description: WWC-3		
Site Location: North of 70/79 and West of Wesley Rd.		
USGS quad: Stanton	HUC (12 digit): 080102080511	Lat/Long: 35.455502, -89.426003
Previous Rainfall (7-days) : .25 in.		
Precipitation this Season vs. Normal : very wet wet average dry drought unknown		
Source of recent & seasonal precip data : NOAA		
Watershed Size : <.10 Square Miles	Photos: Yes	Number : 12
Soil Type(s) / Geology : Collins silt loam, occasionally flooded		
Surrounding Land Use : Residential/Agricultural		
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	✓	WWC
2. Defined bed and bank absent, dominated by upland vegetation / grass	✓	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✓	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✓	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precipitation in local watershed	✓	Stream
9. Evidence watercourse has been used as a supply of drinking water	✓	Stream

NOTE : If any Primary Indicators 1-9 = "Yes", then STOP; absent directly contradictory evidence, determination is complete.

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 1.4*

Overall Hydrologic Determination = WWC

Secondary Indicator Score (if applicable) = 12.5

Justification / Notes :

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: SR-1 Bridge Over Branch Log Mile 2.85 City/County: Haywood Sampling Date: 7/30/2018
 Applicant/Owner: Tennessee Department of Transportation State: TN Sampling Point: WTL-1
 Investigator(s): Dustin Tucker Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Flood plains Local relief (concave, convex, none): Concave Slope (%): 0-2
 Subregion (LRR or MLRA): 134 Lat: 35.455288 Long: -89.425949 Datum: WGS 84
 Soil Map Unit Name: Collins silt loam, occasionally flooded (Co) NWI classification: PF01C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WTL-1

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>14</u> (A) Total Number of Dominant Species Across All Strata: <u>17</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>82.4%</u> (A/B)
1. <u>Platanus occidentalis</u>		Y	FACW	
2. <u>Liquidambar styraciflua</u>		Y	FAC	
3. <u>Acer rubrum</u>		Y	FAC	
4. <u>Ulmus rubra</u>		Y	FAC	
5. <u>Populus deltoides</u>		Y	FAC	
6. <u>Diospyros virginiana</u>		Y	FAC	
7. _____				
8. _____				
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Acer negundo</u>		Y	FAC	
2. <u>Ulmus rubra</u>		Y	FAC	
3. <u>Broussonetia papyrifera</u>		Y	FACU	
4. <u>Liquidambar styraciflua</u>		Y	FAC	
5. <u>Acer rubrum</u>		Y	FAC	
6. <u>Ligustrum sinense</u>		Y	FAC	
7. _____				
8. _____				
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Microstegium vimineum</u>		Y	FAC	
2. <u>Scirpus atrovirens</u>		Y	OBL	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Woody Vine Stratum (Plot size: _____)				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
1. <u>Parthenocissus quinquefolia</u>		Y	FACU	
2. <u>Toxicodendron radicans</u>		Y	FAC	
3. <u>Lonicera japonica</u>		Y	FACU	
4. _____				
5. _____				
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: (If observed, list morphological adaptations below).				

SOIL

Sampling Point: WTL-1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
3-12	10YR 5/2	90	10YR 4/6	10			Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HGM FUNCTIONAL ASSESSMENT SLOPE WETLANDS

Date: 7/30/2018

Project Name SR-1 Bridge Over Branch Log Mile 2.85, Haywood County

Field Personnel Dustin Tucker

Wetland Name/Location WTL-1

Read instructions prior to conducting assessments. If project area is large or highly heterogeneous requiring the designation of several WAAs, a separate assessment should be performed for each WAA. CHECK THE APPROPRIATE BLANK(S) BELOW.

V1: Hydroperiod (HYDRO)

- | | |
|--|---|
| <input type="checkbox"/> 1. Hydrology not altered (SI = 1.0)
- no fill material or excessive sediment
- no ditches/drainage tiles
-no alteration to overland runoff, groundwater discharge/recharge | - no roads or other impediments to surface ground water
- no excavation |
| <input type="checkbox"/> 2. Hydrology slightly altered (SI = 0.75)
- portion of site with minimal fill or sediment
- portion of site with drainage ditches/tiles
-some alteration to overland runoff, groundwater discharge/recharge | - roads or other impediments, water flow slightly altered
- minor portion of site excavated |
| <input checked="" type="checkbox"/> 3. Hydrology moderately altered (SI = 0.5)
- portion of site with moderate fill or sediment
- portion of site with drainage ditches/tiles
- some alteration to overland runoff, groundwater discharge/recharge | - roads or other impediments, water flow moderately altered
- moderate portion of site excavated |
| <input type="checkbox"/> 4. Hydrology significantly altered (SI = 0.25)
- portion of site with significant fill or sediment
- portion of site with drainage ditches/tiles
- significant alteration to overland runoff, groundwater discharge/recharge | - roads or other impediments, water flow significantly altered
- significant portion of site excavated |
| <input type="checkbox"/> 5. Hydrology severely altered (SI = 0.1)
- entire site impacted by fill or excessive sediment
- entire site with numerous drainage ditches/tiles
- no contributions to or from overland runoff, groundwater discharge/recharge | - roads or other impediments, water flow completely blocked
- entire wetland affected |

V2: Wetland Watershed Integrity (WSHEDINT)

Use weighted average as discussed on page 10. Examples of land uses and multipliers listed below

- A = Percentage forested with no impervious surfaces 20
 B = Percentage permeable land, e.g. park, golf course, pasture, hay, orchard, tree farm, or similar 75
 C = Percentage low density residential, construction, or similar 5
 D = Percentage high density residential, or similar 0
 E = Percentage urban, commercial, industrial, or similar 0

$$V2 = (A \times 1.0) + (B \times 0.75) + (C \times 0.5) + (D \times 0.25) + (E \times 0.01) / (100) = \underline{.79}$$

V3: Canopy Tree Size Class (TSIZE)

1. Average size of canopy trees > 3 in. DBH
 ≥ 15 in. (SI = 1.0)
 10 – 14 in. (SI = 0.75)
 6 – 9 in. (SI = 0.5)
 4 – 5 in. (SI = 0.25)
 < 4 in. or no trees present, go to V5

V4: Canopy Tree Density (TDEN)

1. Average number of canopy trees (> 3 in. DBH) per 30-ft. radius plot
 5 – 10 (SI = 1.0)
 11 – 15 (SI = 0.75)
 > 15 (SI = 0.5)
 1 – 4 (SI = 0.5)

V5: Shrub Cover (SCOV)

1. Average percent cover of shrubs (woody stems < 3 in. DBH and taller than 3 ft.) per 30-ft. radius plot

> 20 (SI = 1.0) < 20, go to V6

V6: Ground Vegetation Cover (GVC)

1. Average percent cover of ground vegetation per 30-ft. radius plot

≥ 70 (SI = 1.0) 55 – 69 (SI = 0.75) 45 – 54 (SI = 0.5) 30 – 44 (SI = 0.25) 20 – 29 (SI = 0.1)
 < 20 (SI=0.0)

V7: Vegetation Composition and Diversity (COMP)

1. Check the dominant species from Groups 1, 2, and 3 below using the 50/20 rule. If tree cover is < 20%, check the dominants in the next tallest stratum. If a dominant does not appear in lists below, but is a native species, it can be added as a Group 2 species. Native shrub and herbaceous species are assigned to Group 2. When using shrub or herbaceous write in the number of dominant species. Dominant invasive species are checked regardless of stratum. *

GROUP 1 (Reference Standard)		GROUP 2 (Native Ubiquitous)		GROUP 3 (Invasive)
<input type="checkbox"/> Water oak	<input type="checkbox"/> Pin oak	<input type="checkbox"/> American elm	<input type="checkbox"/> Green ash	<input checked="" type="checkbox"/> European/Chinese privet
<input type="checkbox"/> Bur oak	<input type="checkbox"/> Shumard oak	<input checked="" type="checkbox"/> Slippery elm	<input checked="" type="checkbox"/> Red maple	<input checked="" type="checkbox"/> Japanese honeysuckle
<input type="checkbox"/> Willow oak	<input type="checkbox"/> Bald cypress	<input checked="" type="checkbox"/> Sweetgum	<input type="checkbox"/> Silver maple	<input checked="" type="checkbox"/> Japanese stiltgrass
<input type="checkbox"/> Swamp chestnut oak	<input type="checkbox"/> Water tupelo	<input type="checkbox"/> Blackgum	<input type="checkbox"/> Black willow	<input type="checkbox"/> Purple loosestrife
<input type="checkbox"/> Cherrybark oak	<input type="checkbox"/> S. black gum	<input type="checkbox"/> Silky dogwood	<input checked="" type="checkbox"/> Sycamore	<input type="checkbox"/> Giant reed
<input type="checkbox"/> Swamp white oak	<input checked="" type="checkbox"/> Persimmon	<input checked="" type="checkbox"/> Boxelder	<input checked="" type="checkbox"/> Eastern Cottonwood	<input type="checkbox"/> Tall fescue
<input type="checkbox"/> Nuttall oak	<input type="checkbox"/> Am. hornbeam	<input type="checkbox"/> Tulip poplar		<input type="checkbox"/> Phragmites
<input type="checkbox"/> Overcup oak				
<input type="checkbox"/>				
		_____ Number native shrub spp.		
		_____ Number native herbaceous spp.		

2. Using the number of dominants in Groups 1, 2, and 3 above, calculate a quality index (Q) using the following formula: [(1.0 x # of checked dominants in Group 1) + (0.66 x # of checked dominants in Group 2) + (0.0 x # of checked dominants in Group 3)] / total # of checked dominants in all groups = .50

3. Multiply Q above by one of the following constants that reflects species richness:¹

- a) if ≥ 4 species from Groups 1 and/or 2 occur as dominants, multiply Q by 1.0 _____
- b) if 3 species from Groups 1 and/or 2 occur as dominant, multiply Q by 0.75 _____
- c) if 2 species from Groups 1 and/or 2 occur as dominants, multiply Q by 0.50 _____
- d) if 1 species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.25 _____
- e) if no species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.0 _____

4. Calculate the square root of the value from Step 3 above. This is the SI for V7= .70

*In some Depression wetlands and in some small WAAs (e.g., <0.5 acres), relatively few species (e.g., overcup oak) may be present. In cases in which this is the normal condition, Q can be multiplied by 1.0 if only 1 or 2 species are dominant.

V8: Soil Organic Matter (ORGANIC)

1. Surface horizons unaltered

100 percent cover of O and/or A horizon present (SI = 1.0)

2. Surface horizons altered. Estimate the percent of the WAA in which neither an O or A horizon is present.

3. Subtract the sum of the values from Step 2 from 100. Convert this value to a decimal. This is the SI for V8 (e.g., if 75 % of the WAA does not have an O or A horizon due to a significant disturbance, it will have an SI of 0.25).

V9: Buffer (BUFFER)

1. Determine the Connection Index (CI) by estimating the percent of the wetland surrounded by suitable buffer habitat.

90% – 100% (CI = 1.0) 75% – 89% (CI = 0.75) 40% – 74% (CI = 0.5) 10% – 39% (CI = 0.25)
 < 10% (CI = 0.1)

2. Multiply the CI by one if the following values:

- a) if average buffer width is ≥ 492 ft., multiply by 1.0
- b) if average buffer is 98 ft to 491 ft., multiply by 0.66
- c) if average buffer width is 33 ft to 97 ft., multiply by 0.33
- d) if average buffer width is < 33 ft., multiply by 0.1

3. This value is the SI for V9 = .17.

VALUES USED TO CALCULATE FUNCTIONAL CAPACITY INDICES (FCIs)

SUBINDEX VALUES:

V1 .50 (HYDRO) V3 1.0 (TSIZE) V5 _____ (SCOV) V7 .70 (COMP) V9 .17 (BUFFER)
 V2 .79 (WSHEDINT) V4 .50 (TDEN) V6 _____ (GVC) V8 1.0 (ORGANIC)

WETLAND FUNCTIONS

FUNCTION 1: MAINTAIN HYDROLOGIC REGIME			
FCI 1:	$(V1 \times V2)^{1/2} \Rightarrow (.50 \times .79)^{1/2}$		= <u>.63</u>
FUNCTION 2: MAINTAIN BIOGEOCHEMICAL PROCESSES			
FCI (trees present)=	$\left((V1 \times V2)^{1/2} \times \left(\frac{V3+V4+V8}{2} \right) \right)^{1/2} \Rightarrow \left((FCI 1) \times \left(\frac{1.0+.50}{2} + \frac{1.0}{2} \right) \right)^{1/2}$		= <u>.74</u>
FCI (shrubs present)=	$\left((V1 \times V2)^{1/2} \times \left(\frac{V5+V8}{3} \right) \right)^{1/2} \Rightarrow \left((FCI 1) \times \left(\frac{\quad + \quad}{3} \right) \right)^{1/2}$		= _____
FCI (ground cover)	$\left((V1 \times V2)^{1/2} \times \left(\frac{V6+V8}{5} \right) \right)^{1/2} \Rightarrow \left((FCI 1) \times \left(\frac{\quad + \quad}{5} \right) \right)^{1/2}$		= _____
FUNCTION 3: MAINTAIN CHARACTERISTIC PLANT COMMUNITY			
FCI (trees present) =	$\frac{(V1 \times V2)^{1/2} + 2\left(\frac{V3+V4+V7}{3}\right)}{3} \Rightarrow \frac{(FCI 1) + 2\left(\frac{1.0+.50+.70}{3}\right)}{3}$		= <u>.69</u>
FCI (shrubs present) =	$\frac{(V1 \times V2)^{1/2} + 2\left(\frac{V5+V7}{2}\right)}{6} \Rightarrow \frac{(FCI 1) + (\quad + \quad)}{6}$		= _____
FCI (groundcover) =	$\frac{(V1 \times V2)^{1/2} + 2\left(\frac{V6+V7}{2}\right)}{9} \Rightarrow \frac{(FCI 1) + (\quad + \quad)}{9}$		= _____
FUNCTION 4: MAINTAIN CHARACTERISTIC WILDIFE COMMUNITY			
FCI (trees) =	$\frac{(V1 \times V2)^{1/2} + 2\left(\frac{V3+V4+V7}{3}\right) + V9}{4} \Rightarrow \frac{(FCI 1) + 2\left(\frac{1.0+.50+.70}{3}\right) + .17}{4}$		= <u>.52</u>
FCI (shrubs present) =	$\frac{(V1 \times V2)^{1/2} + 2\left(\frac{V5+V7}{2}\right) + V9}{6} \Rightarrow \frac{(FCI 1) + (\quad + \quad + \quad)}{6}$		= _____
FCI (groundcover) =	$\frac{(V1 \times V2)^{1/2} + 2\left(\frac{V6+V7}{2}\right) + V9}{9} \Rightarrow \frac{(FCI 1) + (\quad + \quad + \quad)}{9}$		= _____

TRAM Summary Worksheet

Project: SR-1 Bridge Over Branch Log Mile 2.85, Haywood County

Exceptional Status Wetlands		Check if applicable
	1. ONRW	<input type="checkbox"/>
	2. ETW	<input type="checkbox"/>
	3. Further Review Requested: Attach Wetland Background and Exceptional Status Wetlands Worksheet	<input type="checkbox"/>
	COMMENTS/NOTES: WTL-1	
Quantitative Rating scores	Function: Hydrologic Regime	.63
	Function: Biogeochemical Processes	.74
	Function: Retain Particulates	
	Function: Plant Community	.69
	Function: Wildlife Community	.52
	Quantitative Score (Average of FCIs x 100)	65
	Value Added (Significant Size) Total	1
Total of Quantitative and Value Added Scores	TOTAL SCORE	66

An affirmative response to 1-6 of the Decision Table identifies the wetland per rule as an Outstanding Natural Resource Water (ONRW) or Exceptional Tennessee Waters (ETW). A positive response to 7-13 requires a final determination by the Department.

#	Wetland Feature Decision Table	WTL-1	Yes/No	Affirmative Result
1	The wetland has been designated as an Outstanding Natural Resource Water (ONRW) by the Department under 0400-40-03-.06(5)(a).		No	ONRW
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-03-.06(4)(a)(7)		No	ETW
3	The wetland is within state or national parks, wildlife refuges, forests, wilderness areas, natural areas, or is a designated State Scenic Rivers or Federal Wild and Scenic Rivers.		No	ETW
4	The wetland is known to contain a documented non-experimental population of state or federally listed threatened or endangered aquatic or semi-aquatic plants, or aquatic animals.		No	ETW
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as " Critical Habitat " for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal species.		No	ETW
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values		No	ETW
7	The wetland exhibits outstanding ecological or recreational values such as, but not limited to, those as outlined in 8-12		No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee ranked G2, G1, or more imperiled at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g. "bog", "fen", and "wet prairie/barren" communities).		No	Determination Required by TDEC
9	The wetland is an uncommon resource (e.g. vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.		No	Determination Required by TDEC
10	The wetland is an older aged forested wetland comprised of overstory trees with an average diameter at breast height (dbh) being greater than or equal to 30 in within the WAA.		No	Determination Required by TDEC
11	The wetland is observed and documented to be a significant waterfowl, songbird, shorebird, amphibian, bat, fish habitat area . These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.		No	Determination Required by TDEC
12	The wetland is hydrologically connected to and/or has significant ecological contribution to an ETW		No	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a score of 75 and above using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)		No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: SR-1 Bridge Over Branch Log Mile 2.85 City/County: Haywood Sampling Date: 7/30/2018
 Applicant/Owner: Tennessee Department of Transportation State: TN Sampling Point: UPL-1
 Investigator(s): Dustin Tucker Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Flood plains Local relief (concave, convex, none): Convex Slope (%): 0-2
 Subregion (LRR or MLRA): 134 Lat: 35.455181 Long: -89.426353 Datum: WGS 84
 Soil Map Unit Name: Collins silt loam, occasionally flooded (Co) NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---	--

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: _____		20% of total cover: _____		
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover: _____		20% of total cover: _____		
Herb Stratum (Plot size: _____)				
1. <u>Sorghum halepense</u>	_____	Y	FACU	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
50% of total cover: _____		20% of total cover: _____		
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		
Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>				
Remarks: (If observed, list morphological adaptations below).				

