



PAT McCRORY  
Governor

NICHOLAS J. TENNYSON  
Secretary

November 10, 2015

N.C. Department of Environmental Quality  
Winston Salem Regional Office  
450 West Hanes Mill Road, Suite 300  
Winston Salem, NC 27105

ATTN: Mr. David Wanucha  
NCDOT Division 7 Project Coordinator

SUBJECT: **Application for Jordan Lake Watershed Riparian Buffer Authorization** for the replacement of Bridge No. 208 over an Unnamed Tributary of Little Alamance Creek on SR 3051 (Knox Road), Guilford County, North Carolina. Federal Aid Project No. BRZ-3051 (1), TIP No. B-4961.

Debit \$240.00 from WBS Element No. 40152.1.1

Please find enclosed the Pre-Construction Notification, North Carolina Division of Mitigation Services Mitigation Acceptance Letter, Stormwater Management Plan, buffer permit drawings, utility buffer permit drawings, and roadway plans for the subject project. A Programmatic Categorical Exclusion (PCE) was completed for this project in March 2015.

The proposed let date for this project is June 21, 2016, with a let review date of May 3, 2016. However, the let date may advance as additional funds become available.

A copy of this permit application will be posted on the NCDOT Website at <https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>, under *Quick Links > Permit Applications*. A copy of the PCE is also available at the above website address under *Quick Links > Environmental Documents*. Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jim Mason at either [jmason@ncdot.gov](mailto:jmason@ncdot.gov) or (919) 707-6136.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Hancock', written over a horizontal line.

for Richard W. Hancock, P.E., Manager  
Project Development and Environmental Analysis Unit

cc: NCDOT Permit Application Standard Distribution List





Office Use Only:  
 Corps action ID no. \_\_\_\_\_  
 DWQ project no. \_\_\_\_\_  
 Form Version 1.4 January 2009

## Pre-Construction Notification (PCN) Form

### A. Applicant Information

#### 1. Processing

1a. Type(s) of approval sought from the Corps:	<input type="checkbox"/> Section 404 Permit	<input type="checkbox"/> Section 10 Permit
1b. Specify Nationwide Permit (NWP) number:	or General Permit (GP) number:	
1c. Has the NWP or GP number been verified by the Corps?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
1d. Type(s) of approval sought from the DWQ (check all that apply):		
<input type="checkbox"/> 401 Water Quality Certification – Regular <span style="margin-left: 150px;"><input type="checkbox"/> Non-404 Jurisdictional General Permit</span> <input type="checkbox"/> 401 Water Quality Certification – Express <span style="margin-left: 150px;"><input checked="" type="checkbox"/> Riparian Buffer Authorization</span>		
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	For the record only for Corps Permit: <input type="checkbox"/> Yes <input type="checkbox"/> No
1f. 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.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

#### 2. Project Information

2a. Name of project:	Replacement of Bridge No. 208 over an Unnamed Tributary of Little Alamance Creek on SR 3051 (Knox Road)
2b. County:	Guilford
2c. Nearest municipality / town:	Sedalia
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no.:	B-4961

#### 3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	<i>not applicable</i>
3c. Responsible Party (for LLC if applicable):	<i>not applicable</i>
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6136
3g. Fax no.:	(919) 212-5785
3h. Email address:	jsmason@ncdot.gov

<b>4. Applicant Information (if different from owner)</b>	
4a. Applicant is:	<input type="checkbox"/> Agent <input type="checkbox"/> Other, specify:
4b. Name:	<i>not applicable</i>
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
<b>5. Agent/Consultant Information (if applicable)</b>	
5a. Name:	<i>not applicable</i>
5b. Business name (if applicable):	
5c. Street address:	
5d. City, state, zip:	
5e. Telephone no.:	
5f. Fax no.:	
5g. Email address:	

<b>B. Project Information and Prior Project History</b>	
<b>1. Property Identification</b>	
1a. Property identification no. (tax PIN or parcel ID):	<i>not applicable</i>
1b. Site coordinates (in decimal degrees):	Latitude: 36.0658 (DD.DDDDDD) Longitude: - 79.6447 (-DD.DDDDDD)
1c. Property size:	1.5 acres
<b>2. Surface Waters</b>	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Little Alamance Creek
2b. Water Quality Classification of nearest receiving water:	WS-IV NSW
2c. River basin:	Cape Fear
<b>3. Project Description</b>	
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application:  SR 3051 (Knox Rd) is classified as a Minor Collector in the Statewide Functional Classification System and is not a National Highway System Route. Land use within the vicinity includes Forested Land, Agriculture, Commercial, and Residential.	
3b. List the total estimated acreage of all existing wetlands on the property:  0.0 acres	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property:  117 linear feet	
3d. Explain the purpose of the proposed project:  To replace a functionally obsolete bridge.	
3e. Describe the overall project in detail, including the type of equipment to be used:  The project consists of replacing the existing three-span, 67-foot long bridge with a 100-foot long single-span bridge on the existing alignment. Traffic will be maintained via off-site detour. Standard road building equipment, such as trucks, dozers, and cranes will be used.	
<b>4. Jurisdictional Determinations</b>	
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments: Site visit 3/9/10 with USACE and DWR.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	<input type="checkbox"/> Preliminary <input type="checkbox"/> Final
4c. If yes, who delineated the jurisdictional areas? Name (if known): Principal Investigator:Phil May	Agency/Consultant Company: Carolina Ecosystems, Inc. Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. DWR determination received 3/10/10; No USACE JD received.	
<b>5. Project History</b>	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
5b. If yes, explain in detail according to "help file" instructions.	
<b>6. Future Project Plans</b>	
6a. Is this a phased project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6b. If yes, explain.	

<b>C. Proposed Impacts Inventory</b>						
<b>1. Impacts Summary</b>						
1a. Which sections were completed below for your project (check all that apply):						
<input type="checkbox"/> Wetlands		<input type="checkbox"/> Streams - tributaries		<input checked="" type="checkbox"/> Buffers		
<input type="checkbox"/> Open Waters		<input type="checkbox"/> Pond Construction				
<b>2. Wetland Impacts</b>						
If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.						
2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction	2f. Area of impact (acres)	
Site <input type="checkbox"/> P <input type="checkbox"/> T		Choose One	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site <input type="checkbox"/> P <input type="checkbox"/> T		Choose One	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site <input type="checkbox"/> P <input type="checkbox"/> T		Choose One	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site <input type="checkbox"/> P <input type="checkbox"/> T		Choose One	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site <input type="checkbox"/> P <input type="checkbox"/> T		Choose One	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site <input type="checkbox"/> P <input type="checkbox"/> T		Choose One	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
<b>2g. Total wetland impacts</b>					0 ac Permanent 0 ac Temporary	
2h. Comments:						
<b>3. Stream Impacts</b>						
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. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
<b>3h. Total stream and tributary impacts</b>					0 Permanent 0 Temporary	

3i. Comments:

**4. Open Water Impacts**

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 <input type="checkbox"/> P <input type="checkbox"/> T				
O2 <input type="checkbox"/> P <input type="checkbox"/> T				
O3 <input type="checkbox"/> P <input type="checkbox"/> T				
O4 <input type="checkbox"/> P <input type="checkbox"/> T				
<b>4f. Total open water impacts</b>				0 Permanent 0 Temporary

4g. Comments:

**5. Pond or Lake Construction**

If pond or lake construction proposed, then complete the chart below.

5a. Pond ID number	5b. Proposed use or purpose of pond	5c. Wetland Impacts (acres)			5d. Stream Impacts (feet)			5e. Upland (acres)
		Flooded	Filled	Excavated	Flooded	Filled	Excavated	Flooded
P1								
P2								
<b>5f. Total</b>								

5g. Comments:

5h. Is a dam high hazard permit required?	<input type="checkbox"/> Yes <input type="checkbox"/> No      If yes, permit ID no:
5i. Expected pond surface area (acres):	
5j. Size of pond watershed (acres):	
5k. Method of construction:	

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

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

6a. Project is in which protected basin?		<input type="checkbox"/> Neuse <input type="checkbox"/> Catawba		<input type="checkbox"/> Tar-Pamlico <input type="checkbox"/> Randleman	<input checked="" type="checkbox"/> Other: Jordan Lake Watershed
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Bridge	UT of Little Alamance Creek (Stream SC)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4,656	839
Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Road Crossing	UT of Little Alamance Creek (Stream SC)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	251	1,723
Site 2 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Road Crossing	UTs of Little Alamance Creek (Streams SA/lower portion SB)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	896	1,050
Utility Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Overhead Utility Line, Impacts Other than Perpendicular Crossings	Pond PA	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,266	0
Utility Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Overhead Utility Line, Impacts Other than Perpendicular Crossings	Pond PA	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	0	1,280
<b>6h. Total buffer impacts</b>				7,069	4,892

6i. Comments: In addition to the utility buffer impacts listed above, which occur on Parcels 4 and 5, Duke Energy and their contractor(s) will also be performing work within the DUEs on Parcels 2 and 4, with some work occurring within the riparian buffer of Stream SC. However, this work within the DUEs/buffer and any potential buffer impact related to it is already covered within the Bridge and Road Crossing buffer impacts listed for Site 1 above. All utility work includes tree clearing and the construction of new poles and conductors required to relocate the overhead utility lines.

