



## Pre-Construction Notification (PCN) Form

For Nationwide Permits and Regional General Permits

(along with corresponding Water Quality Certifications)

December 15, 2017 Ver 2.2

*Please note: fields marked with a red asterisk \* below are required. You will not be able to submit the form until all mandatory questions are answered.*

*Also, if at any point you wish to print a copy of the E-PCN, all you need to do is right-click on the document and you can print a copy of the form.*

Below is a link to the online help file.

<http://edocs.deq.nc.gov/WaterResources/0/doc/603610/Page1.aspx>

### A. Processing Information

---

**County (or Counties) where the project is located: \***

Granville

**Is this project a public transportation project? \* (?)**

Yes  No

**Is this a NCDOT Project? \***

Yes  No

**(NCDOT only) T.I.P. or state project number:**

B-5320 Replacement of Bridge 96 over Tar River on SR 1139 (Enon Road)

**WBS #**

46034.1.1

(for NCDOT use only)

**1a. Type(s) of approval sought from the Corps: \***

- Section 404 Permit (wetlands, streams and waters, Clean Water Act)  
 Section 10 Permit (navigable waters, tidal waters, Rivers and Harbors Act)

**1b. What type(s) of permit(s) do you wish to seek authorization? \***

- Nationwide Permit (NWP)  
 Regional General Permit (RGP)

---

**Nationwide Permit (NWP) Number:**

03 - Maintenance

**NWP Number Other:**

List all NW numbers you are applying for not on the drop down list.

**1c. Type(s) of approval sought from the DWR: \***

check all that apply

- 401 Water Quality Certification - Regular  
 Non-404 Jurisdictional General Permit  
 401 Water Quality Certification - Express  
 Riparian Buffer Authorization
-

1d. Is this notification solely for the record because written approval is not required? \*

For the record only for DWR 401 Certification:

Yes  No

For the record only for Corps Permit:

Yes  No

1e. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts?

If so, attach the acceptance letter from mitigation bank or in-lieu fee program.

Yes  No

1f. Is the project located in any of NC's twenty coastal counties? \*

Yes  No

1h. Is the project located in a designated trout watershed? \*

Yes  No

Link to trout information: <http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Trout.aspx>

## B. Applicant Information

1a. Who is the Primary Contact? \*

NCDOT

1b. Primary Contact Email: \*

jdilday@ncdot.gov

1c. Primary Contact Phone: \*

(xxx)xxx-xxxx

(919)707-6111

1d. Who is applying for the permit?

Owner  Applicant (other than owner)  Agent/Consultant  
(Check all that apply)

## 2. Owner Information

2a. Name(s) on recorded deed:

2b. Deed book and page no.:

2c. Responsible party:

(for Corporations)

2d. Address

Street Address

Address Line 2

City

State / Province / Region

Postal / Zip Code

Country

2e. Telephone Number:

(xxx)xxx-xxxx

2f. Fax Number:

(xxx)xxx-xxxx

2g. Email Address: \*

pharris@ncdot.gov

### 3. Applicant Information (if different from owner)

---

**3a. Applicant is:**

Agent

Other

If other please specify.

**3b. Name:**

**3c. Business Name:**

(if applicable)

**3d. Address**

Street Address

Address Line 2

City

State / Province / Region

Postal / Zip Code

Country

**3e. Telephone Number:**

(xxx)xxx-xxxx

**3f. Fax Number:**

(xxx)xxx-xxxx

**3g. Email Address: \***

pharris@ncdot.gov

---

## C. Project Information and Prior Project History

---

### 1. Project Information

---

**1a. Name of project: \***

B-5320 Replacement of Bridge 96 over Tar River on SR 1139 (Enon Road)

**1b. Subdivision name:**

(if appropriate)

**1c. Nearest municipality / town: \***

Oxford

**1d. Driving directions \***

If it is a new project and can not easily be found in a GPS mapping system. Please provide directions.

36.274512, -78.692013

### 2. Project Identification

---

**2a. Property Identification Number:**

(tax PIN or parcel ID)

**2b. Property size:**

(in acres)

---

**2c. Project Address**

Street Address

Address Line 2

City

State / Province / Region

Postal / Zip Code

Country

## 2d. Site coordinates in decimal degrees

Please collect site coordinates in decimal degrees. Use between 4-6 digits (unless you are using a survey-grade GPS device) after the decimal place as appropriate, based on how the location was determined. (For example, most mobile phones with GPS provide locational precision in decimal degrees to map coordinates to 5 or 6 digits after the decimal place.)

**Latitude: \***

**36.274512**

ex: 34.208504

**Longitude: \***

**-78.692013**

-77.796371

## 3. Surface Waters

**3a. Name of the nearest body of water to proposed project: \***

Tar River

**3b. Water Resources Classification of nearest receiving water: \***

WS-IV, NSW

[Surface Water Lookup](#)

**3c. What river basin(s) is your project located in? \***

Tar-Pamlico

[River Basin Lookup](#)

## 4. Project Description

**4a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: \***

Land use is primarily agriculture, interspersed with residential development along roadways and forestland along stream corridors.

**4b. Attach an 8 1/2 X 11 excerpt from the most recent version of the USGS topographic map indicating the location of the project site. (for DWR)**

Click the upload button or drag and drop files here to attach document

File type must be pdf

**4c. Attach an 8 1/2 X 11 excerpt from the most recent version of the published County NRCS Soil Survey map depicting the project site. (for DWR)**

Click the upload button or drag and drop files here to attach document

File type must be pdf

**4d. List the total estimated acreage of all existing wetlands on the property:**

0.4 ac

**4e. List the total estimated linear feet of all existing streams on the property:**

(intermittent and perennial)

250 lf

**4f. Explain the purpose of the proposed project: \***

To replace a functionally obsolete and structurally deficient bridge.

**4g. Describe the overall project in detail, including indirect impacts and the type of equipment to be used: \***

The project involves replacing a 201-foot, single span bridge with a 210-foot, three span bridge on existing alignment using an off-site detour. Standard road building equipment, such as trucks, dozers, and cranes will be used.

#### 4h. Please upload project drawings for the proposed project.

Click the upload button or drag and drop files here to attach document

B-5320_Permit Drawings_20171205.pdf	2.3MB
B5320 roadway.pdf	2.19MB
B-5320_Permit Drawings_BUFFER_20171205.pdf	1.16MB

File type must be pdf

## 5. Jurisdictional Determinations

### 5a. Have the wetlands or streams been delineated on the property or proposed impact areas? \*

Yes  No  Unknown

#### Comments:

PJD request package sent to USACE on 4/20/2016

### 5b. If the Corps made a jurisdictional determination, what type of determination was made? \*

Preliminary  Approved  Unknown  N/A

#### Corps AID Number:

Example: SAW-2017-99999

### 5c. If 5a is yes, who delineated the jurisdictional areas?

Name (if known): Jason Dilday

Agency/Consultant Company: NCDOT

Other:

### 5d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.

Field visit with USACE on 9/5/2012. Updated PJD package sent to USACE on 4/20/2016. No written determination received.

#### 5d1. Jurisdictional determination upload

Click the upload button or drag and drop files here to attach document

File type must be PDF

## 6. Project History

### 6a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past? \*

Yes  No  Unknown

## 7. Future Project Plans

### 7a. Is this a phased project? \*

Yes  No

Are any other NWP(s), regional general permit(s), or individual permits(s) used, or intended to be used, to authorize any part of the proposed project or related activity? This includes other separate and distant crossing for linear projects that require Department of the Army authorization but don't require pre-construction notification.

## D. Proposed Impacts Inventory

### 1. Impacts Summary

**1a. Where are the impacts associated with your project? (check all that apply):**

- Wetlands
  Streams-tributaries
  Buffers  
 Open Waters
  Pond Construction

## 2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

2a. Site # - Reason for impact *	2b. Impact type *	2c. Type of wetland *	2d. Wetland name *	2e. Forested *	2f. Type of Jurisdiction *	2g. Impact area *
<b>1-Fill, Mechinized clearing</b> Map label (e.g. Road Crossing 1 - Culvert, dewatering, etc)	<b>P</b> Permanent (P) or Temporary (T)	<b>Non-Tidal Freshwater Marsh</b>	<b>WB</b>	<b>No</b>	<b>Corps</b> (404, 10) or DWR(401, other)	<b>0.010</b> (acres)
<b>1-Temporary fill</b> Map label (e.g. Road Crossing 1 - Culvert, dewatering, etc)	<b>T</b> Permanent (P) or Temporary (T)	<b>Non-Tidal Freshwater Marsh</b>	<b>WB</b>	<b>No</b>	<b>Corps</b> (404, 10) or DWR(401, other)	<b>0.010</b> (acres)

**2g. Total Temporary Wetland Impact**

0.010

**2g. Total Permanent Wetland Impact**

0.010

**2g. Total Wetland Impact**

0.020

**2h. Comments:**

Permanent and temporary impacts to wetlands total <0.01 acre each.

## 3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

3a. Site # - Reason for impact *	3b. Impact type *	3c. Type of impact *	3d. Stream name *	3e. Stream Type *	3f. Type of Jurisdiction *	3g. Stream width *	3h. Impact length *
<b>1-Bank stabilization</b> Map label (e.g. Road Crossing 1)	<b>P</b> Permanent (P) or Temporary (T)	<b>Bank Stabilization</b>	<b>Tar River</b>	<b>Perennial</b> Perennial (PER) or intermittent (INT)	<b>Both</b>	<b>70</b> Average (feet)	<b>106</b> (linear feet)
<b>1-Bank stabilization</b> Map label (e.g. Road Crossing 1)	<b>T</b> Permanent (P) or Temporary (T)	<b>Bank Stabilization</b>	<b>Tar River</b>	<b>Perennial</b> Perennial (PER) or intermittent (INT)	<b>Both</b>	<b>70</b> Average (feet)	<b>12</b> (linear feet)
<b>1-Causeway</b> Map label (e.g. Road Crossing 1)	<b>T</b> Permanent (P) or Temporary (T)	<b>Workpad/Causeway</b>	<b>Tar River</b>	<b>Perennial</b> Perennial (PER) or intermittent (INT)	<b>Both</b>	<b>70</b> Average (feet)	<b>107</b> (linear feet)

\*\* All Perennial or Intermittent streams must be verified by DWR or delegated local government.

**3i. Total jurisdictional ditch impact in square feet:**

0

**3i. Total permanent stream impacts:**

106

**3i. Total temporary stream impacts:**

119

**3i. Total stream and tributary impacts:**

225

**3j. Comments:**

Total temporary stream impact equals 0.05 ac and there will be 253 sq.ft. of permanent impact due to drilled piers. Both of these impacts are provided above in linear units.

**6. Buffer Impacts (for DWR)**

If project will impact a protected riparian buffer, then complete the chart below. Individually list all buffer impacts below.

**6a. Project is in which protect basin(s)? \***

Check all that apply.

- Neuse
- Catawba
- Goose Creek
- Other
- Tar-Pamlico
- Randleman
- Jordan Lake

6b. Impact Type *	6c. Per or Temp *	6d. Stream name *	6e. Buffer mitigation required? *	6f. Zone 1 impact *	6g. Zone 2 impact *
<b>1-Road Crossing-Allowable</b> <small>Location and Exempt, Allowable, allowable w/ mitigation</small>	<b>P</b> <small>Permanent (P) or Temporary (T)</small>	<b>Tar River</b>	<b>No</b>	<b>336</b> <small>(square feet)</small>	<b>1,900</b> <small>(square feet)</small>
<b>1-Bridge-Allowable</b> <small>Location and Exempt, Allowable, allowable w/ mitigation</small>	<b>P</b> <small>Permanent (P) or Temporary (T)</small>	<b>Tar River</b>	<b>No</b>	<b>6,172</b> <small>(square feet)</small>	<b>1,352</b> <small>(square feet)</small>

**6h. Total buffer impacts:**

	Zone 1	Zone 2
<b>Temporary impacts:</b>	<b>0.00</b>	<b>0.00</b>
<b>Permanent impacts:</b>	<b>6,508.00</b>	<b>3,252.00</b>
<b>Total buffer impacts:</b>	<b>6,508.00</b>	<b>3,252.00</b>

**6i. Comments:**

**Supporting Documentation - i.e. Impact Maps, Plan Sheet, etc.**

Click the upload button or drag and drop files here to attach document

B-5320\_Permit Drawings\_BUFFER\_20171205.pdf 1.16MB  
File must be PDF

**E. Impact Justification and Mitigation**

**1. Avoidance and Minimization**

**1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing the project: \***

NCDOT Design Standards in Sensitive Watersheds will be employed. See Stormwater Management Plan for additional measures.

**1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques: \***

The new bridge will have no deck drains or direct discharge to the Tar River. An offsite detour will be utilized during construction. Discharge from the bridge will be collected in a drainage system that will discharge into a preformed scour hole before sheetflowing to the Tar River.

## 2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?

Yes  No

2b. If this project DOES NOT require Compensatory Mitigation, explain why:

Permanent impacts are considered minimal, allowable or in the case of stream impacts not a loss of "Water of the U.S.".

## F. Stormwater Management and Diffuse Flow Plan (required by DWR)

\*\*\* Recent changes to the stormwater rules have required updates to this section .\*\*\*

### 1. Diffuse Flow Plan

1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?

Yes  No

1b. All buffer impacts and high ground impacts require diffuse flow or other form of stormwater treatment. If the project is subject to a state implemented riparian buffer protection program, include a plan that fully documents how diffuse flow will be maintained.

All Stormwater Control Measures (SCM)s must be designed in accordance with the [NC Stormwater Design Manual](#). Associated supplement forms and other documentation shall be provided.

What type of SCM are you providing?

- Level Spreader
- Vegetated Conveyance (lower SHWT)
- Wetland Swale (higher SHWT)
- Other SCM that removes minimum 30% nitrogen  
(check all that apply)

For a list of options to meet the diffuse flow requirements, click [here](#).

#### Diffus Flow Documentation

Click the upload button or drag and drop files here to attach document

File type must be PDF

### 2. Stormwater Management Plan

2a. Is this a NCDOT project subject to compliance with NCDOT's Individual NPDES permit NCS000250? \*

Yes  No

## G. Supplementary Information

### 1. Environmental Documentation

1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? \*

Yes  No

1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)? \*

Yes  No

1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) \*



Yes  No

### NEPA or SEPA Final Approval Letter

Click the upload button or drag and drop files here to attach document

FILETYPE MUST BE PDF

## 2. Violations (DWR Requirement)

**2a. Is the site in violation of DWR Water Quality Certification Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), or DWR Surface Water or Wetland Standards or Riparian Buffer Rules (15A NCAC 2B .0200)? \***

Yes  No

**2b. Is this an after-the-fact permit application? \***

Yes  No

## 3. Cumulative Impacts (DWR Requirement)

**3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? \***

Yes  No

**3b. If you answered "no," provide a short narrative description.**

Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.

## 4. Sewage Disposal (DWR Requirement)

**4a. Is sewage disposal required by DWR for this project? \***

Yes  No  N/A

## 5. Endangered Species and Designated Critical Habitat (Corps Requirement)

**5a. Will this project occur in or near an area with federally protected species or habitat? \***

Yes  No

**5b. Have you checked with the USFWS concerning Endangered Species Act impacts? \***

Yes  No

**5c. If yes, indicate the USFWS Field Office you have contacted.**

Raleigh

**5d. Is another Federal agency involved? \***

Yes  No  Unknown

**5e. Is this a DOT project located within Division's 1-8? \***

Yes  No

**5j. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? \***

N.C. Natural Heritage Program database; USFWS-Raleigh Field Office website; biological surveys for protected species listed for Granville County, which include dwarf wedgemussel, Michaux's sumac and harparella. The biological conclusion for Michaux's sumac and harparella. Habitat for these species exist within the study area, however no specimens were observed during surveys updated on 9/15/2017. A biological conclusion of "May affect, not likely to adversely affect" was rendered for dwarf wedgemussel. Concurrence from USFWS was received on 1/25/2018. There were no bald eagles nests observed within 660 feet of the project area on 9/15/2017.

## 6. Essential Fish Habitat (Corps Requirement)

6a. Will this project occur in or near an area designated as an Essential Fish Habitat? \*

Yes  No

6b. What data sources did you use to determine whether your site would impact an Essential Fish Habitat? \*

NMFS County Index

## 7. Historic or Prehistoric Cultural Resources (Corps Requirement)

Link to the State Historic Preservation Office Historic Properties Map (does not include archaeological data: <http://gis.ncdcr.gov/hpoweb/>)

7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)? \*

Yes  No

7b. What data sources did you use to determine whether your site would impact historic or archeological resources? \*

NEPA documentation

### 7c. Historic or Prehistoric Information Upload

Click the upload button or drag and drop files here to attach document

File must be PDF

## 8. Flood Zone Designation (Corps Requirement)

Link to the FEMA Floodplain Maps: <https://msc.fema.gov/portal/search>

8a. Will this project occur in a FEMA-designated 100-year floodplain? \*

Yes  No

8b. If yes, explain how project meets FEMA requirements:

NCDOT Hydraulics Unit coordination with FEMA

8c. What source(s) did you use to make the floodplain determination? \*

FEMA Maps

## Miscellaneous

### Miscellaneous attachments not previously requested.

Click the upload button or drag and drop files here to attach document

20180125\_letter\_Service to NCDOT\_B-5320.pdf

37.82KB

File must be PDF

## Signature

\*

By checking the box and signing below, I certify that:

- I have given true, accurate, and complete information on this form;
- I agree that submission of this PCN form is a "transaction" subject to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the PCN form.

Full Name: \*

Colin Mellor

Signature

*Colin Mellor*

**Date:**

current\_date



North Carolina Department of Transportation

Highway Stormwater Program  
STORMWATER MANAGEMENT PLAN  
FOR NCDOT PROJECTS



(Version 2.07; Released October 2016)

WBS Element: B-5320      TIP No.: SF-380096      County(ies): Granville      Page 1 of 2

General Project Information

WBS Element:	B-5320	TIP Number:	SF-380096	Project Type:	Bridge Replacement	Date:	5/24/2017
NCDOT Contact:	Craig J. Lee, P.E.			Contractor / Designer:	WSP (Vidya Mohandas, PE)		
Address:	NCDOT Hydraulics Unit 1020 Birch Ridge Road Raleigh, NC 27610			Address:	434 Fayetteville Street Suite 1500 Raleigh, NC 27601		
	Phone:	919-707-6708			Phone:	984-269-4673	
	Email:	cilee@ncdot.gov			Email:	vidya.mohandas@wsp.com	
City/Town:	Oxford			County(ies):	Granville		
River Basin(s):	Tar-Pamlico			CAMA County?	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	0.15 miles	Surrounding Land Use:	woods, private residences and pastures				
Proposed Project				Existing Site			
Project Built-Upon Area (ac.)	0.43	ac.	0.30	ac.			
Typical Cross Section Description:	2 lane road with 11' travel lanes, 6' unpaved shoulder			2 lane road with 10' travel lanes, 2-3 ft unpaved shoulder			

Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	2105 (veh/day)	Year:	2038	Existing:	1409 (veh/day)	Year:	2018
--	----------------	----------------	-------	------	-----------	----------------	-------	------

**General Project Narrative:**  
**(Description of Minimization of Water Quality Impacts)**

The project consists of replacement of Bridge 96 on SR 1139 (Enon Road) over Tar River and associated roadway work. The existing structure is a five span 200.67' total length (1@40'-4", 3@40', 1@40'-4") RC floors on I-Beams, RC caps and timber piles. The existing structure has a sufficiency rating of 39.22. The proposed structure will be a three span 210' (1@70', 1@ 100', 1@40'), 39" box beam with sloping abutments. The project will increase impervious surface by 5663 sf (0.13 ac). Impacts have been minimized by avoiding the use of deck drains and promoting sheet flow and infiltration with grassed areas. The Northeast quadrant will receive upland flow that sheetflows directly into the creek. The discharge from the bridge is collected in a proposed drainage system on the main roadway (Enon Rd) which is discharged into a preformed scour hole in the southeast quadrant. The preformed scour hole eventually discharges into the jurisdictional stream. The northwest quadrant of the bridge will flow off the roadway and flow into existing ditch which discharges into the main jurisdictional stream. The Southwest quadrant flow will be collected in a proposed proposed V ditch along Enon Road which discharges onto a riprap pad and then flows into the jurisdictional stream. The flow from the Northwest and Southeast quadrant will sheet flow over the banks into the existing stream. This provides filtration in accordance with NCDOT Alternative Design Criteria.