SOIL

Sampling Point: UPL-1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
2-12	10YR 4/6	100					Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- . Histosol (A1)
- . Histic Epipedon (A2)
- . Black Histic (A3)
- . Hydrogen Sulfide (A4)
- . Stratified Layers (A5)
- . Organic Bodies (A6) (LRR P, T, U)
- . 5 cm Mucky Mineral (A7) (LRR P, T, U)
- . Muck Presence (A8) (LRR U)
- . 1 cm Muck (A9) (LRR P, T)
- . Depleted Below Dark Surface (A11)
- . Thick Dark Surface (A12)
- . Coast Prairie Redox (A16) (MLRA 150A)
- . Sandy Mucky Mineral (S1) (LRR O, S)
- . Sandy Gleyed Matrix (S4)
- . Sandy Redox (S5)
- . Stripped Matrix (S6)
- . Dark Surface (S7) (LRR P, S, T, U)

- . Polyvalue Below Surface (S8) (LRR S, T, U)
- . Thin Dark Surface (S9) (LRR S, T, U)
- . Loamy Mucky Mineral (F1) (LRR O)
- . Loamy Gleyed Matrix (F2)
- . Depleted Matrix (F3)
- . Redox Dark Surface (F6)
- . Depleted Dark Surface (F7)
- . Redox Depressions (F8)
- . Marl (F10) (LRR U)
- . Depleted Ochric (F11) (MLRA 151)
- . Iron-Manganese Masses (F12) (LRR O, P, T)
- . Umbric Surface (F13) (LRR P, T, U)
- . Delta Ochric (F17) (MLRA 151)
- . Reduced Vertic (F18) (MLRA 150A, 150B)
- . Piedmont Floodplain Soils (F19) (MLRA 149A)
- . Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- . 1 cm Muck (A9) (LRR O)
- . 2 cm Muck (A10) (LRR S)
- . Reduced Vertic (F18) (outside MLRA 150A,B)
- . Piedmont Floodplain Soils (F19) (LRR P, S, T)
- . Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- . Red Parent Material (TF2)
- . Very Shallow Dark Surface (TF12)
- . Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

Ecology Field Data Sheet: Other Resource Features
 (Caves/Rock Houses; Sinkholes; Specialized Habitats; Other)

Project: SR-1 Bridge Over Branch Log Mile 2.85, Haywood County

Date of survey: 7/30/2018 **Biologist:** Dustin Tucker **Affiliation:** TDOT

1-Station: from plans	No Plans	
2-Map label	PND-1	
3- Lat/Long	35.45540, -89.42520	
4-Potential impact	Runoff	
5-Feature name	PND-1	
6-Feature description:		
what is it	Pond	
portion affected	None	
approximate size	0.61 acres	
photo number	3	
other		
7- HUC code & name if applicable (12-digit)	080102080511 Muddy Creek-Wesley Creek	
8-Determination: TDOT/ consultant	TDOT	
9-Determination: Confirmed? By?		
10-Mitigation: to be included in design	None	
11-Notes		

Project: SR-1, Bridge over Branch, Log Mile 2.89

PE No. 38002-0217-94

PIN: 124503.00

Date of field study: 7/30/2018

Date TDEC database checked: 7/30/2018

Completed by: Dustin Tucker

Species reported within 1 mile radius of project:

Species Scientific and common names, followed by (A) for animal or (P) for plant	Status		Species is potentially present in R-O-W because: (A) it is listed by TDEC within ROW (B) habitat is present (C) observed during site visit (D) critical habitat present within ROW	Species is considered likely NOT present in R-O-W because: (A) Present habitat unsuitable (B) Not observed during site visit (C) Original record questionable (D) Considered extinct/extirpated	Accommodations to minimize impacts: (A) BMPs are sufficient to protect species (B) Special Notes are included on project plans (C) Individuals will be impacted. (D) Accommodations not practical due to broad habitat description or mobility of species	Habitat (include blooming, breeding or other information; where found according to TDEC database; year last observed; reference)	Notes
	Fed	TN					
Prairie False-foxglove (<i>Agalinis heterophylla</i>) (P)		E		B	A	Barrens	

Species reported within 1-mile to 4-mile radius of project:

Species Scientific and common names, followed by (A) for animal or (P) for plant	Status		Species is potentially present in R-O-W because: (A) it is listed by TDEC within ROW (B) habitat is present (C) observed during site visit (D) critical habitat present within ROW	Species is considered likely NOT present in R-O-W because: (A) Present habitat unsuitable (B) Not observed during site visit (C) Original record questionable (D) Considered extinct/extirpated	Accommodations to minimize impacts: (A) BMPs are sufficient to protect species (B) Special Notes are included on project plans (C) Individuals will be impacted. (D) Accommodations not practical due to broad habitat description or mobility of species	Habitat (include blooming, breeding or other information; where found according to TDEC database; year last observed; reference)	Notes
	Fed	TN					
Reniform Sedge (<i>Carex reniformis</i>) (P)		S		B	A	Rich Bottomland Woods	

Project: SR-1, Bridge over Branch, Log Mile 2.89

PE No. 38002-0217-94

PIN: 124503.00

Migratory Birds

List **significant concentrations** of migratory birds encountered within the project area (rookeries, aggregations, nesting areas, etc).

Species (Scientific and Common Name)	Approximate No. of Nests (or Individuals)	Location of Nests (or Individuals) (Include Latitude & Longitude)	Nesting Dates and Reference	Photograph #
Barn swallow (<i>Hirundo rustica</i>)	40 Nests	Under the bridge	April 15 to July 31	

USFWS letter: Yes X (attached) No ___ (explain)

Biological Assessment: Yes ___ (response letter attached; see below) No X

Species (scientific and common names)	USFWS conclusion ¹

¹ Choose from "no effect"; "not likely to adversely affect;" or "likely to adversely affect;". If "likely to adversely affect" is chosen, indicate "no jeopardy to species and no adverse modification to habitat" or "jeopardy to species, or adverse modification to habitat" based on FWS concurrence letter

Dustin Tucker

From: John Griffith <john_griffith@fws.gov>
Sent: Wednesday, August 15, 2018 12:32 PM
To: Dustin Tucker
Cc: Randall E. Mann; Lou Timms; Jared McCoy; Rita M. Thompson
Subject: RE: [EXTERNAL] Haywood County, SR-1, 124503.00

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

Dustin,
??

Thank you for requesting our review of the proposed SR-1 Bridge replacement over an unnamed tributary to Little Muddy Creek at LM 2.89 in Haywood County, Tennessee.?? Upon review of the information provided and our database, we are not aware of any federally listed or proposed species that would be impacted by the project.?? Therefore, based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act (Act) of 1973, as amended, are fulfilled for all species that currently receive protection under the Act.?? Obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

??

TDOT's standard construction BMPs would be implemented during the project. Regular inspections and cleaning of sediment structures will ensure the maximum level of sediment control.?? If structures fail or are found to be inadequate, work should cease and not resume until appropriate corrective measures have been taken.?? Equipment staging and maintenance areas should be developed an adequate distance from the stream to avoid entry of petroleum-based pollutants into the water.?? Concrete and cement dust must also be kept out of the water as they alter chemical properties and can be toxic to aquatic species. This email will serve as our official project response.?? Please let me know if we can offer further assistance.?? Thanks,

??

John Griffith
Transportation Biologist
U.S. Fish and Wildlife Service
Tennessee Field Office
931-525-4995 (office)
931-528-7075 (fax)
??

From: Dustin Tucker <Dustin.Tucker@tn.gov>
Sent: Tuesday, July 31, 2018 8:25 AM
To: 'john_griffith@fws.gov' <john_griffith@fws.gov>
Cc: Randall E. Mann <Randall.E.Mann@tn.gov>; Lou Timms <Lou.Timms@tn.gov>; Jared McCoy <Jared.McCoy@tn.gov>; Rita M. Thompson <Rita.M.Thompson@tn.gov>
Subject: [EXTERNAL] Haywood County, SR-1, 124503.00

??

John,??

??

Please see the attached coordination letter for the above referenced project. TDOT is proposing to replace the bridge in this project area. If you have any questions, please let me know.

??

Thank you,

??



Dustin Tucker | Environmental Studies Specialist Advanced

Region 4, Environmental Tech Office

Project Development

Building A, 1st floor

300 Benchmark Place, Jackson, TN 38301

p. 731-935-0101 c. 731-412-2000

dustin.tucker@tn.gov

tn.gov/tdot

??

Dustin Tucker

From: Casey Parker
Sent: Thursday, August 30, 2018 2:00 PM
To: Dustin Tucker; TDOT Env.LocalPrograms
Cc: Rob Todd
Subject: RE: Request for Comment; Haywood County; SR-1 Bridge Replacement, PIN 124503.00

Subject: Request for Comment; Haywood County; SR-1 Bridge Replacement, PIN 124503.00

Mr. Dustin Tucker,

I have reviewed the information that you provided regarding the proposed bridge replacement on SR-1 in Haywood County, Tennessee. The implementation of standard BMP's will be sufficient to satisfy the needs of the Tennessee Wildlife Resources Agency for this proposed project. Thank you for the opportunity to review and comment, please contact me if you need further assistance.

Casey Parker - Wildlife Biologist
Liaison to TDOT & Federal Highway Administration
Tennessee Wildlife Resources Agency
Environmental Services Division
Email: casey.parker@tn.gov



From: Dustin Tucker
Sent: Thursday, August 30, 2018 9:11 AM
To: Casey Parker
Cc: Lou Timms; Rita M. Thompson; Rob Todd
Subject: FW: Request for Comment; Haywood County; SR-1 Bridge Replacement, PIN 124503.00

Casey,

I just wanted to check on the status of this project.

Thank you,



Dustin Tucker | Environmental Studies Specialist Advanced
Region 4, Environmental Tech Office
Project Development
Building A, 1st floor
300 Benchmark Place, Jackson, TN 38301
p. 731-935-0101 c. 731-412-2000
dustin.tucker@tn.gov
tn.gov/tdot

From: Dustin Tucker
Sent: Tuesday, July 31, 2018 7:18 AM
To: Casey Parker
Cc: 'Randall E. Mann'; Lou Timms; Jared McCoy; Rita M. Thompson; Rob Todd
Subject: Request for Comment; Haywood County; SR-1 Bridge Replacement, PIN 124503.00

Casey,

TDOT proposes to replace the bridge in the attached project area in Haywood County. Please find attached KMZ file and species maps. If you have any questions or require additional information, please do not hesitate to contact me.

Thank you,



Dustin Tucker | Environmental Studies Specialist Advanced
Region 4, Environmental Tech Office
Project Development
Building A, 1st floor
300 Benchmark Place, Jackson, TN 38301
p. 731-935-0101 c. 731-412-2000
dustin.tucker@tn.gov
tn.gov/tdot

Special Notes

Cliff swallow and barn swallow nests, eggs, or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests can be removed or destroyed, and measures implemented to prevent future nest building at the site (e.g., closing off area using netting).



STR-1

WVC-1

WVC-3

←←← BRANCH

2 @ 18 FT X 16 FT RCB @ 45°

2 - 12 FT LANES
W/ 8 FT SHOULDERS

150'

150'

HWY 70/S.R. 1

GUARDRAIL

R.R.

VTL-1

BRIDGE TIP



Photo 1. STR-1 – Looking upstream



Photo 2. STR-1 – Looking downstream



Photo 3. PND-1 – Looking upstream



Photo 4. WTL-1 – Characteristic soil of WTL-1



Photo 5. WTL-1



Photo 6. UPL-1 – Characteristic soil of UPL-1



Photo 7. UPL-1

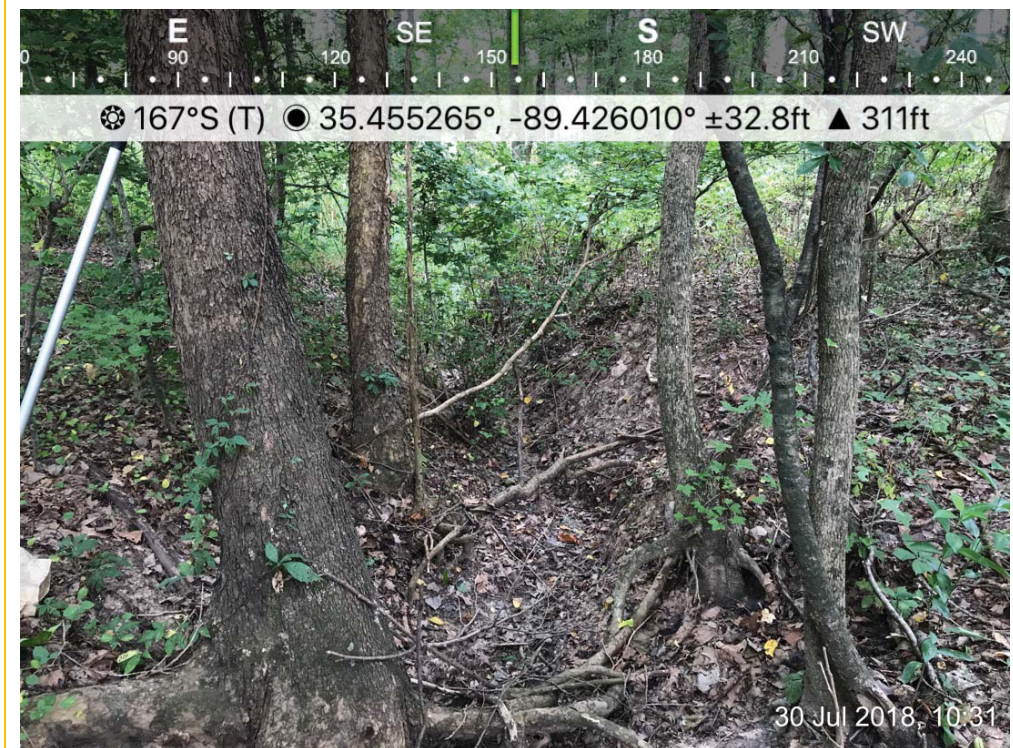


Photo 8. WWC-1 – Looking downstream



Photo 9. WWC-1 – Looking upstream



Photo 10. WWC-2 – Looking up gradient



Photo 11. WWC-2 – Looking down gradient



Photo 12. WWC-3 – Looking down gradient

Air and Noise

Environmental Studies Request

Project Information

Route: SR-1
Termini: Bridge over Branch LM 2.89
County: Haywood
PIN: 124503.00

Request

Request Type: Initial Environmental Study
Project Plans: Transportation Investment Report
Date of Plans: 04/02/2018
Location: Email Attachment

Certification

Requestor: Abby Harris
Title: TESS - NEPA

Signature:

Abby Harris

Digitally signed by Abby
Harris
Date: 2018.07.27
11:08:07 -05'00'

Environmental Study

Technical Section

Section: Air and Noise

Study Results

AIR QUALITY

Transportation Conformity

This project is in Haywood County which is in attainment for all regulated criteria pollutants. Therefore, conformity does not apply to this project.

Mobile Source Air Toxics (MSATs)

This project qualifies as a categorical exclusion under 23 CFR 771.117 and does not require a Mobile Source Air Toxics (MSATs) evaluation per FHWA's "Interim Guidance Update on Air Toxic Analysis in NEPA Documents" dated October 2016.

NOISE

This project is Type III in accordance with the FHWA noise regulation in 23 CFR 772 and TDOT's noise policy; therefore, a noise study is not needed.

Commitments

Did the study of this project result in any environmental commitments?

No

Additional Information

Is there any additional information or material included with this study?

No

Certification

Responder: Darlene D Reiter

Title: TDOT Environmental Division Consultant

Signature: Darlene D
Reiter

Digitally signed by
Darlene D Reiter
Date: 2018.08.09
16:15:32 -05'00'

Cultural Resources

Environmental Studies Request

Project Information

Route: SR-1
Termini: Bridge over Branch LM 2.89
County: Haywood
PIN: 124503.00

Request

Request Type: Initial Environmental Study
Project Plans: Transportation Investment Report
Date of Plans: 04/02/2018
Location: Email Attachment

Certification

Requestor: Abby Harris
Title: TESS - NEPA

Signature:

Abby Harris

Digitally signed by Abby
Harris
Date: 2018.07.27
11:08:07 -05'00'

Environmental Study

Technical Section

Section: Historic Preservation

Study Results

In a letter dated 8/29/2018, the TN-SHPO concurred that no architectural resources eligible for listing in the National Register of Historic Places will be affected by the proposed undertaking.

Commitments

Did the study of this project result in any environmental commitments?

No

Additional Information

Is there any additional information or material included with this study?

Yes

Type: Historical-Architectural Report and SHPO Letter

Location: FileNet

Certification

Responder: Laura van Opstal

Title: TESS-AD, Historic Preservation

Signature: Laura van
Opstal

Digitally signed by Laura
van Opstal
Date: 2018.09.11
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**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

BUREAU OF ENVIRONMENT & PLANNING

SUITE 700, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-5376

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

August 9, 2018

Mr. E. Patrick McIntyre, Jr.
Executive Director & State Historic Preservation Officer
Tennessee Historical Commission
2941 Lebanon Road
Nashville, TN 37214

SUBJECT: Historic/Architectural Assessment for the Proposed Replacement of the State Route 1 Bridge over Branch, Log Mile 2.89, in Haywood County, PIN 124503.00

Dear Mr. McIntyre,

Enclosed is the Historic/Architectural Assessment for the above-referenced project. It is the opinion of TDOT that there are no historic resources within the Area of Potential Effect of the proposed project. On behalf of the Federal Highway Administration, we request your review of this report pursuant to regulations contained within 36 CFR 800. An archaeological assessment is being prepared separately.

We look forward to your comments. Thank you for your help in this matter.

Sincerely,

Katherine Looney

TDOT Environmental Supervisor, Historic Preservation

Enclosure

BRIDGE REPLACEMENT PROJECT: HAYWOOD COUNTY

State Route 1 Bridge over Branch, Log Mile 2.89
PIN 124503.00

PROJECT DESCRIPTION

The Tennessee Department of Transportation (TDOT), with funding made available through the Federal Highway Administration (FHWA), is proposing to remove and replace the State Route 1 (SR-1) bridge over a branch of Muddy Creek at log mile 2.89, in Haywood County, Tennessee. The project proposes to replace the existing bridge with a new structure on the same alignment. The bridge replacement project will require approximately 0.34 acres of new right-of-way (ROW) acquisition.

The existing bridge is a single-span precast concrete slab bridge, 46 feet long and approximately 34.5 feet wide. The proposed replacement structure is a reinforced concrete box bridge approximately 38 feet long and approximately 45 feet, 6 inches wide. The replacement bridge will maintain the two travel lanes with shoulders and guardrail. The project includes transition work along SR-1 east and west of the bridge to taper the approaches to the new bridge and to install guardrail.

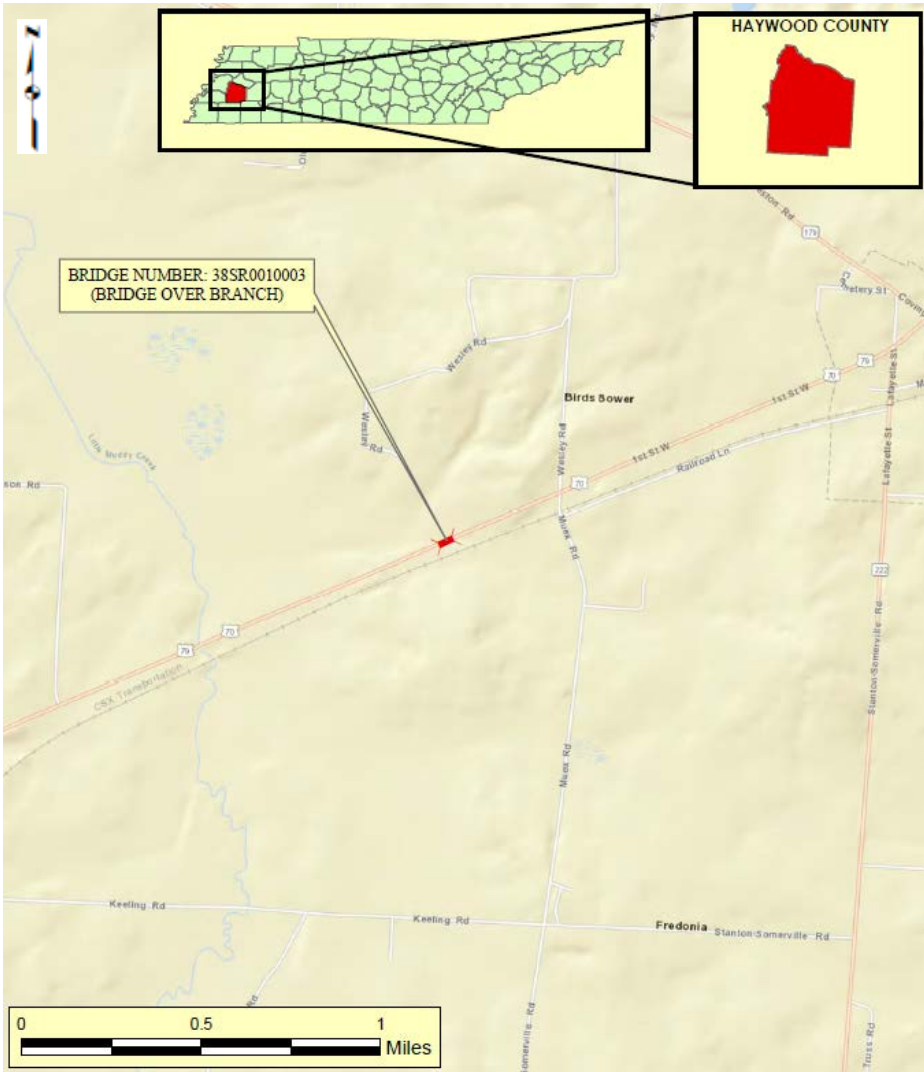


Figure 1: Project location map.

PUBLIC AND TRIBAL PARTICIPATION

TDOT will write to five Native American tribes or representatives asking each for information regarding the project and if they would like to participate in the Section 106 review process as a consulting party. The tribes with historic interest in Haywood County are:

The Chickasaw Nation
Eastern Shawnee Tribe of Oklahoma
Kialegee Tribal Town

Shawnee Tribe
United Keetoowah Band of Cherokee Indians

TDOT invited the Haywood County Mayor to be a consulting party in the Section 106 process via letter dated August 1, 2018. To date, TDOT has not received any response regarding historic resources.