<b>D. Impact Justification and Mitigation</b>		
<b>1. Avoidance and Minimization</b>		
1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project. The proposed bridge is 33 feet longer than the existing bridge; An off-site detour will be employed; Spread calculations indicate deck drains will not be required for the proposed bridge. Instead, runoff from the proposed bridge will collect via shoulder berm gutter into a storm drain system and flow along an existing rip-rap channel before reaching the waterbody. The proposed design eliminates surface water impacts by removing the need for the existing interior bents and the existing deck drains, which currently sends runoff from the bridge directly to the waterbody and riparian buffers; Roadway improvements are designed to minimize water quality impacts by promoting sheet flow and infiltration along grassed shoulders; Special Cut Ditches will be installed at -L- STA. 14+75 to STA. 16+48 LT and -Y- STA. 11+25 to STA. 11+66 LT.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. NCDOT Best Management Practices for Construction and Maintenance Activities and Best Management Practices for the Protection of Surface Waters will be employed.		
<b>2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State</b>		
2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: Mitigation is only required for riparian buffer impacts. No surface water or wetland impacts are anticipated.	
2b. If yes, mitigation is required by (check all that apply):	<input type="checkbox"/> DWQ <input type="checkbox"/> Corps	
2c. If yes, which mitigation option will be used for this project?	<input type="checkbox"/> Mitigation bank <input type="checkbox"/> Payment to in-lieu fee program <input type="checkbox"/> Permittee Responsible Mitigation	
<b>3. Complete if Using a Mitigation Bank</b>		
3a. Name of Mitigation Bank: not applicable		
3b. Credits Purchased (attach receipt and letter)	Type	Quantity
3c. Comments:		
<b>4. Complete if Making a Payment to In-lieu Fee Program</b>		
4a. Approval letter from in-lieu fee program is attached.	<input checked="" type="checkbox"/> Yes	
4b. Stream mitigation requested:	0 linear feet	
4c. If using stream mitigation, stream temperature:	<input type="checkbox"/> warm <input type="checkbox"/> cool <input type="checkbox"/> cold	
4d. Buffer mitigation requested (DWQ only):	3,798 (1,266 square ft. Zone 1 x 3:1 ratio) square feet	
4e. Riparian wetland mitigation requested:	0 acres	
4f. Non-riparian wetland mitigation requested:	0 acres	
4g. Coastal (tidal) wetland mitigation requested:	0 acres	
4h. Comments: Mitigation for Jordan Lake Watershed Riparian Buffer impacts will be provided by the N.C. Division of Mitigation Services (DMS).		
<b>5. Complete if Using a Permittee Responsible Mitigation Plan</b>		
5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.		



**6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ**

6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?

Yes       No

6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.

Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1	Overhead Utility Line, Impacts Other than Perpendicular Crossings	1,266	3 (2 for Catawba)	3,798
Zone 2	---	---	1.5	0
<b>6f. Total buffer mitigation required:</b>				<b>3,798</b>


6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).

Mitigation for Jordan Lake Watershed Riparian Buffer impacts will be provided via payment to an in-lieu fee program (DMS).

6h. Comments:

<b>E. Stormwater Management and Diffuse Flow Plan (required by DWQ)</b>	
<b>1. Diffuse Flow Plan</b>	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments: See attached buffer permit drawings.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>2. Stormwater Management Plan</b>	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	<input type="checkbox"/> Certified Local Government <input type="checkbox"/> DWQ Stormwater Program <input checked="" type="checkbox"/> DWQ 401 Unit
<b>3. Certified Local Government Stormwater Review</b>	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Phase II <input type="checkbox"/> NSW <input type="checkbox"/> USMP <input type="checkbox"/> Water Supply Watershed <input type="checkbox"/> Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>4. DWQ Stormwater Program Review</b>	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Coastal counties <input type="checkbox"/> HQW <input type="checkbox"/> ORW <input type="checkbox"/> Session Law 2006-246 <input type="checkbox"/> Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No N/A
<b>5. DWQ 401 Unit Stormwater Review</b>	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No N/A
5b. Have all of the 401 Unit submittal requirements been met?	<input type="checkbox"/> Yes <input type="checkbox"/> No N/A

<b>F. Supplementary Information</b>	
<b>1. Environmental Documentation (DWQ Requirement)</b>	
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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.)  Comments:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>2. Violations (DWQ Requirement)</b>	
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2b. Is this an after-the-fact permit application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):	
<b>3. Cumulative Impacts (DWQ Requirement)</b>	
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. 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.	
<b>4. Sewage Disposal (DWQ Requirement)</b>	
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.  not applicable	

<b>5. Endangered Species and Designated Critical Habitat (Corps Requirement)</b>		
5a. Will this project occur in or near an area with federally protected species or habitat?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
5c. If yes, indicate the USFWS Field Office you have contacted.	<input type="checkbox"/> Raleigh <input type="checkbox"/> Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? NC Natural Heritage Program data, USFWS website, NCDOT field surveys (last on May 30, 2014).		
<b>6. Essential Fish Habitat (Corps Requirement)</b>		
6a. Will this project occur in or near an area designated as essential fish habitat?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
<b>7. Historic or Prehistoric Cultural Resources (Corps Requirement)</b>		
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)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
<b>8. Flood Zone Designation (Corps Requirement)</b>		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> 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		
for Richard W. Hancock, P.E. Applicant/Agent's Printed Name	 Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	11-10-2015 Date



PAT MCCRORY  
Governor

DONALD R. VAN DER VAART  
Secretary

October 29, 2015

Mr. Richard W. Hancock, P.E.  
Project Development and Environmental Analysis Unit  
North Carolina Department of Transportation  
1548 Mail Service Center  
Raleigh, North Carolina 27699-1548

Dear Mr. Hancock:

Subject: Mitigation Acceptance Letter:

**TIP B-4961**, Replace Bridge 208 over UT to Little Alamance Creek on SR 3051 (Knox Road), Guilford County

The purpose of this letter is to notify you that the NC Department of Environmental Quality – Division of Mitigation Services (NCDEQ DMS) will provide the buffer mitigation for the subject project. All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund. The NCDOT will be responsible to ensure that appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWR’s Buffer Authorization Certification, NCDEQ DMS will transfer funds from the NCDOT 2984 Fund into the Riparian Restoration Buffer Fund. Upon completion of transfer payment, NCDOT will have completed its riparian buffer mitigation responsibility for this project. Subsequently, DMS will conduct a review of current NCDOT ILF Program mitigation projects in the river basin to determine if available buffer mitigation credits exist. If there are buffer mitigation credits available, then the Riparian Restoration Buffer Fund will purchase the appropriate amount of buffer mitigation credits from NCDOT ILF Program. Based on information received from you on October 28, 2015, the buffer impacts for this project are:

Buffer	River Basin	CU	Eco-Region	Buffer Impacts		
				Zone 1	Zone 2	TOTAL
Impacts	Cape Fear	03030002 (Haw)	CP	1,266.0	0.0	1,266.0

NCDEQ DMS commits to implementing sufficient buffer mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the N.C. Department of Environment and Natural Resources’ In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from NCDEQ DMS.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-707-8420.

Sincerely,

James B. Stanfill  
Credit Management Supervisor

Cc: Mr. David Bailey, USACE – Raleigh Regulatory Field Office  
Ms. Amy Chapman, NC Division of Water Resources  
File: TIP B-4961





North Carolina Department of Transportation

Highway Stormwater Program  
STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS



(Version 2.01; Released December 2014)

WBS Element: 40152.1.1      TIP No.: B-4961      County(ies): Guilford      Page 1 of 2

General Project Information

WBS Element:	40152.1.1	TIP Number:	B-4961	Project Type:	Bridge Replacement	Date:	10/1/2015
NCDOT Contact:	Linda Johns		Contractor / Designer:	Binod Yadav			
Address:	1590 Mail Service Center Raleigh, NC 27699-1590		Address:	1590 Mail Service Center Raleigh, NC 27699-1590			
	Phone:	(919) 707-6728		Phone:	(919) 707-6758		
	Email:	lmjohns@ncdot.gov		Email:	bkyadav@ncdot.gov		
City/Town:	N/A		County(ies):	Guilford			
River Basin(s):	Cape Fear		CAMA County?	No			
Wetlands within Project Limits?	No						

