

MINIMUM CRITERIA DETERMINATION CHECKLIST

The following questions provide direction in determining when the Department is required to prepare environmental documents for state-funded construction and maintenance activities. Answer questions for Parts A through C by checking either “Yes” or “No”. Complete Part D of the checklist when Minimum Criteria Rule categories #8, 12(i) or #15 are used.

TIP Project No.: B-5670

State Project No.: 45625.1.1

Project Location: Bridge No. 29 on US 64ALT over Tar River in Nash County.

Project Description: The proposed project involves replacing Bridge No. 29 on US 64ALT over Tar River in Nash County. Right of way acquisition and construction are scheduled for state fiscal years 2019 and 2020.

Bridge No. 29 will be replaced on the existing alignment. The replacement structure will have a minimum clear roadway width of 32 feet with four-foot offsets. The bridge will include two twelve-foot lanes and four-foot shoulders on each side. The bridge length is based on preliminary design information and is set by hydraulic requirements. The roadway grade of the new structure will be approximately the same as the existing structure.

The approach roadway will extend approximately 785 feet from both ends of the proposed bridge. The approach roadway will consist of two 12-foot lanes with 8-foot shoulders (11-foot with guardrail). The existing right-of-way width is 150 feet and the proposed right-of-way is 85 feet. It is anticipated that Permanent Drainage Easement (PDE) and Temporary Construction Easement (TCE) is needed to build the project.

Due to available nearby alternative routes of this major collector, traffic will be detoured off-site during the construction period (see Vicinity Map). The potential detour includes US 64 and NC 581, an approximately 5.5-mile detour. Local access to active farming in the immediate vicinity of the bridge replacement can be maintained during the construction.

The latest estimated costs are:

Right of Way Acquisition:	\$7,000
Utilities:	\$9,780
Construction	\$4,450,000
Total:	\$4,466,780

Anticipated Permit or Consultation Requirements: A Nationwide Permit (NWP) 3 or General Permit 31 will likely be applicable. A NWP 33 may also apply for temporary

construction activities such as stream dewatering, work bridges, or temporary causeways that are often used during bridge construction or rehabilitation. The USACE holds the final discretion as to what permit will be required to authorize project construction. If a Section 404 permit is required then a Section 401 Water Quality Certification (WQC) from NCDWR will be needed.

Special Project Information:

Environmental Commitments: The list of project commitments (green-sheet) is located at the end of the checklist.

Estimated Traffic:

Current Year (2017):	2550 vpd
Year 2040:	3200 vpd
TTST:	2%
Dual:	4%
Design Speed:	60 MPH

Crash Rates:

The crash rate at this bridge is approximately 1.35 crashes per million vehicle miles traveled (MVMT).

Cultural Resources: This project was reviewed and cleared by NCDOT's cultural resources staff under a programmatic agreement with the State Historic Preservation Office. No surveys were required.

Bicycle and Pedestrian Accommodations: There is no presence of bicycle, pedestrian, greenway, or transit facilities; therefore, no bicycle or pedestrian accommodations are proposed for the project.

Bridge Demolition: The existing bridge is constructed of concrete. The replacement and demolition of this type of structure is likely to result in debris in the water based on standard demolition practices. NCDOT will ensure that the demolition process complies with environmental permit requirements.

Design Exceptions: There is a design exception for this project, related to its vertical curve stopping sight distance.

Alternatives Considered:

No Build – The no build alternative would result in eventually closing the road, which is anticipated to cause considerable disruption to transportation users due to high traffic volumes served by US 64ALT.

Rehabilitation – The superstructure of the bridge is prestressed concrete channel with timber piles structure. The bridge was built in 1952. The steel joists within the bridge are reaching the end of their useful life. Rehabilitation would require replacing the joists which would constitute effectively replacing the bridge.

Off-site Detour -Bridge No. 29 will be replaced on its existing alignment. Traffic will be detoured offsite during the construction period. NCDOT Guidelines for Evaluation of Offsite Detours for Bridge Replacement Projects considers multiple project variables beginning with the additional time traveled by the average road user resulting from the offsite detour. The possible detour includes US 64 and NC 581, an approximately 5.5 miles detour. The detour for the average road user for the detour route would result in approximately five minutes of additional travel time, which is acceptable based on NCDOT Guidelines for Offsite Detours. Up to a 12-month duration of construction is expected on this project.

Based on the Offsite Detour Guidelines, the criteria above indicate that on the basis of delay alone, the proposed offsite detour is acceptable. Nash County Emergency Services and Public Schools have indicated moderate impacts to emergency services and school bus system. In order to minimize disruptions to EMS services and Public Schools, NCDOT will notify Nash County Emergency Services and Public Schools at least one month prior to construction. A project commitment for this has been included in this document.

On-site Detour – An on-site detour was not evaluated due to low traffic volumes served by SR 1705 and available nearby routes.

Staged Construction – Staged construction was not considered because of the availability of an acceptable off-site detour.

New Alignment – Given that the existing alignment for US 64ALT is acceptable, a new alignment was not considered as an alternative.

PART A: MINIMUM CRITERIA***Item 1 to be completed by the Engineer.***

	YES	NO
1. Is the proposed project listed as a type and class of activity allowed under the Minimum Criteria Rule in which environmental documentation is <u>not</u> required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

If the answer to number 1 is “no”, then the project does not qualify as a minimum criteria project. A state environmental assessment is required.

If yes, under which category? 2

If either category #8, #12(i) or #15 is used complete Part D of this checklist.

PART B: MINIMUM CRITERIA EXCEPTIONS***Items 2 – 4 to be completed by the Engineer.***

	YES	NO
2. Could the proposed activity cause significant changes in land use concentrations that would be expected to create adverse air quality impacts?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Will the proposed activity have secondary impacts or cumulative impacts that may result in a significant adverse impact to human health or the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Is the proposed activity of such an unusual nature or does the proposed activity have such widespread implications, that an uncommon concern for its environmental effects has been expressed to the Department?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Item 5-8 to be completed by Division Environmental Officer.

	YES	NO
5. Does the proposed activity have a significant adverse effect on wetlands; surface waters such as rivers, streams, and estuaries; parklands; prime or unique agricultural lands; or areas of recognized scenic, recreational, archaeological, or historical value?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Will the proposed activity endanger the existence of a species on the Department of Interior's threatened and endangered species list?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Could the proposed activity cause significant changes in land use concentrations that would be expected to create adverse water quality or ground water impacts?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- | | YES | NO |
|--|--------------------------|-------------------------------------|
| 8. Is the proposed activity expected to have a significant adverse effect on longterm recreational benefits or shellfish, finfish, wildlife, or their natural habitats | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

If any questions 2 through 8 are answered “yes”, the proposed project may not qualify as a Minimum Criteria project. A state environmental assessment (EA) may be required. For assistance, contact:

Manager, Environmental Analysis Unit
 1598 Mail Service Center
 Raleigh, NC 27699-1598
 (919) 707 – 6000
 Fax: (919) 212-5785

PART C: COMPLIANCE WITH STATE AND FEDERAL REGULATIONS

- | <i>Items 9- 12 to be completed by Division Environmental Officer.</i> | YES | NO |
|--|-------------------------------------|-------------------------------------|
| 9. Is a federally protected threatened or endangered species, or its habitat, likely to be impacted by the proposed action? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10. Does the action require the placement of temporary or permanent fill in waters of the United States? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11. Does the project require the placement of a significant amount of fill in high quality or relatively rare wetland ecosystems, such as mountain bogs or pine savannahs? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12. Is the proposed action located in an Area of Environmental Concern, as defined in the coastal Area Management Act? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <i>Items 13 – 15 to be completed by the Engineer.</i> | | |
| 13. Does the project require stream relocation or channel changes? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>Cultural Resources</u> | | |
| 14. Will the project have an “effect” on a property or site listed on the National Register of Historic Places? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 15. Will the proposed action require acquisition of additional right of way from publicly owned parkland or recreational areas? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Question 9: As of June 27, 2018, the United States Fish and Wildlife Service (USFWS) lists two federally protected species for Nash County. Habitat requirements for these species are based on the current best available information from referenced literature and/or USFWS. All the listed mussel species were surveyed for in a report from October 2017.

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
<i>Alasmidonta heterodon</i>	Dwarf wedgemussel	Endangered	Yes	MANLAA
<i>Elliptio steinstansana</i>	Tar River spinymussel	Endangered	Yes	MANLAA
<i>Elliptio lanceolate</i>	Yellow Lance	Threatened	Yes	MANLAA
<i>Rhus michauxii</i>	Michaux's sumac	Endangered	Unknown	Unknown
<i>Acipenser oxyrinchus</i>	Atlantic sturgeon	Endangered	No	No Effect

MANLAA: May Affect Not Likely To Adversely Affect

Dwarf Wedgemussel & Tar River Spinymussel - A mussel survey was conducted which suggested that the study area supports a diverse mussel fauna of at least ten species. Neither of these target species were found during the surveys; however, suitable habitat for all target species is present in the project area. Impacts are unlikely to occur in the study area, and strict adherence to erosion control standards should minimize the potential for any adverse impacts to occur.

Atlantic Sturgeon – The Tar River is considered Critical Habitat for Atlantic Sturgeon. This project would occur above the dam at Rocky Mount (Rocky Mount Mill Pond Dam); therefore, it would have No Effect on Critical Habitat or Atlantic Sturgeon.

Northern Long-Eared Bat - The US Fish and Wildlife Service has developed a programmatic biological opinion (PBO) in conjunction with the Federal Highway Administration (FHWA), the US Army Corps of Engineers (USACE), and NCDOT for the northern long-eared bat (NLEB) in eastern North Carolina. The PBO covers the entire NCDOT program in Divisions 1-8, including all NCDOT projects and activities. The programmatic determination for NLEB for the NCDOT program is “May Affect, Likely to Adversely Affect”. The PBO provides incidental take coverage for NLEB and will ensure compliance with Section 7 of the Endangered Species Act for five years for all NCDOT projects with a federal nexus in Divisions 1-8, which includes Nash County, where the project is located.