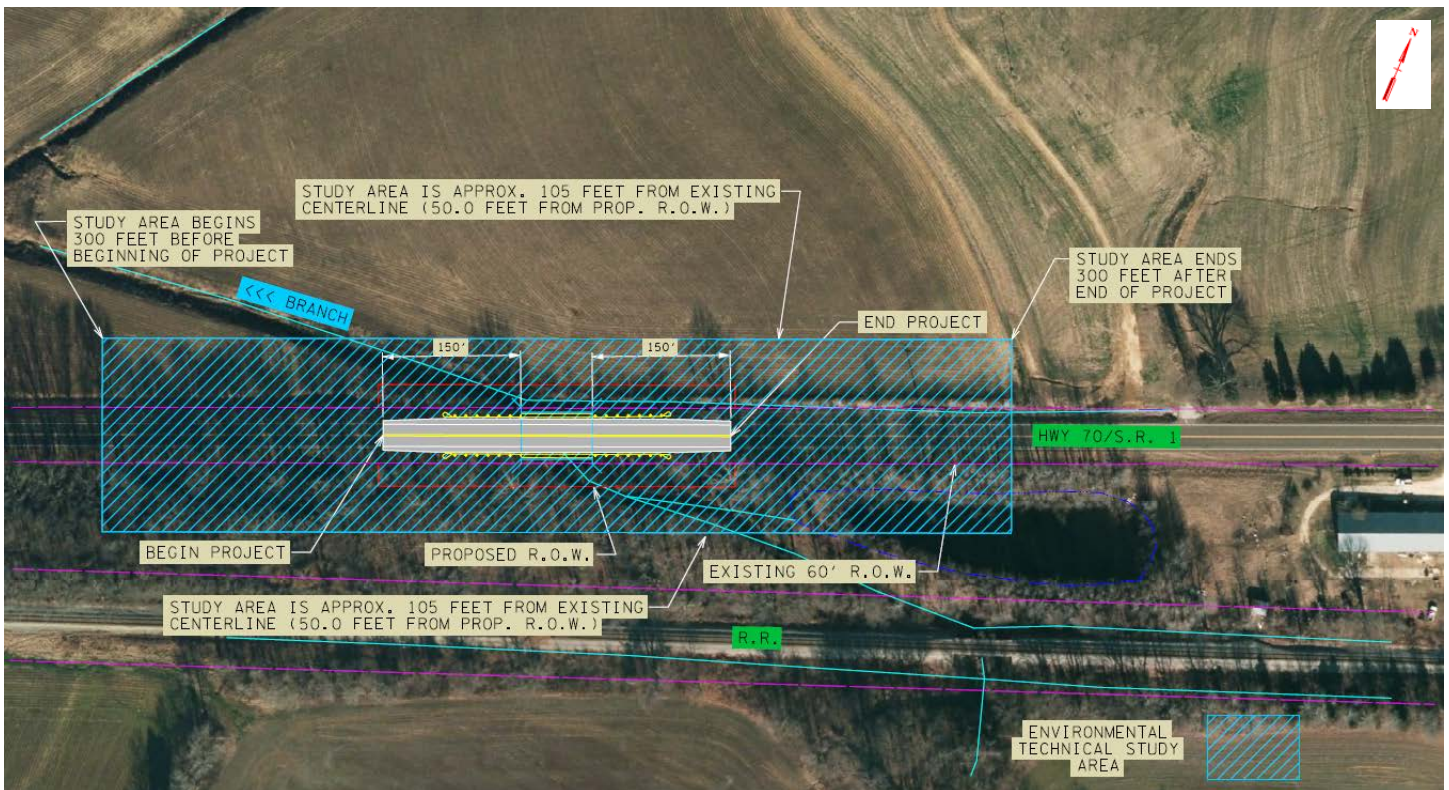


Figure 2: Functional layout for proposed bridge replacement, aerial view. Proposed ROW lines are for planning purposes.

ARCHITECTURAL/HISTORICAL SURVEY

In compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, TDOT staff historians reviewed the Area of Potential Effect (APE) for this project. An archaeological assessment is being prepared separately. A TDOT historian checked the survey records of the Tennessee State Historic Preservation Office (TN-SHPO) to determine if any previous architectural surveys had identified historic properties in the area. There are no previously surveyed properties within the APE of the proposed project (Figure 3).

LIT/RECORDS SEARCH: 4/12/2018—Laura van Opstal

FIELD STUDY: 8/2/2018—Laura van Opstal & Sydney Schoof

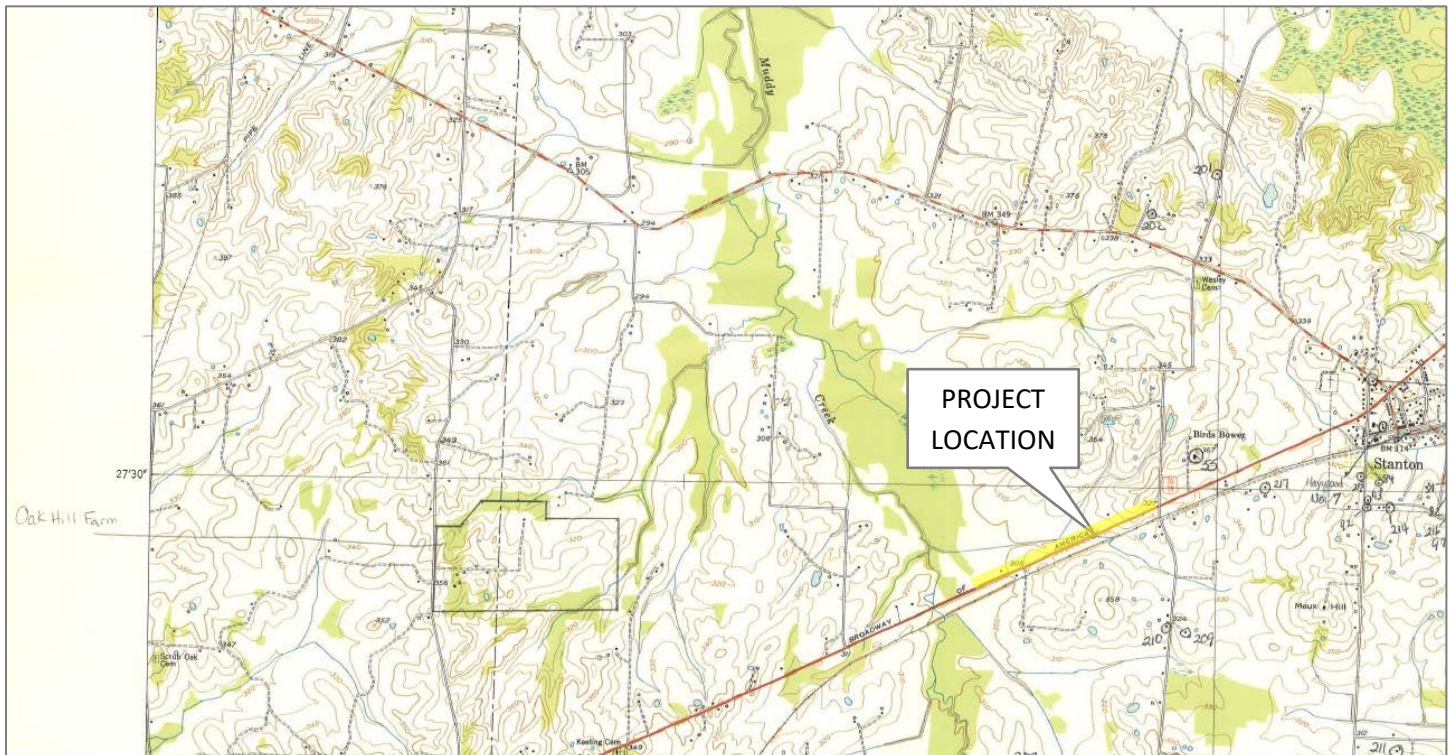


Figure 3: TN-SHPO survey map. USGS topographic quadrangle Stanton 423NW. There are no previously surveyed properties within the APE of the proposed project. The National Register listed Oak Hill Farm is outside the APE of the proposed project. Roads driven by TDOT historians during the field survey are highlighted in yellow.

TDOT historians field reviewed the APE for the proposed project in compliance with 36 CFR 800 regulations. The purpose of this survey was to identify any resources either included in or eligible for inclusion in the National Register of Historic Places (eligibility criteria are set forth in 36 CFR 60.4). The survey area included land needed for additional ROW as well as areas that might possibly be affected by changes in air quality, noise levels, setting, and land use. The bridge is located in a rural area located southwest of Stanton, and is surrounded mostly by agricultural fields, with some residential parcels southwest of the bridge.

The field survey did not identify any buildings within the APE. The existing bridge was built in 1926, and is a single-span precast concrete slab bridge crossing a branch of Muddy Creek. The bridge has been widened since the time of its construction. The bridge is not currently listed in the National Register of Historic Places and was not determined to be eligible for listing in the 2000 *University of Tennessee Evaluation of Pre-1950 Bridges* nor in the 2008 *Tennessee's Survey Report for Historic Highway Bridges*.

Therefore, it is the opinion of TDOT that there are no properties listed in or eligible for listing in the National Register of Historic Places within the proposed project's APE.



Figure 4: View southwest toward the bridge.

CONCLUSION

The Tennessee Department of Transportation, with funding made available through the Federal Highway Administration (FHWA), is proposing the replacement of the SR-1 bridge over a branch of Muddy Creek at log mile 2.89 in Haywood County.

In compliance with 36 CFR 800, TDOT historians surveyed the proposed project APE for historic resources. No National Register listed or eligible properties exist in the project area, and no historic resources were identified by the survey. It is the opinion of TDOT that there are no historic resources in the project area. Additionally, the lack of historic resources indicates that Section 4(f) does not apply.



TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

August 29, 2018

Ms. Katherine Looney
Tennessee Department of Transportation
505 Deaderick St
Suite 900
Nashville, TN 37243-1402

RE: FHWA / Federal Highway Administration, Replacement of the SR 1 Bridge over Branch, Log Mile 2.89/ PIN 124503.00, , Haywood County, TN

Dear Ms. Looney:

In response to your request, we have reviewed the architectural survey report and accompanying documentation submitted by you regarding the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering the information provided, we concur that no architectural resources eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Questions or comments may be directed to Casey Lee (615 253-3163).

Your cooperation is appreciated.

Sincerely,

E. Patrick McIntyre
Executive Director and
State Historic Preservation Officer

EPM/cjl

Environmental Studies Request

Project Information

Route: SR-1
Termini: Bridge over Branch LM 2.89
County: Haywood
PIN: 124503.00

Request

Request Type: Initial Environmental Study
Project Plans: Transportation Investment Report
Date of Plans: 04/02/2018
Location: Email Attachment

Certification

Requestor: Abby Harris
Title: TESS - NEPA

Signature:

Abby Harris

Digitally signed by Abby
Harris
Date: 2018.07.27
11:08:07 -05'00'

Environmental Study

Technical Section

Section: Archaeology

Study Results

In a letter dated August 6, 2018, the TN SHPO concurred that no National Register of Historic Places listed, eligible, or potentially eligible properties would be affected by this undertaking.

Commitments

Did the study of this project result in any environmental commitments?

No

Additional Information

Is there any additional information or material included with this study?

Yes

Type: SHPO Letter

Location: Email Attachment

Certification

Responder: Sarah Kate McKinney

Title: TESS Archaeology

Signature: Sarah Kate McKinney
Digitally signed by Sarah Kate McKinney
Date: 2018.08.13 09:41:05 -05'00'

PHASE I ARCHAEOLOGICAL SURVEY FOR PROPOSED
IMPROVEMENTS TO STATE ROUTE 1 BRIDGE
(38SR0010003) OVER BRANCH (LOG MILE 2.89),
HAYWOOD COUNTY, TENNESSEE
PIN: 124503.00 PE-N 38002-0217-94



by
Andrew P. Bradbury and Jason Ross

Prepared for



Prepared by



Kentucky | West Virginia | Wyoming
Indiana | Louisiana | Tennessee | Virginia

**PHASE I ARCHAEOLOGICAL SURVEY FOR PROPOSED
IMPROVEMENTS TO STATE ROUTE 1 BRIDGE
(38SR0010003) OVER BRANCH (LOG MILE 2.89),
HAYWOOD COUNTY, TENNESSEE
PIN: 124503.00 PE-N 38002-0217-94**

by:


Andrew P. Bradbury and Jason Ross

Submitted to:

Tennessee Department of Transportation
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243

Submitted by:

Cultural Resource Analysts, Inc.
119 West Summit Hill Drive
Knoxville, Tennessee 37902
CRA Project No.: T18T010



Andrew P. Bradbury
Principal Investigator

July 3, 2018

Agreement Number: E1908
Work Order Number: 10

TDOA Permit Number: 000999

Lead Federal Agency: Federal Highway Administration

MANAGEMENT SUMMARY

Cultural Resource Analysts, Inc., was contracted by the Tennessee Department of Transportation to conduct a phase I archaeological survey for the proposed replacement of the State Route 1 bridge (38SR0010003) over an unnamed tributary of Muddy Creek (LOG MILE 2.89) in Haywood County, Tennessee. The Area of Potential Effects is defined as the Environmental Technical Study Area and extends for an additional 91.4 m (300.0 ft) beyond either end of the proposed right-of-way and 15.2 m (50.0 ft) beyond the proposed right-of-way. The project area consisted of approximately 1.85 ha (4.58 acres). The entire project area was surveyed by pedestrian survey supplemented by shovel testing.

No previously recorded archaeological sites were located within the current project area, and no previously unrecorded sites were identified as a result of the survey. No archaeological sites listed in or eligible for the National Register of Historic Places will be affected by the proposed bridge construction activities. Therefore, no further archaeological investigations are recommended.

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I. INTRODUCTION

Cultural Resource Analysts, Inc. (CRA), was contracted by the Tennessee Department of Transportation (TDOT) to conduct a phase I archaeological survey ahead of the proposed replacement of the State Route 1 bridge (38SR0010003) over an unnamed tributary of Muddy Creek (LOG MILE 2.89) in Haywood County, Tennessee (Figure 1). The project is located just to the west of the town of Stanton. The Area of Potential Effects (APE) is defined as the Environmental Technical Study Area (ETSA). The APE extends for an additional 91.4 m (300.0 ft) beyond either end of the proposed right-of-way (ROW) and 15.2 m (50.0 ft) beyond the proposed ROW. Acreage for the APE is approximately 1.850 ha (4.580 acres, .007 sq mi), all of which was surveyed. The survey consisted of pedestrian survey supplemented by shovel testing.

The purpose of the survey was to locate and identify archaeological resources within the project area and to evaluate the eligibility of any encountered sites for inclusion on the National Register of Historic Places (NRHP). The field survey was conducted between June 13 and 15, 2018, by archaeologists from CRA's Knoxville, Tennessee, office. Andrew P. Bradbury served as the Principal Investigator (Archaeologist in General Charge) and Field Director (Archaeologist in Direct Charge) for the project. CRA principal review was provided by Paul G. Avery, RPA. Mr. Bradbury was assisted in the field by Dustin Lawson, field technician.

Fieldwork was conducted in accordance with the National Historic Preservation Act of 1966 as amended (NHPA) and its implementing regulations (36 CFR Part 800, as revised). The work was performed under the conditions of Tennessee Division of Archaeology (TDOA) Archaeological Permit number 000999 (Appendix A). The survey and its resulting technical report were executed according to the guidelines provided by TDOT, TDOA, and the Tennessee Historical Commission (THC). All project related materials will be permanently curated by a facility approved by TDOT.

No previously recorded archaeological sites were located within the current project area, and no previously unrecorded sites were identified as a result of the survey.

II. PROJECT SETTING

Project Description

The plans for this project includes the replacement of the State Route (SR) 1 bridge (38SR0010003) over an unnamed tributary of Muddy Creek (LOG MILE 2.89), Haywood County, Tennessee. The project also includes widening and straightening the approaches to the bridge. The project is located west of the town of Stanton. The ETSA extends for an additional 91.4 m (300.0 ft) beyond either end of the proposed ROW and 15.2 m (50.0 ft) beyond the proposed ROW. Acreage for the APE is approximately 1.85 ha (4.58 acres). Of this total, approximately .077 ha (.190 acre) is located within a pond and .534 ha (1.32 acres) are within the existing SR 1 ROW. The remaining 1.24 ha (3.07 acres) were surveyed.

The project area was situated on the north and south side of the existing SR 1 (Figure 2). A tributary of Muddy Creek (Figure 3) split the APE into eastern and western sections and the road divided the APE into northern and southern sections. The southeastern quarter of the APE was situated in a wooded area. A pond was located at the southeast corner of the APE (Figure 4). A low ridge ran east to west between the pond and the road (Figure 5). The ridge appears to be fill from construction of the pond. A fiber optics line was located between the berm for SR 1 and the ridge. The berm and fiber optics line ran the entire length of the APE (Figure 6). The southwestern quarter of the APE started at the tributary of Muddy Creek and continued east to the edge of the APE. Much of this area was low lying and contained standing water at the time of the survey (Figure 7). The low lying area may represent an intermittent stream that flows during periods of heavy rain. This stream does not appear on the Stanton quadrangle map.

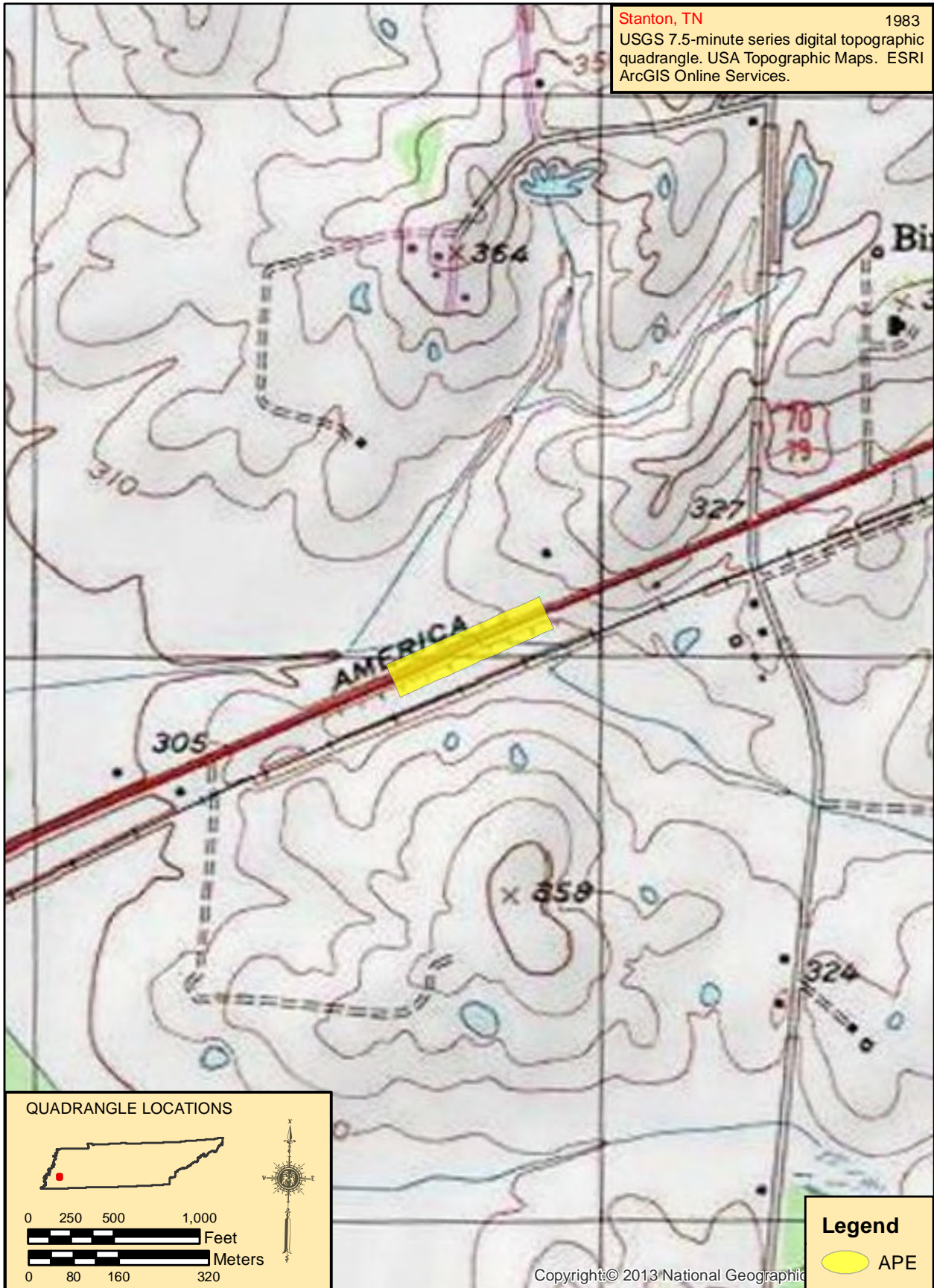


Figure 1. Project location map.