Project Description

Project Length (lin. miles or feet):	0.085 miles	Surrounding Land Use:	Primarily forested land, agriculture, and a few residences (NRTR)					
	Proposed Project			Existing Site				
Project Built-Upon Area (ac.)	0.4	ac.	0.2	ac.				
Typical Cross Section Description:	The typical section along the -L- alignment consists of eleven-foot lanes, four-foot paved shoulders, and two-foot grassed shoulders; along the -Y- alignment, the typical section consists of nine-foot lanes and three-foot grassed shoulders.			The typical section along the -L- alignment consists of eleven-foot lanes and three-foot grassed shoulders; SR 3052 along the -Y- alignment is a fifteen-foot wide gravel road.				
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	3,600	Year:	2035	Existing:	2,080	Year:	2016
General Project Narrative: (Description of Minimization of Water Quality Impacts)	<p>This project proposes to replace bridge 208 over an unnamed tributary to Little Alamance Creek and install associated roadway grade and intersection improvements along SR 3051, Knox Road, and SR 3052, Forbes Tate Road, in Guilford County. The existing structure is a 67-foot triple-span bridge (1@18'-3", 1@30'-0", 1@18'-3") constructed in 1950; the proposed replacement structure is a 100-foot single-span bridge at the existing location.</p> <p>Spread calculations indicate deck drains will not be required for the proposed bridge; instead, runoff from the proposed bridge will collect via shoulder berm gutter into a storm drain system and flow along an existing rip-rap channel before reaching the waterbody. The proposed design eliminates surface water impacts by removing the need for the existing interior bents and the existing deck drains which currently sends runoff from the bridge directly to the waterbody and riparian buffers. Roadway improvements are designed to minimize water quality impacts by promoting sheet flow and infiltration along grassed shoulders.</p> <p>The cumulative total area of allowable buffer impacts equals approximately 0.13 acres within zone one and 0.08 acres within zone two. According to the NRTR, only the portion of stream SB that is downstream of the confluence with stream SA is subject to the Jordan Lake riparian buffer rules; the upstream portion of stream SB is an old emergency spillway for the pond. No surface water impacts are anticipated.</p>							

Waterbody Information

Surface Water Body (1):	UT Little Alamance Creek		NCDWR Stream Index No.:	16-19-3-(0.5)			
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						
Threatened/Endangered Species?	No		Comments:				
NRTR Stream ID:	SA		Buffer Rules in Effect:	Jordan Lake			
Project Includes Bridge Spanning Water Body?	No		Deck Drains Discharge Over Buffer?	N/A		Dissipator Pads Provided in Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A		(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 2.01; Released December 2014)

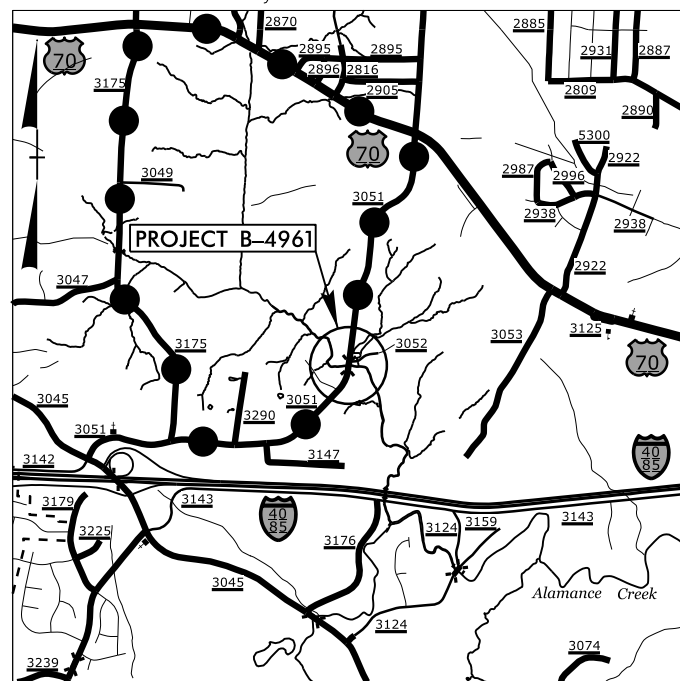
**WBS Element:** 40152.1.1      **TIP No.:** B-4961      **County(ies):** Guilford      **Page** 2 **of** 2

**Additional Waterbody Information**

<b>Surface Water Body (2):</b>	UT Little Alamance Creek		<b>NCDWR Stream Index No.:</b>	16-19-3-(0.5)	
<b>NCDWR Surface Water Classification for Water Body</b>	<b>Primary Classification:</b>		Water Supply IV (WS-IV)		
	<b>Supplemental Classification:</b>		Nutrient Sensitive Waters (NSW)		
<b>Other Stream Classification:</b>	None				
<b>Impairments:</b>	None				
<b>Threatened/Endangered Species?</b>	No	Comments:			
<b>NRTR Stream ID:</b>	SB		<b>Buffer Rules in Effect:</b>	Jordan Lake	
<b>Project Includes Bridge Spanning Water Body?</b>	No	<b>Deck Drains Discharge Over Buffer?</b>	N/A	<b>Dissipator Pads Provided in Buffer?</b>	N/A
<b>Deck Drains Discharge Over Water Body?</b>	N/A	(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)				
<b>Surface Water Body (3):</b>	UT Little Alamance Creek		<b>NCDWR Stream Index No.:</b>	16-19-3-(0.5)	
<b>NCDWR Surface Water Classification for Water Body</b>	<b>Primary Classification:</b>		Water Supply IV (WS-IV)		
	<b>Supplemental Classification:</b>		Nutrient Sensitive Waters (NSW)		
<b>Other Stream Classification:</b>	None				
<b>Impairments:</b>	None				
<b>Threatened/Endangered Species?</b>	No	Comments:			
<b>NRTR Stream ID:</b>	SC		<b>Buffer Rules in Effect:</b>	Jordan Lake	
<b>Project Includes Bridge Spanning Water Body?</b>	Yes	<b>Deck Drains Discharge Over Buffer?</b>	No	<b>Dissipator Pads Provided in Buffer?</b>	Yes
<b>Deck Drains Discharge Over Water Body?</b>	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)				

09/28/15

See Sheet 1A For Index of Sheets  
See Sheet 1B For Conventional Plan Sheet Symbols  
See Sheet 1C-1 For Survey Control Sheet



**VICINITY MAP**

● ● ● OFFSITE DETOUR

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**BUFFER DRAWING  
SHEET 1 OF 7**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4961	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40152.1.1	BRZ-3051(I)	PE	

**GUILFORD COUNTY**

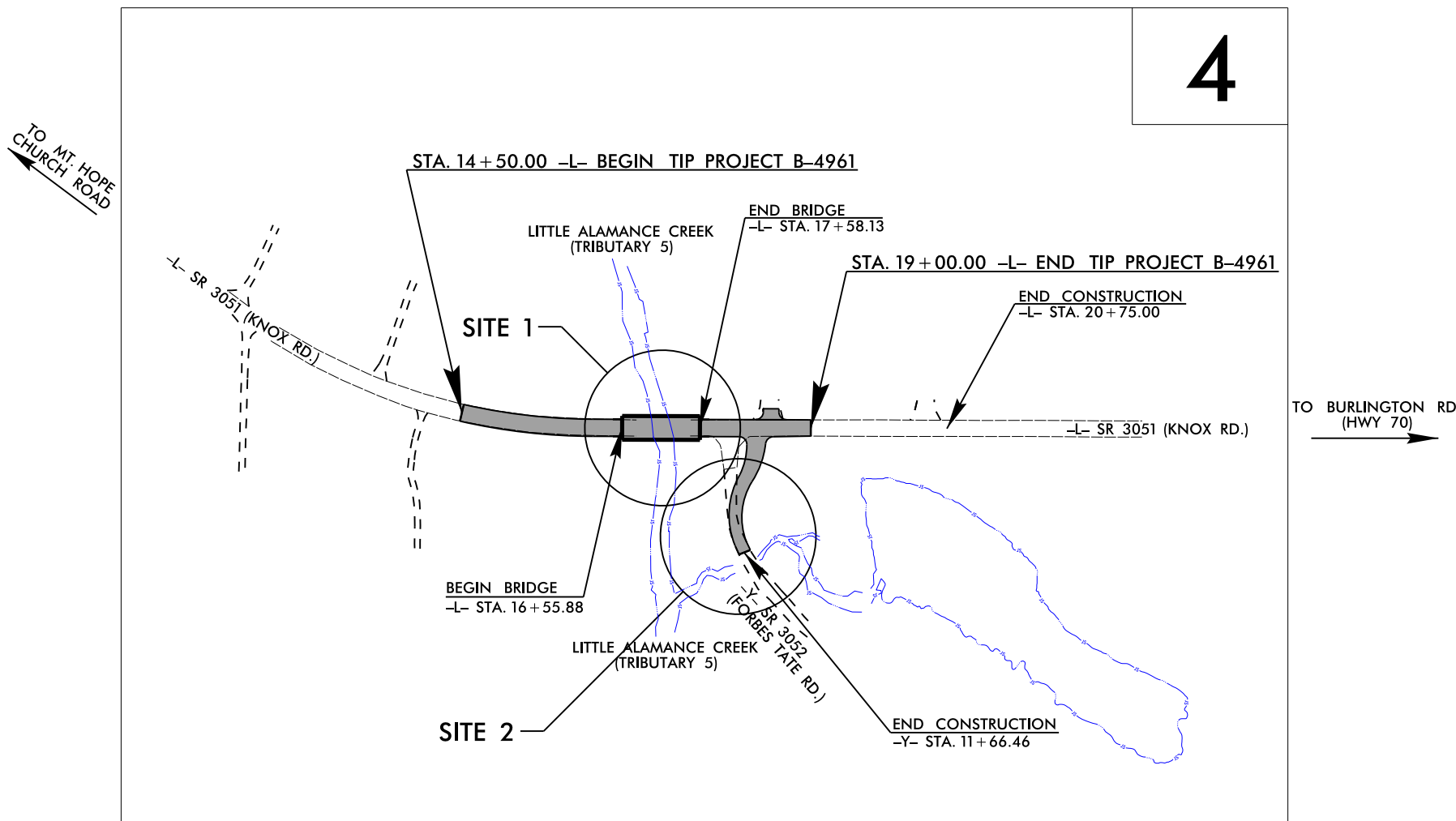
**LOCATION: BRIDGE NO. 208 ON SR 3051 (KNOX ROAD)  
OVER LITTLE ALAMANCE CREEK (TRIBUTARY 5)**