PART D:(To be completed when either category #8, 12(i) or #15 of the rules are used.)

Items 16- 22 to be completed by Division Environmental Officer.

16. Project length: _____
17. Right of Way width: _____
18. Project completion date: _____
19. Total acres of newly disturbed ground surface: _____
20. Total acres of wetland impacts: _____
21. Total linear feet of stream impacts: _____
22. Project purpose: _____

If Part D of the checklist is completed, send a copy of the entire checklist document to:

David B. Harris, PE
State Roadside Environmental Engineer
Mail Service Center 1557
Raleigh, NC 27699-1557
(919) 707-2920
Fax (919) 715-2554
Email: davidharris@ncdot.gov

Prepared by:

DocuSigned by:

Dewayne Sykes

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Dewayne L. Sykes, PE, Project Manager
KCI Associates of North Carolina, PA

6/12/2019

Date:



Prepared For:

North Carolina Department of
Transportation Structures Management
Unit

Reviewed By:

DocuSigned by:

Kevin Fischer

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Kevin Fischer, PE, Assistant State
Structures Engineer – PEF Coordination
Program Management & Field Ops

6/14/2019

Date:

PROJECT COMMITMENTS

**Nash County
Bridge N. 29 on US 64 ALT over Tar River
W.B.S. No. 45625.1.1
TIP Project No. NA**

Hydraulics Unit

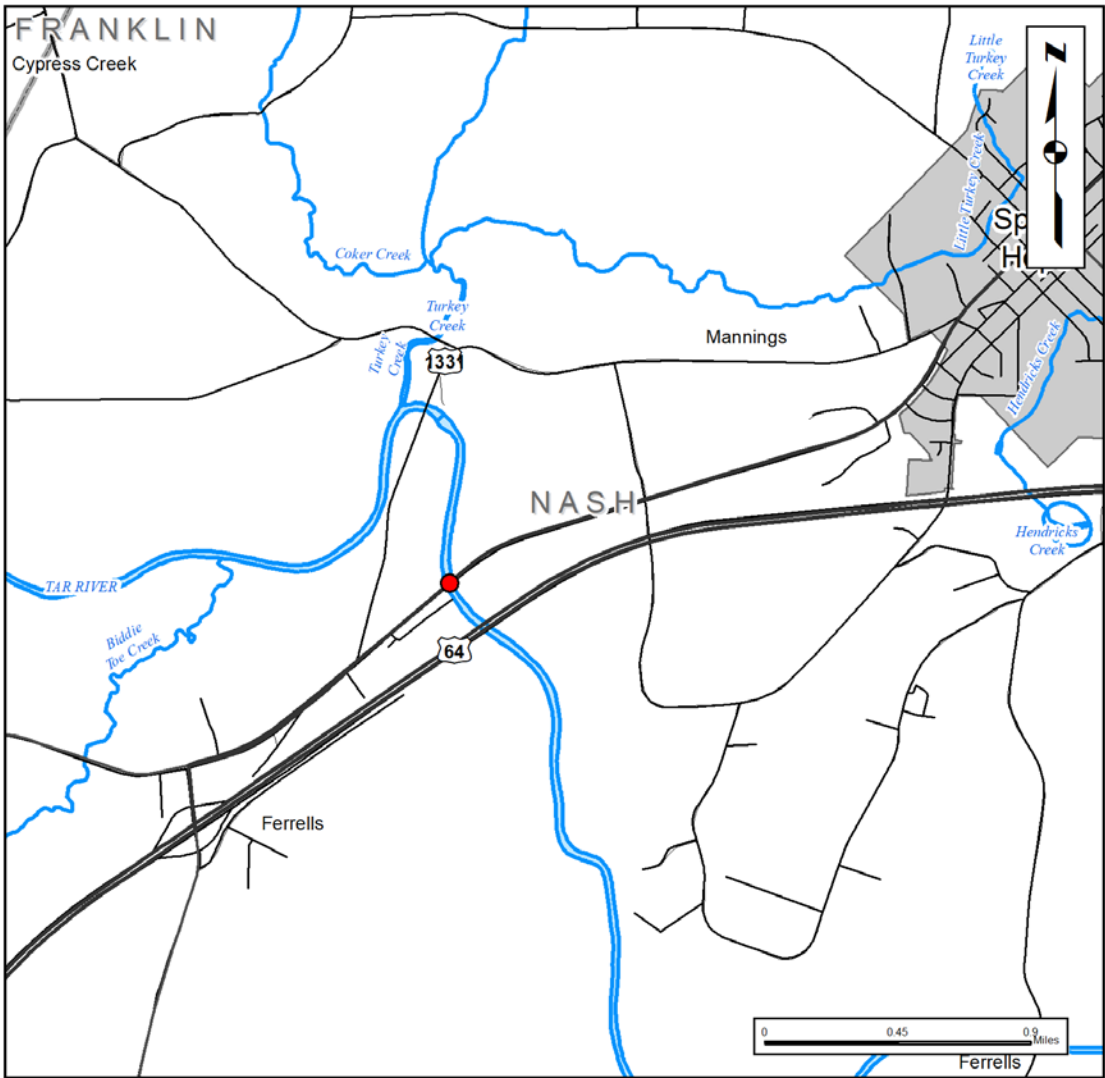
The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine the status the of project with regard to the applicability of NCDOT'S Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

Contracts Unit

According to the Nash County Public Schools Assistant Director of Transportation, anytime school is in session, detours disrupt transportation system and any roadway closure related to this project will have a moderate impact on the county school system. Nash County Emergency Service Director also mentioned that any detour could delay response times for emergency services and cause moderate impacts on EMS services. There are concerns with a delay in response to the populated area west of the bridge and a detour would have an adverse impact on response times in this section.

Due to the possible disruption of access, EMS response delays, and impact on school buses, it is recommended that NCDOT coordinate with the county EMS and Public Schools to minimize temporary disruptions in access and EMS response delays in the project study area.

Vicinity Map

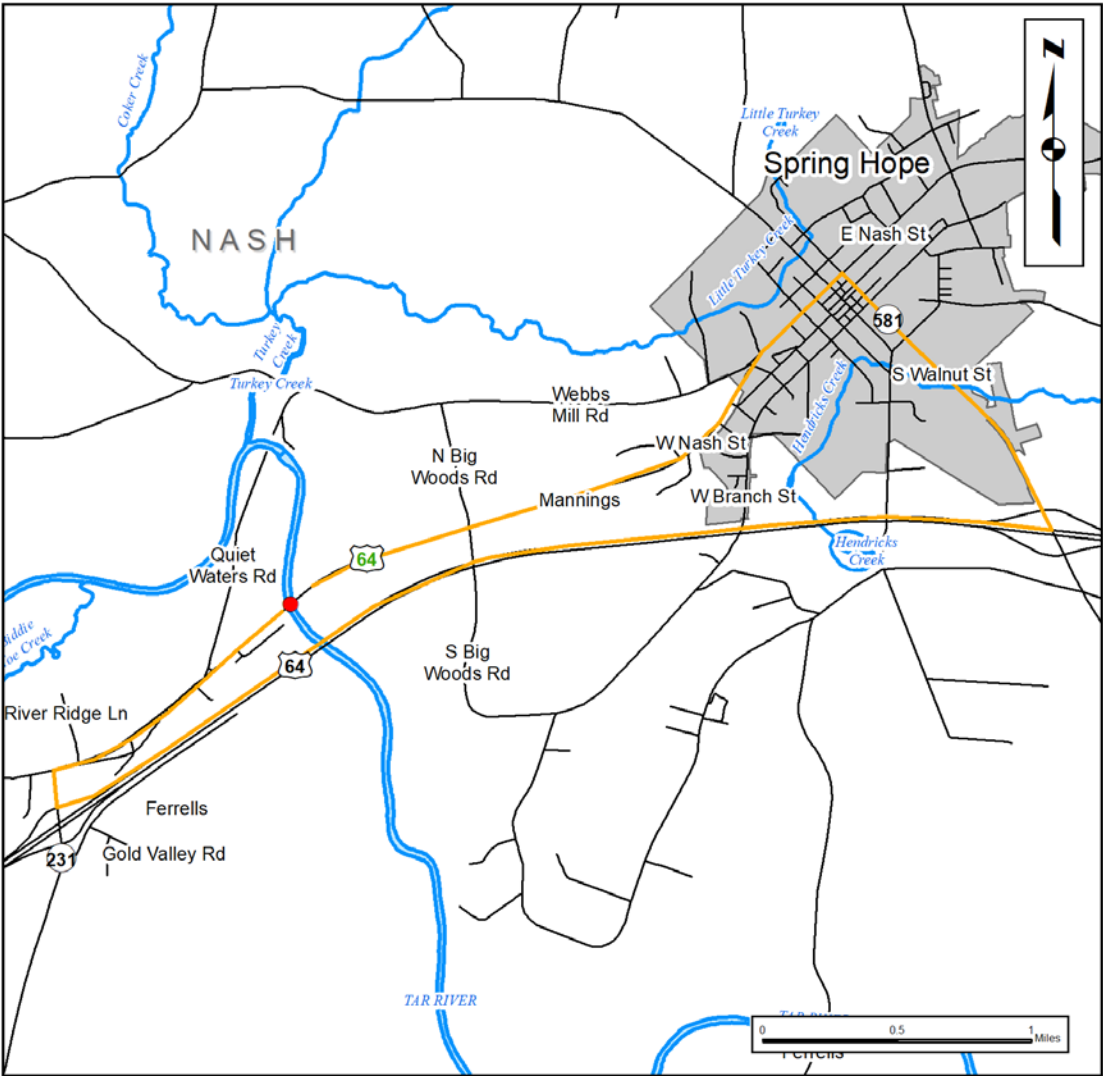



	<p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS UNIT</p>
<p>NASH COUNTY REPLACE BRIDGE NO. 29 ON US 64 ALT OVER TAR RIVER</p>	
<p>VICINITY MAP</p>	


Jurisdictional Features Map



Detour Map



 Detour Route



NORTH CAROLINA DEPARTMENT OF
TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS UNIT

NASH COUNTY
REPLACE BRIDGE NO. 29
ON US 64 ALT OVER TAR RIVER

DETOUR MAP

16-01-0022



NO NATIONAL REGISTER OF HISTORIC PLACES ELIGIBLE OR LISTED ARCHAEOLOGICAL SITES PRESENT FORM

This form only pertains to ARCHAEOLOGICAL RESOURCES for this project. It is not valid for Historic Architecture and Landscapes. You must consult separately with the Historic Architecture and Landscapes Group.