Waterbody Information

Surface Water Body (1):	Tar River			NCDWR Stream Index No.:	28-(1)		
NCDWR Surface Water Classification for Water Body	Primary Classification:		Water Supply IV (WS-IV)				
	Supplemental Classification:		Nutrient Sensitive Waters (NSW)				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	Tar River			Buffer Rules in Effect:	Tar-Pamlico		
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?	N/A		
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)			(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)							



North Carolina Department of Transportation  
 Highway Stormwater Program  
**STORMWATER MANAGEMENT PLAN**  
 FOR NCDOT PROJECTS



(Version 2.07; Released October 2016)

**WBS Element:** **TIP No.:** SF-380096 **County(ies):** Granville **Page** 2 **of** 2

**Preformed Scour Holes and Energy Dissipators**

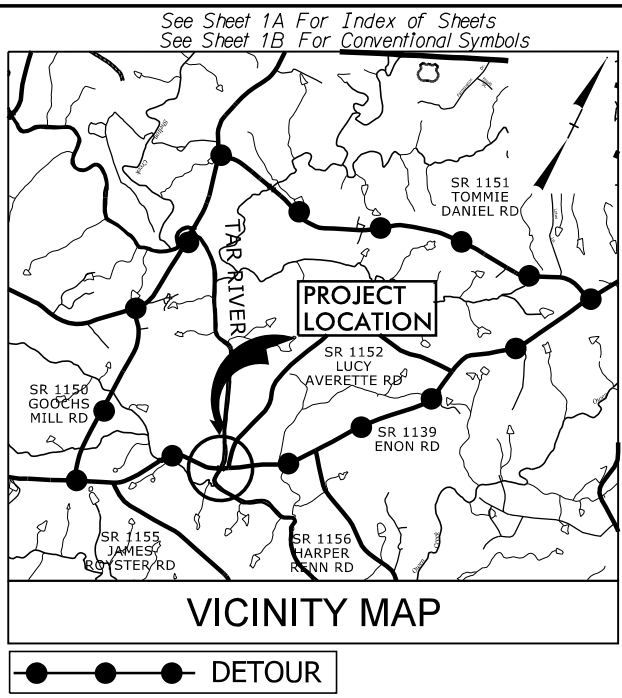
Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)	BMP Associated w/ Buffer Rules?
4	17+35-L- RT	(1)Tar River	PSH	Class 'B'	0.2	Pipe	15	1.0	3.8	Yes
4	14+20-L-RT	(1)Tar River	Riprap Energy Dissipator Basin	Class I	0.5	Ditch		1.1	2.0	Yes

**Additional Comments**

\* Refer to the NCDOT Best Management Practices Toolbox (2014), NCDOT Standards, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

09.08/99  
 12/1/2017  
 J:\18871-01B-5320 Bridge No. 96 Granville\B5320\Hydraulics\PERMITS\_Environmental\Drawings\Wetlands\_PSH\B5320\_hyd\_prm\_Rdy\_TSH.dgn  
 usvm04388

**CONTRACT: TIP PROJECT: B-5320**



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# GRANVILLE COUNTY

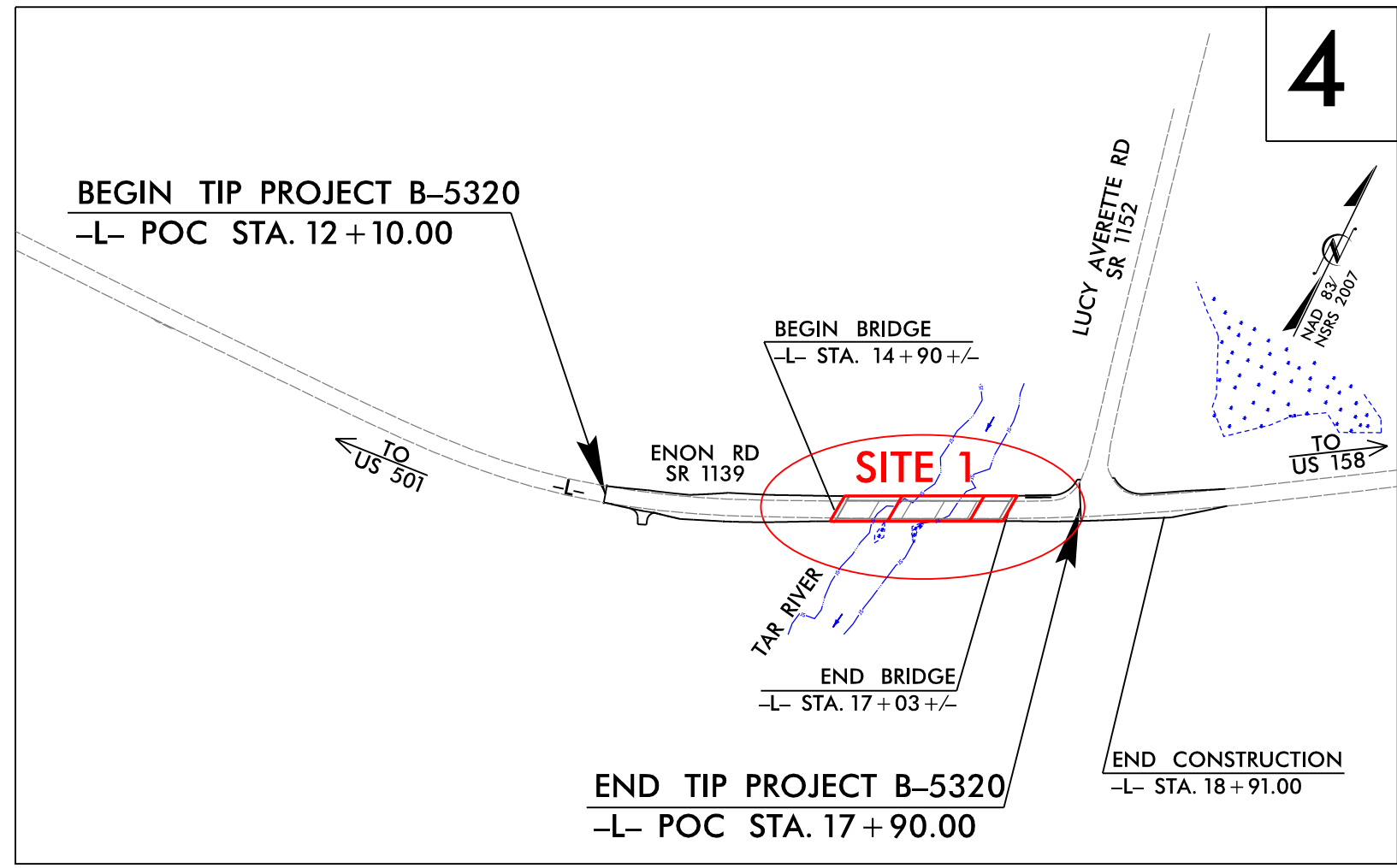
**LOCATION: REPLACE BRIDGE NO. 96.  
OVER TAR RIVER ON SR 1139 (ENON RD)**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND  
STRUCTURE**

**WETLAND AND SURFACE WATER IMPACTS PERMIT**

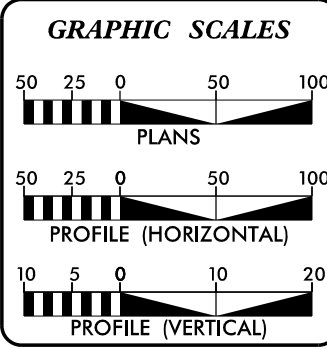
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5320	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46034.1.1	BRZ-1139(4)	PE	

**PERMIT DRAWING  
SHEET 1 OF 5**



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL LIMITS. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

NCDOT CONTACT: DAVID STUTTS, PE  
ROADWAY DESIGN



**DESIGN DATA**

ADT 2018 =	1409
ADT 2038 =	2105
K =	9 %
D =	55 %
T =	8 % *
V =	60 MPH
* (TTST = 3% + DUAL = 5%)	
FUNC CLASS =	MINOR COLLECTOR SUBREGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT B-5320	=	0.070 MI
LENGTH STRUCTURE PROJECT B-5320	=	0.040 MI
TOTAL LENGTH PROJECT B-5320	=	0.110 MI

PREPARED IN THE OFFICE OF:

**wsp** WSP  
434 Fayetteville Street, Suite 1500 Raleigh, NC 27601  
Tel. (919) 836-4040 www.wsp.com  
License No. F-0891

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
2012 STANDARD SPECIFICATIONS

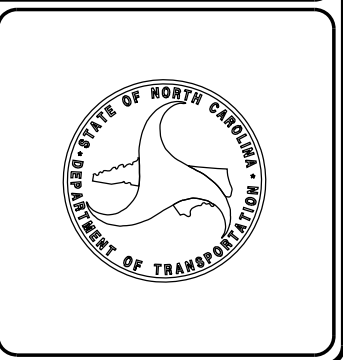
RIGHT OF WAY DATE: SEPTEMBER 15, 2017	<u>RONYELL A. THIGPEN, PE</u> PROJECT ENGINEER
LETTING DATE: MAY 15, 2018	<u>HOLLY CHRISTENBURY, PE</u> PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

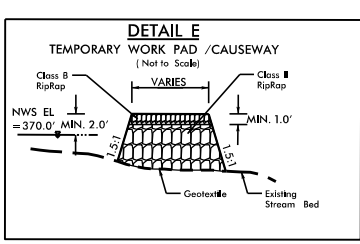
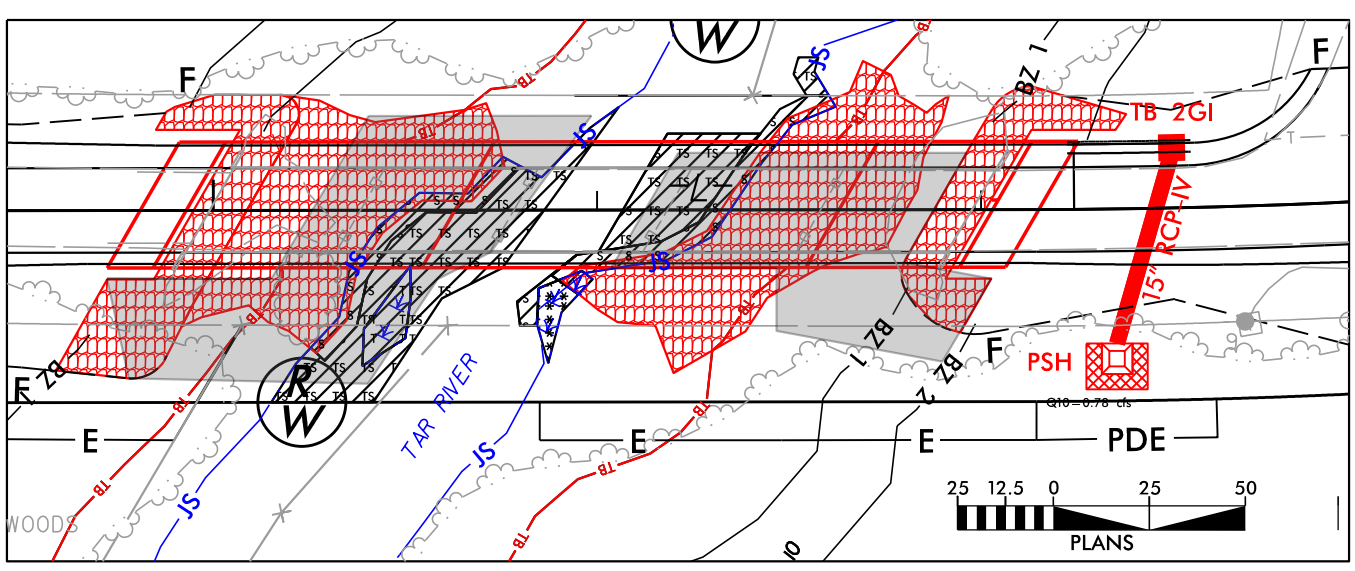
SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.



12/15/2017 1:01 B-5320 Bridge No. 96 Greenville B5320\Hydraulics\PERMITS\Environmental\Drawings\Wetlands\_PSH\B5320\_hyd\_prm\_psh\_2.dgn  
 12/15/2017 1:01 B-5320 Bridge No. 96 Greenville B5320\Hydraulics\PERMITS\Environmental\Drawings\Wetlands\_PSH\B5320\_hyd\_prm\_psh\_2.dgn  
 12/15/2017 1:01 B-5320 Bridge No. 96 Greenville B5320\Hydraulics\PERMITS\Environmental\Drawings\Wetlands\_PSH\B5320\_hyd\_prm\_psh\_2.dgn



**wsp**  
 434 Fayetteville Street Suite 1500  
 Raleigh, NC 27601 - 919.836.4040  
 www.wspgroup.com  
 LICENSE NO. F-0891

PROJECT REFERENCE NO.	SHEET NO.
B-5320	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

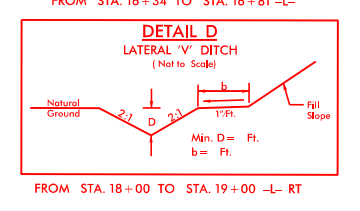
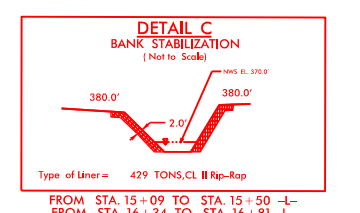
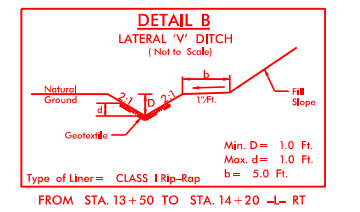
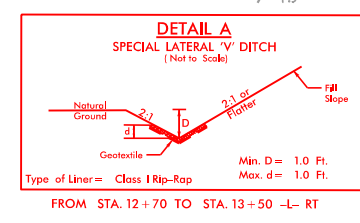
PERMIT DRAWING  
 SHEET 2 OF 5

R BRYANT FAMILY HOLDINGS, LLC  
 DB 1503 PG 834  
 PB 19 PG 196

**NOTE: ONLY ONE CAUSEWAY IS ALLOWED WITHIN THE STREAM AT ANY TIME AND ANY SINGLE CAUSEWAY SHOULD NOT BLOCK MORE THAN 50% OF THE CHANNEL TO ALLOW FLOW THROUGH THE REMAINDER OF THE CHANNEL.**  
 REMOVE ALL PORTIONS OF TEMPORARY CAUSEWAY FROM STREAM. CLEAN RIP-RAP CAN REMAIN ON THE BANKS AS PART OF FINAL BANK STABILIZATION.

TEMPORARY CAUSEWAY / WORK PAD & TEMPORARY IMPACTS IN SURFACE WATER  
 SEE DETAIL E FOR CAUSEWAY / WORKPAD

BANK STABILIZATION & IMPACTS IN SURFACE WATER  
 SEE DETAIL C

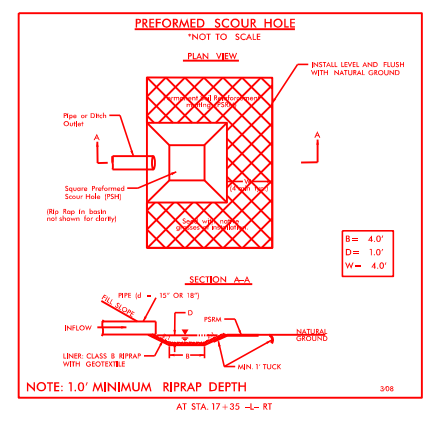


- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES TEMPORARY FILL IN WETLAND

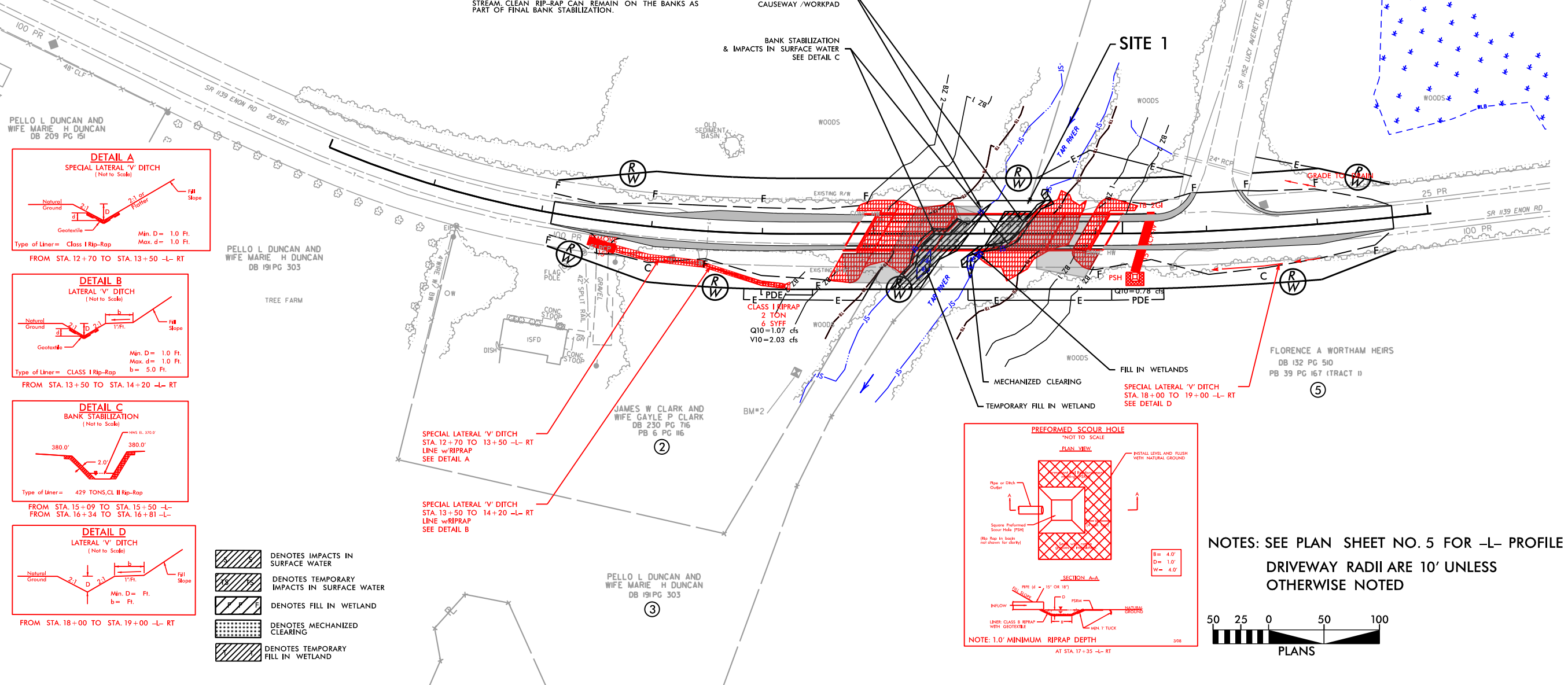
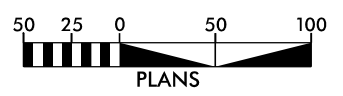
SPECIAL LATERAL 'V' DITCH  
 STA. 12+70 TO 13+50 -L- RT  
 LINE w/ RIPRAP  
 SEE DETAIL A