Figure 2. SR 1 within the APE. View is looking west from the eastern edge of the APE.



Figure 3. Tributary of Muddy Creek. View is looking north from the eastern end of Transect C.



Figure 4. Pond in the southeast corner of the APE. View is looking southeast from the edge of the APE.



Figure 5. Ridge (Transect A line) north of pond. View is looking west from the eastern edge of the APE.



Figure 6. Berm on the south side of SR 1. View is looking east from the western edge of the APE.



Figure 7. Wet area in southwestern quarter of APE. View is looking east from the western edge of the APE.

The northwestern quarter of the APE was situated in cut hay at the time of the survey (Figure 8). A deeply incised drainage ditch ran the entire length of the APE between the road and the field (Figure 9). A utility line was noted in the berm for the road. The northeastern quarter of the APE was in a newly planted field (Figure 10). Ground surface visibility was excellent in this portion of the APE.

The project area is located within the East Gulf Coastal Plain section of the Gulf Coastal Plain physiographic province. The region is characterized by nearly level to hilly topography, and consists of Tertiary-period (65.5 to 2.6 million years ago) sedimentary bedrock of marine origin underlying Pleistocene and later alluvial sediments (U.S. Geological Survey 2004). Elevations in the Gulf Coastal Plain generally do not exceed 150 m (ca. 500 ft) above mean sea level (AMSL) (U.S. Army Corps of Engineers 2010). Streams are typically slow moving, and there are numerous marshes and swamps present (Bailey 1995). Within the project area, elevations ranged from approximately 145 m (476 ft) to 110 m (361 ft) AMSL. Higher elevations were characterized by gently rolling topography dissected by deep erosional gullies, while lower elevations consisted largely of seasonal and permanent wetlands and streams.

Geologic information for the project area was obtained as an ESRI Geographic Information System (GIS) shapefile from the U.S. Geological Survey's Mineral Resources On-line Spatial Data website (<<http://mrdata.usgs.gov/geology/>>) on June 8, 2018. Quaternary-aged (2.6 million years old or less) loess underlies the APE. The loess is comprised of clayey and sandy silt. The maximum thickness is about 30 m (100 ft) along bluffs of Mississippi River and thins eastward.

With the exception of a small sliver in the northwestern portion of the APE, the soils are mapped as Collins silt loam (Natural Resources Conservation Service [NRCS] 2018). The small sliver is mapped as Loring silt loam, 5 to 8 percent slopes, severely eroded. The area mapped as Loring silt loam comprises less than .5 percent of the APE. Collins silt loam soils are moderately well-drained soils that are found on floodplains. The parent material is silty alluvium. The typical profile is: H1, 0 to 13 cm (0 to 5 in), silt loam; and H2: 13 to 152 cm (5 to 60 in), silt loam.



Figure 8. Northwestern quarter of APE. View is looking west from the tributary of Muddy Creek.



Figure 9. Ditch on the north side of SR 1. View is looking east from the western edge of the APE.



Figure 10. Northeastern quarter of APE. View is looking west from the eastern edge of the APE.

Environmental Setting

At the end of the last glacial period during the terminal Pleistocene, the climate of the region in which the project area is situated began to warm as the northern glaciers began to recede. During the Pleistocene, palynological data indicate that western Tennessee was covered by boreal forest, dominated by conifer species such as spruce (*g. Picea*) and larch (*g. Larix*) (Delcourt et al. 1980:128–129). With the northward recession of the Laurentide ice sheet between 17,000 and 16,500 years ago, deciduous arboreal species, including oaks (*g. Quercus*), gum (*g. Eucalyptus*), chestnut (*g. Castanea*), and bayberry (*g. Myrica*) began to migrate north (Delcourt et al. 1980:129), and by the Mid-Holocene period after 9000 years ago, the region was covered by mesic oak-hickory forest (Delcourt and Delcourt 1983).

The modern climate of Haywood County, Tennessee, is characterized as humid and temperate, with warm summers and relatively mild winters. Average daily minimum temperatures during the summer range between 65 and 70 degrees Fahrenheit; average daily winter temperatures range from approximately 32 to 55 degrees Fahrenheit. Average annual precipitation in Haywood County is 134.9 cm (53.12 in). In general, January is the wettest month, while October is the driest.

Until the widespread clearing of the land began in the early nineteenth century, much of western Tennessee was covered by mesophytic, deciduous hardwood trees, such as oaks, chestnut, hickory, and walnut (Braun 1950). Today, the majority of the forest in the project area has been cleared and the land cultivated. The small wooded areas encountered within the project area consisted primarily of young trees and secondary growth, with some larger hardwoods present.

Faunal species in Haywood County comprise a wide variety of mammalian species, including whitetail deer, rabbits, squirrels, and raccoons, as well as numerous reptile, amphibian, and avian species. Aquatic species A wide variety of aquatic taxa are present in the nearby Wolf River, including at least twenty-five species of freshwater mussels (Kesler et al. 2001). It is likely that the prehistorically-available faunal resources were similar to those represented in the modern assemblage, although species diversity in the region has diminished as the forests have been cleared for human settlement. Once important game species, such as elk and bison, have been extinct since the early nineteenth century (McCollough and Faulkner 1973).

III. CULTURAL CONTEXT

In order to assess the potential for significant cultural resources in the project area and to formulate expectations regarding the nature and types of cultural resources likely to be encountered, CRA archaeologists conducted cultural background research on the general physiographic region in which the project is located. This information is also used to provide context for the archaeological sites identified during this survey.

The Coastal Plain of Tennessee is comprised of the West Tennessee Plain and the West Tennessee Uplands (Rafferty 2002). This western Tennessee region is part of the larger Mississippi River floodplain and is characterized by loess deposits, which are underlain by floodplain silts, and clays that often contain archaeological sites.

The human occupation of the Coastal Plain area of Tennessee is divided into seven main periods. The objective of the following chronologically ordered divisions is to illustrate the patterns of prehistoric populations by characterizing methods of resource exploitation and technological innovation into temporal and regional groupings: Pre-Clovis, Paleoindian, Archaic, Woodland, Mississippian, Historic Native American, and the Euro-American Historic Period. These periods provide macro-level models of typical human occupations. The prehistoric chronology is based on the extensive archaeological research conducted in this area by academic institutions, government entities, and private companies, primarily since

the 1930s. Historical information on Haywood County was gathered primarily from online sources and existing technical reports on the area.

Pre-Clovis (Before 13,000 B.P.)

The timing and actual entry point of the first humans into North America are still topics for debate. Over the last decade there has been increasing data indicating human occupation in North America circa 15,000 B.P. These data come from both archaeological and genetic/DNA research (e.g., Gilbert et al. 2008; Jenkins et al. 2012; Reich et al. 2012; Waters et al. 2011). While there has been some discussion of eastern routes to North America (e.g., Bradley and Stanford 2004, 2006; Stanford and Bradley 2012), the general consensus remains that humans entered North America from Asia via the Bering Strait. Waters and Stafford (2013:557) summarized the data to date and conclude that the First Americans originated in Central Asia and started entering the New World circa 16,000 B.P. Clovis developed later and was a New World construct.

In a recent paper, Moreno-Mayar et al. (2018) sequenced DNA from two child burials at the Upward Sun River in Alaska that dated to 11,500 B.P. The analysis suggests that the ancestral population of Native Americans first emerged as a separate group around 36,000 years ago, likely in northeast Asia. Constant contact with Asian populations continued until around 25,000 years ago. The cessation in gene flow was probably caused by major changes in the climate. These climatic changes isolated the Native American ancestors. In addition, there was a level of genetic exchange with an ancient North Eurasian population. There was a localized level of contact between this group, and East Asians, which led to the emergence of a distinctive ancestral Native American population. Moreno-Mayer et al. (2018) also argue that the geographical proximity needed for ongoing contact of this sort indicates that the initial migration into the Americas had probably already taken place when the Ancient Beringians broke away from the main ancestral line. Further, the Northern and Southern Native American branches split sometime between 17,000 and 14,000 B.P. and this split most likely occurred after the groups had already been on the American continent south of the glacial ice.

Several sites in the southeastern United States and surrounding regions have been suggested as pre-Clovis candidates. Among these are: the Cactus Hill site in southeast Virginia (McAvoy and McAvoy 1997; Wagner and McAvoy 2004); the Topper site in South Carolina (Chandler 2001; Goodyear 1999; Goodyear and Steffy 2003); and the Debra L. Friedkin site in Texas (Waters et al. 2011). No pre-Clovis sites are known in the Coastal Plain of Tennessee, although evidence for earlier habitations has been noted at the Johnson Site in central/western Tennessee (Miller et al. 2012).

Paleoindian (13,000–9950 B.P.)

The Paleoindian period is the earliest cultural period conclusively documented in the Coastal Plain. The arrival of humans in this region was probably linked to the movements of the Pleistocene glaciers. During the Paleoindian period, the last of these glacial advances and retreats, called the Greatlakean Stadial (post-9900 B.C.), occurred. Although the glaciers never actually extended south of the Ohio River, the climatic effects probably did. This cooler, moister climate would affect the composition and distribution of floral and faunal communities (Delcourt and Delcourt 1982; Klippel and Parmalee 1982).

In summarizing the present state of knowledge concerning the dating of Clovis, Waters and Stafford (2013:544) state that “13 Clovis sites still provide the most accurate and precise ages for the Clovis Complex. The ages from these sites range from $11,080 \pm 40$ 14C yr BP to $10,705 \pm 35$ 14C yr BP or $13,000 \pm 85$ to $12,615 \pm 40$ cal yr BP.”

The Early Paleoindian (13,000–10,950 B.P.) marks the earliest verified habitation of the region and the end of the Pleistocene and is associated with Clovis. While a number of archaeologists have argued that Paleoindians were predominately big game hunters (e.g., Bonnicksen et al. 1987; Kelly and Todd 1988; Stoltman and Baerreis 1983), more recent review of the topic (Meltzer 1993) concluded that there is no

widespread evidence for the specialized hunting of big game species (i.e., megafauna). Several authors (e.g., Davis 1993; Dincauze 1993; Meltzer 1993) now argue that the Paleoindian diet was more generalized and relied on a number of faunal and floral species. Megafauna would have been taken when encountered, but not to the exclusion of other species. An example of megafauna exploitation in the area was documented at the Coats-Hinds Site in Tennessee. Excavations at the site produced a mastodon skeleton that showed signs of having been butchered (Brietburg et al. 1996). However, a recent paper by Tune et al. (2018) has disputed the human modification of the bones and argues that the site is not cultural. The Middle Paleoindian (10,950–10,450 B.P.) coincides with the beginning of the Holocene and the shift to gathering and hunting of smaller, modern mammal species. Cumberland, Simpson, and Suwannee hafted bifaces are typical of this period. The Late Paleoindian (10,450–9950 B.P.) coincides with the Younger Dryas, a brief period of cooler and drier conditions. Hardaway, Dalton, Quad, and Beaver Lake hafted bifaces are generally associated with the Late Paleoindian Period (Miller et al. 2012).

Archaic Period (9950–2950 B.P.)

The Archaic Period begins with the end of the Younger Dryas and warmer, but fluctuating climatic conditions that stabilize to more or less modern conditions by the end of the period. Archaic people continued to move across the landscape to exploit seasonal resources, but environmental stresses led to an increase in sedentism and the extraction of local resources. Larger sites are found along major water ways that have been interpreted as base camps based on the concentration of lithic materials and evidence of resource processing. The shift in procurement strategies are indicated by technological developments such as fish hooks, and stone bowls (Anderson 2001). The Archaic Period in the Coastal Plain of Tennessee is typically broken down into three shorter temporal periods based on distinctive projectile point types: Early Archaic (9950–7950 B.P.), Middle Archaic (7950–4950 B.P.), and the Late Archaic (4950–2950 B.P.).

The Early Archaic (9950–7950 B.P.) was marked by climatic fluctuations that may have caused subsistence stress among human populations. This stress likely caused mobility to become more limited and shifted the focus of subsistence to a more varied diet reliant on locally available resources. The major lithic hafted bifaces associated with Early Archaic sites include Calf Creek, Kirk Serrated, Lost Lake, Palmer Corner Notched, Beaver Lake, Rice Lobed, Rice Lanceolate, Rice Contracting Stem, Graham Cave Notched, Hardin Barbed, St. Charles Notched, Hidden Valley Stemmed, Cache River Side Notched, and Big Sandy Early Side Notched (Chapman 1975; House 1975; Morse and Morse 1983).

During the Middle Archaic (7950–4950 B.P.), the climate warmed dramatically and became drier. The increasingly dry conditions caused additional stress on subsistence strategies of human populations and led to a focus on permanent water sources for base camps. The utilization of aquatic resources, especially freshwater shellfish, is indicated by large shell middens that are a hallmark of Middle Archaic sites. Western Highland Rim chert tools (Dover, Ft. Payne, and St. Louis) become common, indicating an established seasonal movement of peoples between the lower Tennessee Valley and the Mississippi River loess hills. Other Middle Archaic diagnostic points include the basally notched Eva projectiles, as well as side notched Hickory Ridge projectiles (Morse 1982; Morse and Morse 1983). However, Eva projectile points are rarely recovered west of the Tennessee River (Smith 1991). Cypress Creek II hafted bifaces tend to be associated with the early period of the Middle Archaic while Benton points are terminal Middle Archaic when recovered on the eastern side of the Mississippi. Ground stone tools, such as net sinkers, grooved axes, and atlatl weights begin to be utilized during this period (Chapman 1985).

By the beginning of the Late Archaic (4950–2950 B.P.), climatic conditions closely approximated the modern environment. Continued sedentism led to the earliest efforts at horticulture, with wild plants, such as sunflowers, sumpweed, maygrass, knotweed, little barley and gourds, being tended and utilized (Anderson 2001; Chapman and Watson 1993). Steatite bowls begin to be used, as do early fiber-tempered ceramic vessels. The lithic tool box included Benton, Burkett, Ledbetter, McIntire, Mabin, Motley/Table Rock Stemmed, Mulberry Creek, and Big Creek (Mainfort 1985; Smith 1979). Baked clay balls, bannerstones, lapidary items, and other triangular and/or rectangular stone artifacts that were likely utilized

as axes or digging tools are also diagnostic of the Late Archaic subperiod in the Tennessee Coastal Plain (Chapman 1975; Morse 1982; Morse and Morse 1983; Smith 1979, 1991).

The Late Archaic Benton occupations date from circa 5550–4950 B.P. Beveled stemmed projectiles are characteristic of this period and are generally located from the lower Tennessee River Valley to the loess bluffs in western Tennessee (Smith 1979). Sandstone grinding tools located in low stream terraces with loess (Grenada and Calloway soils) are common site characteristics of Benton occupations (Smith 1991).

The terminal Archaic period demonstrates strong associations with Poverty Point. Diagnostic projectiles include Wade or Flint Creek clusters. Baked clay balls recovered from the loess hills east of the Mississippi exhibit a much greater range of styles than those recovered west of the Mississippi. In addition to baked clay balls, the occasional lapidary item (carved/polished beads) indicate that a significant number of Poverty Point phases likely occurred in the western portion of Tennessee (Smith 1991; Smith and McNutt 1988; Smith and Weinstein 1987). The first ceramics to appear are the Wheeler series fiber tempered pottery and the Alexander series, both of which are extremely rare in western Tennessee.

Woodland Period (2950–1050 B.P.)

The Woodland Period is characterized by increased sedentism and an increase in the reliance on horticulture, and eventually agriculture, as the primary subsistence strategy. Technological innovations included an increasing variety of ceramic vessels. Extensive inter-regional trade networks are also developed during the Woodland Period (Chapman 1985).

Early Woodland occupations in west Tennessee are generally referred to as Gulf Formational. Fiber-tempered Wheeler and Alexander sand tempered ceramic types mark the beginning of the Early Woodland in the region. The first part of the Early Woodland (2950 B.P.–1950 B.P.) should be considered a transitional period between the Late Archaic and the Woodland periods. The creation and usage of pottery as well as settlement-subsistence transformations towards intensive horticulture are reflected in this transformative period. Fabric impressed pottery tempered with sand, grog, and crushed limestone are typical of Early Woodland assemblages. In western Tennessee, Flint Creek cluster projectiles are diagnostic of the period. Large burial mounds are not characteristic of the archaeological record of the Coastal Plain of Tennessee (Mainfort 1985).

The Middle Woodland subperiod (1950–1350 B.P.) saw an increase in the reliance on domesticated plants, including the earliest known use of corn in East Tennessee (Fritz 1993). Technologically, the use of fabric impressed onto the surface of pottery declines and there is an increase in cord marked surfaces (Mainfort 1985). The Pinson Mounds located in Madison County, Tennessee, produced copper, mica, galena, and marine shells indicating extensive trade networks. These earthworks were one of the biggest and most extensive ceremonial sites in North America (between 1950–1150 B.P.). Lanceolate Expanded Stem and Lanceolate Spike clusters are quite common. Though the northern Hopewellian and the lower Mississippi Valley Marksman societies undoubtedly shaped this area, the extent and nature of their influence on western Tennessee populations is not yet fully understood.

The Late Woodland (1350–1050 B.P.) is characterized by an expansion of human populations and an increase in centralized villages. Burial mounds are associated with these villages. It is generally accepted that horticulture is largely replaced by agriculture by the end of the Late Woodland. Corn, tobacco, beans, and gourds become important crops. However, no archaeobotanical samples have been recovered from the western portion of Tennessee to confirm this in the Coastal Plain of Tennessee. Social stratification and religious activities within chiefdoms increase, as does warfare between chiefdoms (Anderson 2001).

In West Tennessee, the Late Woodland is marked by grog tempered ceramics such as Baytown, though some sand tempered wares also occur. Wheeler Check Stamped and Coles Creek Incised wares are also present and indicate continued influence from the south (Mississippi Alluvial Valley) (Mainfort 1985).

Smaller, more triangular projectiles such as the Madison and Hamilton types become commonplace. Approximately 800 AD the Big Lake Phase of the Mississippian Period (Morse and Morse 1983) has begun to spread to the northeast as indicated at the Shelby Forest Site (40SY489) as well as into the Reelfoot Lake region (Morse and Morse 1990).

Mississippian Period (circa 1050–350 B.P.)

The Mississippian period coincides with the Medieval Climate Optimum, which led to warmer temperatures throughout North America. The Mississippian culture spread along the riverways from the Mississippi River north toward Missouri and south to the state of Mississippi. It has been theorized that this climatic shift heavily influenced the intensity of agriculture, which may have led to population growth, as well as more elaborate social stratification (Anderson 2001; Koerner et al. 2012). There are several distinct traits associated with the Mississippian Period: the construction of platform mounds for the purpose of constructing buildings, large permanent villages, intensifying agricultural dependence, and social hierarchies with elites as leaders (Bense 1994; Chapman 1985; Koerner et al. 2012). Mortuary practices begin to indicate gender and age. As burial practices became more elaborate due to the increase of status, stone box graves created from slabs of limestone were utilized (Allen 2008). Sites associated with this time period tend to be clustered around water sources such as rivers, streams, floodplains, and alluvial terraces (Koerner et al. 2012).

In Tennessee, Early or Emergent Mississippian (1050–750 B.P.) villages are in close proximity to permanent water sources, which likely accounts for the change in ceramic technologies, which began to utilize mussel shell tempering during this period (Kneberg 1956; Koerner et al. 2012). In western Tennessee, the Shelby Forest site assemblages resemble the Hyati phase that occurs in southeast Missouri and northeast Arkansas. The Denmark mound groups as well as the Obion are the only confirmable ceremonial centers in the Coastal Plain of western Tennessee during the Emergent Mississippian period (Mainfort 1985).

The Late Mississippian (circa 1050–350 B.P.) is generally characterized by the construction of square homes built in the rigid pole style, though the interior portion of western Tennessee appears to have been virtually abandoned during this period. This lack of occupation has been attributed to the nucleation of populations and settlement pattern changes that coincide with this period. However, it has also been speculated that the area may have served as a buffer zone between competing groups. Pottery styles such as: Walls Engraved, Barton Incised, and Parkin Punctated are common during this period. Lithic technologies include Nodena as well as Madison points (Mainfort 1991).

Historic Native American (A.D. 1600–1840)

The first European contact occurs in 1541 when Hernando de Soto crossed to the east of the Mississippi River. Artifacts that demonstrate contact are generally referred to as trade goods and can include glass beads, metal bells, pipes, and buttons. While European wares are typically used as indicators of contact, other researchers such as Lewis (1988) argue that reliance on those objects alone as markers has the potential to hinder research of the contact era. The post contact period of the Late Mississippian also demonstrates a shift in mortuary practices toward secondary interments in large earthen urns, which were recovered from such sites as 40LA26 and 40DY58 (Mainfort 1991).