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

**BUFFER IMPACTS PERMIT**



**4**

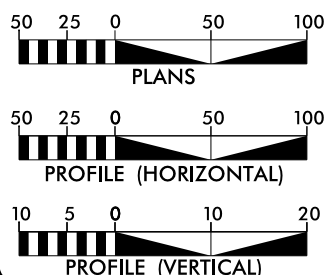


DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVES AND ASSOCIATED NIGHTTIME STOPPING SIGHT DISTANCES.  
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.  
CLEARING ON THIS PROJECT SHALL BE PREPARED TO THE LIMITS ESTABLISHED BY METHOD II.

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**CONTRACT:**

**GRAPHIC SCALES**



**DESIGN DATA**

ADT 2016 = 2,080  
ADT 2035 = 3,600  
K = 14 %  
D = 55 %  
T = 5 % \*  
V = 55 MPH  
\* TTST=1% DUAL=4%  
FUNC CLASS = COLLECTOR  
"SUBREGIONAL TIER"

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4961 = 0.066 MILES  
LENGTH STRUCTURE TIP PROJECT B-4961 = 0.019 MILES  
TOTAL LENGTH OF TIP PROJECT B-4961 = 0.085 MILES

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
OCTOBER 16, 2015

LETTING DATE:  
JUNE 21, 2016

JAMES A. SPEER, PE  
PROJECT ENGINEER

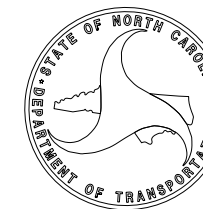
DANIEL W. GARDNER, JR., PE  
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

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

ROADWAY DESIGN  
ENGINEER

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

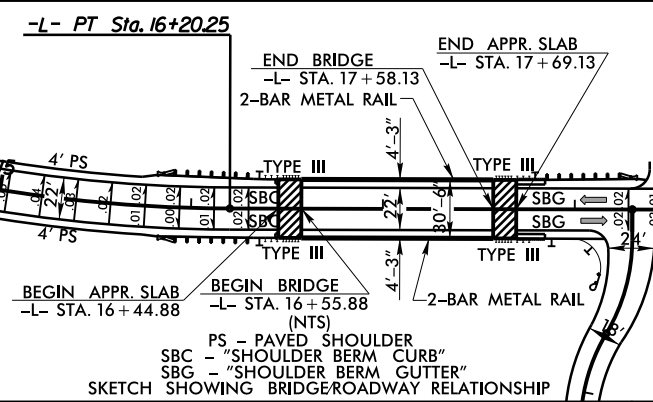


10/12/2015  
ejhahn  
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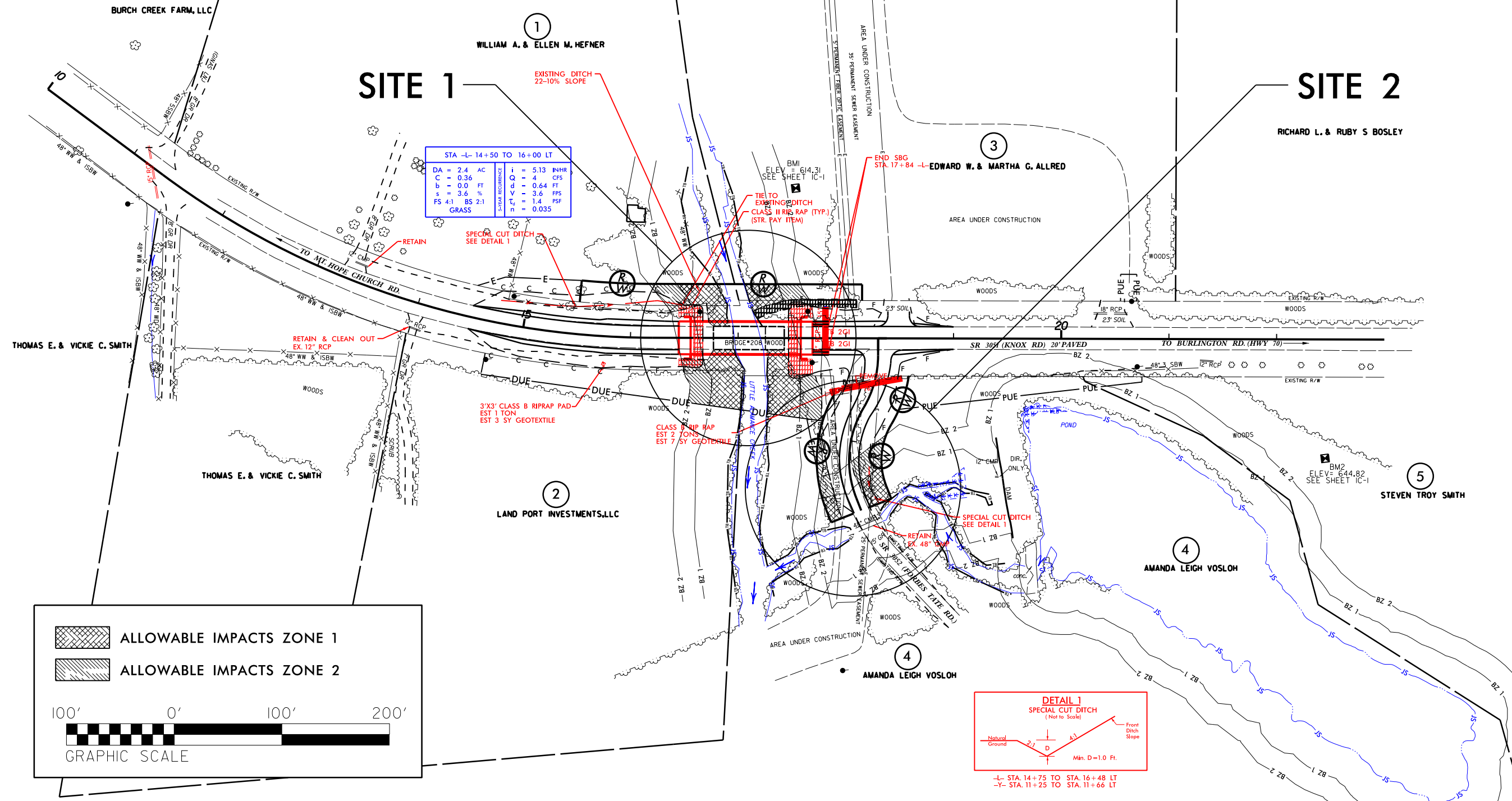


PROJECT REFERENCE NO.	SHEET NO.
B-4961	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**BUFFER DRAWING SHEET 2 OF 7**

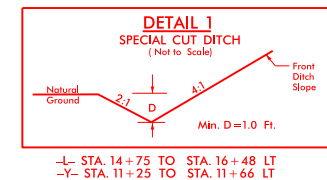
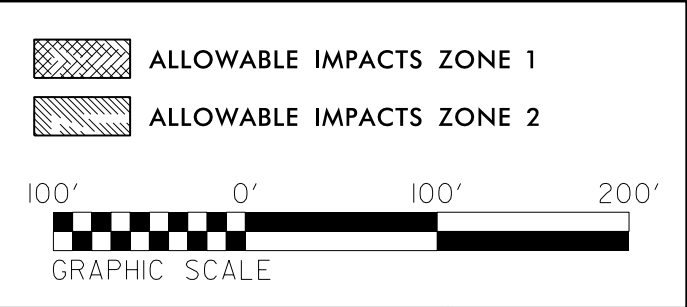


NAD 83/NSRS 2007



STA -L- 14+50 TO 16+00 LT	
DA = 2.4 AC	i = 5.13 IN/HR
C = 0.36	Q = 4 CFS
b = 0.0 FT	d = 0.64 FT
s = 3.6 %	V = 3.6 FPS
FS 4:1 BS 2:1	n = 1.4 PSF
GRASS	