PROJECT INFORMATION

Project No: **B-5670** County: **Nash**
 WBS No: **45625.1.1** Document: **MCDC**
 F.A. No: **n/a** Funding: ☒ State ☐ Federal
 Federal Permit Required? ☒ Yes ☐ No Permit Type: **NWP3/14**

Project Description:

This project calls for the replacement of Bridge No. 29 over Tar River on US 64 A in Nash County, North Carolina. The archaeological Area of Potential Effects (APE) is centered on the bridge structure and measures 1800 ft in length (900 ft from each bridge end-point) and 300 ft in width (150 ft from each side of the US Highway 64 A centerline).

SUMMARY OF ARCHAEOLOGICAL FINDINGS

The North Carolina Department of Transportation (NCDOT) Archaeology Group reviewed the subject project and determined:

- ☒ There are no National Register listed or eligible ARCHAEOLOGICAL SITES present within the project's area of potential effects. (Attach any notes or documents as needed)
- ☐ No subsurface archaeological investigations were required for this project.
- ☒ Subsurface investigations did not reveal the presence of any archaeological resources.
- ☐ Subsurface investigations did not reveal the presence of any archaeological resources considered eligible for the National Register.
- ☐ All identified archaeological sites located within the APE have been considered and all compliance for archaeological resources with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.

16-01-0022

Brief description of review activities, results of review, and conclusions:

Bridge No. 29 is located on US Highway 64 A over the Tar River in eastern Nash County. It is situated approximately 3.9 kilometers (2.4 miles) southwest of the town of Spring Hope. The bridge is positioned on a relatively flat landform at the base of a ridge. The bridge vicinity is characterized by undeveloped forested areas and agricultural fields. A trailer park is located southwest of the bridge, along the southern side of US Highway 64 A. Bridge No. 29 is oriented approximately northeast-southwest, but will be considered east-west for this discussion. The archaeological Area of Potential Effects (APE) for this project includes an area approximately 274.3 meters (900 ft) from either end of the bridge and approximately 91.4 meters (300 ft) in width or 45.72 meters (150 ft) on each side of the road measuring from the centerline (Figure 1).

The archaeological survey was conducted by Senior Archaeologist Bobby Southerlin and Archaeological Technicians Jon Rood, Kenny Pinson, and Chris Parker of Archaeological Consultants of the Carolinas, Inc. (ACC) on 13 April 2016.

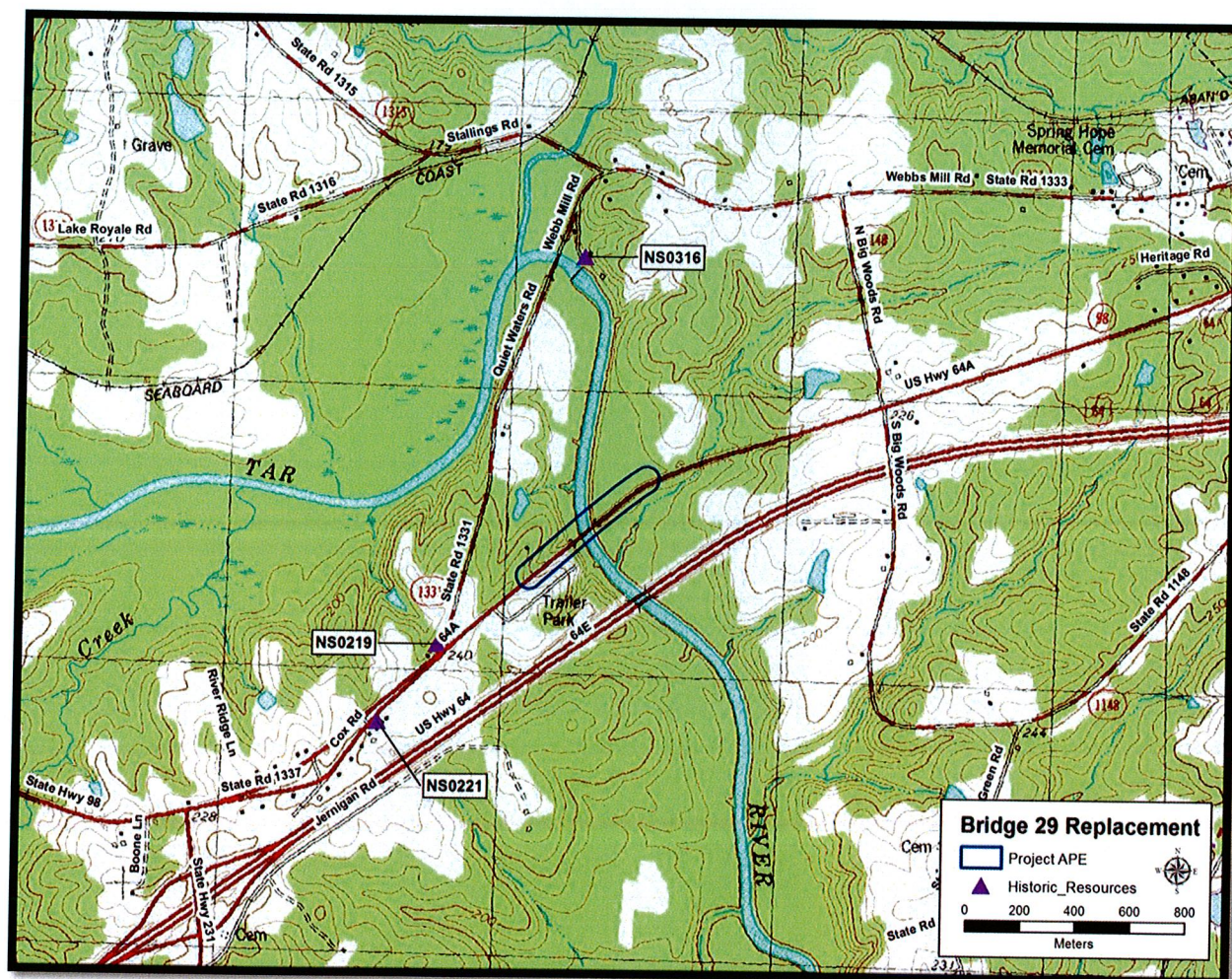


Figure 1. Topographic map showing the project area (1978 *Bunn East, NC* USGS 7.5 minute topographic quadrangle)

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Background research consisted of an examination of topographic and historic maps and the listings of previously recorded sites, previous archaeological surveys, and previous environmental reviews at the Office of State Archaeology (OSA) in Raleigh. No previously recorded archaeological sites are located in or within 0.8 kilometers (0.5 miles) of the project APE.

The project area is depicted in a rural setting on early twentieth century historic maps, including the 1919 Map of Nash County, the 1926 Nash County soil map, and the 1938 Nash County Highway map (Lee and Bacon 1926). USGS topographic maps from the early 1900s also show the area as rural (USGS 1902, 1904). In fact, none of the aforementioned maps show US Highway 64 A or the bridge. The bridge and highway do appear on the USGS 1953 topographic map. A review of USGS topographic maps from the later half of the twentieth century show an increased number of houses in the bridge vicinity, suggesting an increased population in the area (USGS 1953, 1978).

Background research also included an examination of data on recorded historic resources using the Department of Historic Resources Survey and Planning Division's mapping application web site (HPO Web). No recorded historic structural resources are located in the APE. Three historic resources, NS0219, NS0221, and NS0316, are located within 0.5 miles (0.8 km) of the APE (see Figure 1). Resource NS0219, Bryant's Grocery, is situated southwest of Bridge No. 29. HPO Web notes that this resource was surveyed in 1984 and destroyed between 1998 and 2008. Resource NS0221, the Strickland-Sanders House, is also located southwest of the project area. Neither of these resources has been evaluated for the NRHP and both have a surveyed only status. Resource NS0316 is Webbs Mill, an eighteenth century three-story frame grist mill. This resource, located north of the project APE, was placed on the study list for the NRHP in 1977. None of these resources will be affected by the replacement of Bridge No. 29.

Data on the soils present in the project area were obtained from the Natural Resources Conservation Service web soil survey (USDA 2016). The primary soil types present in the project area are Georgeville loam, Congaree fine sandy loam, Wehadkee loam, and Altavista sandy loam. Georgeville loam and Congaree fine sandy loam are found in the western portion of the project APE. Georgeville loam is a well-drained soil that forms on interfluvial and hillslopes from residuum weathered from metavolcanics and/or argillite. The soil type has a slope range of 2 to 25 percent. Congaree fine sandy loam, a frequently flooded soil, is present on floodplains. This soil forms from loamy alluvium derived from igneous and metamorphic rock and is moderately well drained. It has a slope range of up to 2 percent. Wehadkee loam and Altavista sandy loam are present in the eastern portion of the project APE. Wehadkee loam forms on depressions on floodplains from loamy alluvium derived from igneous and metamorphic rock. It is frequently flooded and poorly drained. Wehadkee loam is found in areas with slopes ranging up to 2 percent. Altavista sandy loam is present on stream terraces and originates from old loamy alluvium derived from igneous and metamorphic rock. This rarely flooded soil has a slope range of up to 3 percent. It is classified as a moderately well drained soil.