SPECIAL LATERAL 'V' DITCH  
 STA. 13+50 TO 14+20 -L- RT  
 LINE w/ RIPRAP  
 SEE DETAIL B

SPECIAL LATERAL 'V' DITCH  
 STA. 18+00 TO 19+00 -L- RT  
 SEE DETAIL D

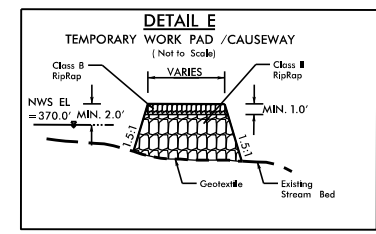
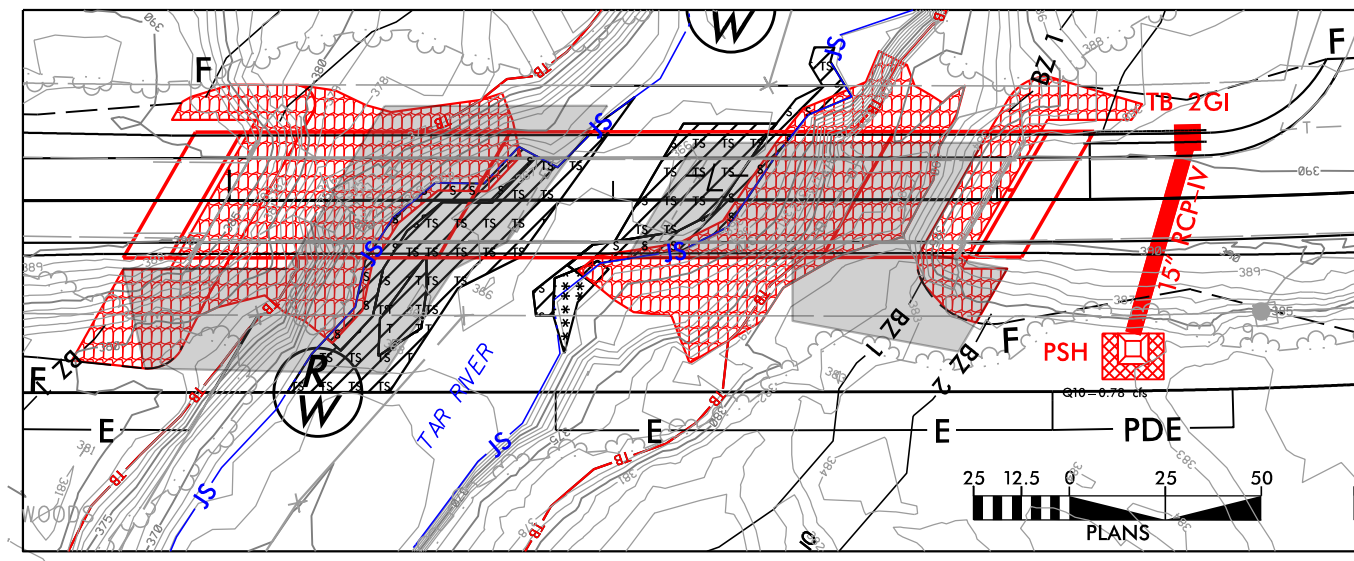


**NOTES: SEE PLAN SHEET NO. 5 FOR -L- PROFILE**  
**DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED**



12/5/2017 1:01 B-5320 Bridge No. 96 Greenville US 8320\Hydraulics\PERMITS\Environmental\Drawings\Wetlands\_PSH\B5320\_hyd\_prm\_psh\_3.dgn  
 12/1/2017 1:01 B-5320 Bridge No. 96 Greenville US 8320\Hydraulics\PERMITS\Environmental\Drawings\Wetlands\_PSH\B5320\_hyd\_prm\_psh\_3.dgn

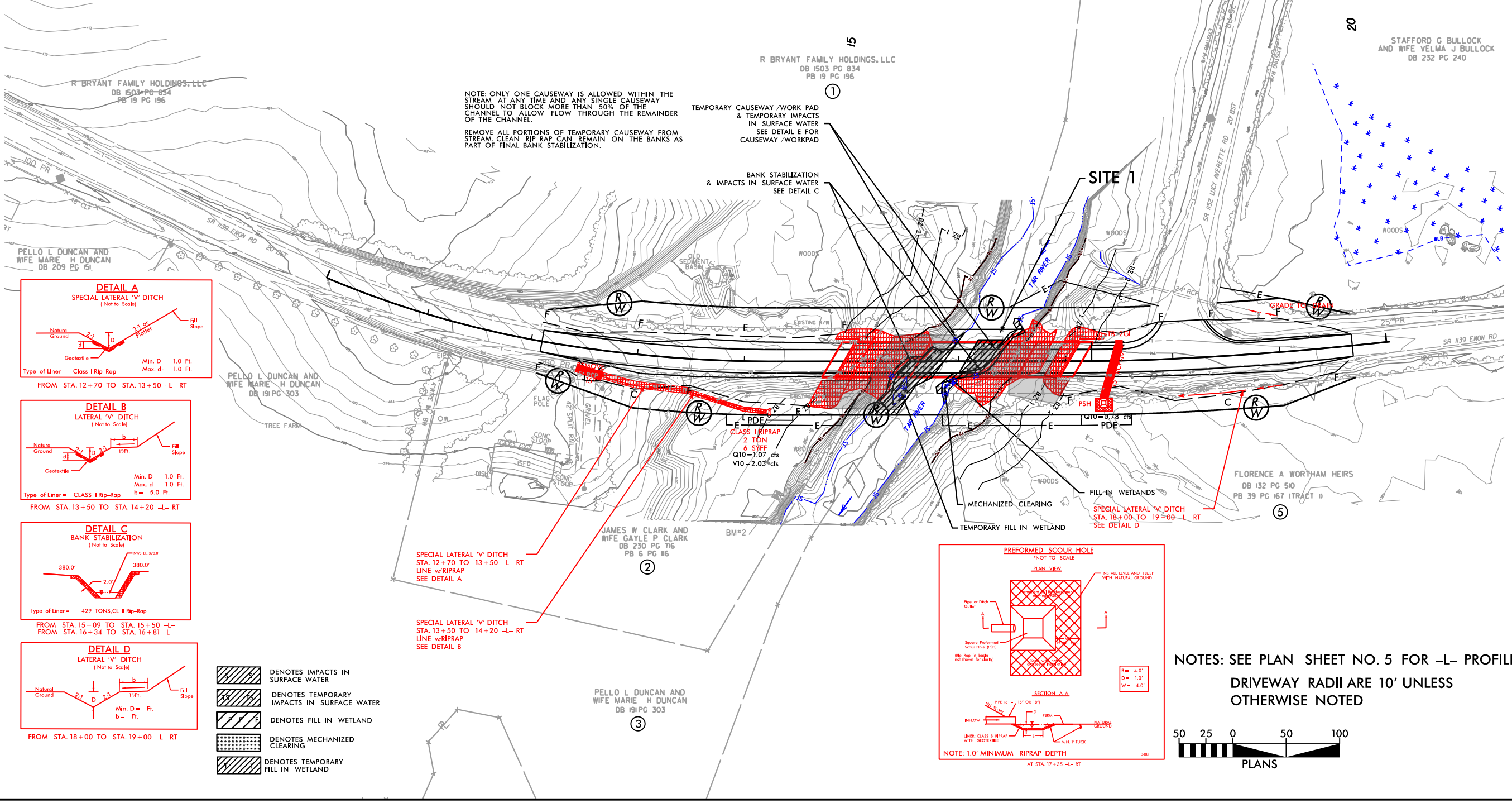
REVISIONS



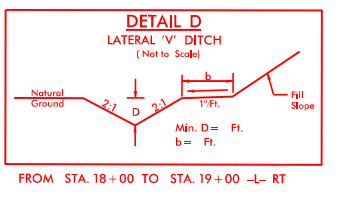
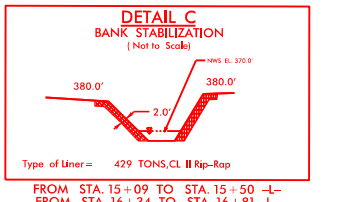
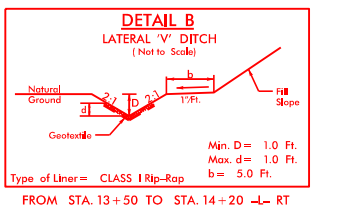
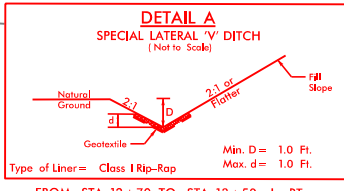
**wsp**  
 434 Fayetteville Street Suite 1500  
 Raleigh, NC 27601 - 919.836.4040  
 www.wspgroup.com  
 LICENSE NO. F-0891

PROJECT REFERENCE NO.	SHEET NO.
B-5320	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

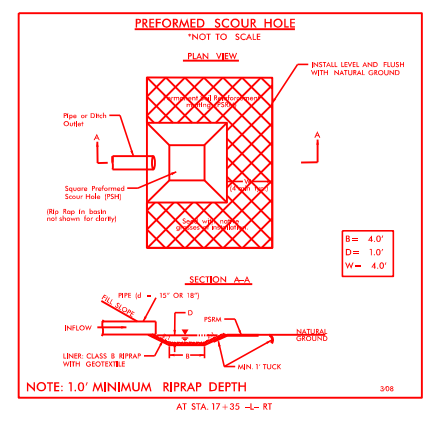
PERMIT DRAWING SHEET 3 OF 5



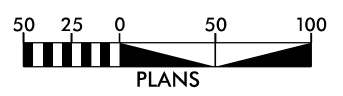
NOTE: ONLY ONE CAUSEWAY IS ALLOWED WITHIN THE STREAM AT ANY TIME AND ANY SINGLE CAUSEWAY SHOULD NOT BLOCK MORE THAN 50% OF THE CHANNEL TO ALLOW FLOW THROUGH THE REMAINDER OF THE CHANNEL.  
 REMOVE ALL PORTIONS OF TEMPORARY CAUSEWAY FROM STREAM. CLEAN RIP-RAP CAN REMAIN ON THE BANKS AS PART OF FINAL BANK STABILIZATION.



- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES TEMPORARY FILL IN WETLAND



NOTES: SEE PLAN SHEET NO. 5 FOR -L- PROFILE  
 DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED





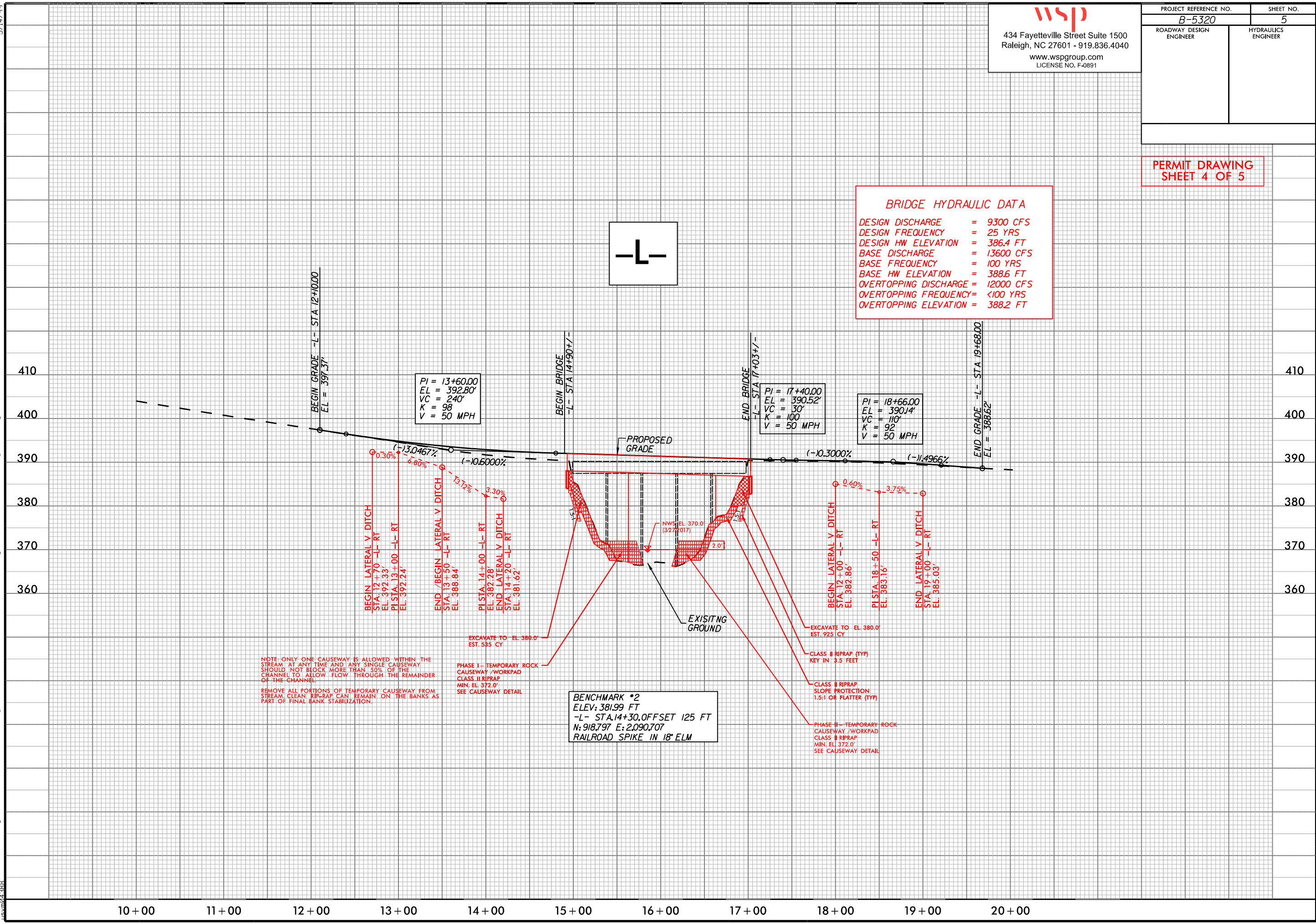
5/14/99  
 I:\162071-01 B-5320 Bridge No. 96 Greenville B5320\Hydraulics\PERMITS.Environmental\Drawings\WestLands\_PSH\B5320\_hyd\_PSH5.dgn  
 162071-01 B-5320 Bridge No. 96 Greenville B5320\Hydraulics\PERMITS.Environmental\Drawings\WestLands\_PSH\B5320\_hyd\_PSH5.dgn  
 162071-01 B-5320 Bridge No. 96 Greenville B5320\Hydraulics\PERMITS.Environmental\Drawings\WestLands\_PSH\B5320\_hyd\_PSH5.dgn

**wsp**  
 434 Fayetteville Street Suite 1500  
 Raleigh, NC 27601 - 919.836.4040  
 www.wspgroup.com  
 LICENSE NO. F-0891

PROJECT REFERENCE NO. <b>B-5320</b>	SHEET NO. <b>5</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**PERMIT DRAWING  
 SHEET 4 OF 5**

**BRIDGE HYDRAULIC DATA**  
 DESIGN DISCHARGE = 9300 CFS  
 DESIGN FREQUENCY = 25 YRS  
 DESIGN HW ELEVATION = 386.4 FT  
 BASE DISCHARGE = 13600 CFS  
 BASE FREQUENCY = 100 YRS  
 BASE HW ELEVATION = 388.6 FT  
 OVERTOPPING DISCHARGE = 12000 CFS  
 OVERTOPPING FREQUENCY = <100 YRS  
 OVERTOPPING ELEVATION = 388.2 FT



PI = 13+60.00  
 EL = 392.80'  
 VC = 240'  
 K = 98  
 V = 50 MPH

PI = 17+40.00  
 EL = 390.52'  
 VC = 30'  
 K = 100  
 V = 50 MPH

PI = 18+66.00  
 EL = 390.14'  
 VC = 110'  
 K = 92  
 V = 50 MPH

NOTE: ONLY ONE CAUSEWAY IS ALLOWED WITHIN THE STREAM AT ANY TIME AND ANY SINGLE CAUSEWAY SHOULD NOT BLOCK MORE THAN 50% OF THE CHANNEL TO ALLOW FLOW THROUGH THE REMAINDER OF THE CHANNEL.  
 REMOVE ALL PORTIONS OF TEMPORARY CAUSEWAY FROM STREAM. CLEAN RIP-RAP CAN REMAIN ON THE BANKS AS PART OF FINAL BANK STABILIZATION.

PHASE I - TEMPORARY ROCK CAUSEWAY / WORKPAD  
 CLASS II RIPRAP  
 MIN. EL. 372.0'  
 SEE CAUSEWAY DETAIL

**BENCHMARK #2**  
 ELEV: 381.99 FT  
 -L- STA. 14+30, OFFSET 125 FT  
 N: 918.797 E: 2.090.707  
 RAILROAD SPIKE IN 18" ELM

EXCAVATE TO EL. 380.0'  
 EST. 925 CY

CLASS II RIPRAP (TYP)  
 KEY IN 3.5 FEET

PHASE II - TEMPORARY ROCK CAUSEWAY / WORKPAD  
 CLASS II RIPRAP  
 MIN. EL. 372.0'  
 SEE CAUSEWAY DETAIL

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00

**WETLAND AND SURFACE WATER IMPACTS SUMMARY**

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
Site 1	15+49 to 16+35	Bank Stabilization	< 0.01			< 0.01		0.02	< 0.01	106	12	
	15+69 to 16+29	Temporary Causeway		< 0.01					0.05		107	
<b>TOTALS*:</b>			< 0.01	< 0.01		< 0.01		0.02	0.05	106	119	0

\*Rounded totals are sum of actual impacts

NOTES:  
 253 Sq ft (0.006 ac) < 0.01ac of permanent water impacts due to drilled piers  
 Only one causeway is allowed within the stream at any time and any single cause should not block more than 50% of the channel to allow flow through the remainder of the channel.