Haywood County History

Haywood County was formed by the Tennessee General Assembly from part of Madison County in 1823. It was named for Judge John Haywood, a pioneer jurist and early Tennessee historian (Irwin 2017). Parts of Haywood County would later form Lauderdale and Crockett Counties. Brownsville was designated and continues to serve as the county seat (Nunn 2017).

The economy of Haywood County has historically been reliant on cotton agriculture and early settlers established a plantation system based on slave labor. The cotton economy declined during the Civil War, though few skirmishes are noted in the county's history. Brownsville was raided in 1864 by Union Colonel Fielding Hurst in which his men burned three establishments reportedly belonging to three of the foremost Union supporters in the city. Also of note, 200 African American residents of the county enlisted in the U.S. Colored Troops following the Emancipation Proclamation (Civil War Trails 2016). After the Civil War, the cotton economy rebounded, though now based on a tenant farm and sharecropping system. Railroads benefited agricultural production in the county with both the Holly Springs and Brownsville Railroad and the Mississippi and Ohio Railroad (later the Louisville and Nashville Railroad) serving Brownsville. Today, Interstate 40 parallels the old Louisville and Nashville Railroad, maintaining the county's connection to Nashville and Memphis (Nunn 2017).

Agricultural production was supported by early-nineteenth-century industrial development in the county. The county's first cotton gin began operation in 1828, a horse-propelled grist mill began operation in 1829, and by 1874 the county had a cotton mill. Cotton gins are still present across the county today. Between the years of 1939 and 1940, the Farm Security Administration created the Haywood County Farm Project near Stanton. This allowed African American residents to rent, with an option to buy, small farms; thirty-nine local families participated in the program (Nunn 2017).

The present-day economy of Haywood County is still heavily based on agricultural production. Cotton remains a staple crop, with the addition of corn, fruit, grass, and livestock as the most important agricultural products. As agriculture became more mechanized after World War II, more significant changes in industrialization occurred in the county as manufacturers provided non-agricultural jobs to local residents. Several manufacturers are still present in the county in industries ranging from the production of riding lawn mowers to the manufacture of vinyl garden hoses, PVC pipe fittings, and powdered ball bearings (Nunn 2017). Haywood County remains largely rural; the population of the county has grown from 5,334 in 1830 to 18,787 as of 2010 (United States Census Bureau 2018).

Previous Archaeological Research

Prior to conducting the field survey, the Tennessee State Site Files maintained by TDOA were consulted on June 11, 2018, to determine if previously recorded archaeological resources were located within, or adjacent to, the APE. Reports on archaeological research conducted in the vicinity were also obtained to provide insight as to the types of sites and locations likely to contain sites in the area.

Two previously recorded archaeological sites (40HD123 and 40HD151) are located within 1.6 km (1.0 mi) of the APE (Figure 11). Both are historic family plot cemeteries. Site 40HD123 is the Somervell Cemetery. This cemetery is located just to the west of Stanton and behind the former home site of the Somervell family. The house burned in July 1999. The cemetery measures approximately 9-x-9 m (30-x-30 ft) and is enclosed by an iron fence set in a low concrete foundation. Seven marked graves are contained within the cemetery; the earliest interment date is 1862 and the latest date is 1886. The grave markers are not the original and were placed by Jo Somervell Nash Somervell in the late 1940s or early 1950s (Sterbinsky 2006). Site 40HD151 is the Meux Cemetery. This cemetery is located to the south of Stanton and behind the former Meux home site; the house is no longer extant and had burned on an unknown date. The cemetery measures approximately 8.5-x-7.5 m (27.9-x-24.6 ft) and is enclosed by a chain link fence. Eight marked graves are contained within the cemetery; the earliest interment date is 1837 and the latest date is 1918 (Sterbinsky and Sterbinsky 2007).

Several surveys have been conducted in the vicinity of the APE (Cain and Kaplan 2009; Saatkamp and Buchner 2012; Smith and Smith 2007). These surveys were conducted ahead of a proposed "Megasite" near Stanton (Cain and Kaplan 2009; Smith and Smith 2007) and a TDOT project involving improvements to State Route 222 (Saatkamp and Buchner 2012). No sites were recorded within 1.6 km (1.0 mi) of the current APE during these surveys.

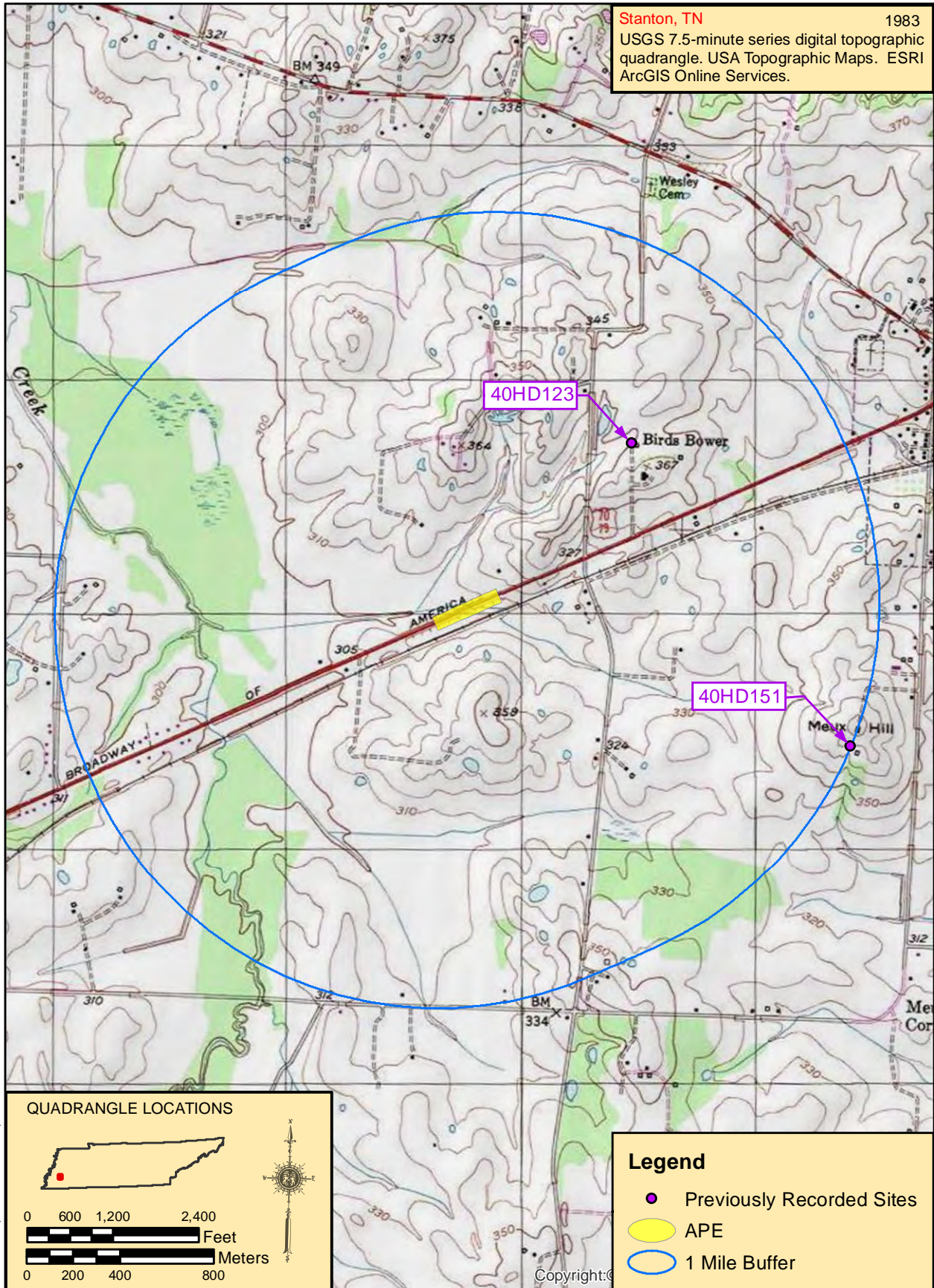


Figure 11. Previously recorded archaeological sites within one mile of the project area.

IV. METHODS

Field Methods

The project area was investigated via pedestrian survey supplemented with systematic shovel testing. Color photographs were taken throughout the project area to illustrate the topography and conditions. Written field notes were maintained by the field director. No impediments to the field survey were encountered.

Pedestrian survey was conducted by walking parallel transects across the APE. Areas with less than 50 percent surface visibility and less than 15 percent slope were shovel tested. Areas of greater than 15 percent slope, obviously disturbed areas, and areas where bedrock or subsoil could be seen at surface or after removal of the humus layer were examined via pedestrian survey. In the case of the current project, the northeastern quarter of the APE was situated in low lying crops. Ground surface visibility was greater than 90 percent. A surface collection was conducted in this area. The cut bank of the ditch adjacent to the road was also walked and examined for cultural material or features. A portion of the southwestern quarter of the APE was located in standing water. This area was pedestrian surveyed.

Shovel tests were excavated in areas that were undisturbed, exhibited less than 50 percent surface visibility, and were not in standing water. Shovel tests were excavated at 20-m (66-ft) intervals on transects spaced 20 m (66 ft) apart. Each shovel test measured approximately 30 sq cm (12 sq in) and was excavated to the sterile subsoil. Shovel test depths and soil descriptions were recorded on standardized Shovel Test Forms developed by CRA. Soil colors were assigned using Munsell color charts and textures were described by United States Department of Agriculture (USDA) standards. All soils removed from shovel tests were screened through .64-cm (.25-in) mesh hardware cloth. A total of 13 shovel tests were excavated during the course of the field work.

Shovel test locations were recorded using a Trimble Geoplotter 6000 series (Geo XH 3.5 G) handheld Global Positioning System (GPS) unit. The unit is capable of sub decimeter accuracy. Positional Dilution Of Precision (PDOP) during the survey ranged from 1.7 to 1.9 and 11 to 14 satellites were located. No shovel tests were positive for cultural material. No shovel tests were excavated beyond the bounds of the project area.

An exposed cut bank was located along the ditch that paralleled SR 1. Portions of the ditch were devoid of vegetation and provided a clean profile (Figure 12). These areas were examined for the potential for buried archaeological deposits. No such deposits were observed.

V. RESULTS

The field survey included the excavation of 13 shovel tests (Figure 13). A surface collection was conducted of the northwestern quarter of the APE, within the plowed field. No artifacts were recovered from any of the shovel tests or the surface collection. No sites were recorded as a result of the survey. Shovel test data can be found in Appendix B.

Shovel test profiles were relatively consistent throughout the project area. Transect B Shovel Test 2 provides a representative profile for the project area (Figure 14). Three zones were defined in this shovel test. Zone I was a brown (10YR 4/3) silt loam that was mottled with 10YR 6/2. Zone I extended from the ground surface to approximately 15 cm below ground surface. Zone II was a light yellowish brown (10YR 6/4) silt that extended from 15 cm to approximately 25 cm below ground surface. Zone III was a light brownish gray (10YR 6/2) silt that extended from 25 cm to the base of the test at approximately 35 cm below ground surface. Redox features were noted throughout the profile. Zone III was not encountered in some of the shovel tests (Figure 15).

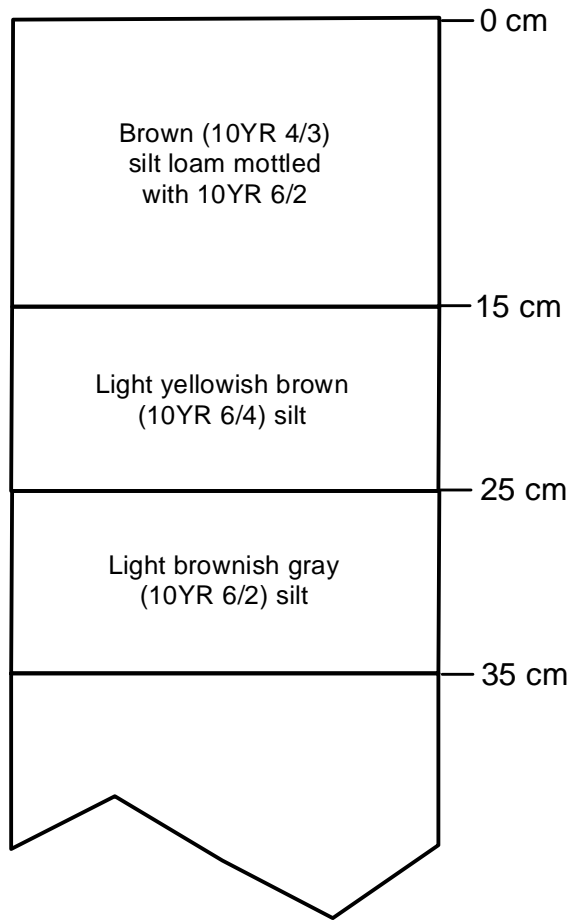


Figure 12. Exposed cut bank in the northwestern quarter of the APE.



Figure 13. Shovel test location map on TDOT functional plans.

Transect B Shovel Test 2



Redox features were noted in throughout the profile.

T18T010(20JUNE2018)LB

Figure 14. Representative shovel test profile.



Figure 15. Transect B Shovel Test 1.

VI. CONCLUSIONS AND RECOMMENDATIONS

The proposed bridge replacement project in Haywood County, Tennessee, required that an archaeological survey be conducted. As a result of the survey, no previously recorded sites were located within the project area, and no archaeological sites were recorded during the current survey.

If any unanticipated discoveries are made during the course of the proposed construction, ground disturbing activities should cease and Phillip Hodge, TDOT Archaeology Program Manager, should be notified at (615) 741-5257.

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APPENDIX A: TENNESSEE STATE ARCHAEOLOGICAL PERMIT



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF ARCHAEOLOGY
Cole Building #3, 1216 Foster Avenue
NASHVILLE, TN 37243
(615) 741-1588 FAX (615) 741-7329

ARCHAEOLOGICAL PERMIT

NO. 000999

IN ACCORDANCE WITH THE PROVISIONS OF TENNESSEE CODE ANNOTATED SECTION 11-6-101 ET SEQ. PERMISSION IS HEREBY GRANTED TO:

ANDREW P. BRADBURY

REPRESENTING:

CULTURAL RESOURCE ANALYSTS, INC.

FOR ARCHAEOLOGICAL INVESTIGATION ON THE FOLLOWING DESIGNATED STATE-OWNED OR CONTROLLED LANDS

PHASE I ARCHAEOLOGICAL SURVEY OF SR-1 BRIDGE OVER BRANCH (LOG MILE 2.89),
HAYWOOD COUNTY

IN ACCORDANCE WITH THE APPLICATION FILED JUNE 11, 2018 IN THE OFFICE OF THE DIVISION OF ARCHAEOLOGY AND IN CONFORMITY WITH THE DATA SUBMITTED THEREIN WHICH IS CONSIDERED AS A PART OF THIS PERMIT.

ISSUED THIS 13TH DAY OF JUNE 2018

TO EXPIRE 13TH DAY OF JUNE 2019

ADDITIONAL TERMS TO PERMIT APPLICATION: ARTIFACTUAL REMAINS AND THE ORIGINAL PROJECT RECORDS WILL BE CURATED WITH THE TENNESSEE DIVISION OF ARCHAEOLOGY. THIS PERMIT IS SUBJECT TO PERIODIC REVIEW AND/OR CANCELLATION BY THE DIVISION OF ARCHAEOLOGY SHOULD CONDITIONS WARRANT SAME.



DIRECTOR/STATE ARCHAEOLOGIST



APPLICANT

APPENDIX B: SHOVEL TEST DATA.

Table B-1. Shovel Test Data.

Transect	STP	Total Depth	# of Strata	Pos/Neg	Component/Remarks
A	1	30	3	N	
A	2	40	3	N	
A	3	5	1	N	Soils were fill, turned cap, stopped excavation
A	4	5	1	N	Soils were fill, turned cap, stopped excavation
A	5	33	2	N	
B	1	43	1	N	
B	2	35	3	N	
B	3	30	3	N	
B	4	28	2	N	
C	1	24	2	N	
C	2	38	2	N	
C	3	45	3	N	
C	4	40	2	N	



TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

August 6, 2018

Mr. Phillip R. Hodge
Tennessee Department of Transportation
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243-1402

RE: FHWA / Federal Highway Administration, Improvements to SR-1 Bridge over Branch, L.M.
2.89, Haywood County, TN

Dear Mr. Hodge:

In response to your request, we have reviewed the archaeological report of investigations and accompanying documentation submitted by you regarding the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering the information provided, we find that no archaeological resources eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Complete and/or updated Tennessee Site Survey Forms should be submitted to the Tennessee Division of Archaeology for all sites recorded and/or revisited during the current investigation. Questions or comments may be directed to Jennifer Barnett (615) 687-4780.

Your cooperation is appreciated.

Sincerely,

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/jmb

Native American Consultation

Environmental Studies Request

Project Information

Route: SR-1
Termini: Bridge over Branch LM 2.89
County: Haywood
PIN: 124503.00

Request

Request Type: Initial Environmental Study
Project Plans: Transportation Investment Report
Date of Plans: 04/02/2018
Location: Email Attachment

Certification

Requestor: Abby Harris
Title: TESS - NEPA

Signature:

Abby Harris

Digitally signed by Abby
Harris
Date: 2018.07.27
11:08:07 -05'00'

Environmental Study

Technical Section

Section: Native American Coordination

Study Results

NAC was sent to all federally recognized, interested tribes on April 5, 2018 and September 4, 2018. The Chickasaw responded on October 3, 2018 that they would like to be a consulting party. A final report was sent to them in fulfillment of that request. The Shawnee Tribe responded with a finding of "no concern." No other tribes responded during the consultation period.

Commitments

Did the study of this project result in any environmental commitments?

No

Additional Information

Is there any additional information or material included with this study?

Yes

Type: Native American Coordination

Location: Email Attachment

Certification

Responder: Sarah Kate McKinney

Title: TESS Archaeology

Signature: Sarah Kate McKinney
Digitally signed by Sarah Kate McKinney
Date: 2018.10.05 14:17:11 -05'00'



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

September 4, 2018

Ms. Karen Brunso
Historic Preservation Manager
The Chickasaw Nation
PO Box 1548, Ada OK
74820

SUBJECT: Section 106 Initial Consultation for Proposed Bridge Replacement of State Route 1 Bridge over Unnamed Branch in Haywood County, Tennessee (TDOT PIN 124503.00).

Dear Ms. Brunso,

The Tennessee Department of Transportation (TDOT), in coordination with the Federal Highway Administration (FHWA), is proposing to replace the State Route 1 bridge over Unnamed Branch, log mile 2.89, in Haywood County, Tennessee (maps attached). At this time detailed plans are not yet available, however, additional right-of-way is anticipated, and there will be ground disturbance within the area of potential effects (APE). For the archaeological assessment, the APE is generally defined as a polygon extending 500' from each streambank, 150' laterally on both its upstream and downstream side, and vertically to the maximum potential depth for archaeological deposits. The APE may be adjusted based on project specific circumstances.

The National Historic Preservation Act (NHPA) recognizes that federally funded undertakings, like the subject project, can affect historic properties to which your tribe attaches religious, cultural, and historic significance. In accordance with 36 CFR 800 regulations implementing compliance with Section 106 of the NHPA, we are providing general project information so that you can determine if your tribe has an interest in the project area or nature of the work proposed and so you have an opportunity to bring to our attention any interests and concerns about the potential for impacts to properties of religious and cultural significance. In addition, do you wish to be a consulting party on the project? Early awareness of your concerns can serve to protect historic properties valued by your tribe.

If you act as a consulting party you will receive archaeological assessment reports and related documentation, be invited to attend project meetings with FHWA, TDOT, and the Tennessee State Historic Preservation Office (TN-SHPO), if any are held, and be asked to provide input throughout the process. If you choose to not act as a consulting party at this time, you can do so at a later date simply by notifying me.

Please respond to me via letter, telephone (615-741-0977), fax (615-741-1098), or E-mail (Phillip.Hodge@tn.gov). I respectfully request responses (email is preferred) to project reports and other materials within thirty (30) days of receipt if at all possible. Thank you for your assistance.