The archaeological survey consisted of the examination of 41 shovel test locations along four transects, one transect conducted approximately 20 meters (65.6 ft) from the pavement edge in each of the four quadrants of the APE (Figures 2 and 3). Transects were placed outside the area of road disturbance, when possible. Shovel tests were excavated at 30 meter (98 ft) intervals along each transect. These tests measured at least 30 centimeters (12 in) in diameter and were excavated a minimum of 5 centimeters (2 in) into sterile subsoil. All test fill was screened through 0.64 centimeter (0.25 in) wire mesh. Each shovel test was backfilled upon completion. Global Positioning System (GPS) readings using a sub-meter accuracy Trimble GeoExplorer handheld GPS receiver were taken at each shovel test. In all areas, shovel testing was supplemented by comprehensive examination of all exposed ground surface.

16-01-0022



Figure 2. Aerial photograph showing shovel test locations in the project APE.

16-01-0022

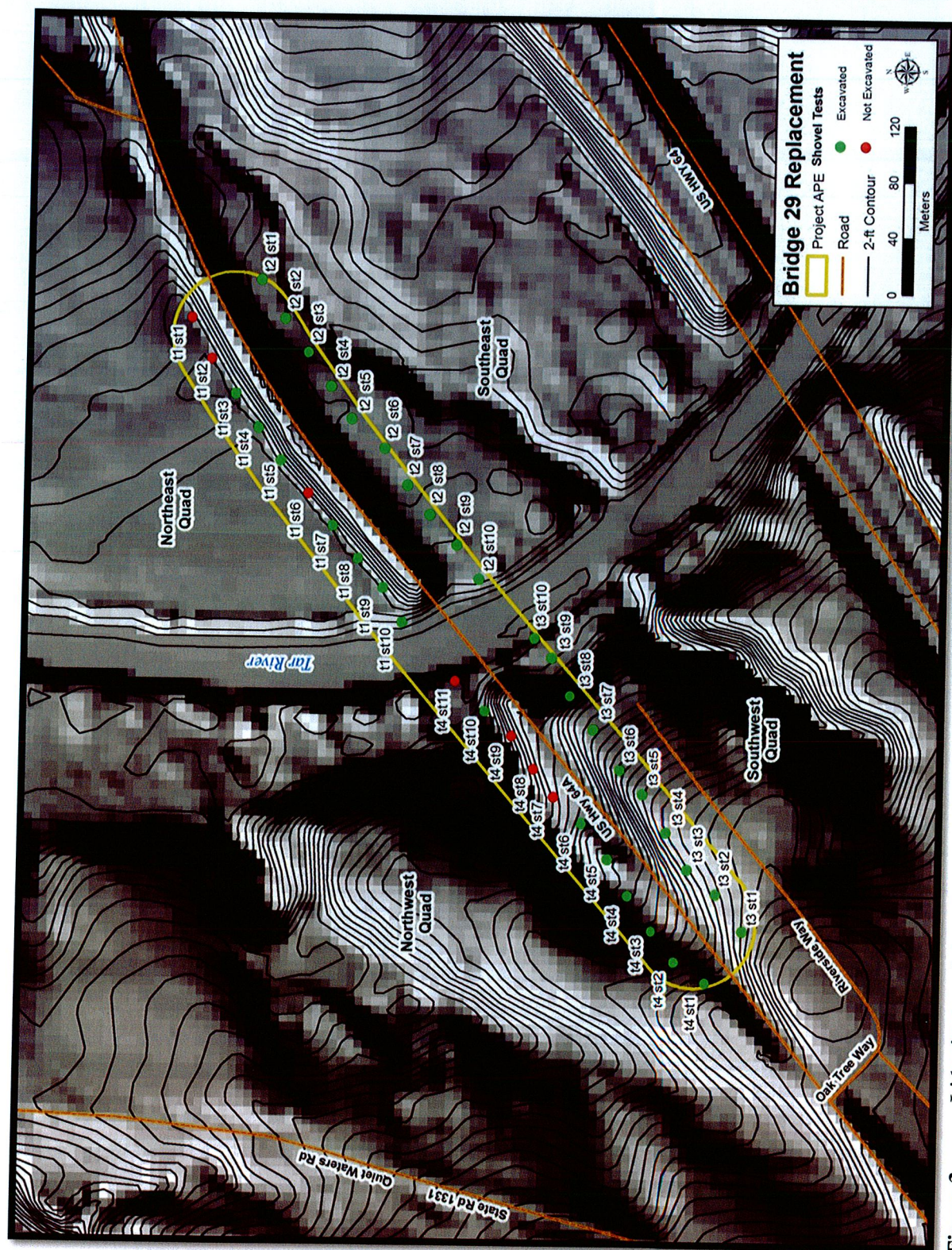


Figure 3. Lidar image of shovel test locations in the project APE (NCDOT 2016).

16-01-0022

Northeast Quadrant. The APE in the northeast quadrant is situated in a floodplain, primarily characterized by an agricultural field. The field is separated from US Highway 64 A by a narrow strip of trees (Figure 4). A gravel road is located in the eastern portion of the APE. This road enters the eastern end of the APE and runs parallel to US Highway 64 A through the field for approximately 65 meters (213 ft) before curving north and exiting the APE.



Figure 4. View of northeast quadrant, looking northeast.

Ten shovel test locations were examined along Transect 1 in the northeast quadrant (Table 1). Shovel Tests 1 and 2 were not excavated because they fell on a gravel road. Standing water prevented the excavation of Shovel Test 6. A representative soil profile in this quadrant is 10 centimeters (4 in) yellowish brown clay loam overlying yellowish brown clay mottled with strong brown clay (Figure 5). No cultural remains were identified in this quadrant.

Table 1. Summary of Shovel Test Locations Examined in the Northeast Quadrant.

Shovel Test	Dig/No Dig	Comments
1	No Dig	Not excavated due to location on gravel road
2	No Dig	Not excavated due to location on gravel road
3	Dig	0-10 cm (0-4 in) dark brown (7.5YR3/4) loam Below 10 cm (4 in) strong brown (7.5YR5/8) clay Located on edge of agricultural field
4	Dig	0-10 cm (0-4 in) dark brown (7.5YR3/4) loam Below 10 cm (4 in) strong brown (7.5YR5/8) clay Located in an agricultural field
5	Dig	0-10 cm (0-4 in) yellowish brown (10YR5/6) clay loam 10-15 cm (4-6 in) yellowish brown (10YR5/6) clay mottled with strong brown (7.5YR5/8) clay Located in an agricultural field
6	Dig	Not excavated due to standing water
7	Dig	0-10 cm (0-4 in) yellowish brown (10YR5/6) clay loam 10-15 cm (4-6 in) yellowish brown (10YR5/6) clay mottled with strong brown (7.5YR5/8) clay Located in an agricultural field
8	Dig	0-10 cm (0-4 in) yellowish brown (10YR5/6) clay loam 10-15 cm (4-6 in) yellowish brown (10YR5/6) clay mottled with strong brown (7.5YR5/8) clay Located in an agricultural field
9	Dig	0-10 cm (0-4 in) yellowish brown (10YR5/6) clay loam 10-15 cm (4-6 in) yellowish brown (10YR5/6) clay mottled with strong brown (7.5YR5/8) clay Located in an agricultural field
10	Dig	0-10 cm (0-4 in) yellowish brown (10YR5/6) clay loam 10-15 cm (4-6 in) yellowish brown (10YR5/6) clay mottled with strong brown (7.5YR5/8) clay Located in an agricultural field

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form for the Amended Minor Transportation Projects as Qualified in the 2007 Programmatic Agreement.

16-01-0022



Figure 5. Soil profile from TR1 ST7, looking north.

Southeast Quadrant.
The APE in the southeast quadrant consists of a floodplain forested with pines and hardwoods (Figure 6).

Ten shovel test locations were examined in the southeast quadrant (Table 2). Excavated shovel test profiles varied, but generally exposed 20 centimeters (8 in) of grayish brown clay loam atop yellowish brown clay mottled with strong brown clay (Figure 7). No artifacts or features were located in this quadrant.



Figure 6. View of southeast quadrant, looking northeast.

16-01-0022

Table 2. Summary of Shovel Test Locations Examined in the Southeast Quadrant.

Shovel Test	Dig/No Dig	Comments
1	Dig	0-20 cm (0-8 in) grayish brown (10YR5/2) clay loam Below 20 cm (8 in) yellowish brown (10YR5/6) clay mottled with strong brown (7.5YR5/8) clay Located in wooded floodplain
2	Dig	0-10 cm (0-4 in) yellowish brown (10YR5/6) clay loam Below 10 cm (4 in) strong brown (7.5YR5/8) clay Located in wooded floodplain
3	Dig	0-20 cm (0-8 in) grayish brown (10YR5/2) clay loam Below 20 cm (8 in) yellowish brown (10YR5/6) clay mottled with strong brown (7.5YR5/8) clay Located in wooded floodplain
4	Dig	0-30 cm (0-12 in) yellowish brown (10YR5/6) clay loam Below 30cm (12 in) strong brown (7.5YR5/8) clay Located in wooded floodplain
5	Dig	0-20 cm (0-8 in) grayish brown (10YR5/2) clay loam Below 20 cm (8 in) yellowish brown (10YR5/6) clay mottled with strong brown (7.5YR5/8) clay Located in wooded floodplain
6	Dig	0-25 cm (0-10 in) grayish brown (10YR5/2) silty loam 25-35 cm (10-14 in) yellowish brown (10YR5/6) silty loam 35-40 cm (14-16 in) strong brown clay Located in wooded floodplain
7		0-20 cm (0-8 in) grayish brown (10YR5/2) clay loam Below 20 cm (8 in) yellowish brown (10YR5/6) clay mottled with strong brown (7.5YR5/8) clay Located in wooded floodplain
8	Dig	0-25 cm (0-10 in) grayish brown (10YR5/2) silty loam 25-35 cm (10-14 in) yellowish brown (10YR5/6) silty loam 35-40 cm (14-16 in) strong brown (7.5YR5/8) clay Located in wooded floodplain
9	Dig	0-50 cm (0-20 in) brown (10YR5/3)loam Below 50 cm (20 in) strong brown (10YR5/6) clay Located in wooded floodplain
10	Dig	0-10 cm (0-4 in) strong brown (7.5YR5/8) clay Located on wooded riverbank

**Figure 7.** Soil profile from TR2 ST3, looking north.

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16-01-0022

Southwest Quadrant.