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 9-28-2017  
 Granville  
 43034.1.1  
 B-5320

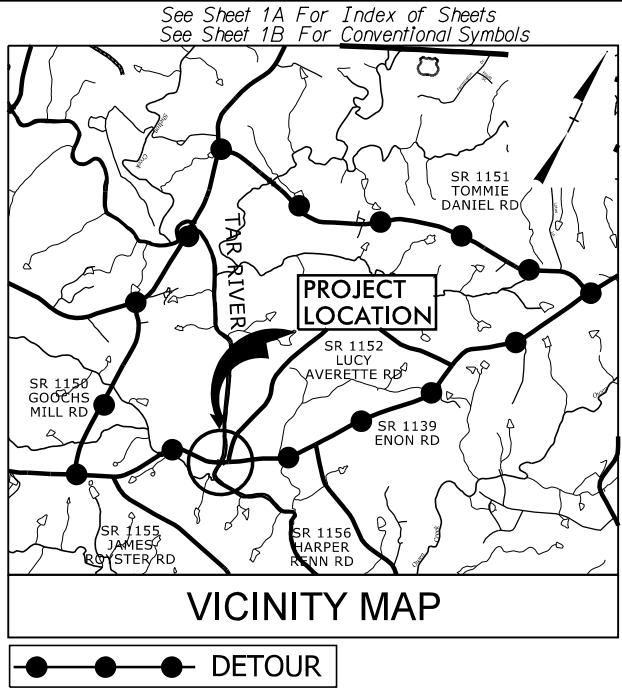
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5320	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46034.1.1	BRZ-1139(4)	PE	

**BUFFER DRAWING  
SHEET 1 OF 4**

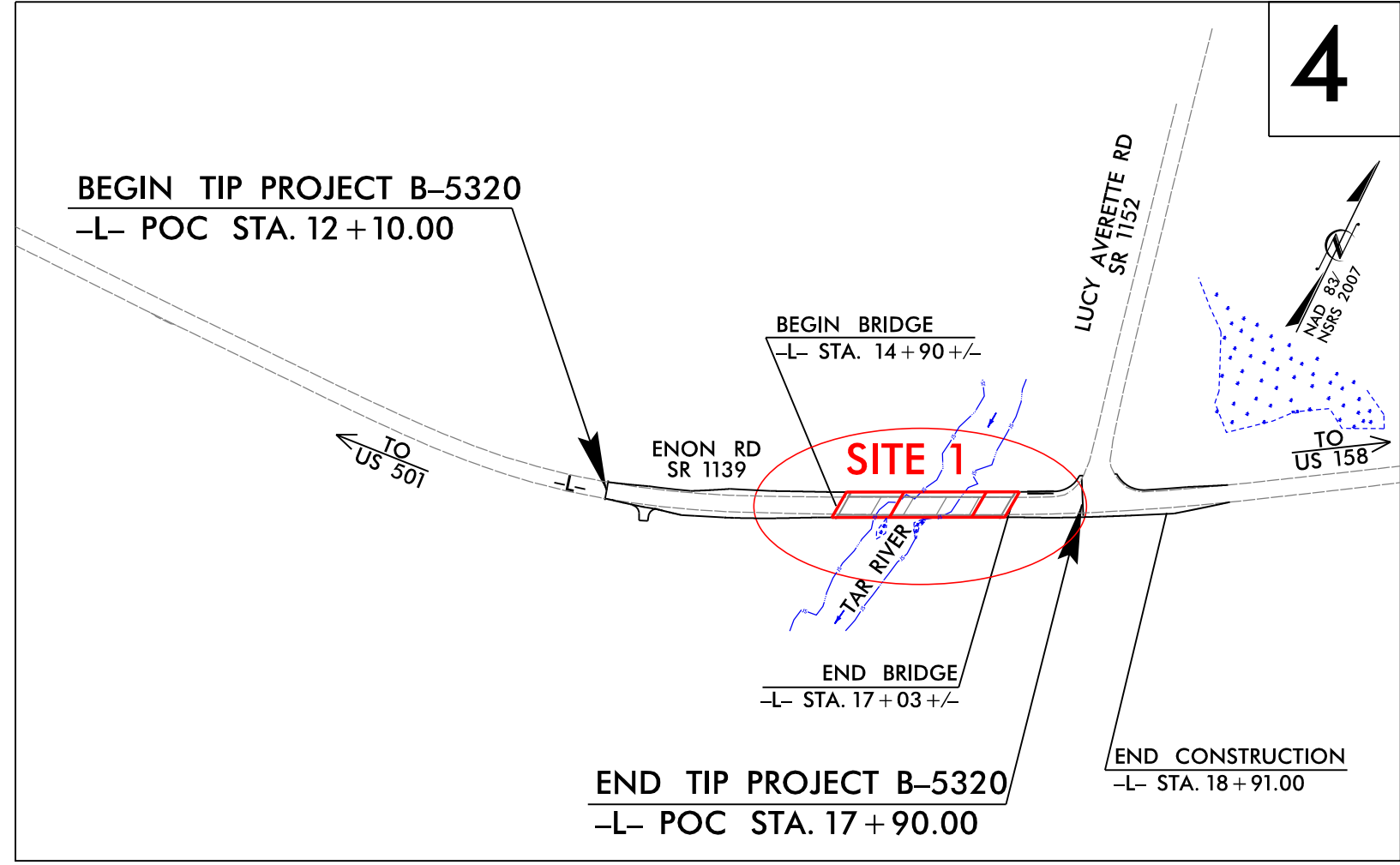
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**GRANVILLE COUNTY**

**LOCATION: REPLACE BRIDGE NO. 96.  
OVER TAR RIVER ON SR 1139 (ENON RD)  
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND  
STRUCTURE**

**BUFFER IMPACTS PERMIT**



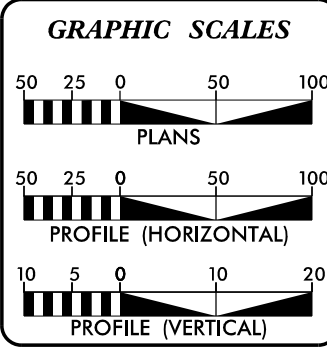
**TIP PROJECT: B-5320**



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL LIMITS.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

NCDOT CONTACT: DAVID STUTTS, PE  
ROADWAY DESIGN

**CONTRACT:**



**DESIGN DATA**

ADT 2018	=	1409
ADT 2038	=	2105
K	=	9 %
D	=	55 %
T	=	8 % *
V	=	60 MPH
* (TTST = 3% + DUAL = 5%)		
FUNC CLASS = MINOR COLLECTOR SUBREGIONAL TIER		

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT B-5320	=	0.070 MI
LENGTH STRUCTURE PROJECT B-5320	=	0.040 MI
TOTAL LENGTH PROJECT B-5320	=	0.110 MI

PREPARED IN THE OFFICE OF:  
**wsp**  
434 Fayetteville Street, Suite 1500 Raleigh, NC 27601  
Tel. (919) 836-4040 www.wsp.com  
License No. F-0891

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 15, 2017

LETTING DATE: MAY 15, 2018

RONYELL A. THIGPEN, PE  
PROJECT ENGINEER

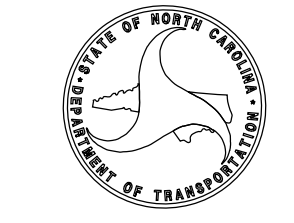
HOLLY CHRISTENBURY, PE  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.



12/1/2017 J:\18871-01\B-5320 Bridge No. 96 Granville\B5320\Hydraulics\PERMITS\_Environmental\Drawings\Buffer\_PSH\B5320\_hyd\_prm\_buf\_Rdy\_TSH.Ldgn usvrm04388

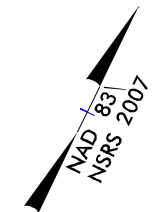
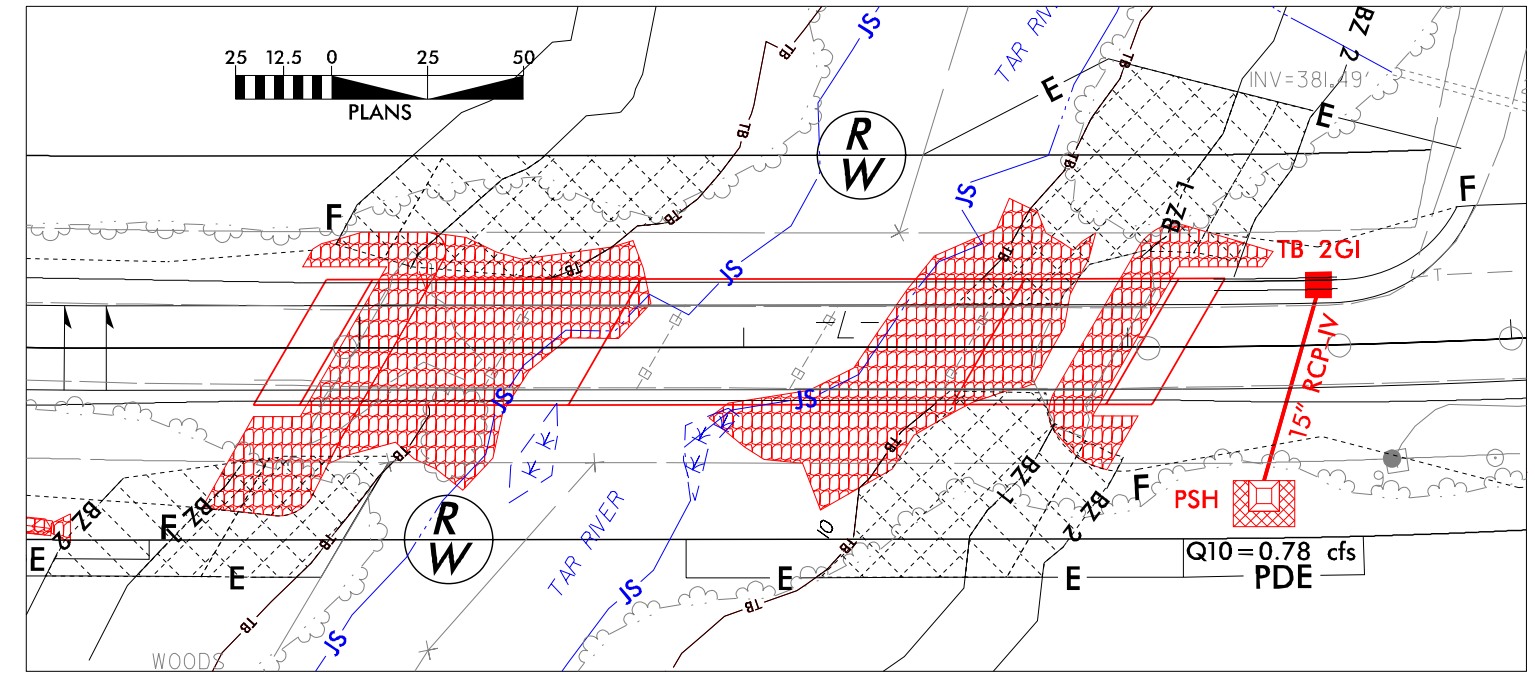
8/17/99



434 Fayetteville Street Suite 1500  
Raleigh, NC 27601 - 919.836.4040  
www.wspgroup.com  
LICENSE NO. F-0891

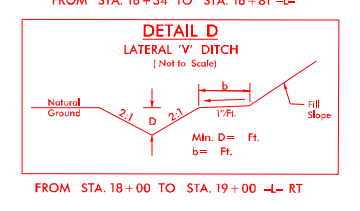
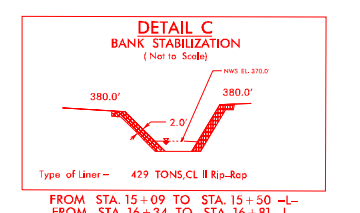
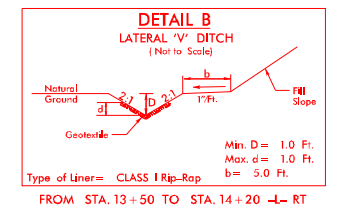
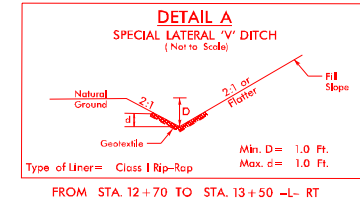
PROJECT REFERENCE NO. B-5320		SHEET NO. 4
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

**BUFFER DRAWING SHEET 2 OF 4**



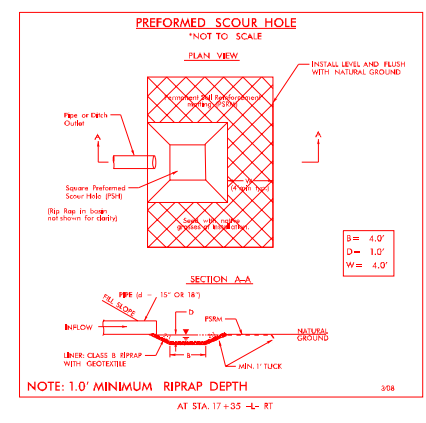
ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

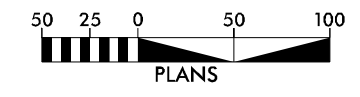


SPECIAL LATERAL 'V' DITCH  
STA. 12+70 TO 13+50 -L- RT  
LINE w/ RIPRAP  
SEE DETAIL A

SPECIAL LATERAL 'V' DITCH  
STA. 13+50 TO 14+20 -L- RT  
LINE w/ RIPRAP  
SEE DETAIL B



NOTES: SEE PLAN SHEET NO. 5 FOR -L- PROFILE  
DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED



REVISIONS

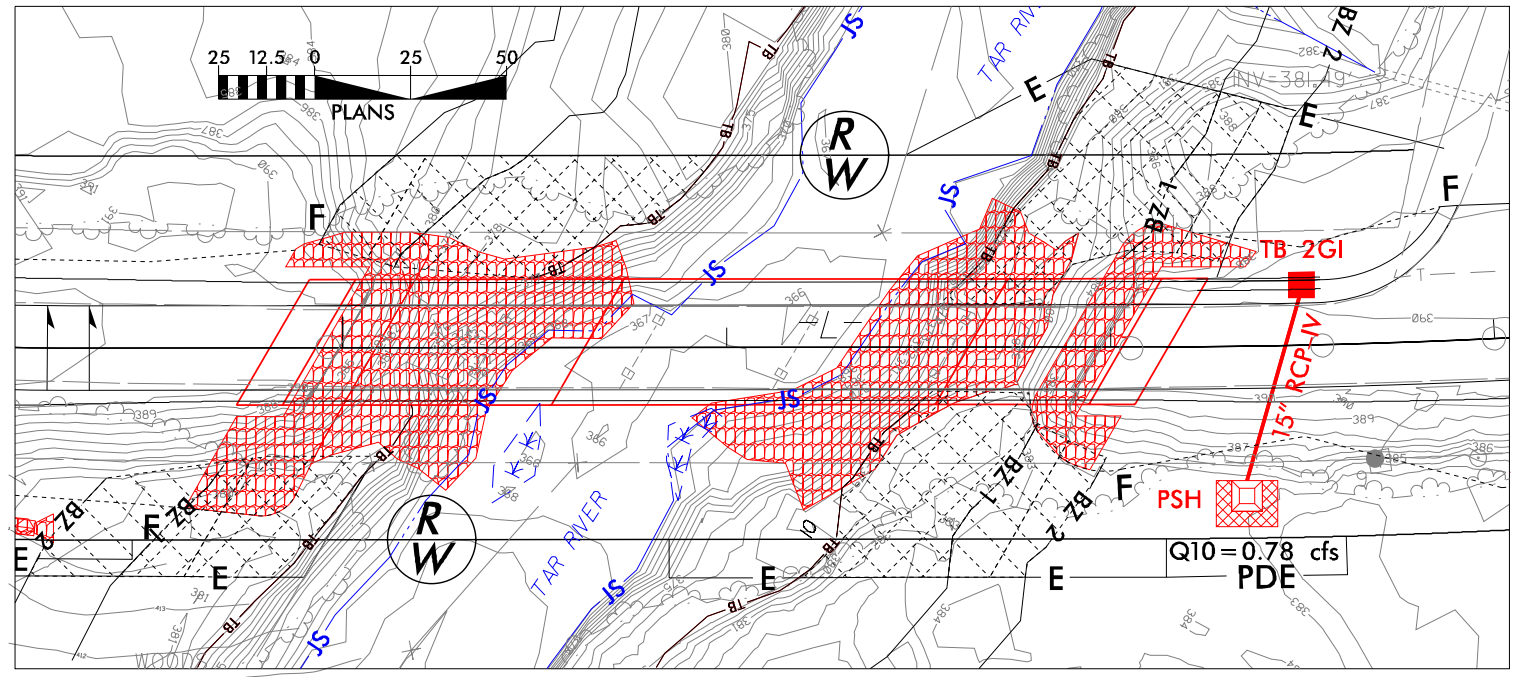
12/15/2017 11:01 B-5320 Bridge No. 96 Greenville B5320\Hydraulics\PERMITS\Environmental\Drawings\Buffer\_PSH\B5320\_hyd\_prm\_buf\_psh\_2.dgn  
12/15/2017 11:01 B-5320 Bridge No. 96 Greenville B5320\Hydraulics\PERMITS\Environmental\Drawings\Buffer\_PSH\B5320\_hyd\_prm\_buf\_psh\_2.dgn



434 Fayetteville Street Suite 1500  
Raleigh, NC 27601 - 919.836.4040  
www.wspgroup.com  
LICENSE NO. F-0891

PROJECT REFERENCE NO. B-5320		SHEET NO. 4
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

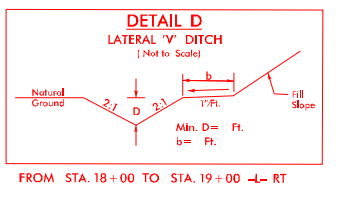
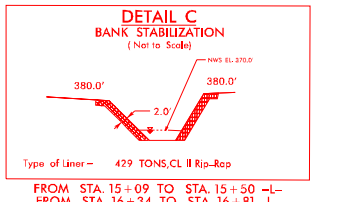
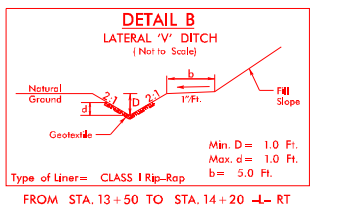
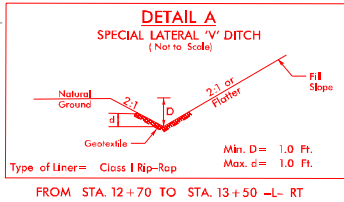
**BUFFER DRAWING SHEET 3 OF 4**