Sincerely,

Phillip R. Hodge
Archaeology Program Manager

Enclosure

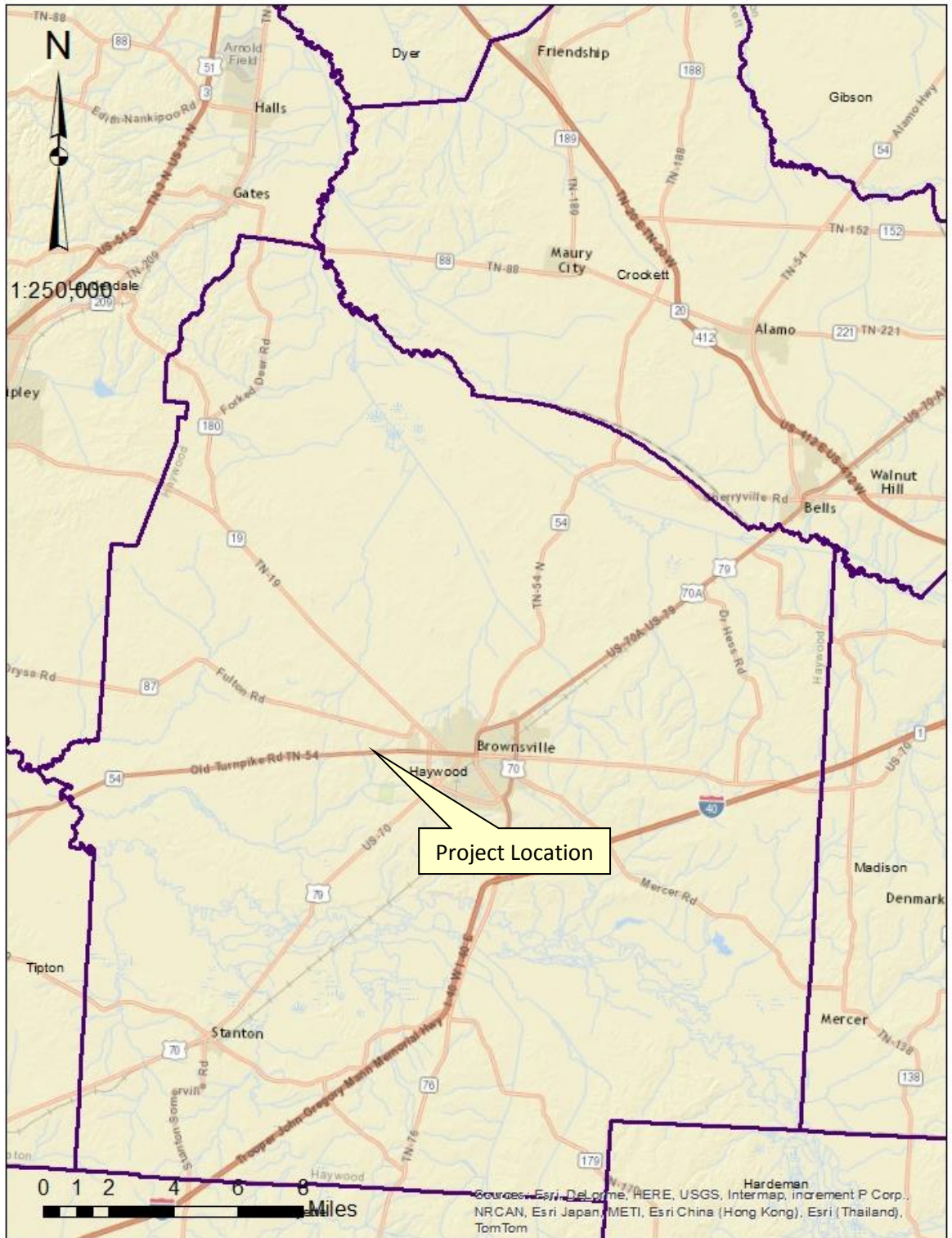
cc Brett Barnes, Eastern Shawnee Tribe of Oklahoma
David Cook, Kialegee Tribal Town
Tonya Tipton, Shawnee Tribe

Sheila Bird, United Keetoowah Band of Cherokee Indians

PIN 124503.00 – Haywood County



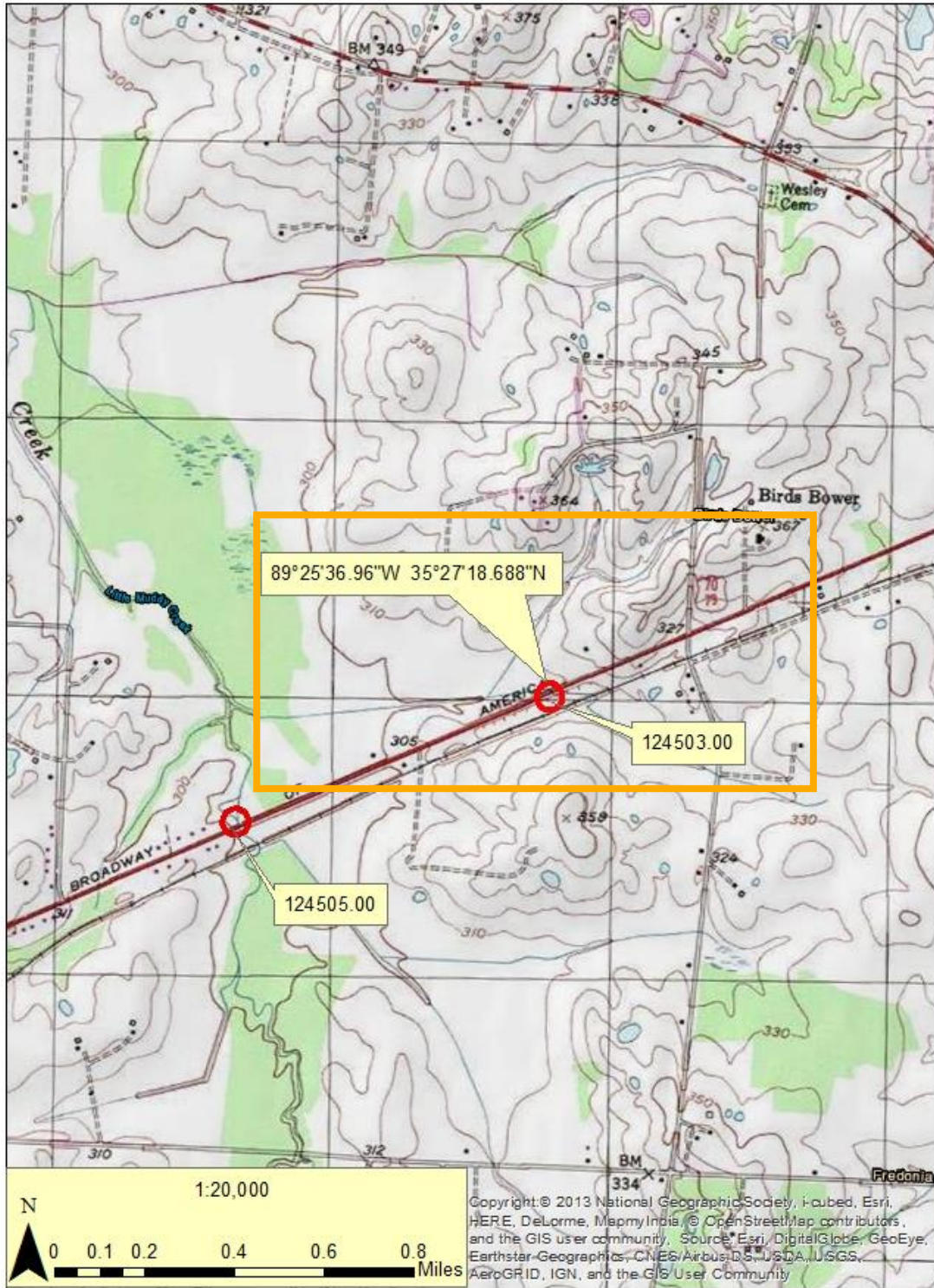
Haywood County, Tennessee PIN 124503.00



Project Vicinity Base map

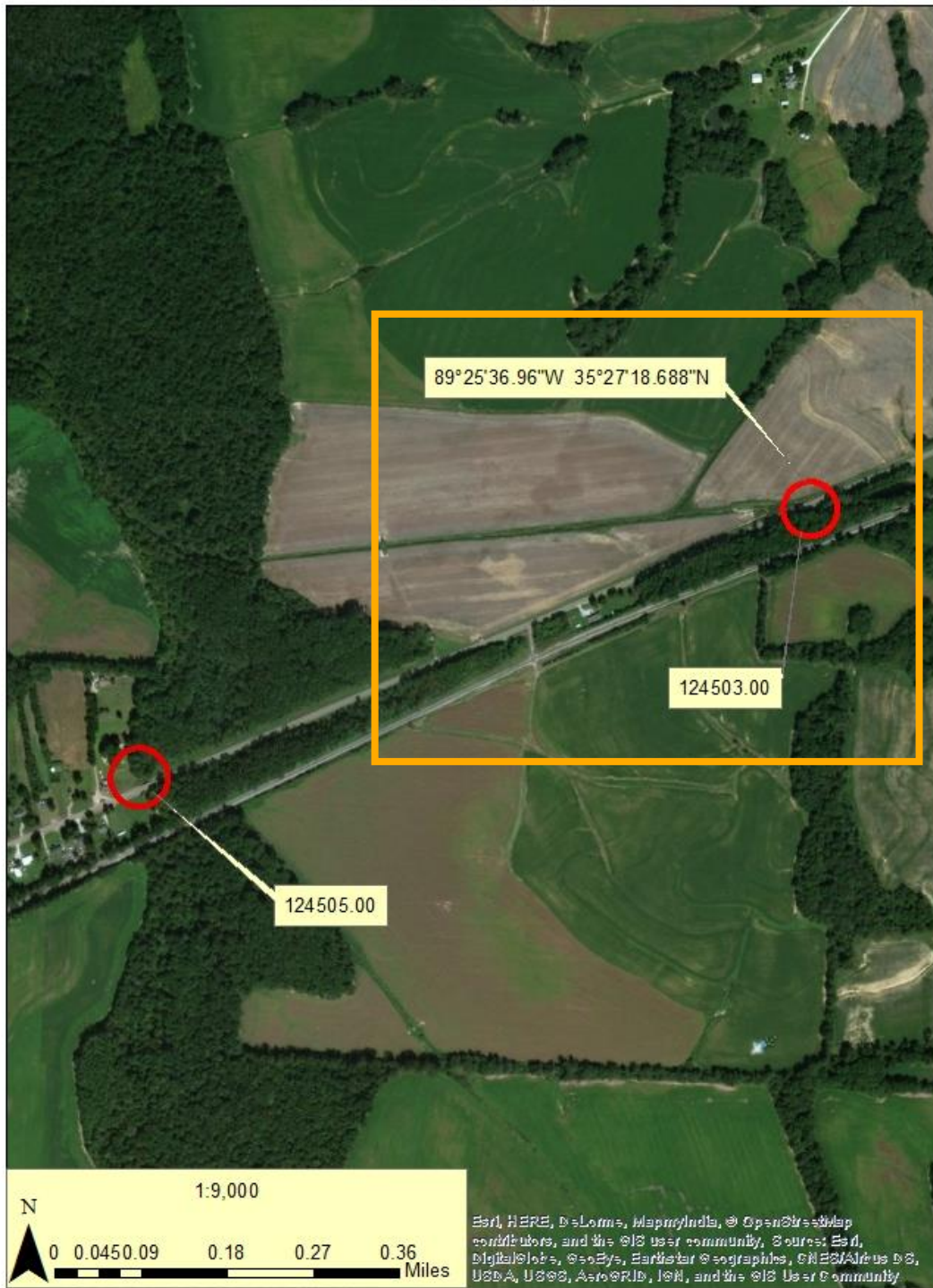
Haywood County, Tennessee PIN 124503.00

TDOT PIN 124505.00 and 124503.00
Haywood County
USGS TOPO Stanton 423 NW



Haywood County, Tennessee PIN 124503.00

TDOT PIN 124505.00 and 124503.00
Haywood County
USGS TOPO Stanton 423 NW



From: [Phillip Hodge](#)
To: [Sarah K. McKinney](#)
Subject: FW: Section 106 Coordination; State Route 1 Bridge over Branch, Haywood County, Tennessee PIN 124503.00
Date: Monday, September 10, 2018 10:06:23 AM
Attachments: [Haywood SR1 Bridges 124503 NAC Brunso.pdf](#)
[Haywood County, TN, Proposed Sr1 Bridge over Branch, LM 2.89, PIN 124503....pdf](#)
[Haywood County, TN, Proposed Sr1 Bridge over Branch, LM 2.89, PIN 124503....pdf](#)

From: Fottrell, Gary (FHWA) [mailto:Gary.Fottrell@dot.gov]
Sent: Tuesday, September 4, 2018 12:44 PM
To: Chickasaw Nation (HPO@chickasaw.net)
Cc: Phillip Hodge
Subject: Section 106 Coordination; State Route 1 Bridge over Branch, Haywood County, Tennessee PIN 124503.00

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

Dear Ms. Brunso:

Please find attached information for a project proposed by the Tennessee Department of Transportation (TDOT):

- **State Route 1 Bridge over Branch, Haywood County, PIN 124503.00**

In accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, and as promulgated in 36 CFR 800, we are providing general project information so that you can determine if your tribe has an interest in the project area or nature of the work proposed and so you have an opportunity to bring to our attention any interests and concerns about the potential for impacts to properties of religious and cultural significance. In addition, do you wish to be a consulting party on the project? If possible, we would appreciate your response via email by October 4th.

TDOT has attached a map of the project site with coordinates, architectural/historical and archaeological assessments, and SHPO letters. Thank you for your assistance on this project. If you have questions or need additional information, please feel free to call at any time.

Sincerely,

Gary Fottrell
Environmental Program Engineer
TN Division, Federal Highway Administration

404 BNA Drive, Suite 508
Nashville, TN 37217
Phone (615) 781-5766

October 3, 2018

Mr. Gary Fottrell, Environmental Program Engineer
Tennessee Division, Federal Highway Administration
404 BNA Drive, Suite 508
Nashville, TN 37217

Dear Mr. Fottrell:

Thank you for the letter of notification regarding the proposed projects, delineated in the attached table, in Tennessee. We accept the invitation to consult under Section 106 of the National Historic Preservation Act.

The Chickasaw Nation supports the proposed undertakings and is presently unaware of any specific historic properties, including those of traditional religious and cultural significance, in the project area. In the event the agency becomes aware of the need to enforce other statutes we request to be notified under ARPA, AIRFA, NEPA, NAGPRA, NHPA and Professional Standards.

Your efforts to preserve and protect significant historic properties are appreciated. If you have any questions, please contact Ms. Karen Brunso, tribal historic preservation officer, at (580) 272-1106, or at karen.brunso@chickasaw.net.

Sincerely,

Lisa John, Secretary
Department of Culture and Humanities

cc: Gary.Fottrell@dot.gov

Project Description	Location
PIN #124503.00 State Route 1 bridge replacement over an unnamed branch	Haywood County
PIN #124712.00 State Route 223 bridge replacement over an unnamed branch	Madison County
PIN #124749.00 State Route 3 bridge replacement over CNIC Railroad	Shelby County
PIN #124726.00 State Route 57 bridge replacement over overflow	McNairy County
PIN #124728.00 State Route 57 bridge replacement over an unnamed branch	McNairy County

From: tonya@shawnee-tribe.com
To: [Phillip Hodge](#)
Subject: RE: TN-DOT Section 106 Consultation; Haywood County, SR1 bridges over Muddy Creek and Unnamed Branch, PINs 124505.00 and 124503.00
Date: Friday, April 6, 2018 10:26:58 AM
Attachments: [image001.jpg](#)
[image002.png](#)

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

This letter is in response to the above referenced project.

The Shawnee Tribe's Tribal Historic Preservation Department concurs that no known historic properties will be negatively impacted by this project.

We have no issues or concerns at this time, but in the event that archaeological materials are encountered during construction, use, or maintenance of this location, please re-notify us at that time as we would like to resume immediate consultation under such a circumstance.

If you have any questions, you may contact me via email at tonya@shawnee-tribe.com

Thank you for giving us the opportunity to comment on this project.

Sincerely,
Tonya Tipton THPO
Shawnee Tribe



From: Phillip Hodge <Phillip.Hodge@tn.gov>
Sent: Thursday, April 5, 2018 3:50 PM
To: tonya@shawnee-tribe.com
Subject: TN-DOT Section 106 Consultation; Haywood County, SR1 bridges over Muddy Creek and Unnamed Branch, PINs 124505.00 and 124503.00

Dear Ms. Tipton,

Please find attached a letter inviting Shawnee Tribe to participate in the subject project as a consulting party under Section 106 of the National Historic Preservation Act. This letter also describes the project and includes maps that illustrate its location. If you have any questions or need additional information, please feel free to call or email anytime. I appreciate your review of

this information and look forward to your response.

Sincerely,
Phil



Phillip Hodge | Archaeology Program Manager
Environmental Division

James K. Polk Building, 9th Floor
505 Deaderick St.
Nashville, TN 37243
p. 615-741-0977
Phillip.Hodge@tn.gov

Hazardous Materials

Environmental Studies Request

Project Information

Route: SR-1
Termini: Bridge over Branch LM 2.89
County: Haywood
PIN: 124503.00

Request

Request Type: Initial Environmental Study
Project Plans: Transportation Investment Report
Date of Plans: 04/02/2018
Location: Email Attachment

Certification

Requestor: Abby Harris
Title: TESS - NEPA

Signature:

Abby Harris

Digitally signed by Abby
Harris
Date: 2018.07.27
11:08:07 -05'00'

Environmental Study

Technical Section

Section: Hazardous Materials

Study Results

Based on the Transportation Investment Report dated 2 April 2018, no known hazardous materials sites appear to affect this project as it is currently planned and no additional hazardous material studies are recommended at this time. The asbestos bridge survey has been completed, no asbestos was detected and the following project commitment has been submitted.

In the event hazardous substances/wastes are encountered within the right-of-way, their disposition shall be subject to all applicable regulations, including the applicable sections of the Federal Resource Conservation and Recovery Act, as amended; and the Comprehensive Environmental Response, Compensation, and Liability Act, as amended; and the Tennessee Hazardous Waste Management Act of 1983, as amended. Databases reviewed include: Google Earth imagery, EPA National Priorities List, EPA EnviroMapper, TDEC Registered UST database, TDEC Division of Water Resources Public Data Viewer, TDOT IBIS, and others as necessary.

Commitments

Did the study of this project result in any environmental commitments?

Yes

An Asbestos Containing Material (ACM) survey was conducted on Bridge No. 38SR0010003, SR-1 over Branch LM 2.89 (38-SR001-2.89). No ACM was detected. No special accommodations for demolition and waste disposal are anticipated for these structures and the material can be deposited in a C&D landfill. Prior to the demolition or rehabilitation of any structure (bridge or building), the contractor is required to submit the National Emission Standards for Hazardous Air Pollutants standard 10-day notice of demolition to the TDEC Division of Air Pollution Control (per TDOT Standard Specifications for Road and Bridge Construction (January 1, 2015) Sections 107.08 D and 202.03).

Additional Information

Is there any additional information or material included with this study?

No

Certification

Responder: Kyle Kirschenmann

Signature:

Kyle Kirschenmann

Title: Environmental Program Manager, Hazardous Materials Section

Digitally signed by Kyle Kirschenmann
DN: cn=Kyle Kirschenmann, o=TDOT,
ou=Hazardous Materials Section,
email=kyle.kirschenmann@tn.gov,
c=US
Date: 2018.07.30 08:22:58 -0400

30-January-2018
Barge File Number: 3637864

Mr. Kyle Kirschenmann, PG
Environmental Program Manager – Hazardous Materials Section
State of Tennessee, Department of Transportation
TDOT Environmental Division
James K. Polk Building, Suite 900
505 Deaderick Street
Nashville, TN 37243-0334

**RE: Asbestos Assessment Report
SR-1 (US-70) Bridge over Branch LM 2.89 (IA)
PE-N: 38002-0217-94, PIN: 124503.00
Bridge Number: 38SR0010003
Haywood County, Tennessee**

Dear Mr. Kirschenmann:

Enclosed is the asbestos assessment report for the above-referenced bridge. A total of 36 samples were obtained during the assessment for asbestos analyses. Asbestos minerals were not detected in any of the samples collected.

If you have any questions, please contact me by phone at 615-252-4349 or via email at Tom.McComb@bargedesign.com.

Sincerely,



Thomas McComb, PG, CPG
Contract Manager / Project Manager
Barge Design Solutions, Inc.