The southwest quadrant is situated on ridge side slope forested with scattered pines and hardwoods (Figure 8). A trailer park encompasses the majority of the southern portion of the quadrant. A thin strip of trees is situated between US Highway 64 A and the trailer park. The area has been highly disturbed by the construction and utilization of the trailer park (Figure 9).



Figure 8. View of southwest quadrant, looking southwest.

Ten shovel test locations were examined in the southwest quadrant along Transect 3 (Table 3). These shovel tests were situated in a narrow strip of woods approximately 20 meters (66 ft) from the edge of US Highway 64 A. A typical shovel test revealed 10 centimeters (4 in) of brown loam grading into strong brown clay (Figure 10). The area is highly eroded and disturbed by construction and modern land use practices, as clay subsoil was present on the surface at several shovel test locations. In addition, a utility pipe was uncovered in one shovel test (Shovel Test 4). No artifacts were recovered from the southwest quadrant.

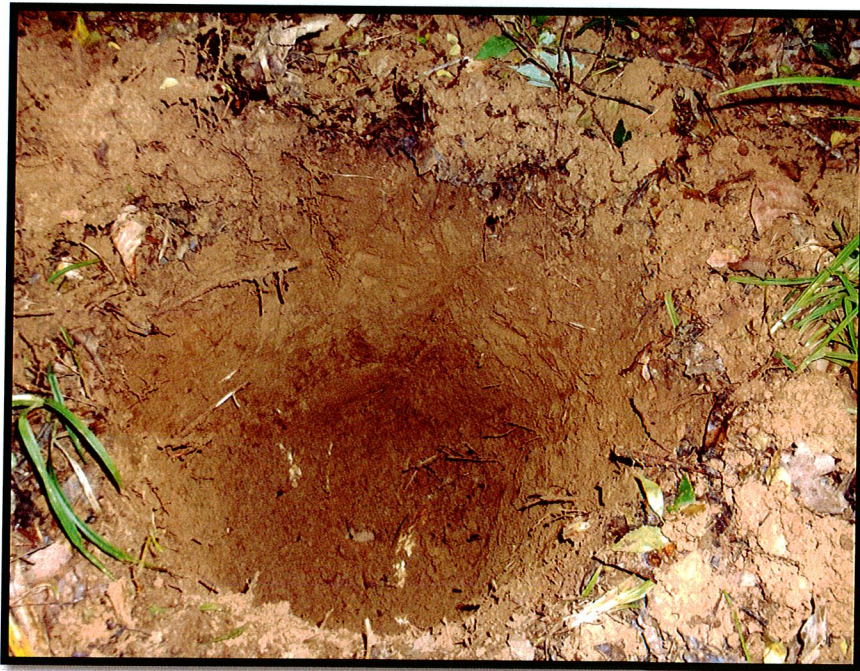


Figure 9. View of trailer park in southwest quadrant, looking south/southeast.

16-01-0022

Table 3. Summary of Shovel Test Locations Examined in the Southwest Quadrant

Shovel Test	Dig/No Dig	Comments
1	Dig	0-5 cm (0-2 in) strong brown (7.5YR5/8) clay Located on wooded side slope
2	Dig	0-10 cm (0-4 in) brown (10YR5/3) loam Below 10 cm (4 in) strong brown (7.5YR5/8) clay Located on wooded side slope
3	Dig	0-10 cm (0-4 in) brown (10YR5/3) loam Below 10 cm (4 in) strong brown (7.5YR5/8) clay Located on wooded side slope
4	Dig	0-15 cm (0-6 in) light yellowish brown (10YR6/4) sandy loam Hit pipe at 15 cm (6 in) Located on wooded side slope
5	Dig	0-10 cm (0-4 in) brown (10YR5/3) loam Below 10 cm (4 in) strong brown (7.5YR5/8) clay Located on wooded side slope
6	Dig	0-10 cm (0-4 in) brown (10YR5/3) loam Below 10 cm (4 in) strong brown (7.5YR5/8) clay Located on wooded side slope
7	Dig	0-5 cm (0-2 in) strong brown (7.5YR5/8) clay Located on wooded side slope
8	Dig	0-10 cm (0-4 in) brown (10YR5/3) loam Below 10 cm (4 in) strong brown (7.5YR5/8) clay Located on wooded side slope
9	Dig	0-10 cm (0-4 in) brown (10YR5/3) loam Below 10 cm (4 in) strong brown (7.5YR5/8) clay Located on wooded side slope
10	Dig	0-10 cm (0-4 in) brown (10YR5/3) loam Below 10 cm (4 in) strong brown (7.5YR5/8) clay Located on wooded side slope

**Figure 10.** Soil profile from TR 3 ST9, looking north.

16-01-0022

Northwest Quadrant. The northwest quadrant encompasses a drainage extending from Tar River southwest into the central portion of the quadrant. The drainage is surrounded by ridge side slope. The vegetation in the area is characterized by pines and hardwoods (Figure 11). A driveway, running north-south, intersects US Highway 64 A in the western portion of the quadrant.



Figure 11. View of northwest quadrant, looking southwest.

Eleven shovel test locations were examined in the northwest quadrant along Transect 4 (Table 4). Four shovel test locations (Shovel Tests 7, 8, 9, and 11) were not excavated in the eastern portion of the quadrant due to the drainage in this area. A typical shovel test profile in the northwest quadrant revealed 25 centimeters (10 in) of yellowish brown clay loam overlying yellowish brown clay (Figure 12). No cultural resources were recovered from the northwest quadrant.

Table 4. Summary of Shovel Test Locations Examined in the Southwest Quadrant.

Shovel Test	Dig/No Dig	Comments
1	Dig	0-25 cm (0-10 in) rocky yellowish brown (10YR5/6) clay loam Below 25 cm (10 in) yellowish brown (10YR5/6) clay Located on wooded side slope
2	Dig	0-10 cm (0-4 in) rocky yellowish brown (10YR5/6) clay loam Below 10 cm (4 in) yellowish brown (10YR5/6) clay Located on wooded side slope
3	Dig	0-25 cm (0-10 in) rocky yellowish brown (10YR5/6) clay loam 25-30 cm (10-12 in) yellowish brown (10YR5/6) clay Located on wooded side slope
4	Dig	0-10 cm (0-4 in) yellowish brown (10YR5/6) clay loam Below 10 cm (4 in) strong brown (7.5YR5/8) clay Located on wooded side slope
5	Dig	0-25 cm (0-10 in) rocky yellowish brown (10YR5/6) clay loam 25-30 cm (10-12 in) yellowish brown (10YR5/6) clay Located on wooded side slope
7	No Dig	Not excavated due to drainage
8	No Dig	Not excavated due to drainage
9	No Dig	Not excavated due to drainage
10	Dig	0-45 cm (18 in) brown (10YR5/3) loam Below 45 cm (18 in) strong brown (7.5YR5/8) clay Located in wooded drainage
11	No Dig	Not excavated due to drainage

16-01-0022

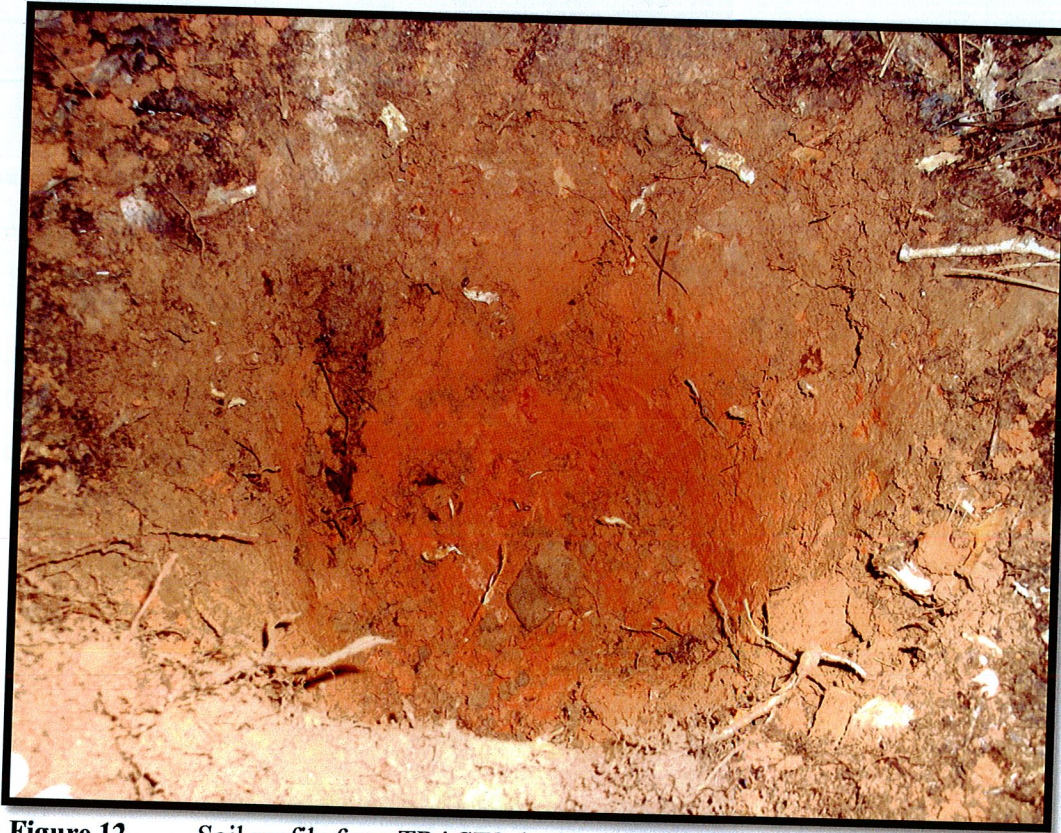


Figure 12. Soil profile from TR4 ST2, looking south.