REVISIONS  
8/17/99  
1/15/2017  
1/16/2017  
1/18/2017  
1/20/2017  
1/22/2017  
1/24/2017  
1/26/2017  
1/28/2017  
1/30/2017  
2/1/2017  
2/3/2017  
2/5/2017  
2/7/2017  
2/9/2017  
2/11/2017  
2/13/2017  
2/15/2017  
2/17/2017  
2/19/2017  
2/21/2017  
2/23/2017  
2/25/2017  
2/27/2017  
2/29/2017  
3/1/2017  
3/3/2017  
3/5/2017  
3/7/2017  
3/9/2017  
3/11/2017  
3/13/2017  
3/15/2017  
3/17/2017  
3/19/2017  
3/21/2017  
3/23/2017  
3/25/2017  
3/27/2017  
3/29/2017  
3/31/2017  
4/2/2017  
4/4/2017  
4/6/2017  
4/8/2017  
4/10/2017  
4/12/2017  
4/14/2017  
4/16/2017  
4/18/2017  
4/20/2017  
4/22/2017  
4/24/2017  
4/26/2017  
4/28/2017  
4/30/2017  
5/2/2017  
5/4/2017  
5/6/2017  
5/8/2017  
5/10/2017  
5/12/2017  
5/14/2017  
5/16/2017  
5/18/2017  
5/20/2017  
5/22/2017  
5/24/2017  
5/26/2017  
5/28/2017  
5/30/2017  
6/1/2017  
6/3/2017  
6/5/2017  
6/7/2017  
6/9/2017  
6/11/2017  
6/13/2017  
6/15/2017  
6/17/2017  
6/19/2017  
6/21/2017  
6/23/2017  
6/25/2017  
6/27/2017  
6/29/2017  
7/1/2017  
7/3/2017  
7/5/2017  
7/7/2017  
7/9/2017  
7/11/2017  
7/13/2017  
7/15/2017  
7/17/2017  
7/19/2017  
7/21/2017  
7/23/2017  
7/25/2017  
7/27/2017  
7/29/2017  
7/31/2017  
8/2/2017  
8/4/2017  
8/6/2017  
8/8/2017  
8/10/2017  
8/12/2017  
8/14/2017  
8/16/2017  
8/18/2017  
8/20/2017  
8/22/2017  
8/24/2017  
8/26/2017  
8/28/2017  
8/30/2017  
9/1/2017  
9/3/2017  
9/5/2017  
9/7/2017  
9/9/2017  
9/11/2017  
9/13/2017  
9/15/2017  
9/17/2017  
9/19/2017  
9/21/2017  
9/23/2017  
9/25/2017  
9/27/2017  
9/29/2017  
9/30/2017  
10/2/2017  
10/4/2017  
10/6/2017  
10/8/2017  
10/10/2017  
10/12/2017  
10/14/2017  
10/16/2017  
10/18/2017  
10/20/2017  
10/22/2017  
10/24/2017  
10/26/2017  
10/28/2017  
10/30/2017  
11/1/2017  
11/3/2017  
11/5/2017  
11/7/2017  
11/9/2017  
11/11/2017  
11/13/2017  
11/15/2017  
11/17/2017  
11/19/2017  
11/21/2017  
11/23/2017  
11/25/2017  
11/27/2017  
11/29/2017  
11/30/2017  
12/2/2017  
12/4/2017  
12/6/2017  
12/8/2017  
12/10/2017  
12/12/2017  
12/14/2017  
12/16/2017  
12/18/2017  
12/20/2017  
12/22/2017  
12/24/2017  
12/26/2017  
12/28/2017  
12/30/2017

ALLOWABLE IMPACTS ZONE 1

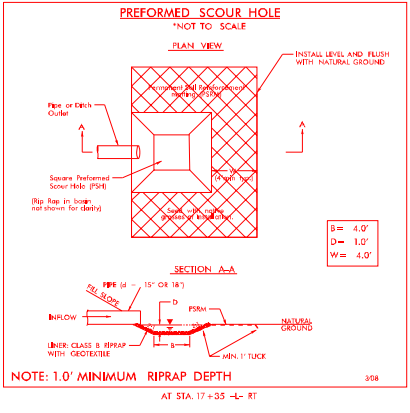
ALLOWABLE IMPACTS ZONE 2



SPECIAL LATERAL 'V' DITCH  
STA. 12+70 TO 13+50 -L- RT  
LINE w/ RIPRAP  
SEE DETAIL A

SPECIAL LATERAL 'V' DITCH  
STA. 13+50 TO 14+20 -L- RT  
LINE w/ RIPRAP  
SEE DETAIL B

SPECIAL LATERAL 'V' DITCH  
STA. 18+00 TO 19+00 -L- RT  
SEE DETAIL D



NOTES: SEE PLAN SHEET NO. 5 FOR -L- PROFILE  
DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED



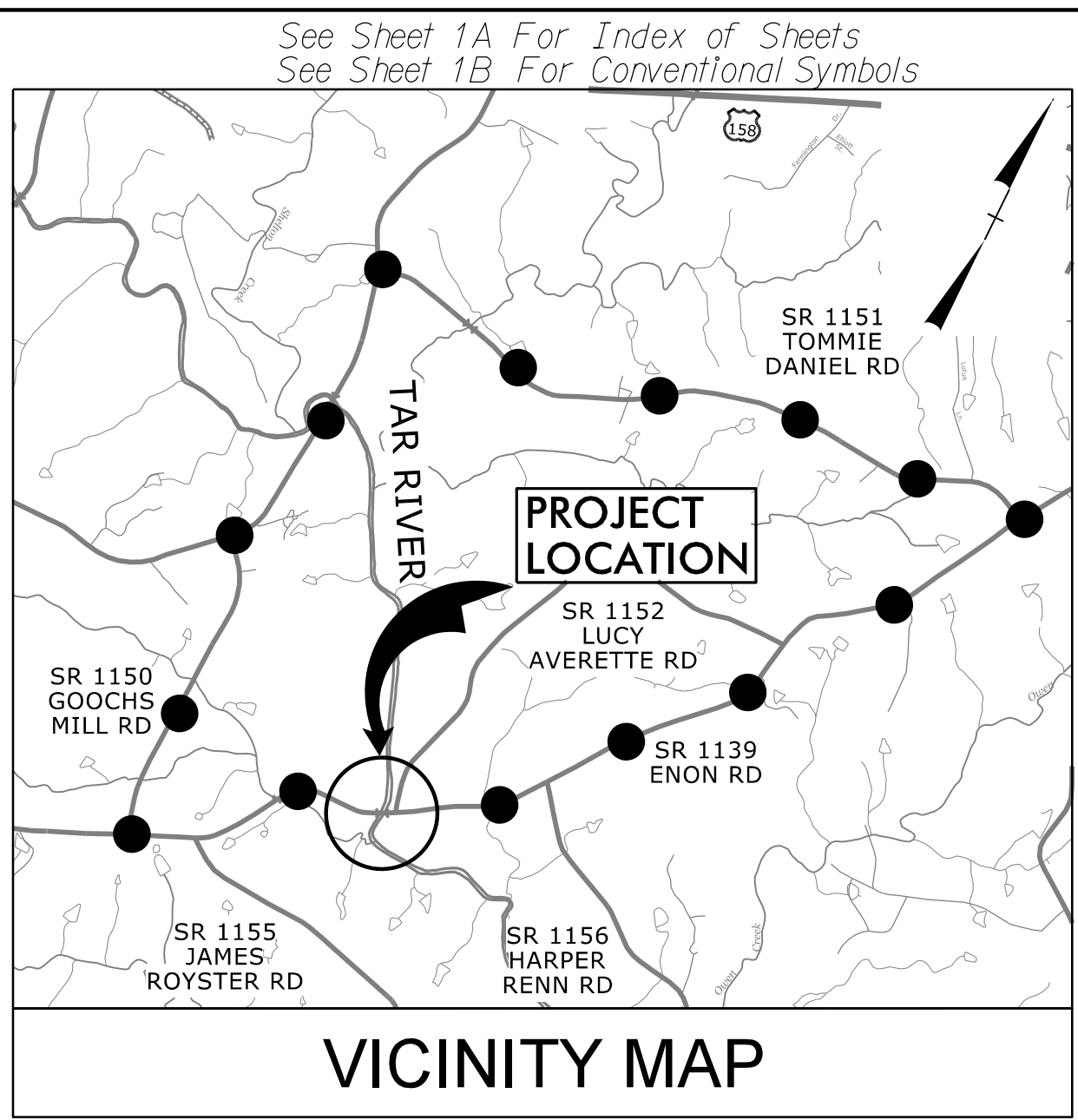
## RIPARAIN BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE			ZONE 1 (ft <sup>2</sup> )	ZONE 2 (ft <sup>2</sup> )
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft <sup>2</sup> )	ZONE 2 (ft <sup>2</sup> )	TOTAL (ft <sup>2</sup> )	ZONE 1 (ft <sup>2</sup> )	ZONE 2 (ft <sup>2</sup> )	TOTAL (ft <sup>2</sup> )		
Site 1	Road Fill and Clearing	14+52 to 14+93 -L- RT	X			336	752	1088					
		17+03 to 17+16 -L- RT					368	368					
		14+78 to 14+93 -L-LT					327	327					
		17+03 to 17+17 -L- LT					454	454					
	Bridge Fill and Clearing	14+93 to 15+26 -L- RT		X		915	915						
		16+51 to 17+03 -L- RT				1702	483	2185					
		14+93 to 15+61 -L- LT				1572	424	1996					
		16+54 to 17+03 -L- LT				1982	445	2427					
<b>TOTAL:</b>						6508	3252	9761	0	0	0	0	0

N.C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
  
 Granville  
 PROJECT: B-5320 (46034.1.1)  
  
 DATE 09/12/17  
 SHEET 4 OF 4

09.08/2017

**TIP PROJECT: B-5320**

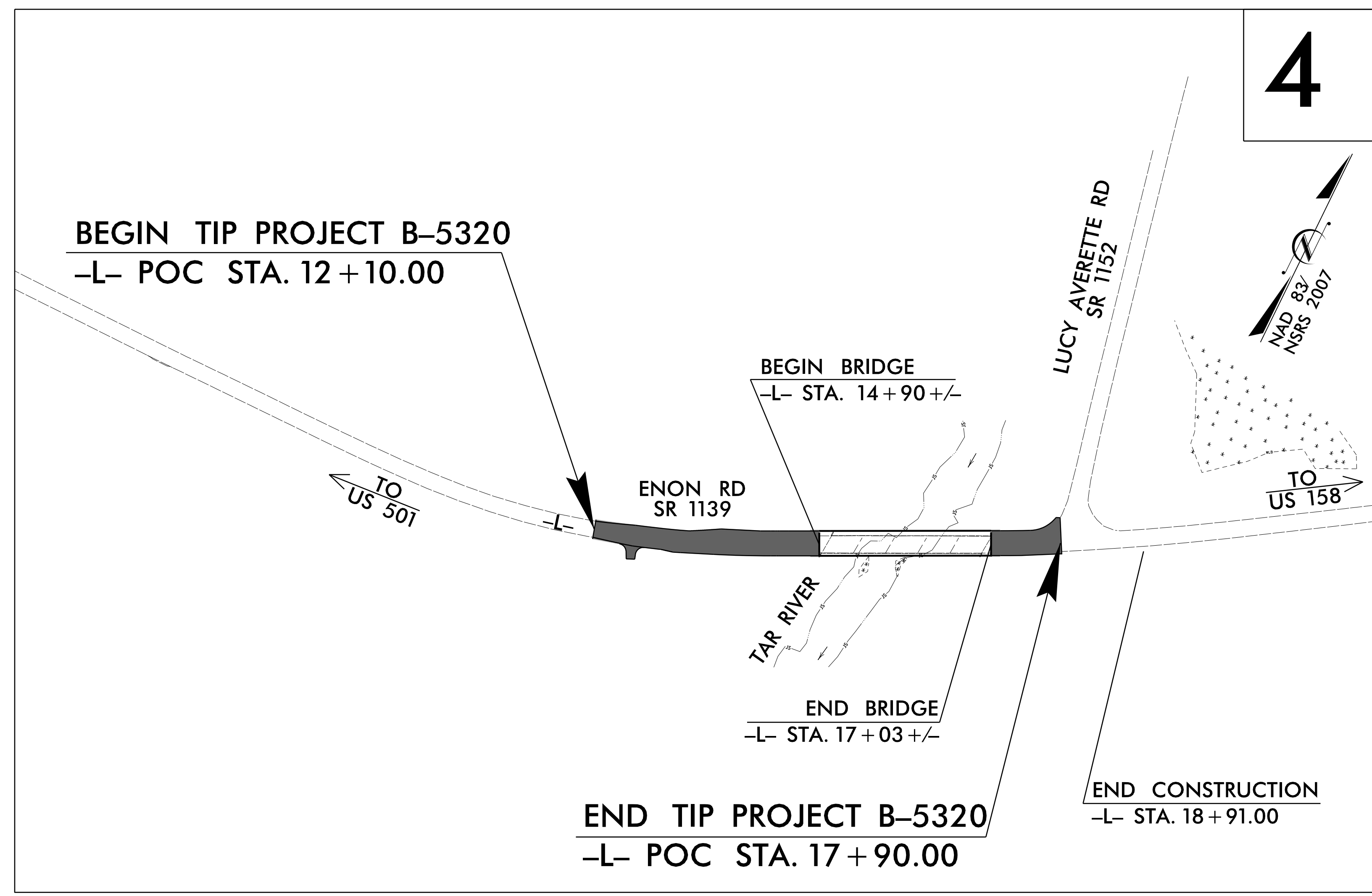


●—●—●—● DETOUR  
**25% APPROVED PLANS**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**GRANVILLE COUNTY**

**LOCATION: REPLACE BRIDGE NO. 96  
OVER TAR RIVER ON SR 1139 (ENON RD)**  
**TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND  
STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	<b>B-5320</b>	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46034.1.1	BRZ-1139(4)	PE	

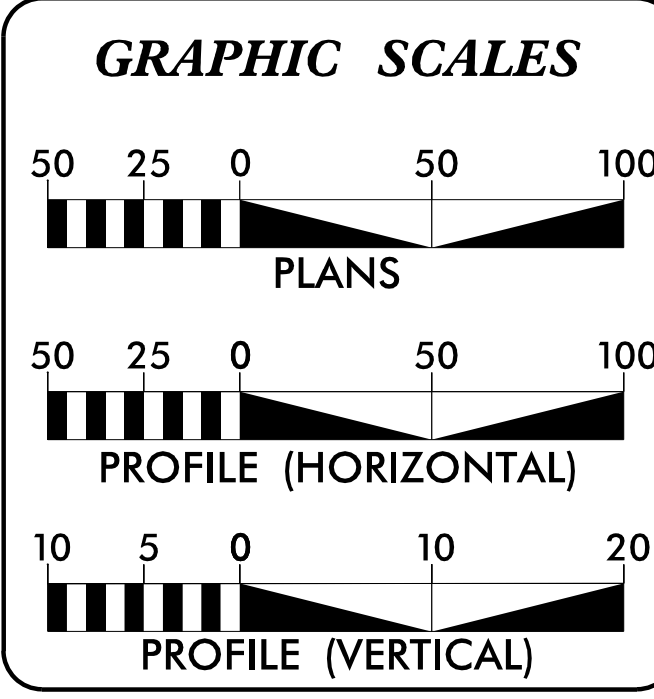


THIS PROJECT IS NOT WITHIN ANY MUNICIPAL LIMITS. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

NCDOT CONTACT: TATIA L. WHITE, PE, PLS  
ROADWAY DESIGN

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

**CONTRACT:**



**DESIGN DATA**

ADT 2018 =	1409
ADT 2038 =	2105
K =	9 %
D =	55 %
T =	8 % *
V =	60 MPH
* (TTST = 3% + DUAL = 5%)	
FUNC CLASS =	MINOR COLLECTOR SUBREGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT B-5320	=	0.070 MI
LENGTH STRUCTURE PROJECT B-5320	=	0.040 MI
TOTAL LENGTH PROJECT B-5320	=	0.110 MI

PREPARED IN THE OFFICE OF:

**WSP**  
PARSONS BRINCKERHOFF  
434 Fayetteville Street, Suite 1500 Raleigh, NC 27601  
Tel. (919) 836-4040 www.wsp-pb.com  
License No. F-0891

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
2012 STANDARD SPECIFICATIONS

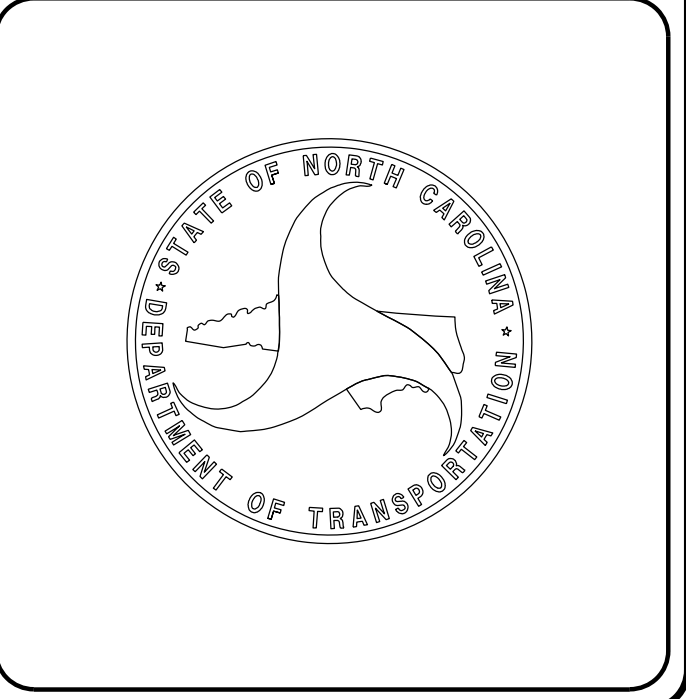
RIGHT OF WAY DATE:	DECEMBER 15, 2017	RONYELL A. THIGPEN, PE PROJECT ENGINEER
LETTING DATE:	DECEMBER 18, 2018	HOLLY CHRISTENBURY, PE PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.