REVISIONS



NOTE: PAVED SHOULDER TRANSITION FROM -L- STA. 14+50.00 TO 15+00.00 AND -L- STA. 18+50.00 TO 19+00.00

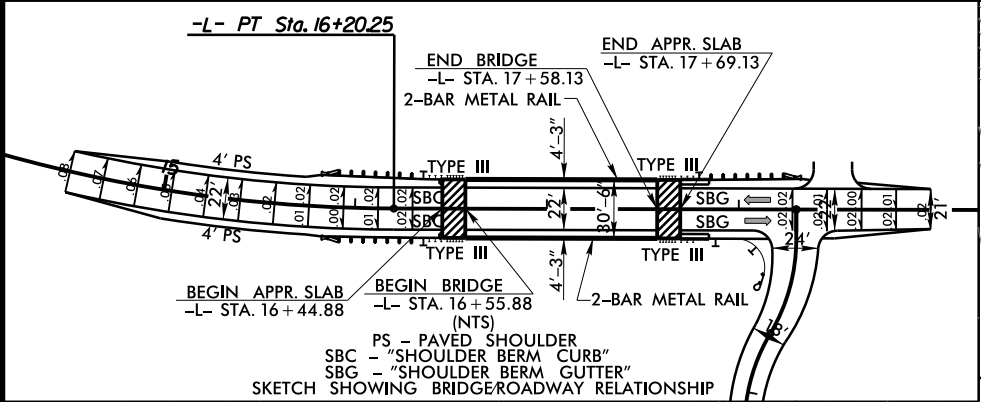
SEE SHEET 5 FOR -L- AND -Y- PROFILE  
 SEE SHEETS S-1 THRU S-2 FOR STRUCTURE PLANS

10/2015  
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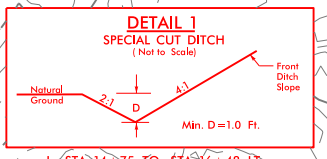
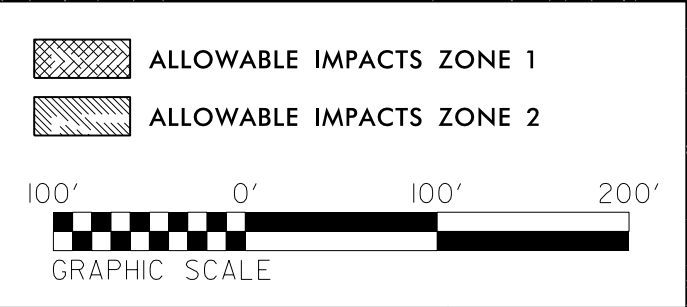
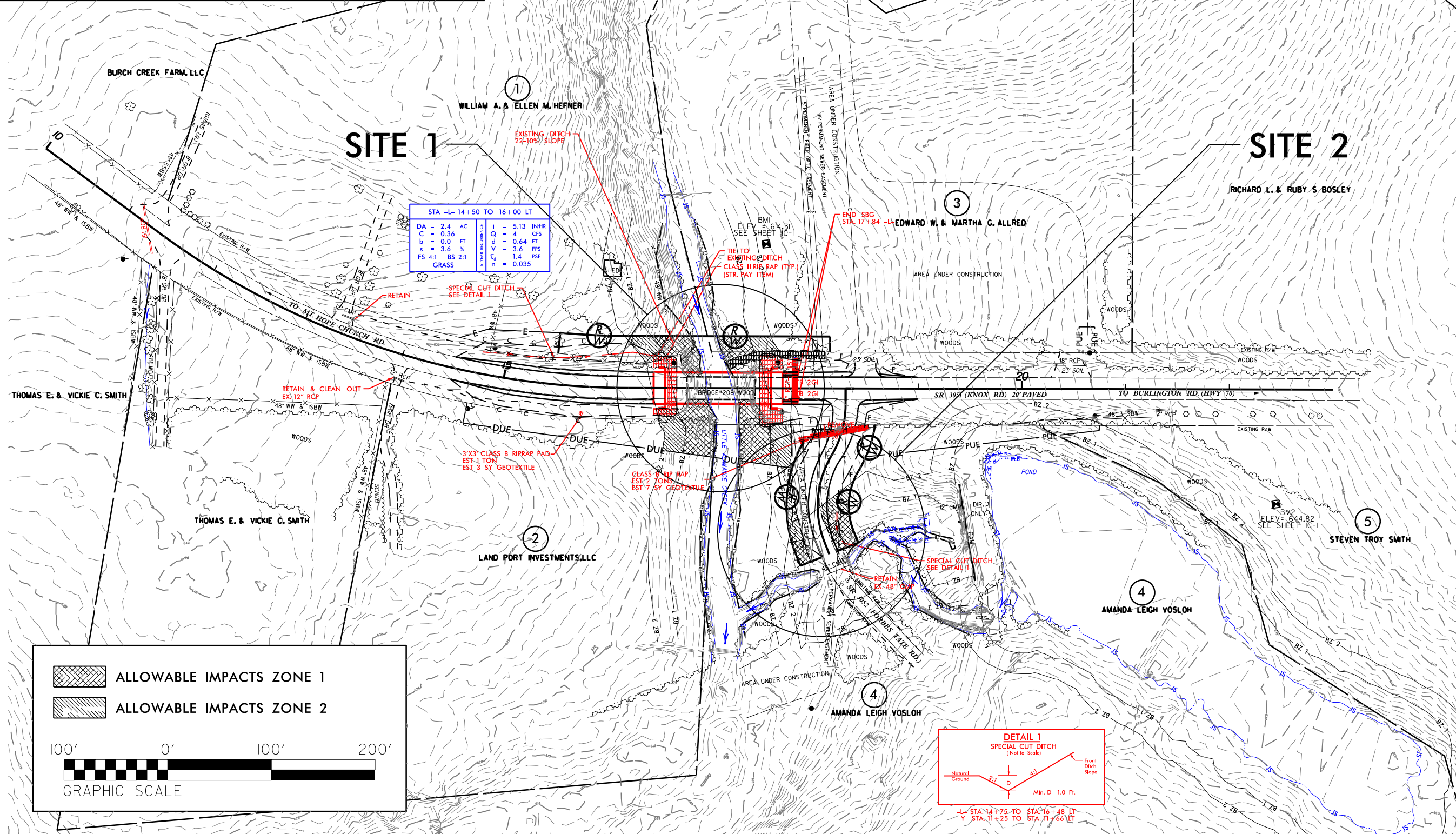


PROJECT REFERENCE NO.	SHEET NO.
B-4961	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**BUFFER DRAWING SHEET 3 OF 7**