Conclusion. No archaeological remains were identified during the Bridge No. 29 survey. Based on the results of this survey and background research, the replacement of Bridge No. 29 will not impact any significant archaeological resources.

16-01-0022

References Cited

Lee, W.D and S. R. Bacon

1926 Soil Survey of Nash County, North Carolina. United States Department of Agriculture Bureau of Chemistry and Soils, United States government printing office, Washington, DC.

North Carolina Department of Transportation (NCDOT)

2016 Lidar image. Electronic Document.
http://connect.ncdot.gov/resource/gis/Pages/Cont-Elev_v2.aspx, accessed May 2016.

United States Department of Agriculture (USDA)

2016 Web Soil Survey. Electronic Document. www.websoilsurvey.nrcs.usda.gov,
accessed April 2016.

United States Geological Survey (USGS)

1902 *Spring Hope, NC* USGS 1:62,500 topographic quadrangle.

1904 *Spring Hope, NC* USGS 1:62,500 topographic quadrangle

1953 *Raleigh, NC* USGS 1:25,000 topographic quadrangle.

1978 *Bunn East, NC* USGS 7.5 minute topographic quadrangle.

SUPPORT DOCUMENTATION

See attached: ☒ Map(s) ☐ Previous Survey Info ☒ Photos ☐ Correspondence
Signed:

Scott Eric Helmer

NCDOT ARCHAEOLOGIST

5/16/2016

Date

16-01-0022



HISTORIC ARCHICTECTURE AND LANDSCAPES
NO SURVEY REQUIRED FORM

This form only pertains to Historic Architecture and Landscapes for this project. It is not valid for Archaeological Resources. You must consult separately with the Archaeology Group.

PROJECT INFORMATION

Project No:	B-5670	County:	Nash
WBS No.:	45625.1.1	Document Type:	SMC
Fed. Aid No:	N/A	Funding:	<input checked="" type="checkbox"/> State <input type="checkbox"/> Federal
Federal Permit(s):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Permit Type(s):	NWP
Project Description: Replace Bridge No. 29 on US64 ALT over Tar River.			

SUMMARY OF HISTORIC ARCHICTECTURE AND LANDSCAPES REVIEW

Description of review activities, results, and conclusions:
Review of HPO quad maps, HPO GIS information, historic designations roster, and indexes was undertaken on January 8, 2016. Based on this review, there are no existing NR, SL, LD, DE, or SS properties in the Area of Potential Effects, which is 900' from each end of the bridge and 150' from the centerline each way. All properties within the APE consist of mobile homes, and Bridge No. 29 built 1952, is not eligible for National Register listing based on the NCDOT Historic Bridge Inventory. There are no National Register listed or eligible properties, and no survey is required. If design plans change, additional review will be required.

Why the available information provides a reliable basis for reasonably predicting that there are no unidentified significant historic architectural or landscape resources in the project area:
HPO quad maps and GIS information recording NR, SL, LD, DE, and SS properties for the Nash County survey and Google Maps are considered valid for the purposes of determining the likelihood of historic resources being present. There are no National Register listed or eligible properties within the APE and no survey is required.

SUPPORT DOCUMENTATION

☒ Map(s) ☐ Previous Survey Info. ☐ Photos ☐ Correspondence ☐ Design Plans

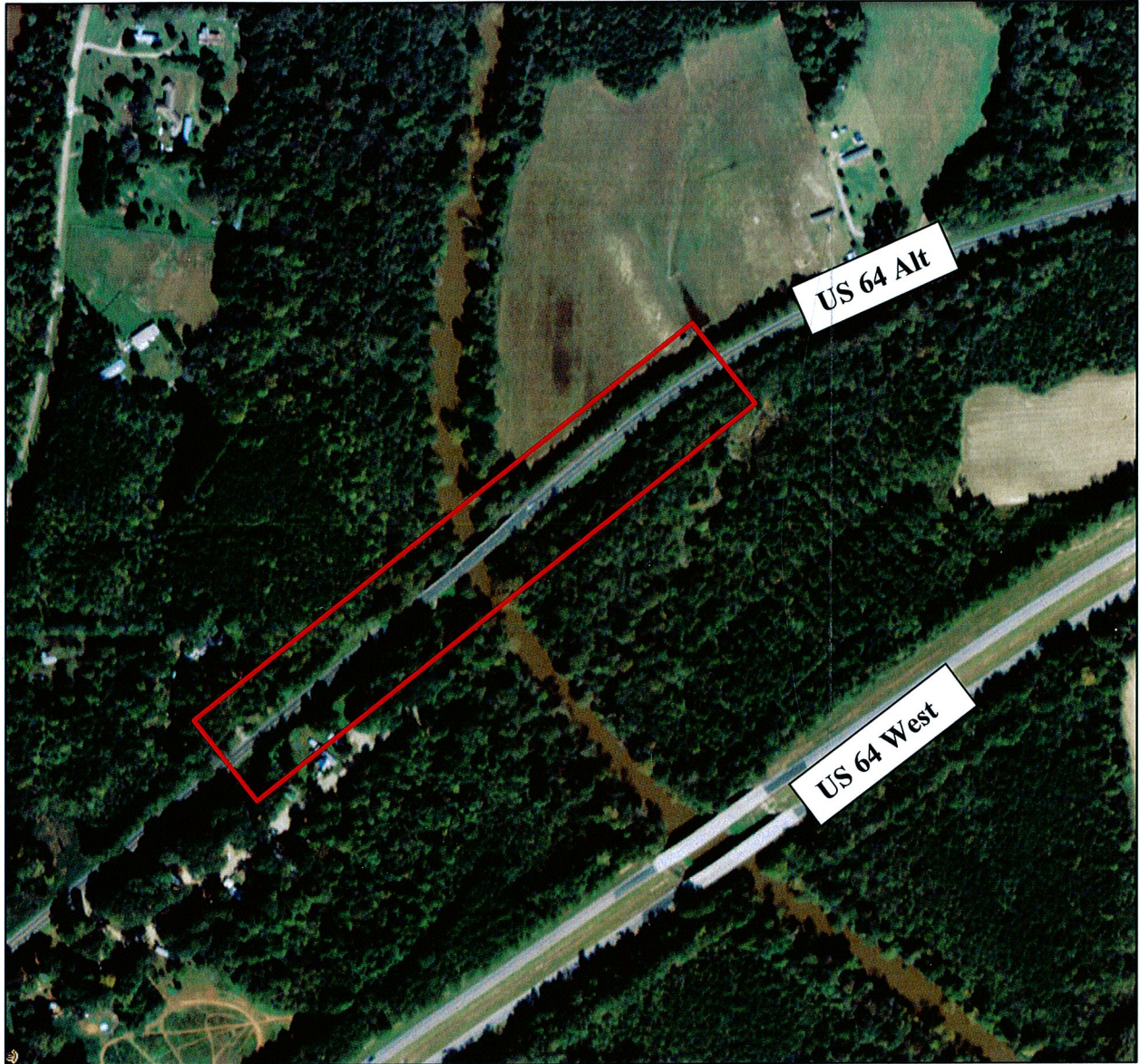
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Historic Architecture and Landscapes -- NO SURVEY REQUIRED

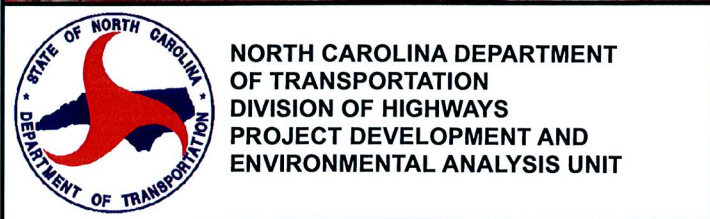

NCDOT Architectural Historian

1/8/2016

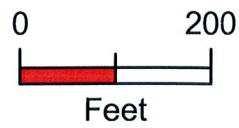
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HPO GIS.



STUDY AREA MAP
Replace Bridge No. 29 on US 64 ALT
over Tar River in Nash County
TIP Project B-5670