Enclosure



TENNESSEE DEPARTMENT OF TRANSPORTATION ASBESTOS ASSESSMENT REPORT

SR-1 (US-70) Bridge over Branch LM 2.89 (IA)
PE-N: 38002-0217-94, PIN: 124503.00
Bridge Number: 38SR0010003
Haywood County, Tennessee



PREPARED BY



615 3rd Avenue South, Suite 700
Nashville, TN 37210
Barge Project #: 36378-64

30-January-2018

A handwritten signature in blue ink that reads "Randy Bell". The signature is written in a cursive style and is contained within a rectangular box.

Randy Bell (Signature)

Tennessee Asbestos Inspector Accreditation No: A-I-47753-55579

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1.0 INTRODUCTION

This report presents the findings of an assessment for asbestos-containing materials (ACM) completed on the bridge identified in Section 1.1. The assessment was completed by Barge Design Solutions, Inc. (Barge) in accordance with the State of Tennessee, Department of Transportation Environmental Division, Social and Cultural Resources Office, Hazardous Materials Section requirements.

1.1 TDOT Bridge Identification

The bridge is identified in the TDOT Project System/Bridge Management System as:

Termini: SR-1 (US-70) Bridge over Branch LM 2.89 (IA)
PE-N: 38002-0217-94
PIN: 124503.00
Bridge Number: 38SR0010003
County: Haywood

1.2 General Description

Bridge Number 38SR0010003 is located on SR-1 over Branch LM 2.89 (38-SR001-2.89), is a 46-foot, two-lane, single-span bridge constructed of concrete deck girders and steel I-beams with an asphalt wearing surface. The bridge was constructed in 1926. Based on visual assessment while on site the bridge appeared to have been modified and contained the following suspect materials which were sampled: new beams and an expanded abutment. The bridge location is shown on Figure 1.

2.0 ASSESSMENT

The identification of ACM is performed by collecting bulk samples of suspect materials and having those samples analyzed by a laboratory. ACM are those materials found to contain greater than 1% asbestos by calibrated visual area estimation by Polarized Light Microscopy (PLM).

Bulk sampling is a procedure in which representative homogeneous sampling areas in a structure are identified and then sampled. A homogeneous sampling area is defined as an area that contains material of the same type (uniform in color and texture) and was applied during the same general time. Once the homogeneous sampling areas are identified, bulk samples of suspect materials were obtained from the homogeneous areas at the discretion of our inspectors, based on site conditions and experience.

2.1 Personnel and Date(s) of Assessment

The sampling and field activities were performed on 21-November-2017, by Randy Bell, Accredited State of Tennessee Asbestos Inspector. Copies of the inspector's and Barge's current accreditation from the State of Tennessee are included in Appendix A.

2.2 Visual Survey

Barge's survey began with a walk-through and visual survey of the structures located on the property. The visual survey consisted of:

- Sketching the structure and/or verifying the plans provided
- Locating and identifying homogeneous areas (HAs) of suspect materials that may contain asbestos minerals
- Determining applicable sampling locations

2.3 Access to Bridge Components

Individual bridge components were accessed by the following methods:

2.3.1 Top of Bridge Deck (Homogeneous Areas 2, 3, & 11)

The bridge had a concrete curb. Three samples labeled LM-02-04, LM-02-05, and LM-02-06 were collected from the concrete curb. Three samples labeled LM-11-31, LM-11-32, and LM-11-33 were collected from the older portion of the bridge deck. Samples were obtained using hammers and chisels. Three samples labeled LM-03-07, LM-03-08, and LM-03-09 were collected from the road stripe. Samples were obtained using a razor knife.

2.3.2 Underside of Bridge Deck

No samples were collected from the underside of the bridge deck.

2.3.3 Bridge Beams (Homogeneous Area 8 & 10)

The bridge had concrete beams. Three samples labeled LM-08-22, LM-08-23, and LM-08-24 were collected from the older beams. Three samples labeled LM-10-28, LM-10-29, and LM-10-30 were collected from the newer beams. Samples were obtained using hammers and chisels.

2.3.4 Bridge Piers/Bents and Support

No samples were collected from piers/bents.

2.3.5 Bridge Rails (Homogeneous Area 1)

The bridge had concrete parapets. Three samples labeled LM-01-01, LM-01-02, and LM-01-03 were collected from the concrete parapets. Samples were obtained using hammers and chisels.

2.3.6 Abutments (Homogeneous Areas 4, 5, 6, & 9)

The bridge had concrete wing walls. Three samples labeled LM-04-10, LM-04-11, and LM-04-12 were collected from the wing walls. The bridge had a concrete abutment. Three samples labeled LM-05-13, LM-05-14, and LM-05-15 were collected from the abutment. Three samples labeled LM-09-25, LM-09-26, and LM-09-27 were collected from the newer abutment. Samples were obtained using hammers and chisels. Three samples labeled LM-06-16, LM-06-17, and LM-06-18 were collected from the bearing pads. Samples were obtained using a razor knife.

2.3.7 Bridge Drainage (Homogeneous Area 7 & 12)

Three samples labeled LM-07-19, LM-07-20, and LM-07-21 were collected from the weep drains. Three samples labeled LM-12-34, LM-12-35, and LM-12-36 were collected from the deck drains. Samples were obtained using hammers and chisels.

2.3.8 Other

No other samples were collected from this bridge.

3.0 ANALYTICAL PROCEDURES

3.1 Asbestos Analysis Procedures

The bulk samples are analyzed in the laboratory using PLM coupled with dispersion staining (EPA Method 600/R-93/116). PLM is an analytical method for asbestos identification, which identifies the specific asbestos minerals by their unique optical properties. The optical properties are a result of the mineral's chemical composition, physical atomic structure, and visual morphology. This is the U.S. Environmental Protection Agency (EPA) recommended method of analysis for asbestos identification in bulk samples.

Samples which contain multiple layers, or that have associated mastic or adhesive backing, are analyzed as two or more separate samples when possible.

3.2 Laboratory Name and Accreditation

The bulk samples collected for this assessment were analyzed by a laboratory that has received certification from the American Industrial Hygiene Association's (AIHA) Laboratory Accreditation Program. The name and laboratory number of the analytical laboratory that analyzed the samples for this assessment is indicated in Table 1.

Table 1 - Analytical Laboratory

Laboratory Name	Frost Environmental Services, LLC
Laboratory ID Number	198214

4.0 REGULATORY OVERVIEW

4.1 National Emission Standards for Hazardous Air Pollutants

The EPA's National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations (40 CFR 61, Subpart B) requires that all regulated asbestos-containing materials (RACM) be properly removed prior to any renovation or demolition activities that will disturb them. These regulations define RACM as:

- Friable ACM.
- Category I non-friable ACM that has become friable.
- Category I non-friable ACM that will be or has been subject to sanding, grinding, cutting, or abrading.
- Category II non-friable ACM that has a high probability of becoming, or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material during demolition or renovation operations.

4.1.1 Definitions

Significant definitions related to regulation of asbestos under NESHAPS regulations include:

Friable asbestos-containing material (ACM), is defined by the Asbestos NESHAP, as any material containing more than one percent (1%) asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM), that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure. (Sec. 61.141).

Non-friable ACM is any material containing more than one percent (1%) asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM), that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. EPA also defines two categories of non-friable ACM, Category I and Category II non-friable ACM, which are described as follows:

Category I non-friable ACM is any asbestos-containing packing, gasket, resilient floor covering or asphalt roofing product which contains more than one percent (1%) asbestos as determined using polarized light microscopy (PLM) according to the method specified in Appendix A, Subpart F, 40 CFR Part 763. (Sec. 61.141).

Category II non-friable ACM is any material, excluding Category I non-friable ACM, containing more than one percent (1%) asbestos as determined using polarized light microscopy according to the methods specified in Appendix A, Subpart F, 40 CFR Part 763 that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. (Sec. 61.141).

"Regulated Asbestos-Containing Material" (RACM) is (a) friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

Friable materials are defined as those which can be crumbled, pulverized, or reduced to powder by hand pressure when dry. The NESHAP regulations also establish specific notification and control requirements for renovation and demolition work.

5.0 RESULTS

The results of the asbestos assessment are presented in the following section.

5.1 Results of Asbestos Bulk Sample Analysis

A total of 36 samples were obtained from the bridge. A depiction of the sample locations is shown on Figure 2. Multiple samples of each homogeneous area were collected in accordance with State of Tennessee, Department of Transportation Environmental Division, Social and Cultural Resources Office, Hazardous Materials Section requirements and delivered to the laboratory for visual observation and microscopic analysis. The samples were selected based on homogeneous areas of suspect materials, as described in Section 2.2.

None of the sampled material was found to contain asbestos minerals.

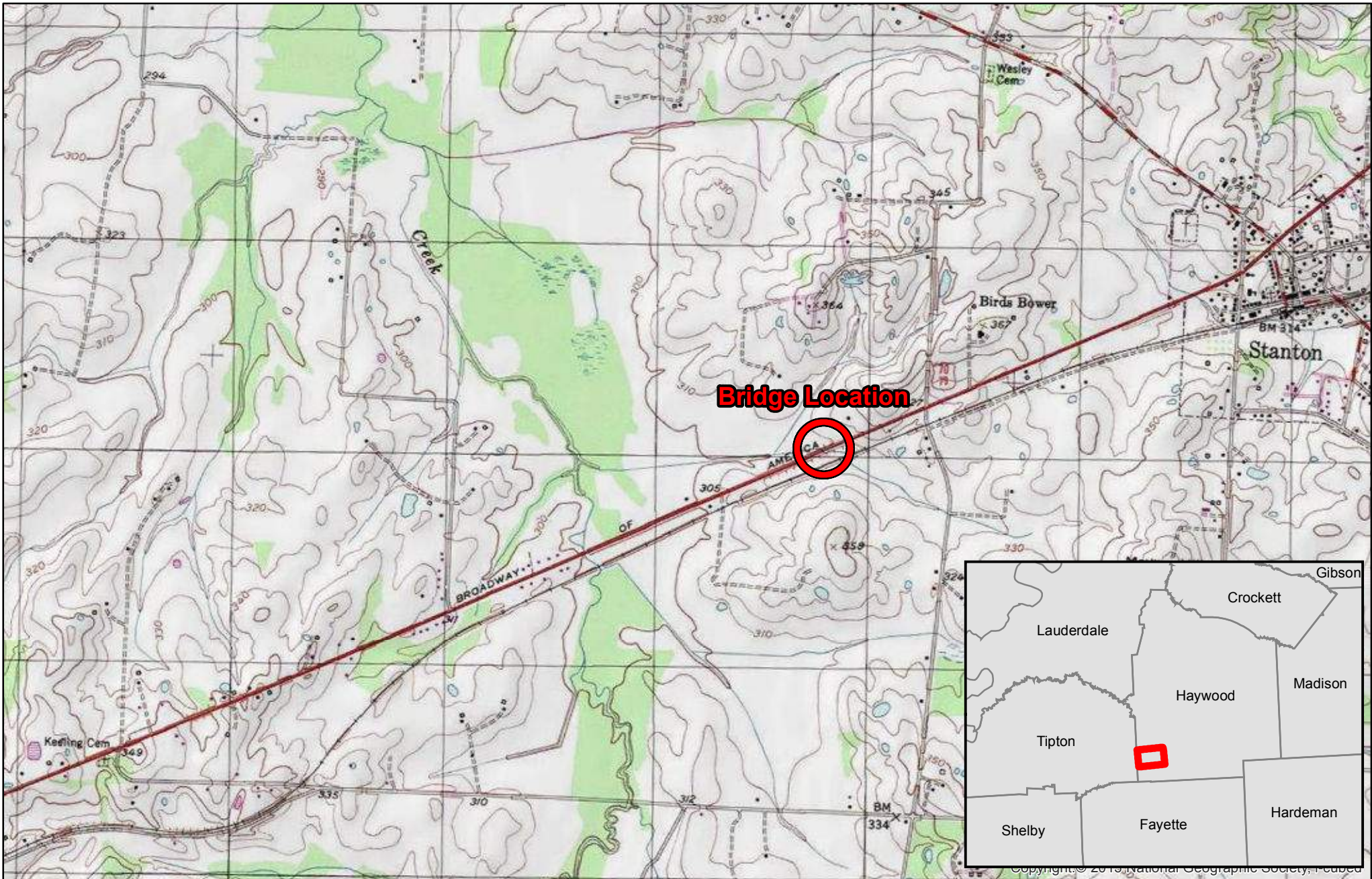
6.0 QUALIFICATIONS

The information presented herein is based on information obtained during the site visit(s) and from previous experience. If additional information becomes available,

which might impact our conclusions or recommendations, Barge requests the opportunity to review the information, reassess the potential concerns, and modify opinions, if warranted.

This report has been prepared on behalf of the Tennessee Department of Transportation. This document is not a Bid Document or a Contract Document. Use of this report or reliance upon information contained in this report by any other party implies an agreement by that party to the same terms and conditions under which service was provided. Furthermore, any party, other than our Client, relying on this document is cautioned that all conclusions made or decisions arrived at based on their review of this document are those solely of the third party, without warranty, guarantee or promise by the author. These findings are relevant to the dates of our services and should not be relied upon to represent conditions at substantially earlier or later dates.

Figures



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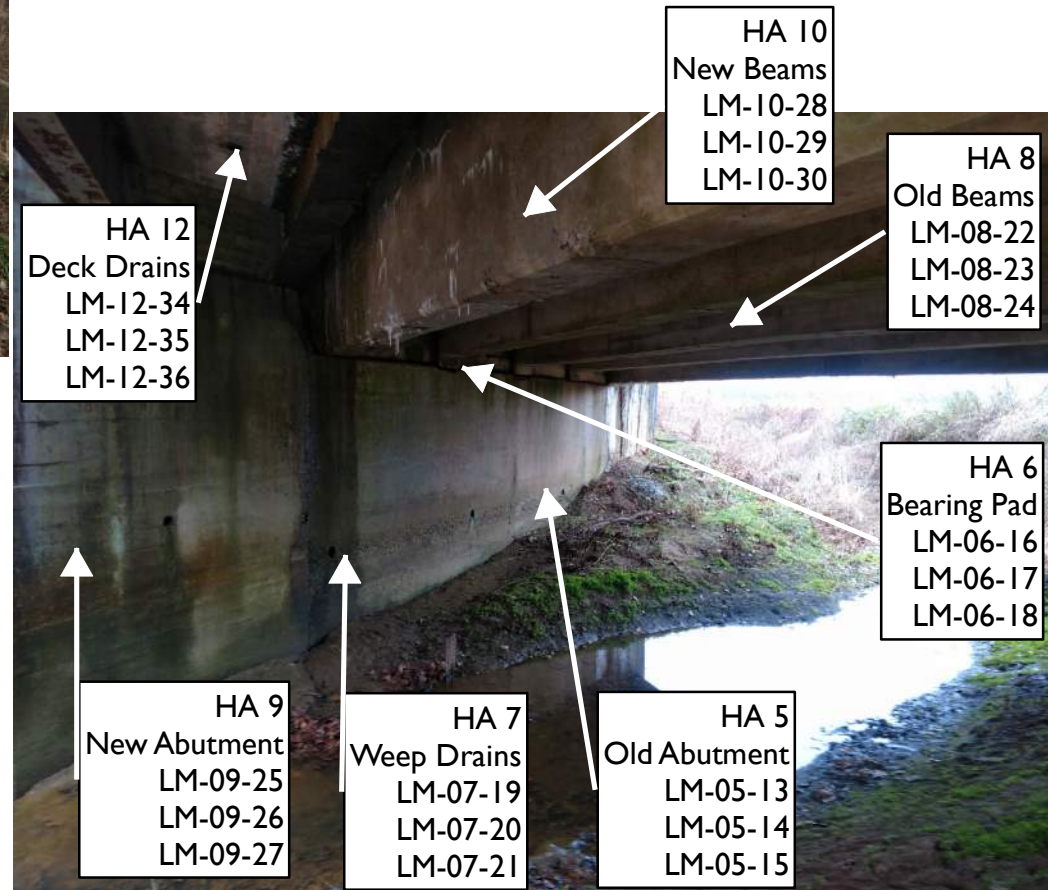
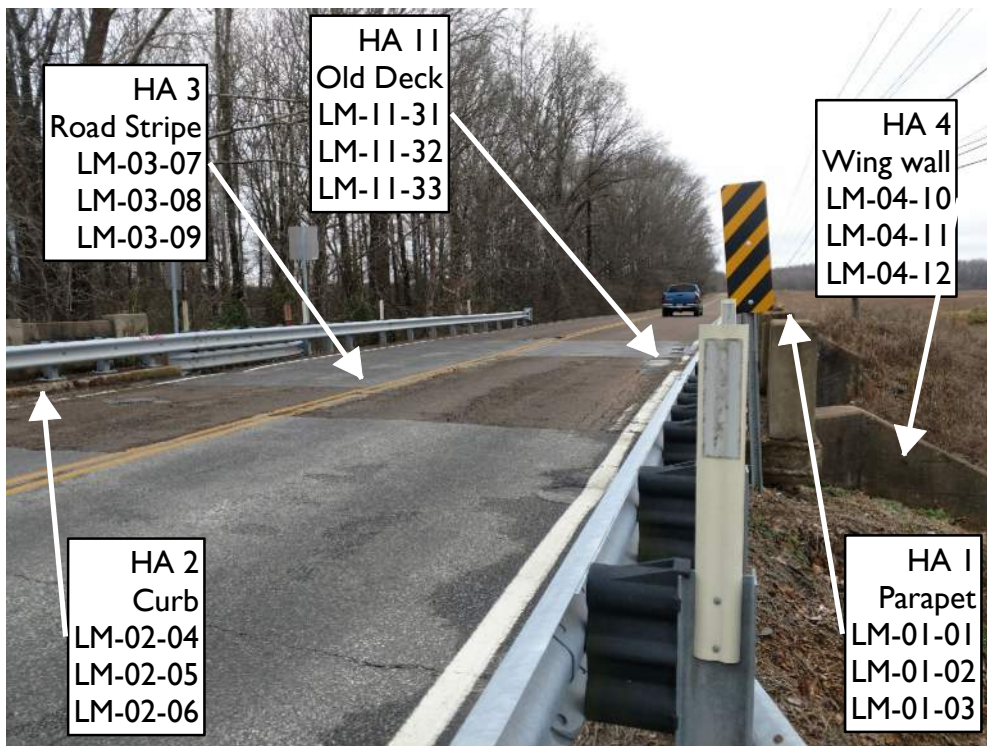
2,000
Feet
Scale 1" = 2,000 feet
Tennessee State Plane (feet) 4100ftps
North American Datum 1983



Tennessee Department Of Transportation - Asbestos Assessment Report
January 2018

SR-1 (US-70) Bridge over Branch LM 2.89 (IA)
PE-N: 38002-0217-94 , PIN: 124503.00
Bridge Number: 38SR0010003
Haywood County, Tennessee

Figure 1 - Site Location Map



Notes:
Locations are typical of the homogeneous area, some sample locations were not visible from the angle of the photo therefore a representative location was labeled.

HA = Homogeneous Area

Tennessee Department of Transportation - Asbestos Assessment Report
January 2018

SR-1 (US-70) Bridge over Branch LM 2.89 (IA)
PE-N: 38002-0217-94 , PIN: 124503.00
Bridge Number: 38SR0010003
Haywood County, Tennessee

Figure 2 -
Sample Location Depiction

Appendix A: Asbestos Assessment Credentials



THE STATE OF TENNESSEE

Department of Environment and Conservation Division of Solid Waste Management
Toxic Substances Program

William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 14th Floor Nashville TN 37243

By virtue of the authority vested by the Division of Solid Waste Management, the Company named below is hereby accredited to offer and/or conduct Asbestos activities pursuant to Rule 1200-01-20:

Barge Waggoner Sumner and Cannon, Inc

211 Commerce Street Suite 600 Nashville TN, 37201

to conduct ASBESTOS ACTIVITIES in schools or public and commercial buildings in Tennessee.
This firm is responsible for compliance with the applicable requirements of Rule 1200-01-20.

Discipline	Type	Accreditation Number	Effective Date	Expiration Date
Accreditation	Re-Accreditation	A-F-410-52467	September 01, 2017	September 30, 2018



Given under the Seal of the State of Tennessee in Nashville.