NAD 83/NSRS 2007



NOTE: PAVED SHOULDER TRANSITION FROM -L- STA. 14+50.00 TO 15+00.00 AND -L- STA. 18+50.00 TO 19+00.00

SEE SHEET 5 FOR -L- AND -Y- PROFILE SEE SHEETS S-1 THRU S-2 FOR STRUCTURE PLANS

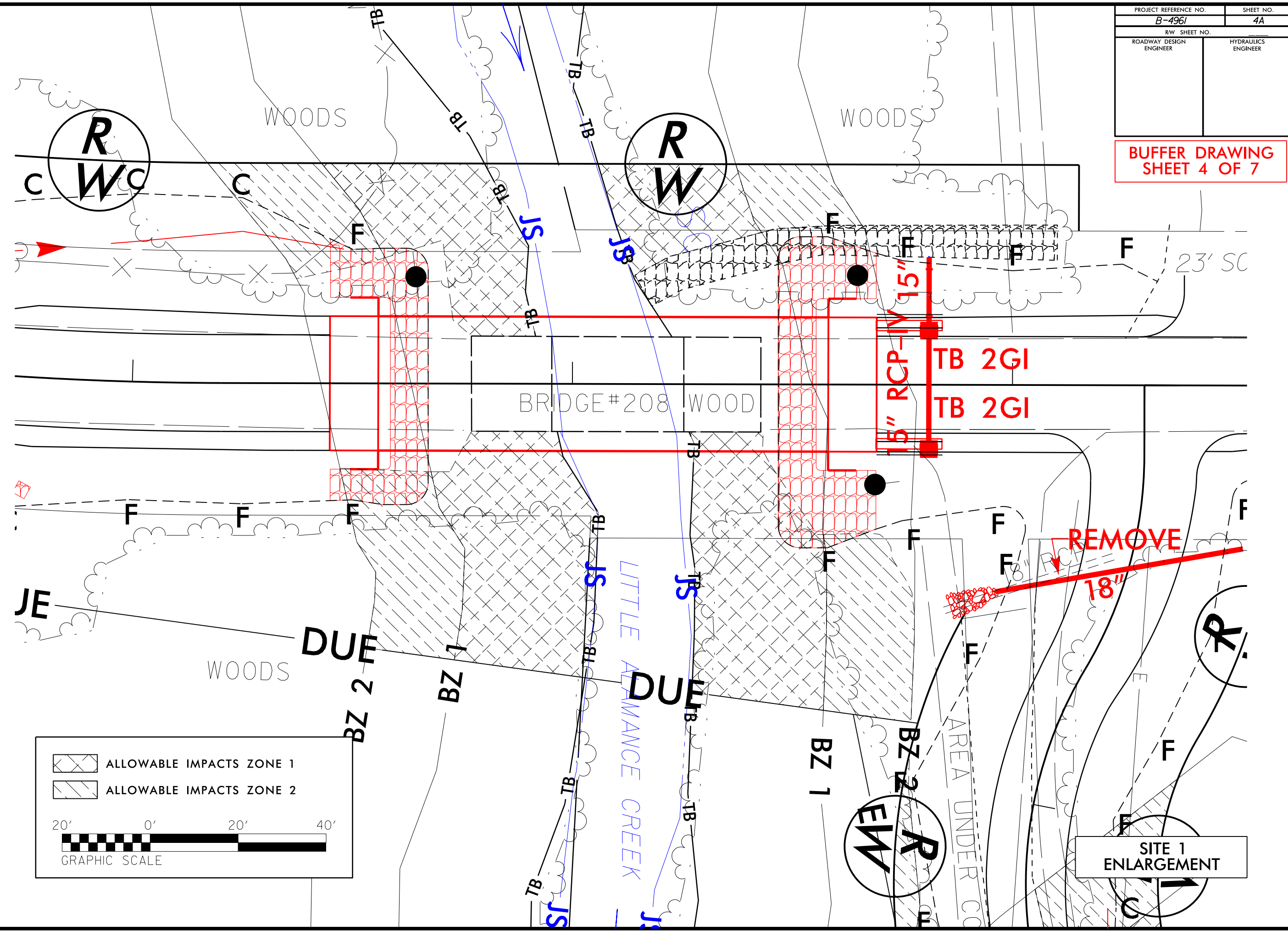
REVISIONS



10/2/2015  
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PROJECT REFERENCE NO. <i>B-4961</i>	SHEET NO. <i>4A</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**BUFFER DRAWING  
SHEET 4 OF 7**

10/2015  
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 \$\$\$\$DATE\$\$\$\$\$  
 \$\$\$\$\$\$CADDW\$\$\$\$\$  
 \$\$\$\$\$\$CADDW\$\$\$\$\$



 ALLOWABLE IMPACTS ZONE 1  
 ALLOWABLE IMPACTS ZONE 2

  
 GRAPHIC SCALE

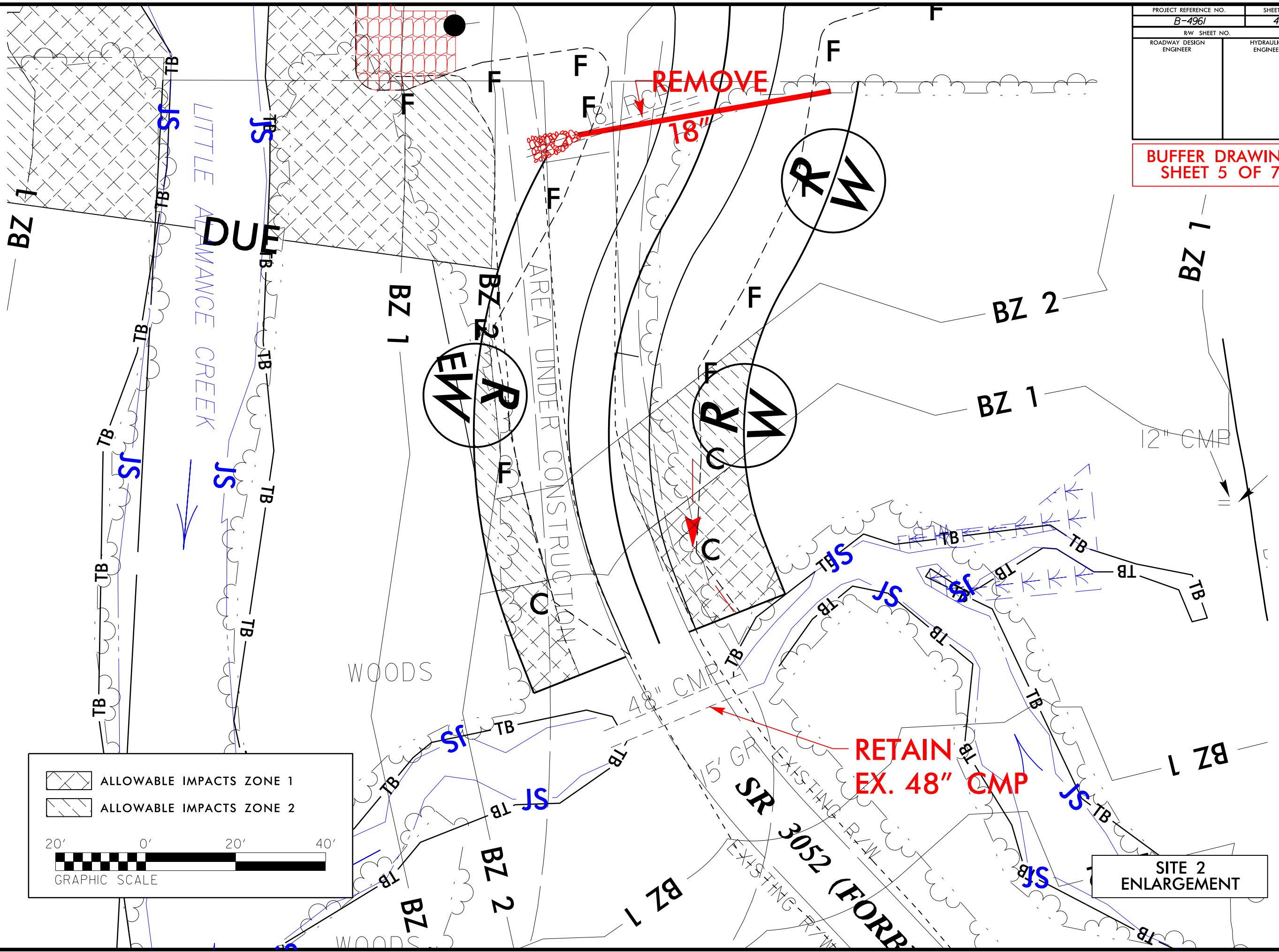
**SITE 1  
ENLARGEMENT**


REVISIONS





PROJECT REFERENCE NO. B-4961	SHEET NO. 4B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**BUFFER DRAWING  
SHEET 5 OF 7**



**ALLOWABLE IMPACTS ZONE 1**  
 ALLOWABLE IMPACTS ZONE 1

**ALLOWABLE IMPACTS ZONE 2**  
 ALLOWABLE IMPACTS ZONE 2

20' 0' 20' 40'  
  
 GRAPHIC SCALE

**SITE 2  
ENLARGEMENT**

REVISIONS

10/2015  
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5/28/99

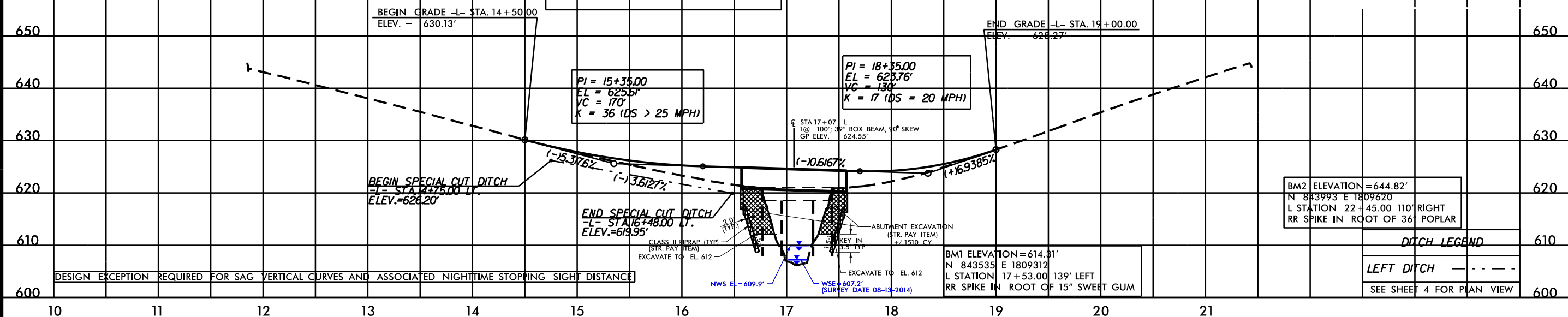
### BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE = 1704 CFS  
 DESIGN FREQUENCY = 25 YRS  
 DESIGN HW ELEVATION = 615.1 FT  
 BASE DISCHARGE = 2408 CFS  
 BASE FREQUENCY = 100 YRS  
 BASE HW ELEVATION = 616.21 FT  
 OVERTOPPING DISCHARGE = 3255+ CFS  
 OVERTOPPING FREQUENCY = 500+ YRS  
 OVERTOPPING ELEVATION = 624.1 FT