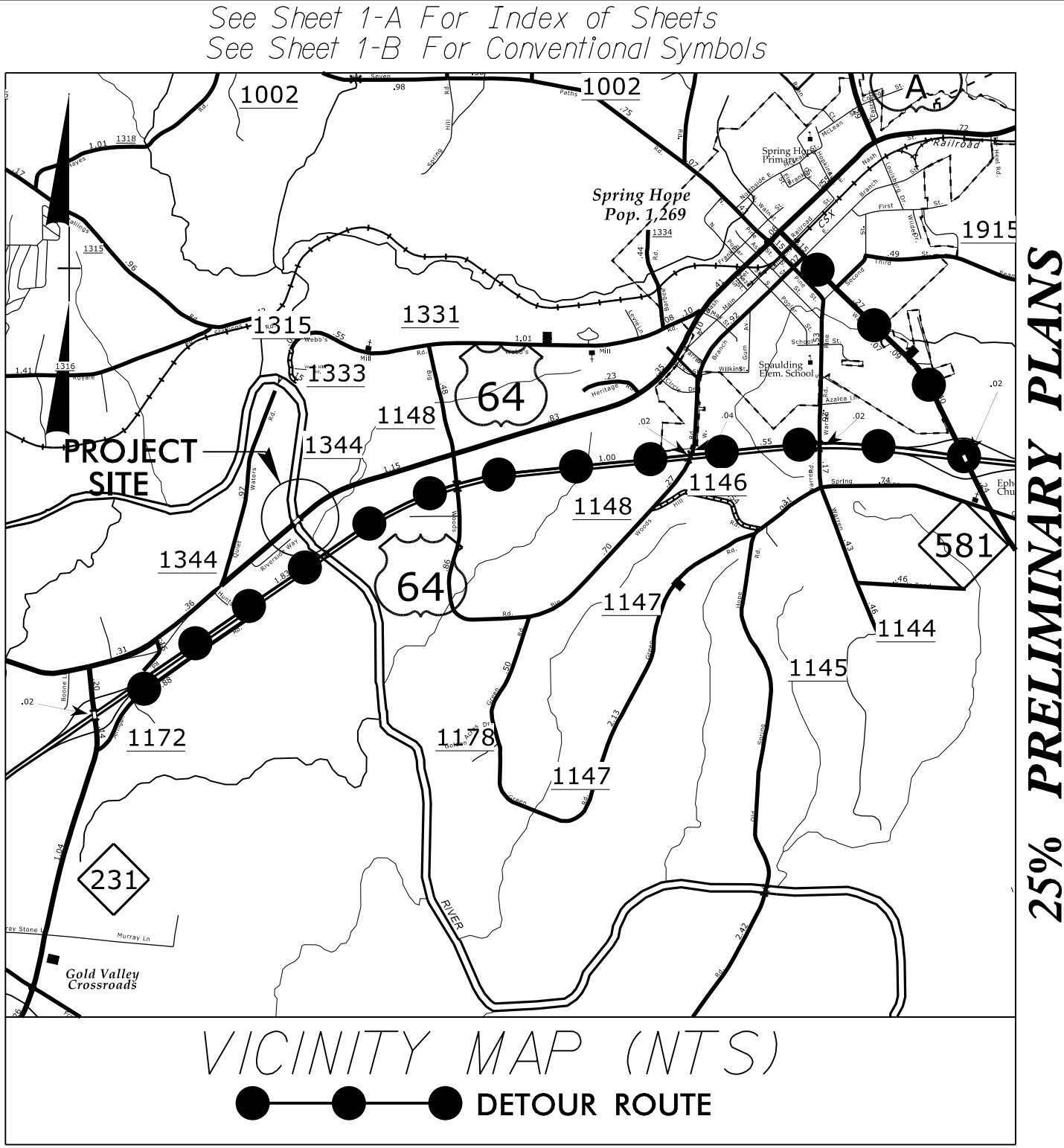


Div: 4	TIP# B-5670
Date: DECEMBER 2015	

Figure
2

09.08/2019

TIP PROJECT: B-5670



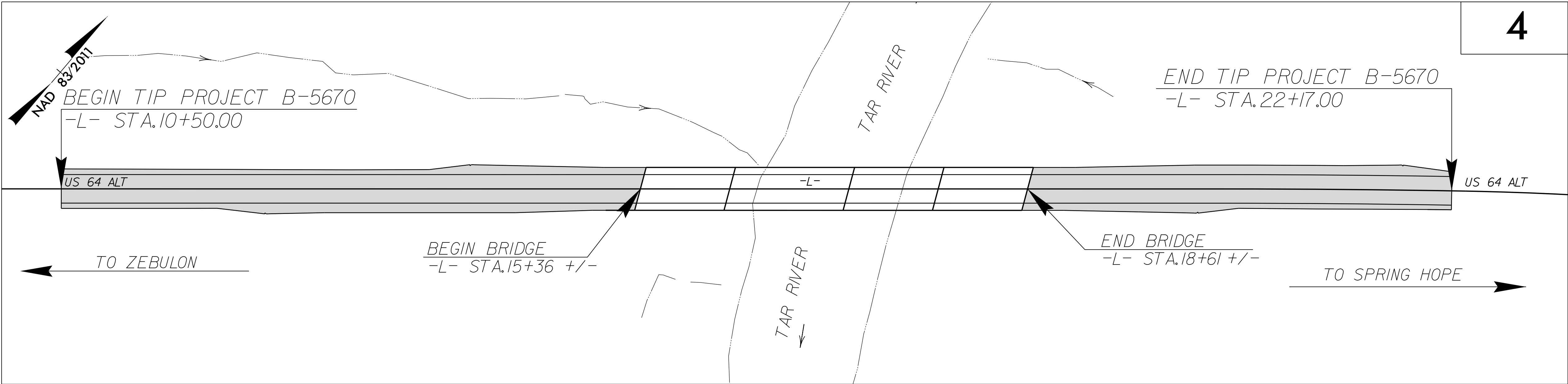
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NASH COUNTY

LOCATION: REPLACE BRIDGE NO. 29 OVER
TAR RIVER ON US 64 ALT

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

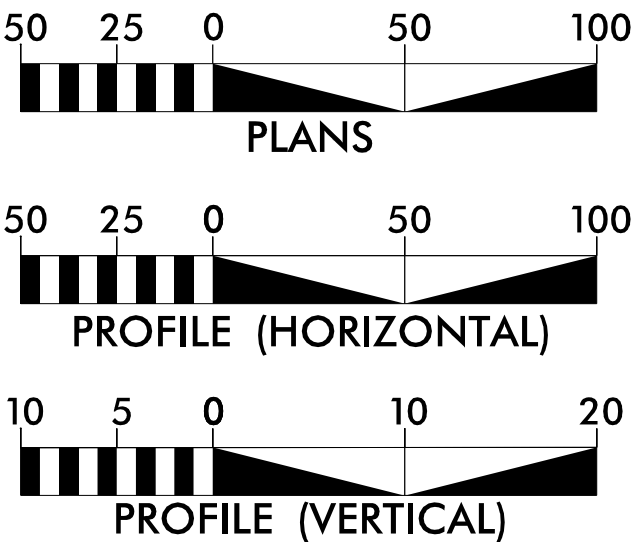
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N.C.	B-5670	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
45625.1.1		P.E.	



A DESIGN EXCEPTION WILL BE REQUIRED FOR MAXIMUM GRADE, SAG VERTICAL CURVE AND VERTICAL STOPPING SIGHT DISTANCE.
THIS PROJECT IS NOT WITHIN MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ____.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2020 = 2591
ADT 2040 = 3200
K = 8 %
D = 55 %
T = 6 % *
V = 60 MPH
* TTST =2% DUAL= 4%
MAJOR COLLECTOR

REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5670 = .159 MILES
LENGTH OF STRUCTURE TIP PROJECT B-5670 = .062 MILES
TOTAL LENGTH OF TIP PROJECT B-5670 = .221 MILES

Prepared in the Office of:

KCI Associates of N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609
Phone (919) 783-9214
Fax (919) 783-9266

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JULY 29, 2019

LETTING DATE:
MAY 19, 2020

NCDOT CONTACT:

Plans Prepared For:

DIVISION OF HIGHWAYS
1000 Birch Ridge Dr.
Raleigh NC, 27610

DEWAYNE L. SYKES, P.E.
PROJECT ENGINEER

BRYAN E. HOUGH, P.E.
PROJECT DESIGN ENGINEER

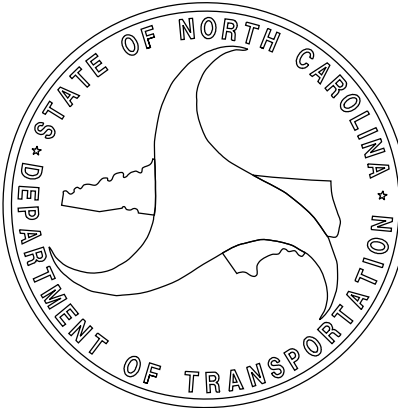
DAVID STUTTS, P.E.
DIVISION 13 BRIDGE MANAGER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN
ENGINEER

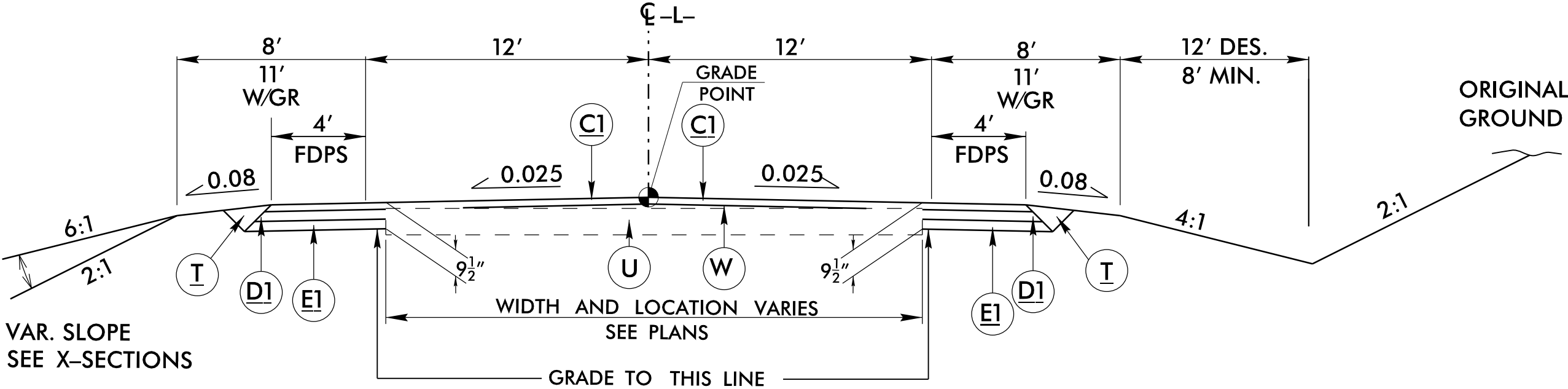
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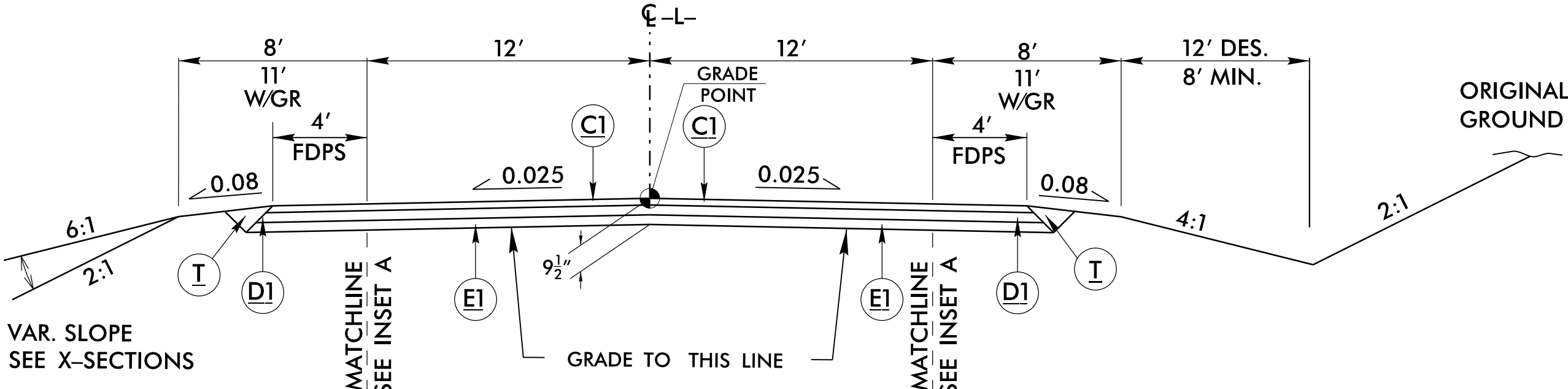
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C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165.0 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 3" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T_	EARTH MATERIAL.
U_	EXISTING PAVEMENT.
W_	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING).