This 8th Day of September 2017

Division of Solid Waste Management
Toxic Substance Program

CN-1324 (Rev 6/13)

RDA-3020

THE STATE OF TENNESSEE

Department of Environment and Conservation
Division of Solid Waste Management
Toxic Substances Program



Thomas R. Bell

DOB	Sex	HGT	WGT
09-Jul-1960	M	6'0"	200

Discipline	Accreditation	Expiration
Inspector	A-I-47753-63126	Nov-30-2018
Management Planner	A-MP-47753-63126	Nov-30-2018

Re-Accreditation

Asbestos Accreditation


Appendix B: Photographs





PE-N: 38002-0217-94, PIN: 124503.00

Bridge Number: 38SR0010003

SR-1 over Branch LM 2.89

Photographer: Chelsea Sachs	
Date: 12/18/2017	
Description: Photograph 3 – Homogeneous Area 2 Curb Sample Locations LM-02-04 LM-02-05 LM-02-06	

Photographer: Chelsea Sachs	
Date: 12/18/2017	
Description: Photograph 4 – Homogeneous Area 3 Road Stripe Sample Locations LM-03-07 LM-03-08 LM-03-09	


<p>Photographer: Chelsea Sachs</p>	
<p>Date: 12/18/2017</p>	
<p>Description: Photograph 5 – Homogeneous Area 4 Wing Wall Sample Locations LM-04-10 LM-04-11 LM-04-12</p>	


<p>Photographer: Chelsea Sachs</p>	
<p>Date: 12/18/2017</p>	
<p>Description: Photograph 6 – Homogeneous Area 5 Old Abutment Sample Locations LM-05-13 LM-05-14 LM-05-15</p>	

PE-N: 38002-0217-94, PIN: 124503.00

Bridge Number: 38SR0010003

SR-1 over Branch LM 2.89

Photographer: Chelsea Sachs	
Date: 12/18/2017	
Description: Photograph 7 – Homogeneous Area 6 Bearing Pad Sample Locations LM-06-16 LM-06-17 LM-06-18	

Photographer: Chelsea Sachs	
Date: 12/18/2017	
Description: Photograph 8 – Homogeneous Area 7 Weep Drains Sample Locations LM-07-19 LM-07-20 LM-07-21	

Photographer: Chelsea Sachs	
Date: 12/18/2017	
Description: Photograph 9 – Homogeneous Area 8 Old Beams Sample Locations LM-08-22 LM-08-23 LM-08-24	

Photographer: Chelsea Sachs	
Date: 12/18/2017	
Description: Photograph 10 – Homogeneous Area 9 New Abutment Sample Locations LM-09-25 LM-09-26 LM-09-27	

PE-N: 38002-0217-94, PIN: 124503.00

Bridge Number: 38SR0010003


SR-1 over Branch LM 2.89

<p>Photographer: Chelsea Sachs</p>	
<p>Date: 12/18/2017</p>	
<p>Description: Photograph 11 – Homogeneous Area 10 New Beams Sample Locations LM-10-28 LM-10-29 LM-10-30</p>	
<p>Photographer: Chelsea Sachs</p>	
<p>Date: 12/18/2017</p>	
<p>Description: Photograph 12 – Homogeneous Area 11 Old Deck Sample Locations LM-11-31 LM-11-32 LM-11-33</p>	

PE-N: 38002-0217-94, PIN: 124503.00

Bridge Number: 38SR0010003

SR-1 over Branch LM 2.89

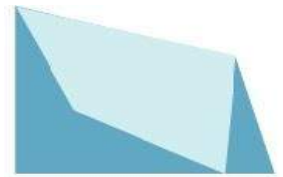
<p>Photographer: Chelsea Sachs</p>	 A photograph showing a close-up of a concrete structure, likely a bridge deck or support. A white arrow points to a small, dark, circular spot on the concrete surface. The concrete appears aged and somewhat stained.
<p>Date: 12/18/2017</p>	
<p>Description: Photograph 13 – Homogeneous Area 12 Deck Drains Sample Locations LM-12-34 LM-12-35 LM-12-36</p>	

Appendix C: Asbestos Sample Laboratory Analysis Data

FROST ENVIRONMENTAL SERVICES, LLC

339 ROCKLAND ROAD, SUITE E, HENDERSONVILLE, TENNESSEE 37075

(615) 562-2669 office - (615) 473-9047 cell - email: lab@frostenvironmental.com



POLARIZED LIGHT MICROSCOPY (PLM) LABORATORY ANALYSIS REPORT (EPA/600/R-93/116 (JUNE 1993))

CLIENT: Barge Waggoner Sumner & Cannon, Inc.

Date Received: 12/28/2017

PROJECT: TDOT-SR1-38SR001003

Date Analyzed: 1/3/2018

LOCATION: Haywood County TN

Date Reported: 1/3/2018

ANALYST: Jody Wilkins

Sample Number	Location	Material Description	Binder (Non-Fibrous) Material	Non-Asbestos Fiber	Asbestos Type & Percent
LM-01-01	Parapet	Tan Cementitious Material	100	None Detected	None Detected
LM-01-02	Parapet	Tan Cementitious Material	100	None Detected	None Detected
LM-01-03	Parapet	Tan Cementitious Material	100	None Detected	None Detected
LM-02-04	Curb	Tan Cementitious Material	100	None Detected	None Detected
LM-02-05	Curb	Tan Cementitious Material	100	None Detected	None Detected
LM-02-06	Curb	Tan Cementitious Material	100	None Detected	None Detected
LM-03-07	Road Stripe	Yellow Beaded Material	100	None Detected	None Detected
LM-03-08	Road Stripe	Yellow Beaded Material	100	None Detected	None Detected
LM-03-09	Road Stripe	Yellow Beaded Material	100	None Detected	None Detected
LM-04-10	Wing Wall	Tan Cementitious Material	100	None Detected	None Detected
LM-04-11	Wing Wall	Tan Cementitious Material	100	None Detected	None Detected
LM-04-12	Wing Wall	Tan Cementitious Material	100	None Detected	None Detected
LM-05-13	Old Abutment	Tan Cementitious Material	100	None Detected	None Detected
		Gray Coating	100	None Detected	None Detected
LM-05-14	Old Abutment	Tan Cementitious Material	100	None Detected	None Detected
LM-05-15	Old Abutment	Tan Cementitious Material	100	None Detected	None Detected

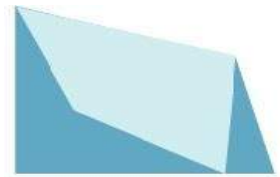
Asbestos Containing Material (ACM) is defined as any material containing more than one percent asbestos.

Analysis was performed using EPA/600/R-93/116 (June 1993)), Test Method for the Determination of Asebstos in Bulk Building Materials.

FROST ENVIRONMENTAL SERVICES, LLC

339 ROCKLAND ROAD, SUITE E, HENDERSONVILLE, TENNESSEE 37075

(615) 562-2669 office - (615) 473-9047 cell - email: lab@frostenvironmental.com



POLARIZED LIGHT MICROSCOPY (PLM) LABORATORY ANALYSIS REPORT (EPA/600/R-93/116 (JUNE 1993))

CLIENT: Barge Waggoner Sumner & Cannon, Inc.

Date Received: 12/28/2017

PROJECT: TDOT-SR1-38SR001003

Date Analyzed: 1/3/2018

LOCATION: Haywood County TN

Date Reported: 1/3/2018

ANALYST: Jody Wilkins

Sample Number	Location	Material Description	Binder (Non-Fibrous) Material	Non-Asbestos Fiber	Asbestos Type & Percent
LM-06-16	Bearing Pad	Brown/Yellow Cementitious Material	100	None Detected	None Detected
LM-06-17	Bearing Pad	Brown/Yellow Cementitious Material	100	None Detected	None Detected
LM-06-18	Bearing Pad	Brown/Yellow Cementitious Material	100	None Detected	None Detected
LM-07-19	Weep Drains	Black Fibrous Material	40	60-Cellulose	None Detected
LM-07-20	Weep Drains	Black Fibrous Material	40	60-Cellulose	None Detected
LM-07-21	Weep Drains	Black Fibrous Material	40	60-Cellulose	None Detected
LM-08-22	Old Beam	Tan Cementitious Material	100	None Detected	None Detected
LM-08-23	Old Beam	Tan Cementitious Material	100	None Detected	None Detected
LM-08-24	Old Beam	Tan Cementitious Material	100	None Detected	None Detected
LM-09-25	New Abutment	Tan Cementitious Material	100	None Detected	None Detected
LM-09-26	New Abutment	Tan Cementitious Material	100	None Detected	None Detected
LM-09-27	New Abutment	Tan Cementitious Material	100	None Detected	None Detected
		Gray Coating	100	None Detected	None Detected
LM-10-28	New Beams	Tan Cementitious Material	100	None Detected	None Detected
LM-10-29	New Beams	Tan Cementitious Material	100	None Detected	None Detected
LM-10-30	New Beams	Tan Cementitious Material	100	None Detected	None Detected

Asbestos Containing Material (ACM) is defined as any material containing more than one percent asbestos.

Analysis was performed using EPA/600/R-93/116 (June 1993)), Test Method for the Determination of Asebstos in Bulk Building Materials.

Appendix D: Health and Safety Plan



Health and Safety Plan

Project: TDOT SR-1	Location: Haywood County	Date: 12/15/17	Job No. 3637865 &64
---------------------------	---------------------------------	-----------------------	----------------------------

Project Manager	Office Number	Cell Number
Tom McComb	615-252-4349	615-210-8936

Onsite Contact	Office Number	Cell Number

Description of Field Activities

ACM Sampling

ACTIVITY	WEATHER	BOTANY	TOOLS	JOB BRIEFING
<input type="checkbox"/> Soil Sampling	<input type="checkbox"/> Hot	<input type="checkbox"/> Poison Ivy/Oak	<input type="checkbox"/> Machete	<input type="checkbox"/> Evaluate Surroundings
<input type="checkbox"/> Sediment Sampling	<input type="checkbox"/> Cold	<input type="checkbox"/> Poison Sumac	<input type="checkbox"/> Brush hook	<input type="checkbox"/> Communications
<input type="checkbox"/> Surface-Water Sampling	<input type="checkbox"/> Mild	<input type="checkbox"/> Thistle	<input type="checkbox"/> Pick	<input type="checkbox"/> Safety Plan
<input type="checkbox"/> Ground-Water Sampling	<input type="checkbox"/> Sunny	<input type="checkbox"/> Thorns	<input type="checkbox"/> Ax	<input type="checkbox"/> Emergency Numbers
<input type="checkbox"/> Fish Sampling	<input type="checkbox"/> Fair	<input type="checkbox"/> Needle-like	<input type="checkbox"/> Hammer	<input type="checkbox"/> Lockout/Tagout
<input type="checkbox"/> Macroinvertebrate Sampling	<input type="checkbox"/> Rain	<input type="checkbox"/> Other:	<input type="checkbox"/> Knife	<input type="checkbox"/> Client Requirements
<input type="checkbox"/> Drilling	<input type="checkbox"/> Lightning		<input type="checkbox"/> Drill Rig	<input type="checkbox"/> Insect Repellent
<input type="checkbox"/> Trenching	<input type="checkbox"/> Hail		<input type="checkbox"/> Boat	<input type="checkbox"/> Reflective/Colored Vests
<input type="checkbox"/> Other:	<input type="checkbox"/> Sleet/Snow/Ice		<input type="checkbox"/> Truck/ATV	<input type="checkbox"/> Chemical Information
	<input type="checkbox"/> Night		<input type="checkbox"/> Electrical Equipment	<input type="checkbox"/> Tool Check
	TERRAIN	WILDLIFE	<input type="checkbox"/> Other:	<input type="checkbox"/> Equipment Check
CONSTITUENTS	<input type="checkbox"/> River	<input type="checkbox"/> Ticks		<input type="checkbox"/> First Aid Kit Check
<input type="checkbox"/> Strong Acids/Bases	<input type="checkbox"/> Creek	<input type="checkbox"/> Spiders	TRAFFIC	<input type="checkbox"/> Gloves
<input type="checkbox"/> Metals	<input type="checkbox"/> Lake	<input type="checkbox"/> Chiggers	<input type="checkbox"/> Heavy	<input type="checkbox"/> PFD
<input type="checkbox"/> PCBs	<input type="checkbox"/> Swamp	<input type="checkbox"/> Ants/Fireants	<input type="checkbox"/> Light	<input type="checkbox"/> Waders
<input type="checkbox"/> Pesticides	<input type="checkbox"/> Sinkholes/Collapses	<input type="checkbox"/> Wasps/Bees	<input type="checkbox"/> Boats	<input type="checkbox"/> Steel Toe Boots
<input type="checkbox"/> Asbestos	<input type="checkbox"/> Woods	<input type="checkbox"/> Hornets	<input type="checkbox"/> Railroad	<input type="checkbox"/> Hard Hat
<input type="checkbox"/> VOCs	<input type="checkbox"/> Open & Clear	<input type="checkbox"/> Dogs	<input type="checkbox"/> Planes	<input type="checkbox"/> Eye Protection



Imagery ©2017 Google, Map data ©2017 Google 2 mi

11295 TN-193


Williston, TN 38076

Get on I-269 S

- ↑ 1. Head west on TN-193 W toward TN-195 W 16 min (11.8 mi)
- ↘ 2. Slight left to stay on TN-193 W 3.0 mi
- ↙ 3. Turn left onto the ramp to Fisherville 8.6 mi
- ↘ 4. Turn left onto I-269 S 0.3 mi

Follow I-269 S and TN-57 W to your destination in Collierville

- ↘ 5. Merge onto I-269 S 17 min (12.3 mi)
- ↘ 6. Take the TN-57 exit toward Collierville/Piperton 7.7 mi
- ↘ 7. Turn left onto TN-57 W 0.2 mi
- ↘ 8. Turn right onto Poplar Ave 4.4 mi

 7. Turn right

14 s (164 ft)

Baptist Memorial Hospital-Collierville

1500 W Poplar Ave, Collierville, TN 38017

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Multimodal

Environmental Studies Request

Project Information

Route: SR-1
Termini: Bridge over Branch LM 2.89
County: Haywood
PIN: 124503.00

Request

Request Type: Initial Environmental Study
Project Plans: Transportation Investment Report
Date of Plans: 04/02/2018
Location: Email Attachment

Certification

Requestor: Abby Harris
Title: TESS - NEPA

Signature:

Abby Harris

Digitally signed by Abby
Harris
Date: 2018.07.27
11:08:07 -05'00'

Environmental Study

Technical Section

Section: Multimodal

Study Results

This project accommodates bicyclists with wide shoulders.

Commitments

Did the study of this project result in any environmental commitments?

No

Additional Information

Is there any additional information or material included with this study?

No

Certification

Responder: Whitney S.D. Mason

Title: Bicycle and Pedestrian Coordinator

Signature: Whitney
S.D. Mason

Digitally signed by
Whitney S.D. Mason
Date: 2018.07.27
12:06:19 -05'00'



MULTIMODAL ACCESS POLICY

EFFECTIVE DATE:

July 31, 2015

AUTHORITY:

TCA 4-3-2303

If any portion of this policy conflicts with applicable state or federal laws or regulations, that portion shall be considered void. The remainder of this policy shall not be affected thereby and shall remain in full force and effect.

PURPOSE:

To create and implement a multimodal transportation policy that encourages safe access and mobility for users of all ages and abilities through the planning, design, construction, maintenance, and operation of new construction, reconstruction and retrofit transportation facilities that are federally or state funded. Users include, but are not limited to, motorists, transit-riders, freight-carriers, bicyclists and pedestrians.

APPLICATION:

The policy applies to Department of Transportation employees, consultants and contractors involved in the planning, design, construction, maintenance, and operation of state and federally funded projects, and local governments managing and maintaining transportation projects with funding through TDOT's Local Programs Development Office.

DEFINITIONS:

- Highway:** A main road or thoroughfare, such as a street, boulevard, or parkway, available to the public for use for travel or transportation.
- Multimodal:** For the purposes of this policy, multimodal is defined as the movement of people and goods on state and functionally-classified roadways. Users include, but are not limited to, motorists, transit-riders, freight-carriers, bicyclists and pedestrians, including those with disabilities.
- Reconstruction:** Complete removal and replacement of the pavement structure or the addition of new continuous traffic lanes on an existing roadway.

- Retrofit: Changes to an existing highway within the general right-of-way, such as adding lanes, modifying horizontal and vertical alignments, structure rehabilitation, safety improvements, and maintenance.
- Roadway: The portion of a highway, including shoulders, that is available for vehicular, bicycle or pedestrian use.

POLICY:

The Department of Transportation recognizes the benefits of integrating multimodal facilities into the transportation system as a means to improve the mobility, access and safety of all users. The intent of this policy is to promote the inclusion of multimodal accommodations in all transportation planning and project development activities at the local, regional and statewide levels, and to develop a comprehensive, integrated, and connected multimodal transportation network. TDOT will collaborate with local government agencies and regional planning agencies through established transportation planning processes to ensure that multimodal accommodations are addressed throughout the planning, design, construction, maintenance, and operation of new construction, reconstruction and retrofit transportation facilities as outlined in TDOT's Multimodal Access Policy Implementation Plan.

TDOT is committed to the development of a transportation system that improves conditions for multimodal transportation users through the following actions:

1. Provisions for multimodal transportation shall be given full consideration in new construction, reconstruction and retrofit roadway projects through design features appropriate for the context and function of the transportation facility.
2. The planning, design and construction of new facilities shall give full consideration to likely future demand for multimodal facilities and not preclude the provision of future improvements. If all feasible roadway alternatives have been explored and suitable multimodal facilities cannot be provided within the existing or proposed right of way due to environmental constraints, an alternate route that provides continuity and enhances the safety and accessibility of multimodal travel should be considered.
3. Existing multimodal provisions on roadways shall not be made more difficult or impossible by roadway improvements or routine maintenance projects.
4. Intersections and interchanges shall be designed (where appropriate based on context) to accommodate the mobility of bicyclists and pedestrians to cross corridors as well as travel along them in a manner that is safe, accessible, and convenient.
5. While it is not the intent of resurfacing projects to expand existing facilities, opportunities to provide or enhance bicycle and pedestrian facilities shall be given full consideration during the program development stage of resurfacing projects.
6. Pedestrian facilities shall be designed and built to accommodate persons with disabilities in accordance with the access standards required by the Americans with Disabilities Act

(ADA). Sidewalks, shared use paths, street crossings (including over- and under-crossings) and other infrastructure shall be constructed so that all pedestrians, including those with disabilities, can travel independently.

7. Provisions for transit-riders, pedestrians, and bicyclists shall be included when closing roads, bridges or sidewalks for construction projects where pedestrian, bicycle, or transit traffic is documented or expected.

EXCEPTIONS:

It is TDOT's expectation that full consideration of multimodal access will be integrated in all appropriate new construction, reconstruction and retrofit infrastructure projects. However, there are conditions where it is generally inappropriate to provide multimodal facilities. Examples of these conditions include, but are not limited to:


1. Controlled access facilities where non-motorized users are prohibited from using the roadway. In this instance, a greater effort may be necessary to accommodate these users elsewhere within the same transportation corridor.
2. The cost of accommodations would be excessively disproportionate to the need and probable use. Excessively disproportionate is defined as exceeding twenty percent (20%) of the total cost of the project. The twenty percent figure should be used in an advisory rather than an absolute sense, especially in instances where the cost may be difficult to quantify. Compliance with ADA requirements may require greater than 20% of project cost to accommodate multimodal access. Costs associated with ADA requirements are NOT an exception.
3. Areas in which the population and employment densities or level of transit service around the facility, both existing and future, does not justify the incorporation of multimodal alternatives.
4. Inability to negotiate and enter into an agreement with a local government to assume the operational and maintenance responsibility of the facility.
5. Other factors where there is a demonstrated absence of need or prudence, or as requested by the Commissioner of the Department of Transportation.

Exceptions for not accommodating multimodal transportation users on State roadway projects in accordance with this policy shall be documented describing the basis and supporting data for the exception, and must be approved by TDOT's Chief Engineer and Chief of Environment and Planning or their designees.


DESIGN GUIDANCE:

The Department recognizes that a well-planned and designed transportation network is responsive to its context and meets the needs of its users. Therefore, facilities will be designed and constructed in accordance with current applicable laws and regulations, using best practices and guidance, including but not limited to the following: TDOT Standard Drawings and guidelines, American Association of State Highway and Transportation Officials (AASHTO) publications, Institute of Transportation Engineers (ITE) publications, the Manual on Uniform Traffic Control Devices (MUTCD), National Association of City Transportation Officials (NACTO) publications, the Public Rights-of-Ways Accessibility Guidelines (PROWAG), and the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

Signed:



PAUL DEGGES
Chief Engineer/Deputy Commissioner



TOKS OMISHAKIN
Chief of Planning/Deputy Commissioner



JOHN SCHROER
Commissioner