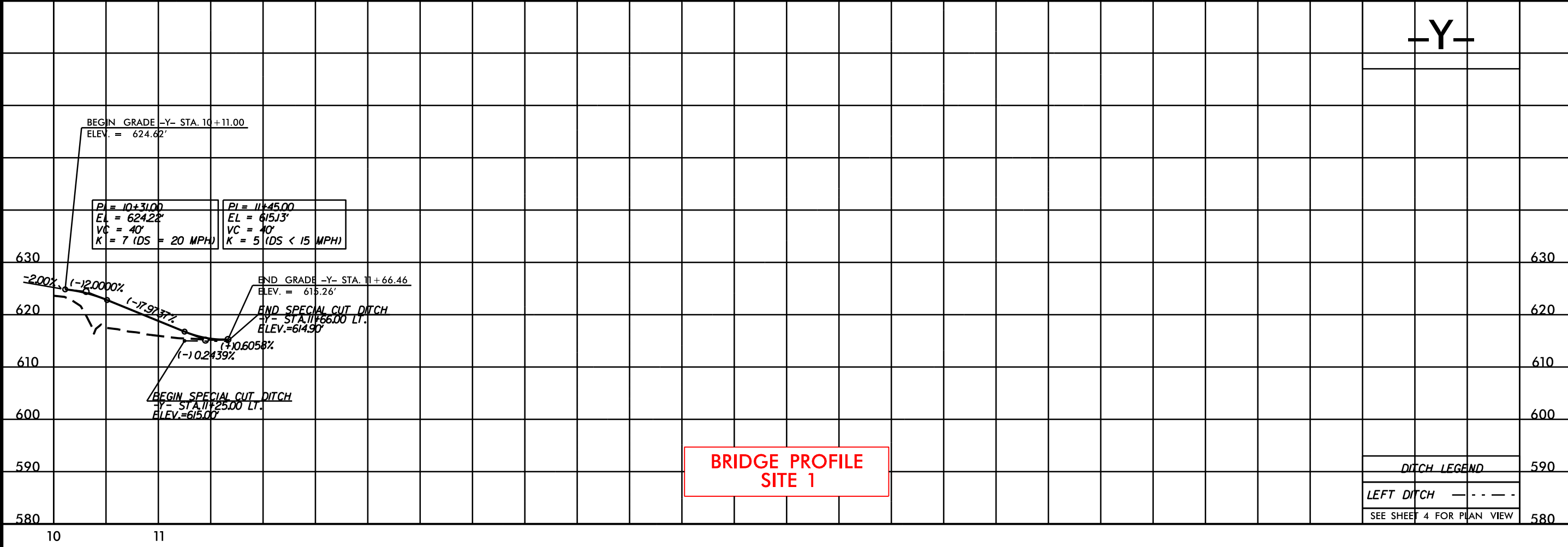
DATE OF SURVEY = 08-13-2014  
 W.S. ELEVATION AT DATE OF SURVEY = 607.2 FT

PROJECT REFERENCE NO. <b>B-4961</b>	SHEET NO. <b>5</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**BUFFER DRAWING SHEET 6 OF 7**



**-Y-**



**BRIDGE PROFILE SITE 1**

DITCH LEGEND	590
LEFT DITCH - - - - -	
SEE SHEET 4 FOR PIAN VIEW	580

10/2015  
 ephain  
 R:\Hydraulics\PERMITS Environmental Drawings\B4961\_Hyd\_prm\_buf\_07\_pfl.dgn  
 \*\*\*\*\*  
 \*\*\*\*\*  
 \*\*\*\*\*

## BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	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> )		
1	BRIDGE #208	-L- 16+15 / 17+80		X		4656	839	5496					
			X			251	1723	1973					
2	48-IN CMP	-Y- 10+80 / 11+66.5	X			896	1050	1946					
<b>TOTAL:</b>						5802	3612	9414					

N.C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
  
 GUILFORD COUNTY  
 PROJECT: 40152.1.1 (B-4961)  
  