4/25/2017 R:\Roadwg\Proj\B5320-Rdy-TSH.dgn USHC0407

# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

## CONVENTIONAL PLAN SHEET SYMBOLS

12/2/2016

### BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	①23
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	--- WLB ---
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	--- EAB ---
Existing Endangered Plant Boundary	--- EPB ---
Existing Historic Property Boundary	--- HPB ---
Known Contamination Area: Soil	☠-S-☠
Potential Contamination Area: Soil	☠-S-☠
Known Contamination Area: Water	☠-W-☠
Potential Contamination Area: Water	☠-W-☠
Contaminated Site: Known or Potential	---

### BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	---

### HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	--- JS ---
Buffer Zone 1	--- BZ 1 ---
Buffer Zone 2	--- BZ 2 ---
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	---
Proposed Lateral, Tail, Head Ditch	---
False Sump	---

### RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

### RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	---
Primary Horiz Control Point	---
Primary Horiz and Vert Control Point	---
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	---
Vertical Benchmark	△
Existing Right of Way Marker	---
Existing Right of Way Line	---
New Right of Way Line	---
New Right of Way Line with Pin and Cap	---
New Right of Way Line with Concrete or Granite R/W Marker	---
New Control of Access Line with Concrete C/A Marker	---
Existing Control of Access	---
New Control of Access	---
Existing Easement Line	---
New Temporary Construction Easement	---
New Temporary Drainage Easement	---
New Permanent Drainage Easement	---
New Permanent Drainage / Utility Easement	---
New Permanent Utility Easement	---
New Temporary Utility Easement	---
New Aerial Utility Easement	---

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	---
Proposed Slope Stakes Cut	--- C ---
Proposed Slope Stakes Fill	--- F ---
Proposed Curb Ramp	---
Existing Metal Guardrail	---
Proposed Guardrail	---
Existing Cable Guiderail	---
Proposed Cable Guiderail	---
Equality Symbol	⊕
Pavement Removal	---

### VEGETATION:

Single Tree	☼
Single Shrub	☼

*Note: Not to Scale*      \*S.U.E. = *Subsurface Utility Engineering*

Hedge	-----
Woods Line	-----
Orchard	☼ ☼ ☼ ☼
Vineyard	-----

### EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	---
Footbridge	---
Drainage Box: Catch Basin, DI or JB	CB
Paved Ditch Gutter	---
Storm Sewer Manhole	⊕
Storm Sewer	S

### UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	---
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	---
U/G Power Line LOS C (S.U.E.*)	---
U/G Power Line LOS D (S.U.E.*)	---

### TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	⊠
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	---
U/G Telephone Cable LOS B (S.U.E.*)	---
U/G Telephone Cable LOS C (S.U.E.*)	---
U/G Telephone Cable LOS D (S.U.E.*)	---
U/G Telephone Conduit LOS B (S.U.E.*)	---
U/G Telephone Conduit LOS C (S.U.E.*)	---
U/G Telephone Conduit LOS D (S.U.E.*)	---
U/G Fiber Optics Cable LOS B (S.U.E.*)	---
U/G Fiber Optics Cable LOS C (S.U.E.*)	---
U/G Fiber Optics Cable LOS D (S.U.E.*)	---

### WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	---
U/G Water Line LOS C (S.U.E.*)	---
U/G Water Line LOS D (S.U.E.*)	---
Above Ground Water Line	A/G Water

### TV:

TV Pedestal	⊠
TV Tower	⊗
U/G TV Cable Hand Hole	---
U/G TV Cable LOS B (S.U.E.*)	---
U/G TV Cable LOS C (S.U.E.*)	---
U/G TV Cable LOS D (S.U.E.*)	---
U/G Fiber Optic Cable LOS B (S.U.E.*)	---
U/G Fiber Optic Cable LOS C (S.U.E.*)	---
U/G Fiber Optic Cable LOS D (S.U.E.*)	---

### GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line LOS B (S.U.E.*)	---
U/G Gas Line LOS C (S.U.E.*)	---
U/G Gas Line LOS D (S.U.E.*)	---
Above Ground Gas Line	A/G Gas

### SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	SS
Above Ground Sanitary Sewer	A/G Sanitary Sewer
SS Forced Main Line LOS B (S.U.E.*)	---
SS Forced Main Line LOS C (S.U.E.*)	---
SS Forced Main Line LOS D (S.U.E.*)	---

### MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	---
U/G Tank; Water, Gas, Oil	---
Underground Storage Tank, Approx. Loc.	---
A/G Tank; Water, Gas, Oil	---
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	---
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

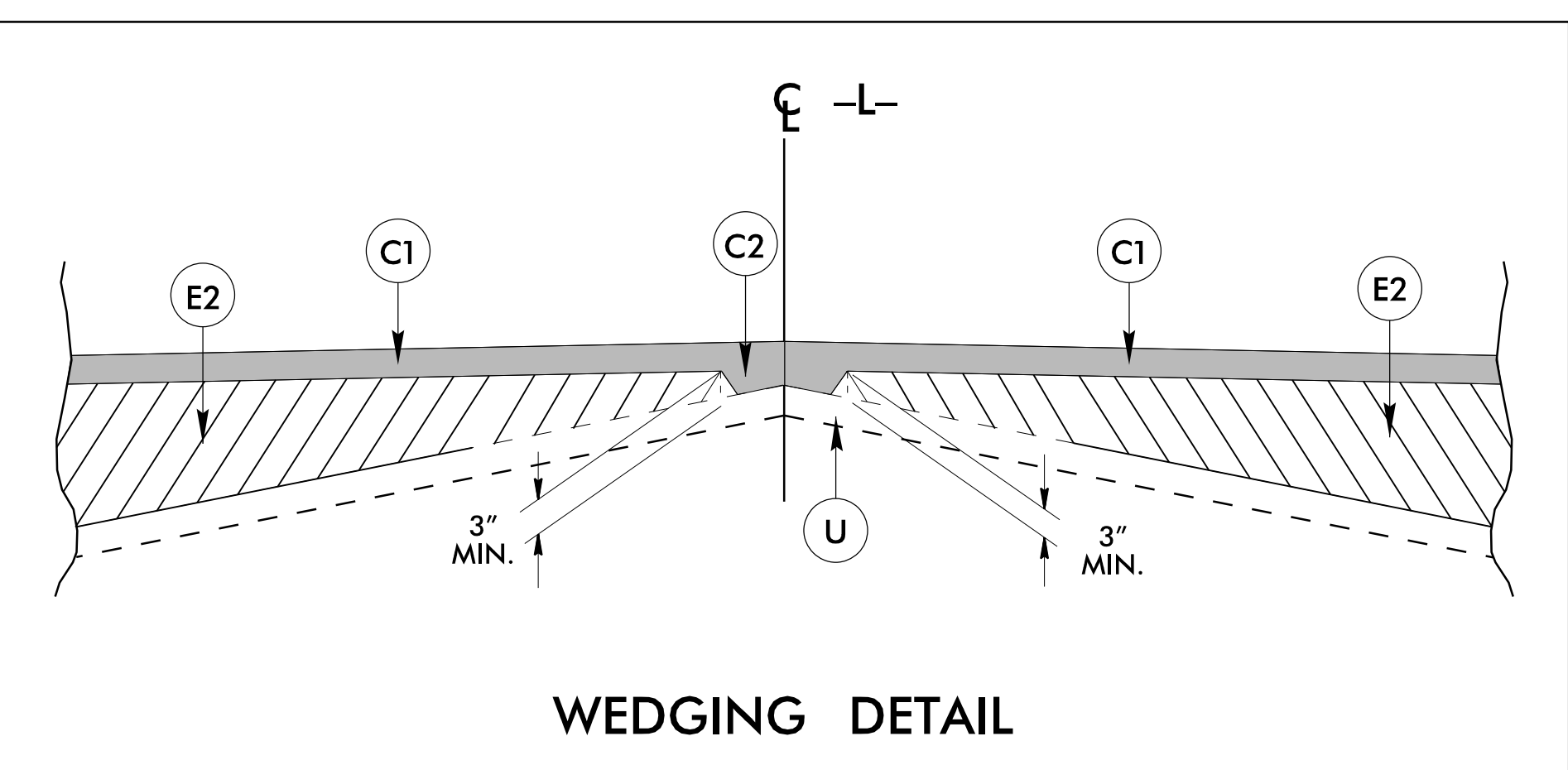
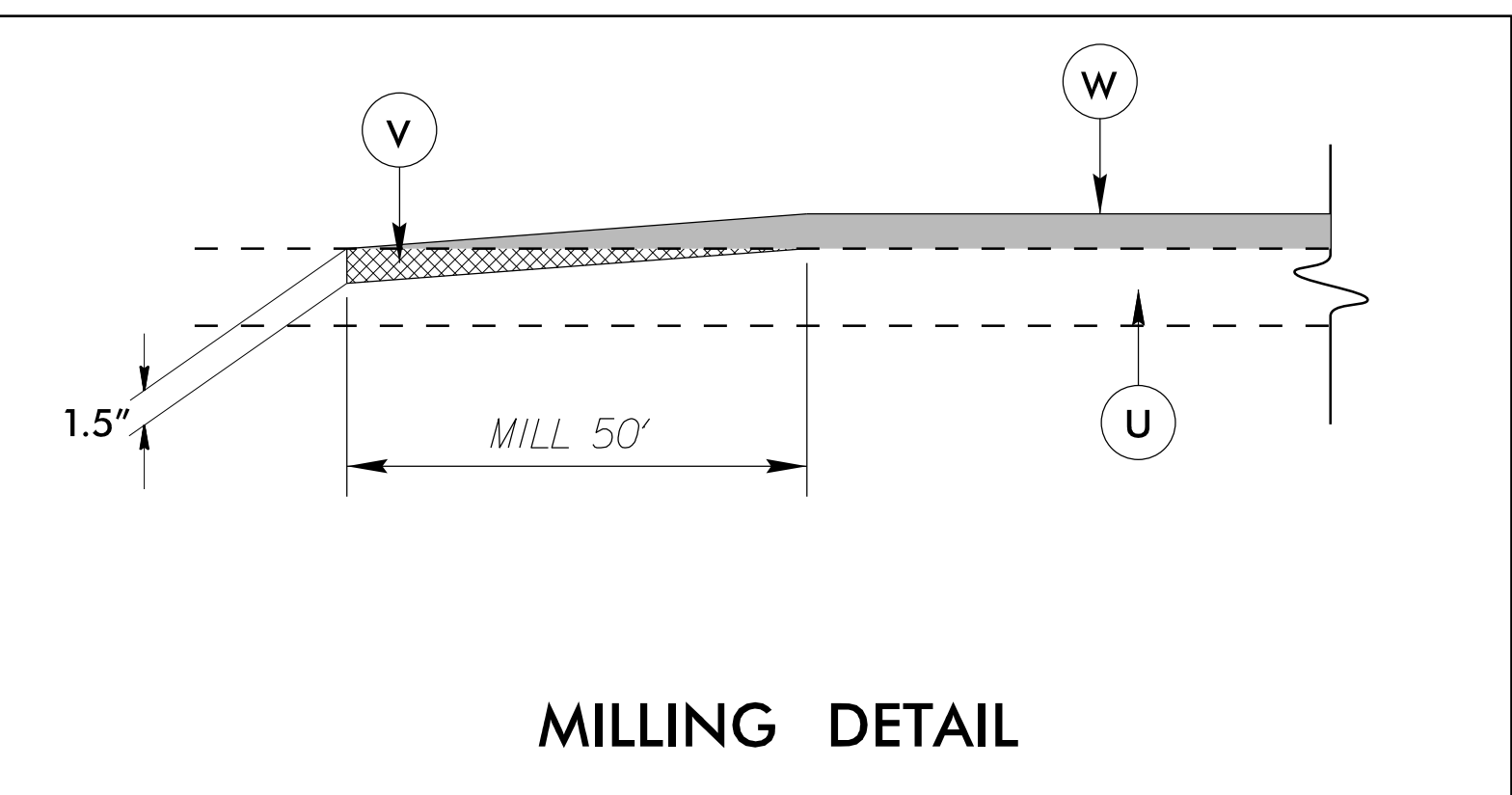


6/2/09

# FINAL PAVEMENT SCHEDULE

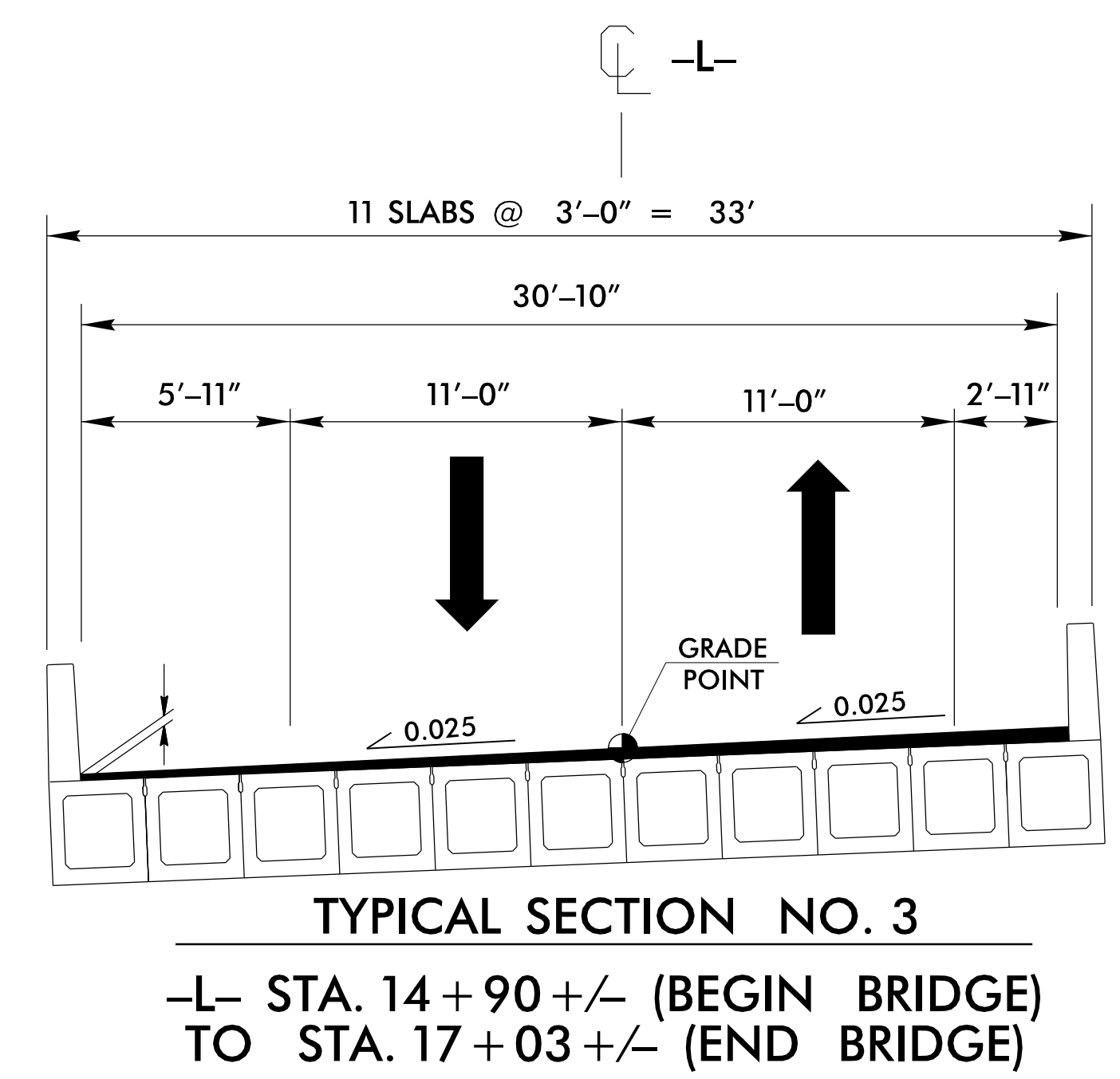
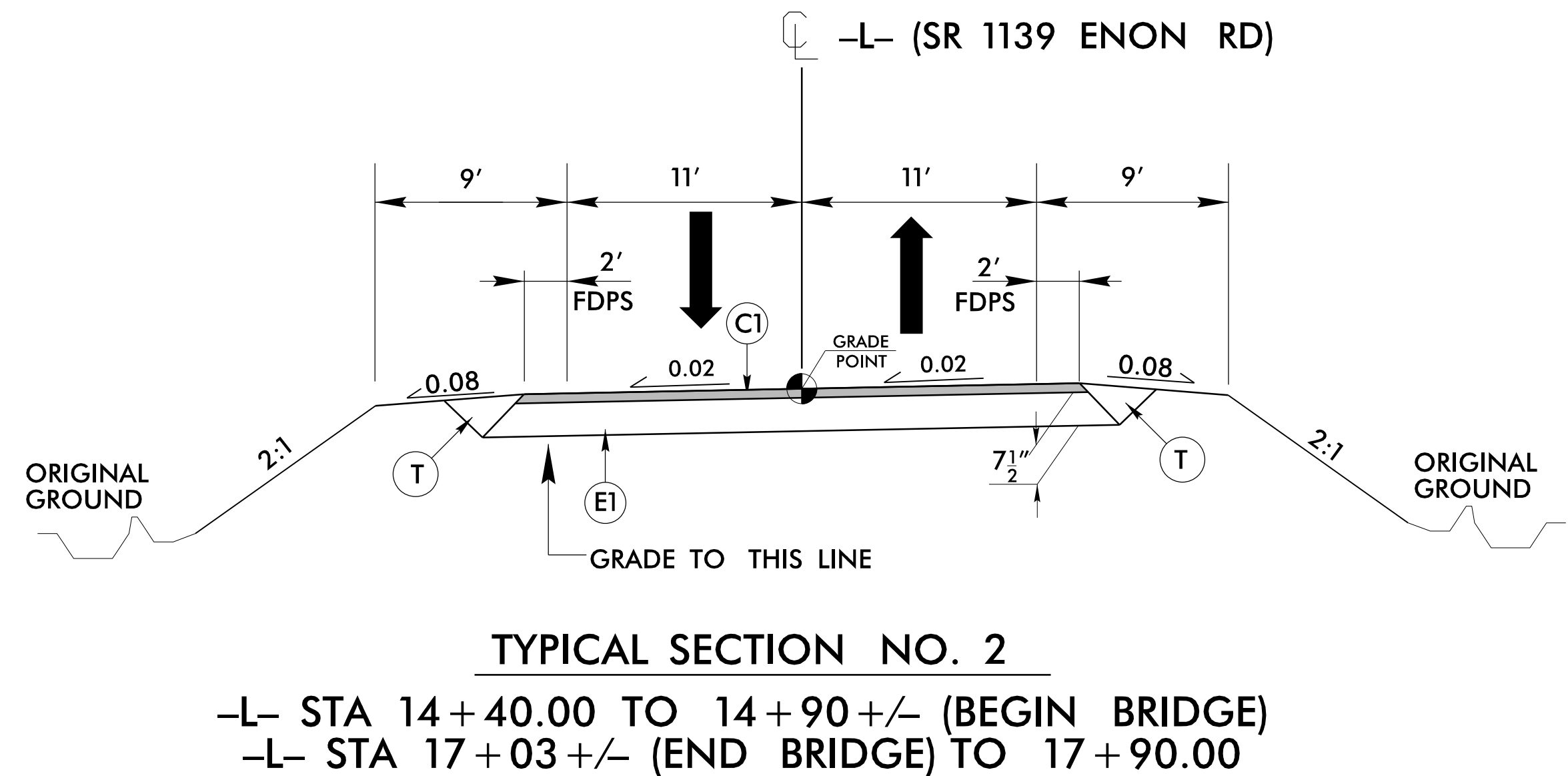
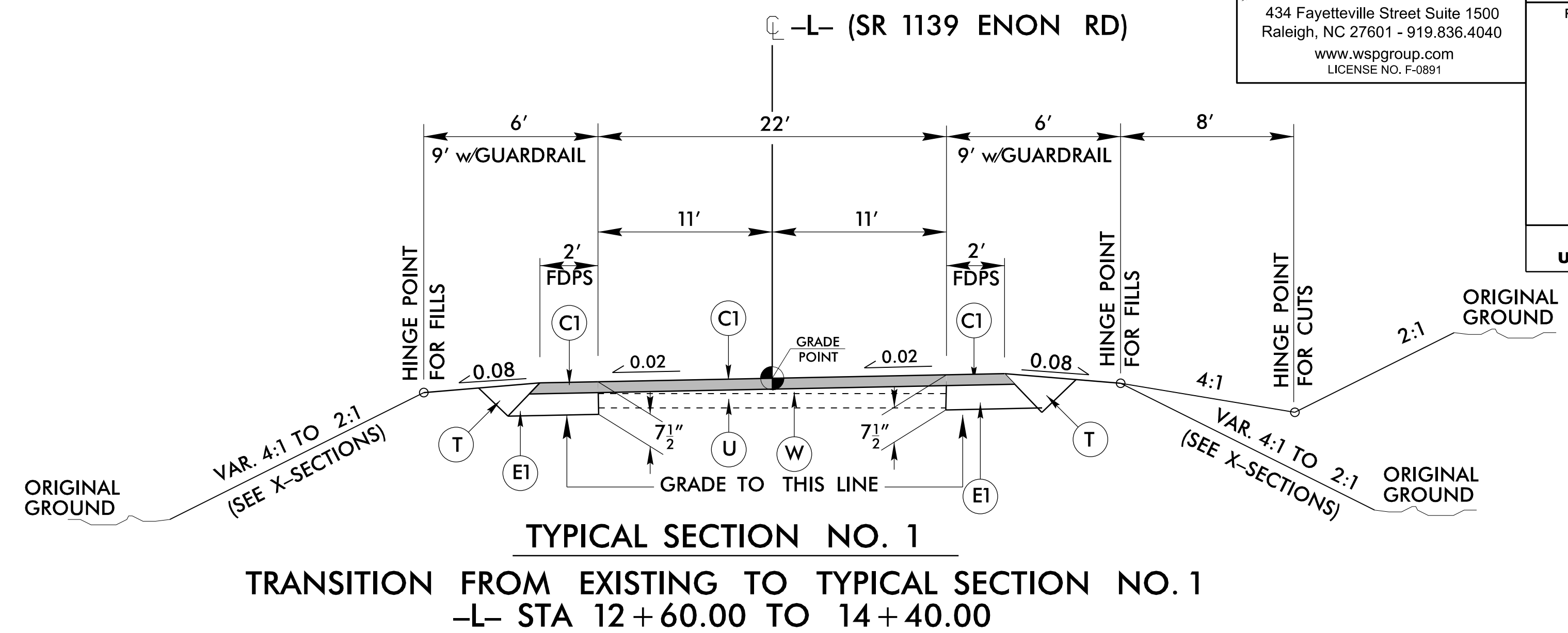
C1	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 275 LBS. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1.5" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING.
W	WEDGING (SEE DETAIL THIS SHEET).