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ROADWAY TYPICAL SECTION NO. 1

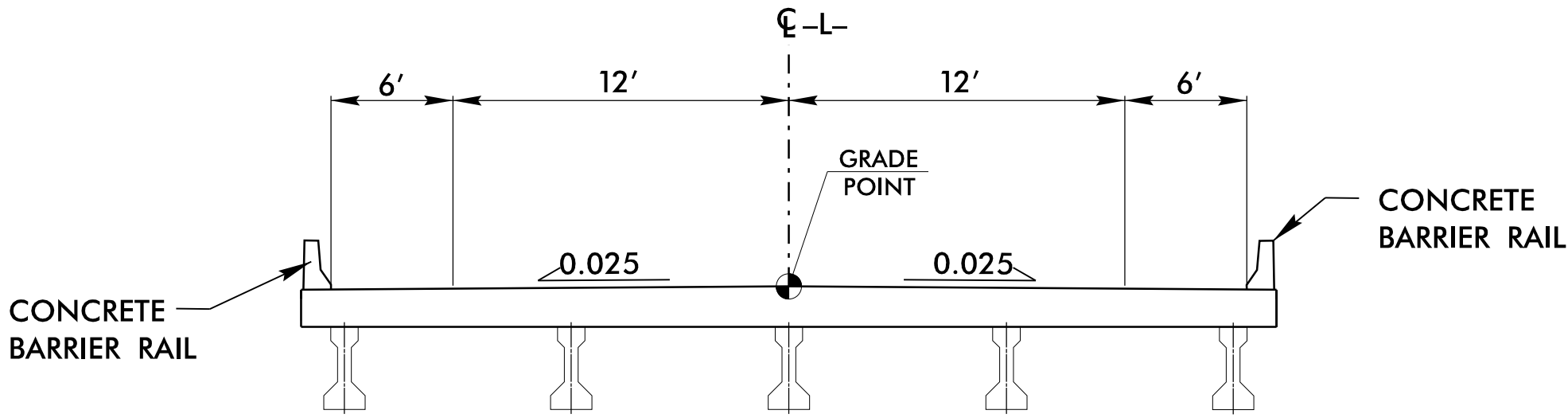
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ROADWAY TYPICAL SECTION NO. 2

ROADWAY TYPICAL SECTION NO. 2

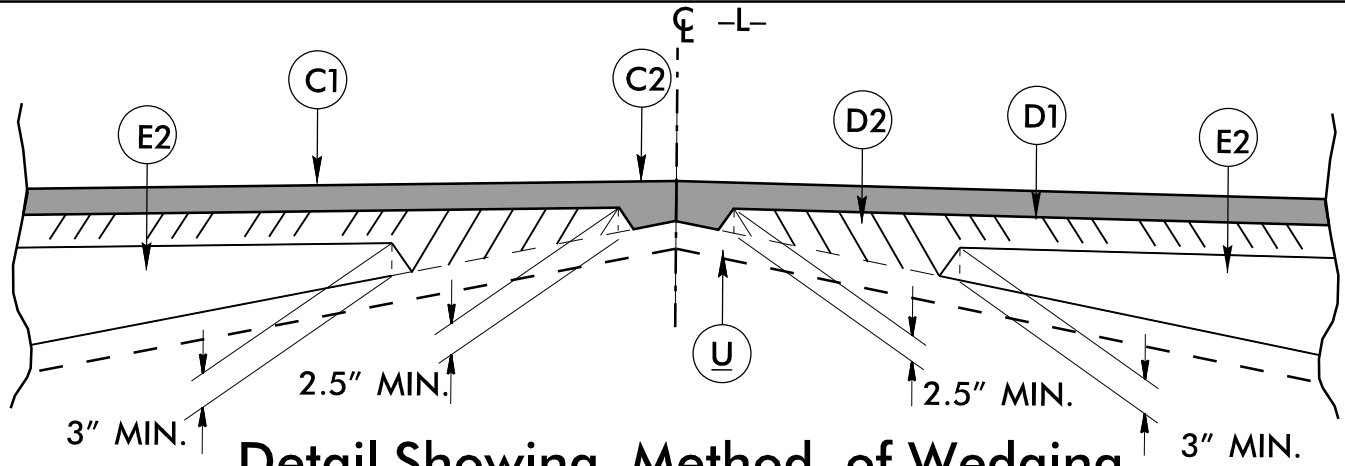
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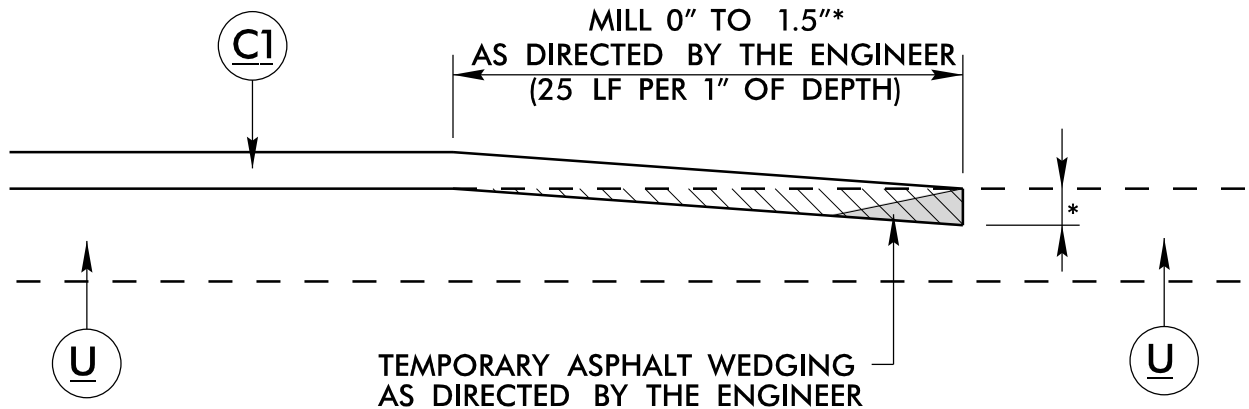
BRIDGE TYPICAL SECTION

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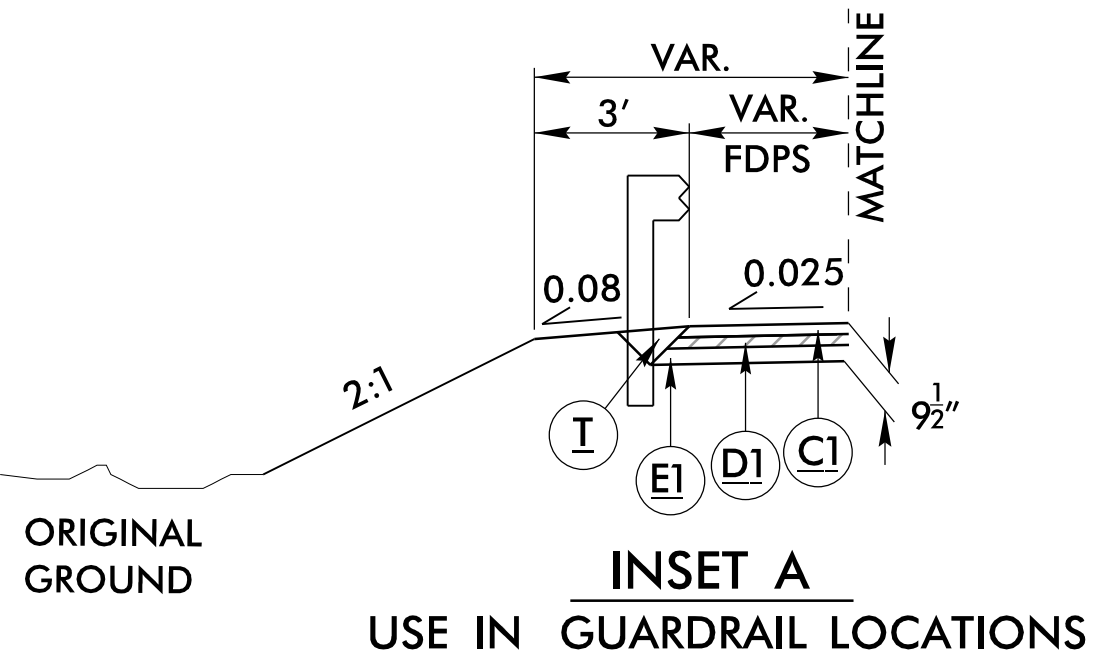


PROFILE KEY-IN DETAIL




* MILL DEPTH AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER

** SEE TYPICALS FOR MIX TYPE



USE IN GUARDRAIL LOCATIONS

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B-5670		2A-1	
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 KCI http://www.kci.com		Engineers • Planners • Scientists • Construction Managers 4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609 Phone (919) 783-9214 • Fax (919) 783-9266	

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FOR -L- PROFILE SEE SHEET 5



REVISIONS

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5/14/99

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