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



**WSP | PARSONS BRINCKERHOFF**  
 434 Fayetteville Street Suite 1500  
 Raleigh, NC 27601 - 919.836.4040  
 www.wspgroup.com  
 LICENSE NO. F-0891

PROJECT REFERENCE NO. B-5320	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	



4/25/2017  
 R:\Projects\B5320\Proj\B5320\_1\Rel\TYP.dgn  
 15:40:24

12/06/07

COMPUTED BY: HEC	DATE: 4-24-2017
CHECKED BY:	DATE:

### STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-5320	3A

**WSP | PARSONS BRINCKERHOFF**  
 434 Fayetteville Street Suite 1500  
 Raleigh, NC 27601 - 919.836.4040  
 www.wspgroup.com  
 LICENSE NO. F-0891

#### SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
12 + 10.00	14 + 85.00	68	566	498	
17 + 05.00	17 + 90.00	52	120	68	
SUBTOTALS:		120	686	566	
EST. 5% TO REPLACE TOP SOIL BORROW				28	
PROJECT TOTALS:		120	686	594	
GRAND TOTALS:					
SAY:		120		600	

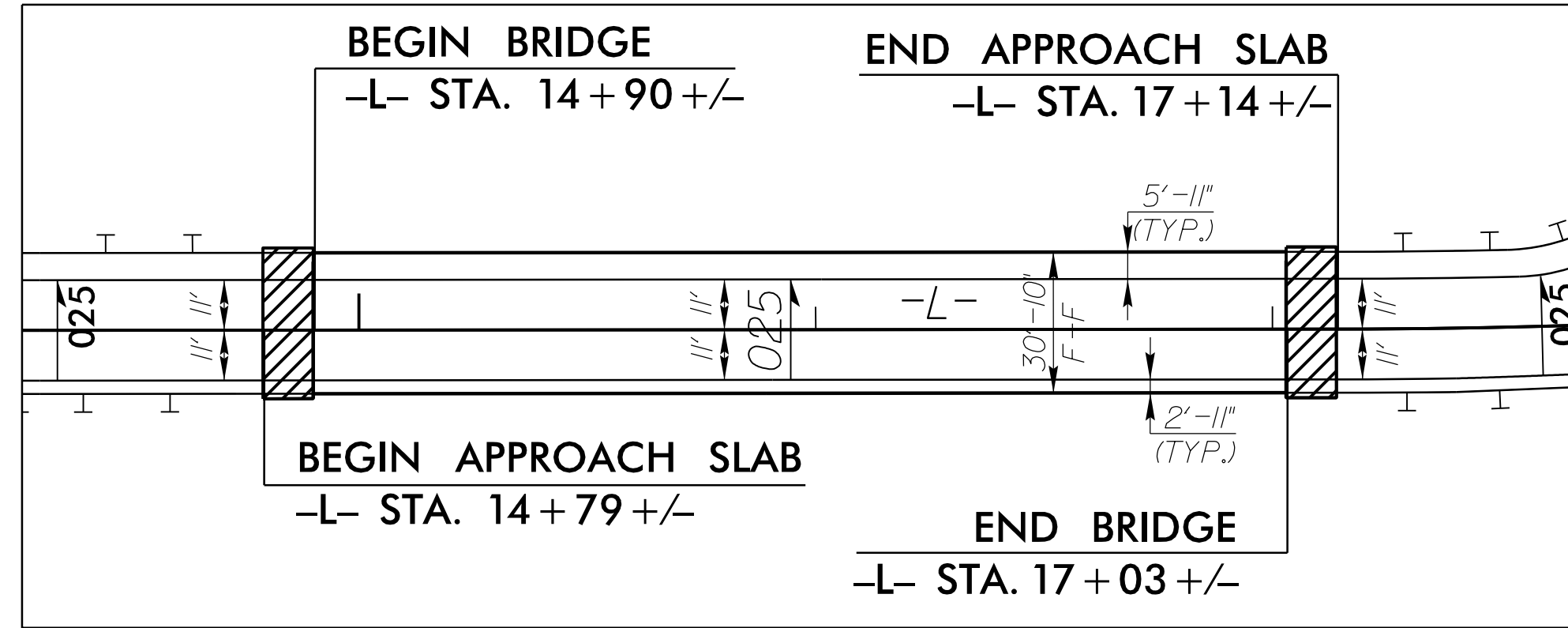
Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.  
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.  
 W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.  
 G = GATING IMPACT ATTENUATOR TYPE 350  
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

#### GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS										IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS						
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	EA	G	NG													
L	13 + 67.00	14 + 91.83	LT	124.83				14 + 91.83 BRIDGE	5'-11"	8'-11"		50'-0"		1'-0"																							
L	17 + 01.17	17 + 84.90	LT	50.70	37.04			17 + 01.17 BRIDGE	5'-11"	8'-11"																										ATTACH TO EXISTING GUARDRAIL	
L	13 + 10.00	14 + 91.83	RT	181.83				14 + 91.33 BRIDGE	2'-11"	5'-11"	50'-0"		1'-0"																								
L	17 + 01.17	18 + 91.00	RT	189.83				17 + 01.17 BRIDGE	2'-11"	5'-11"		50'-0"		1'-0"																							
SUBTOTAL				547.19'	37.04'																																
LESS DEDUCTIONS																																					
GRAU-350 (3 x 50) =				150'																																	
AT-1 (1 x 6.25) =																																					
TYPE III (4 x 18.75) =				75'																																	
SUBTOTAL				225'																																	
TOTALS				322.19'	37.04'																																
SAY				325'	37.5'			ADDITIONAL GUARDRAIL POSTS =	5																												

4/25/2017 10:54:00 AM C:\Users\p1052001\My Documents\Projects\B5320\Relay\_3A.dgn



NOTE: NOT TO SCALE

-L- CURVE DATA

PI Sta	Δ	D	L	T	R	BACK	DS	SE	RO
11+07.01	13° 08' 24.1" (LT)	6' 10" 00.7"	213.08'	107.01'	929.09'	N86°53'18.02"	50 MPH	0.04	88'
13+21.87	9° 47' 32.6" (LT)	4' 30' 41.3"	217.06'	108.79'	1,270.00'				
17+51.69	2° 26' 34.0" (LT)	3' 16' 26.6"	74.61'	37.31'	1,750.00'				
18+96.03	3° 52' 02.7" (LT)	1' 48' 26.3"	213.99'	107.03'	3,170.24'				

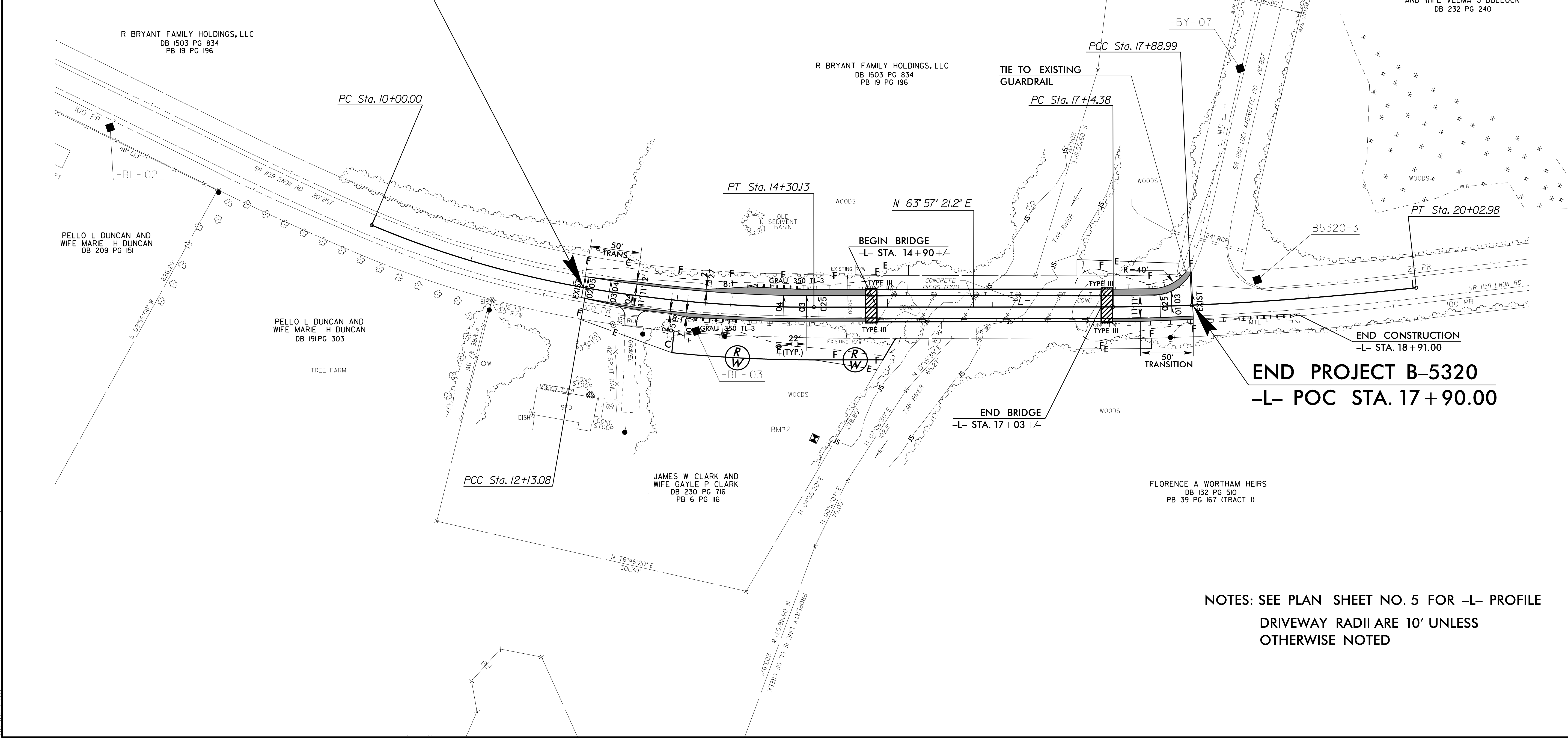
SE = EXISTING  
AHEAD = N57°38'44.54"

**BEGIN PROJECT B-5320**  
-L- POC STA. 12+10.00

**END PROJECT B-5320**  
-L- POC STA. 17+90.00

8/17/99  
4/25/2017  
R:\Roadway\Proj\B5320\_Raj\_PSH4.dgn  
USC02407

REVISIONS



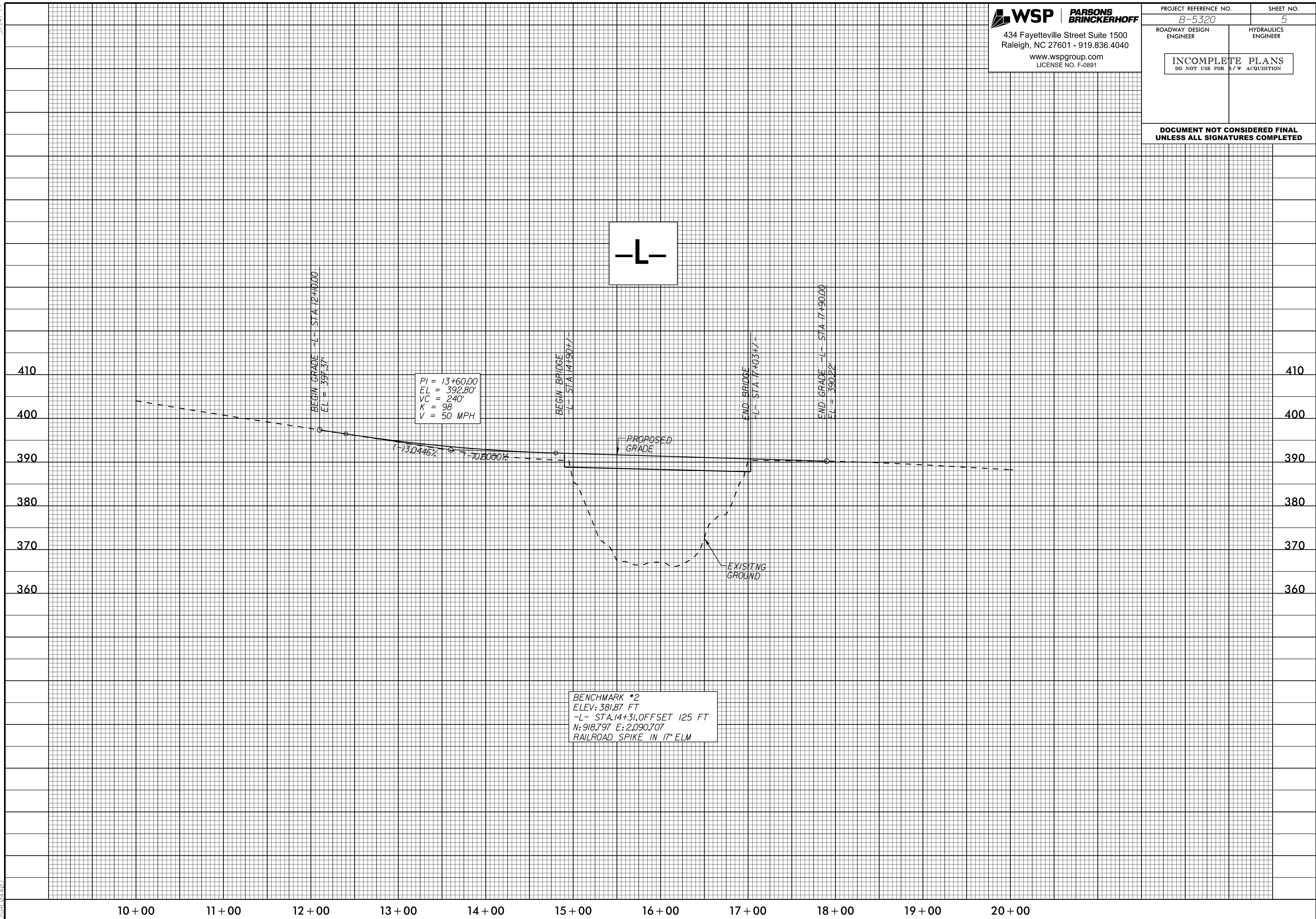
NOTES: SEE PLAN SHEET NO. 5 FOR -L- PROFILE  
 DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

5/14/99

**WSP** | **PARSONS BRINCKERHOFF**  
 434 Fayetteville Street Suite 1500  
 Raleigh, NC 27601 - 919.836.4040  
 www.wspgroup.com  
 LICENSE NO. F-0891

PROJECT REFERENCE NO. B-5320	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**



PI = 13+60.00  
 EL = 392.80'  
 VC = 240'  
 K = 98  
 V = 50 MPH

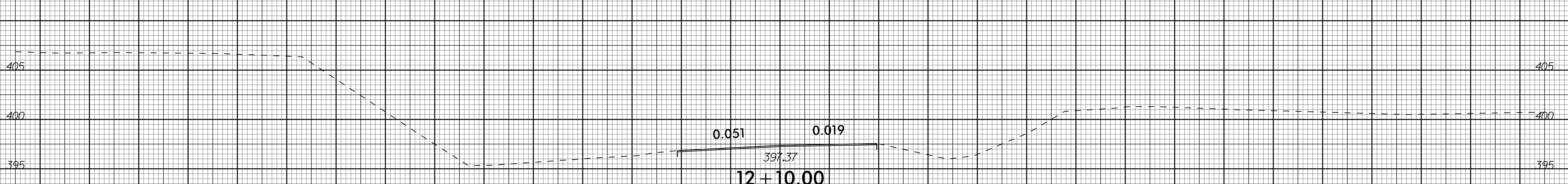
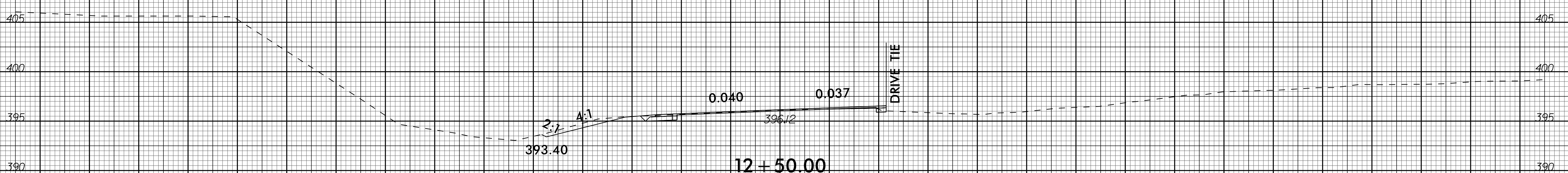
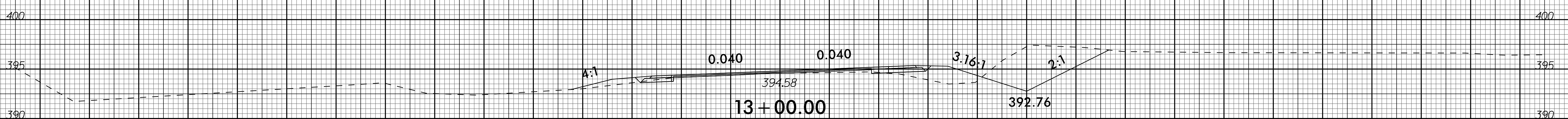
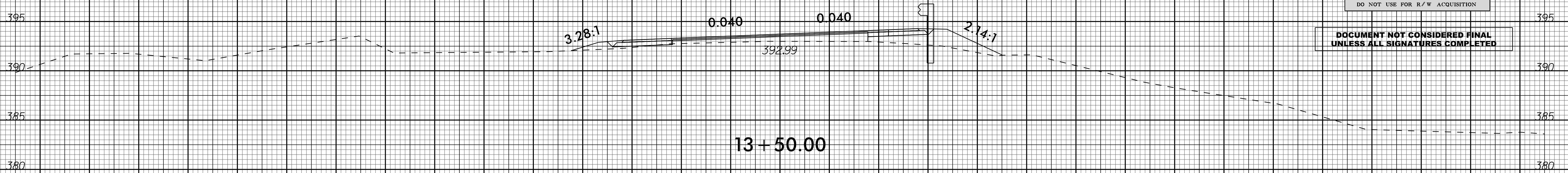
BENCHMARK \*2  
 ELEV: 381.87 FT  
 -L- STA.14+31.00 OFFSET 125 FT  
 N: 918.797 E: 2.090.707  
 RAILROAD SPIKE IN 17" ELM

4/25/2017  
 C:\Users\pcoj\Documents\Projects\B5320\_Rdy\_PSH5.dgn  
 15:40:24

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

INCOMPLETE PLANS  
DO NOT USE FOR R/W ACQUISITION

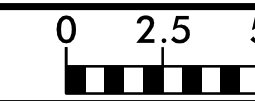
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



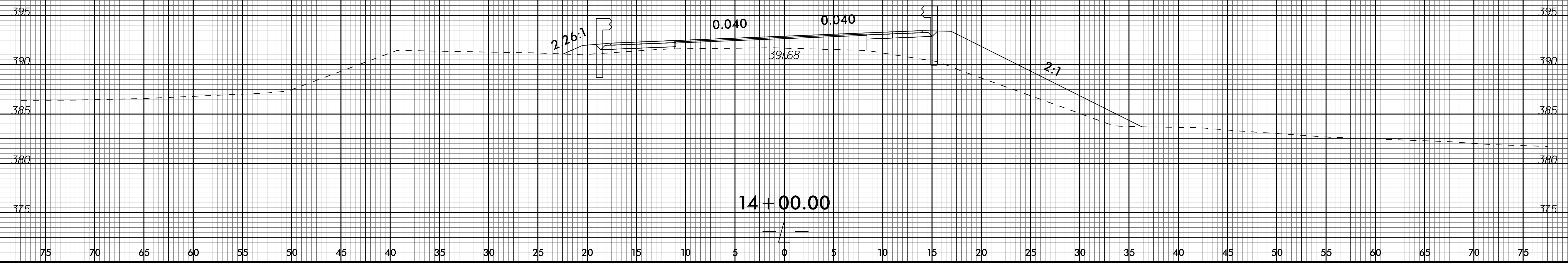
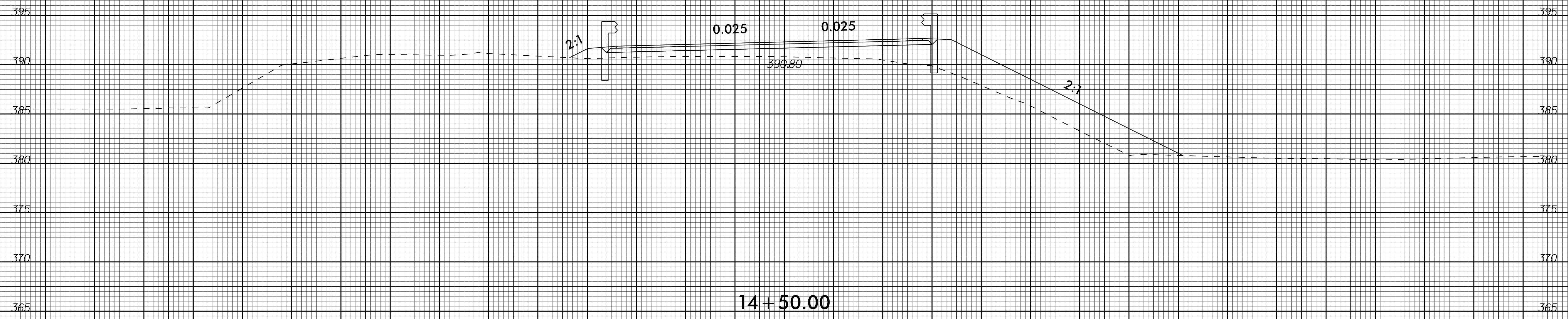
BEGIN TIP PROJECT B-5320 -L- 12+10.00

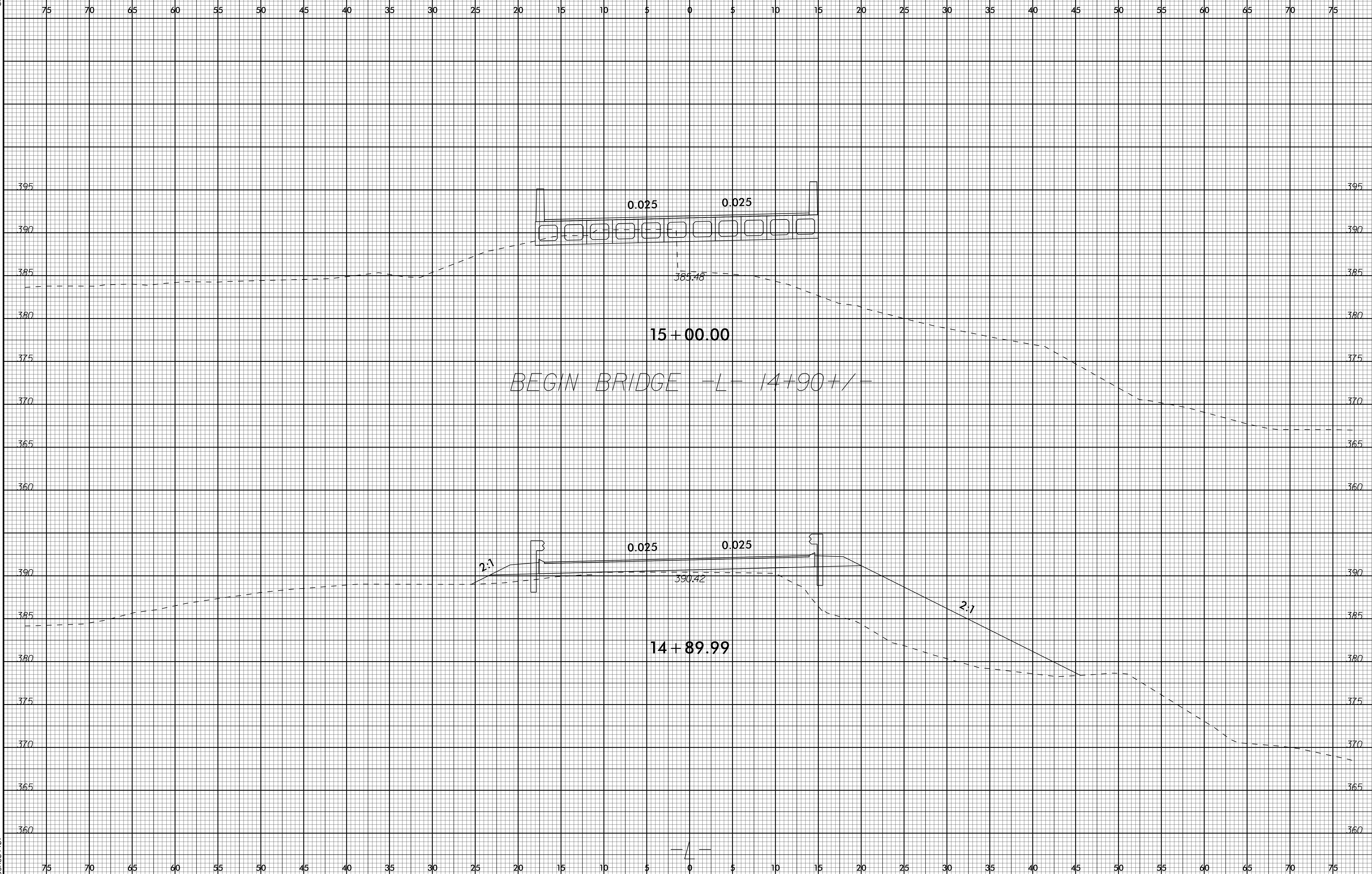
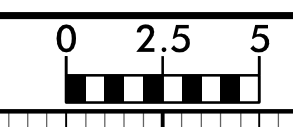
-4-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



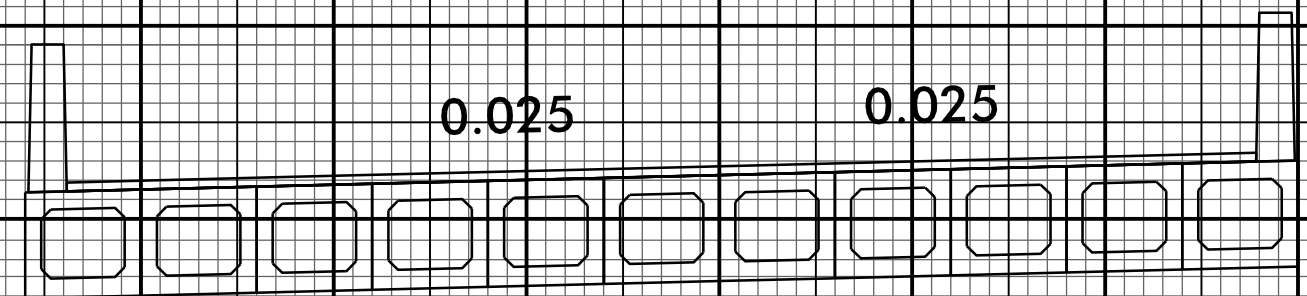
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75





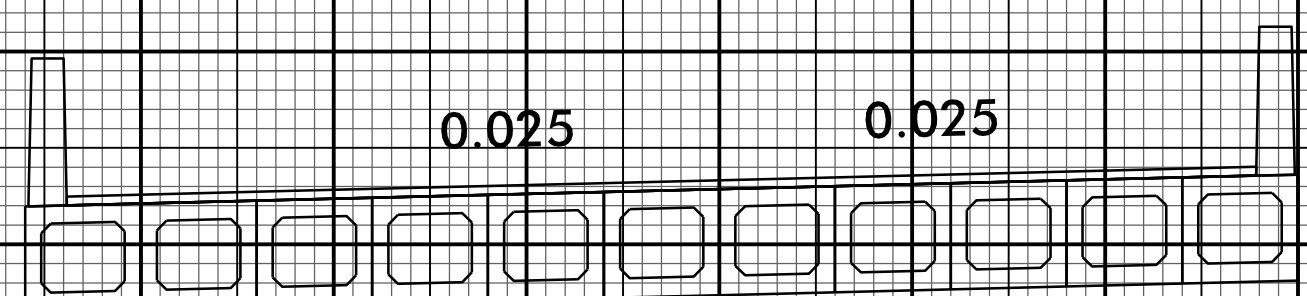


75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



0.025 0.025

367.04  
16 + 00.00



0.025 0.025

367.73  
15 + 50.00

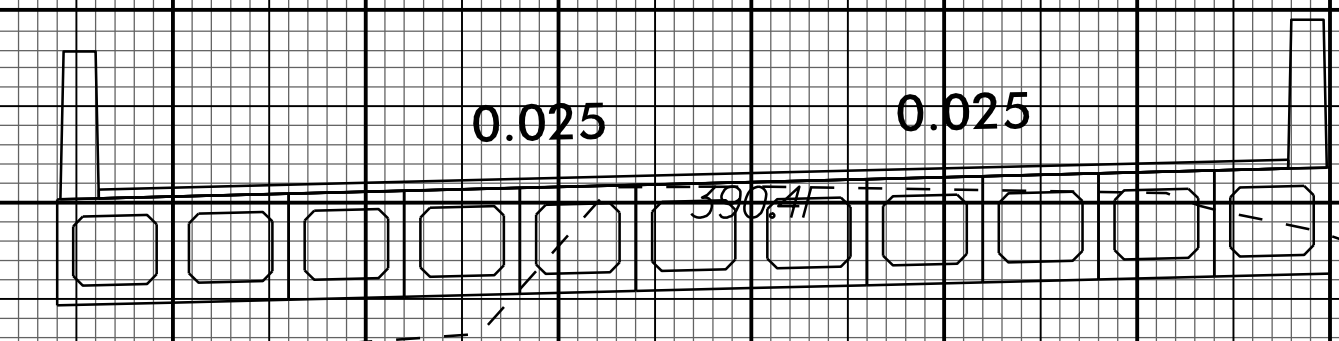
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75





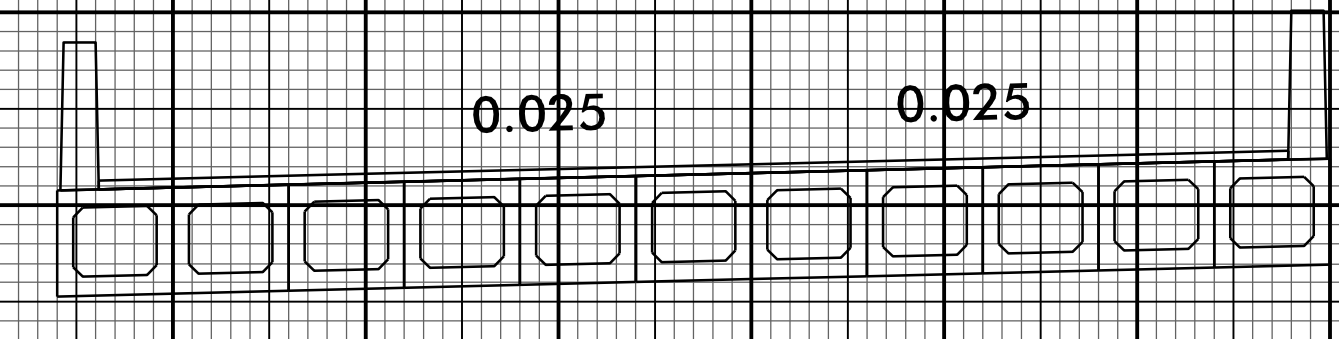
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

END BRIDGE -L- 17+03+/-



0.025 0.025

17+00.00



0.025 0.025

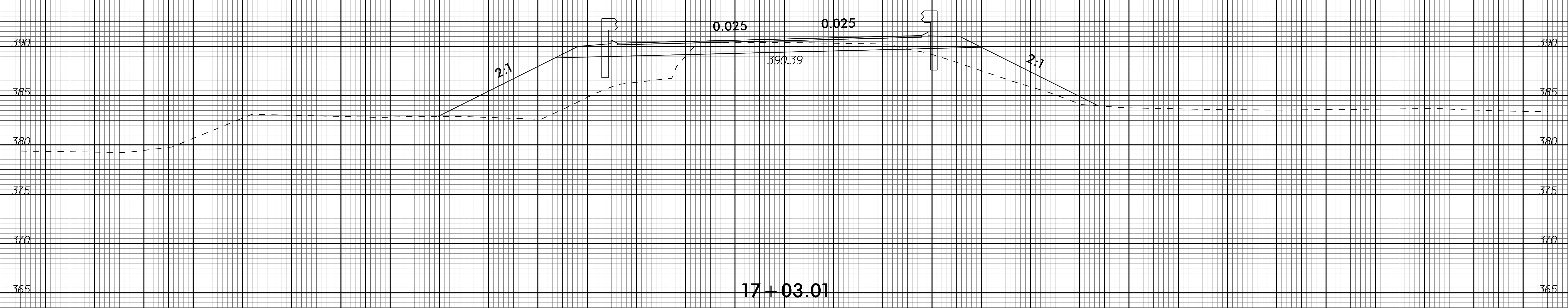
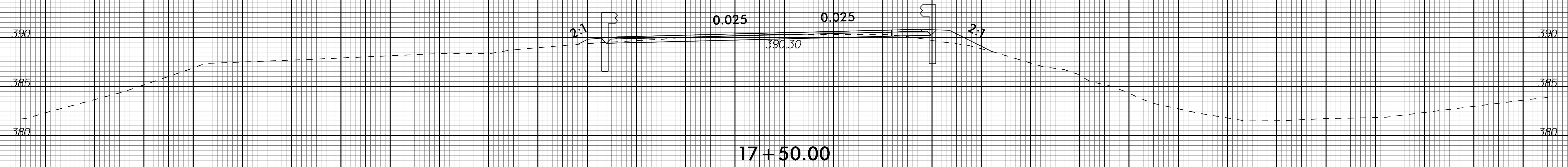
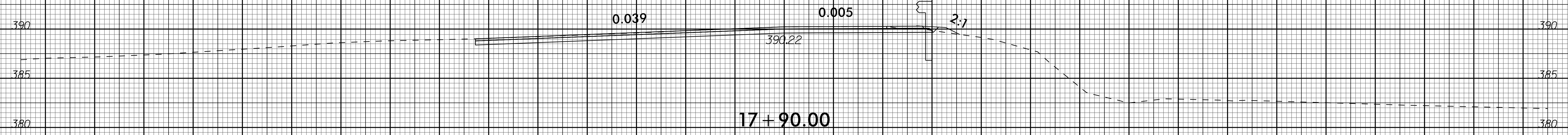
16+50.00

372.65

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

END CONSTRUCTION -L- 18+91.00  
END TIP PROJECT B-5320 -L- 17+90.00



75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75