 10/1/2015  
 SHEET 7 OF 7

09/08/15

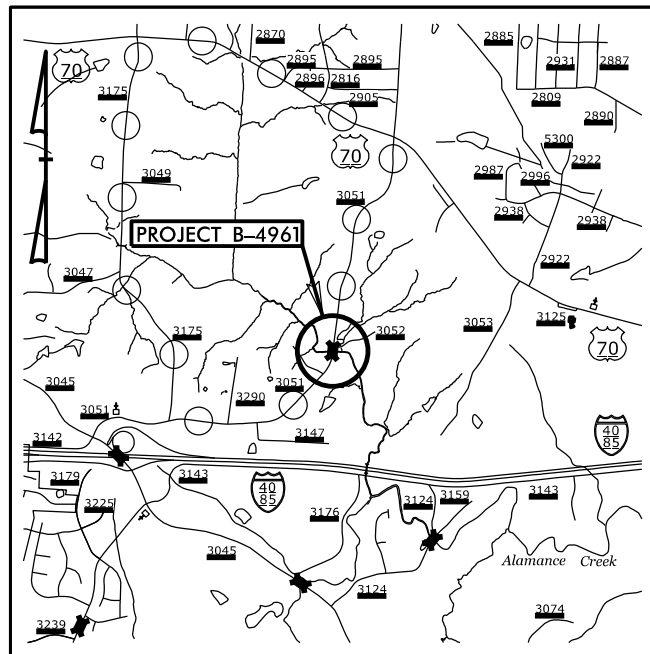
TIP PROJECT: B-4961

T.I.P. NO.	SHEET NO.
B-4961	UE-1

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UTILITIES PERMIT DRAWING  
GUILFORD COUNTY**

UTILITY PERMIT DRAWING  
SHEET 1 OF 3  
OCTOBER 08, 2015

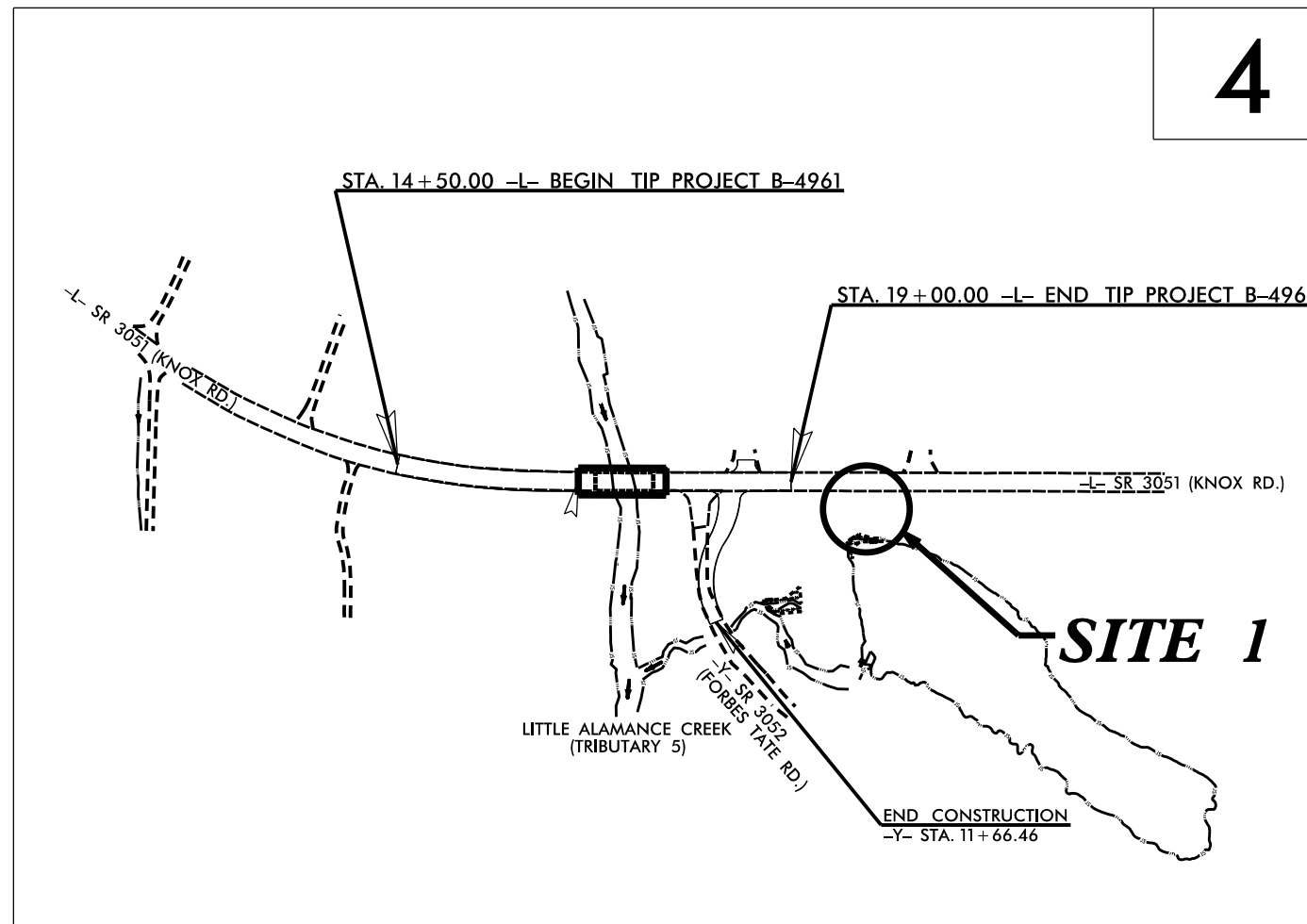


VICINITY MAP

**LOCATION: BRIDGE NO.208 ON SR 3051 (KNOX ROAD)  
OVER LITTLE ALAMANCE CREEK (TRIBUTARY 5)**

**TYPE OF WORK: POWER POLE RELOCATION**

TO MT. HOPE  
CHURCH ROAD

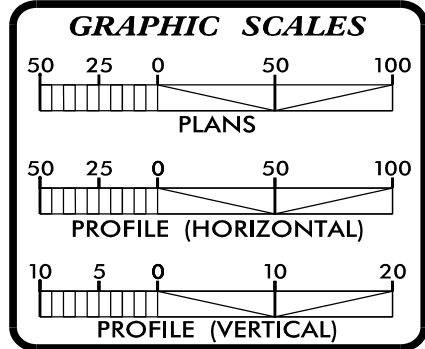


TO BURLINGTON RD.  
(HWY 70)

**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DON\$\$\$\$\$  
\$\$\$\$\$USERNAME\$\$\$\$\$




**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
UE-1	TITLE SHEET
UE-2	UTILITY PERMIT PLAN SHEETS

**UTILITY OWNERS ON PROJECT**

(A) POWER ; DUKE ENERGY



PREPARED IN THE OFFICE OF:  
DIVISION OF HIGHWAYS  
UTILITIES UNIT  
UTILITIES ENGINEERING

1555 MAIL SERVICES CENTER  
RALEIGH, NC 27699-1555  
PHONE (919) 707-6690  
FAX (919) 250-4151

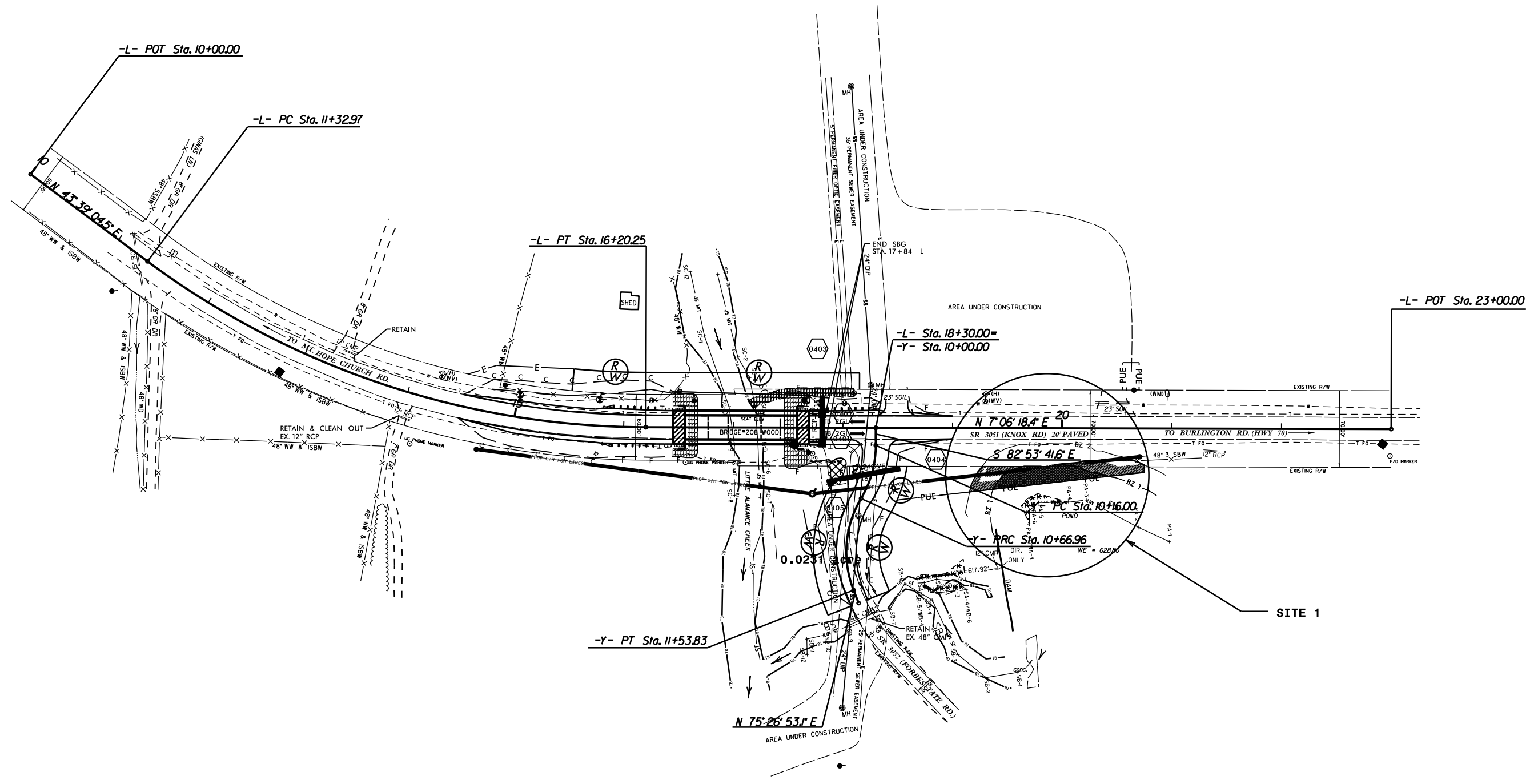
Roger Worthington, P.E. UTILITIES SECTION ENGINEER  
Steve Mckee, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER  
J.T. Yoon, P.E. UTILITIES PROJECT DESIGNER

### UTILITIES BY OTHERS

NOTE:  
 ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

UTILITY PERMIT DRAWING  
 SHEET 2 OF 3  
 OCTOBER 08, 2015

NAD 83/NSRS 2007



	MITIGABLE IMPACTS ZONE 1	1,266 SQLF
	ALLOWABLE IMPACTS ZONE 2	1,280 SQLF

EXISTING POWER POLE CONFLICTS WITH PROPOSED FILL SLOPE. IT HAS TO BE RELOCATED TO THE EAST SIDE OF THE ROAD

5/14/09  
 08-OCT-2015 16:44  
 J:\Users\jg\OneDrive\NEUNB4961\_Ut\_4\_LUE2.psh.dgn  
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## 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> )		
1	Aerial line	-L- 19+15 / 20+75				0	1280	1280	1266	0	1266		
<b>TOTAL:</b>						0	1280	1280	1266	0	1266		

N.C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
  
 GUILFORD COUNTY  
 PROJECT: 40152.1.1 (B-4961)  
  
 10/8/2015  
 SHEET 3 OF 3

09/08/99

See Sheet 1A For Index of Sheets  
 See Sheet 1B For Conventional Plan Sheet Symbols  
 See Sheet 1C-1 For Survey Control Sheet

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

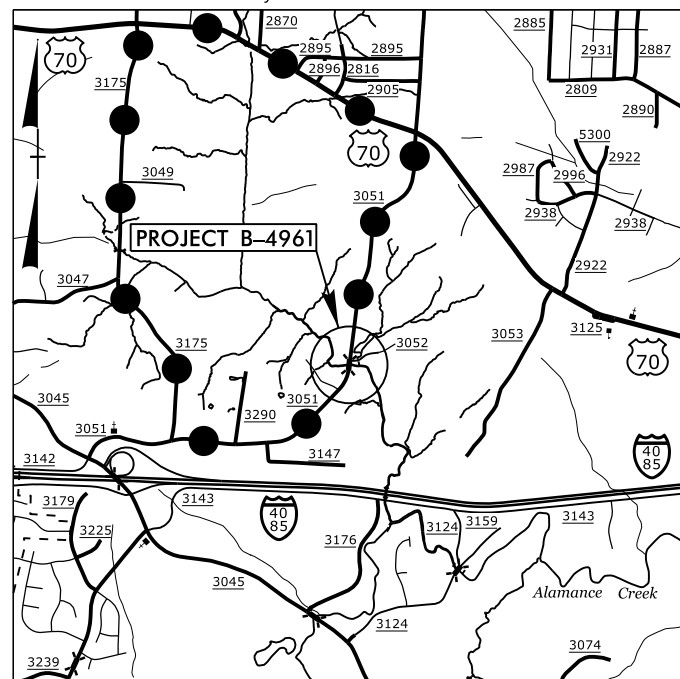
**GUILFORD COUNTY**

LOCATION: BRIDGE NO. 208 ON SR 3051 (KNOX ROAD)  
 OVER LITTLE ALAMANCE CREEK (TRIBUTARY 5)

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

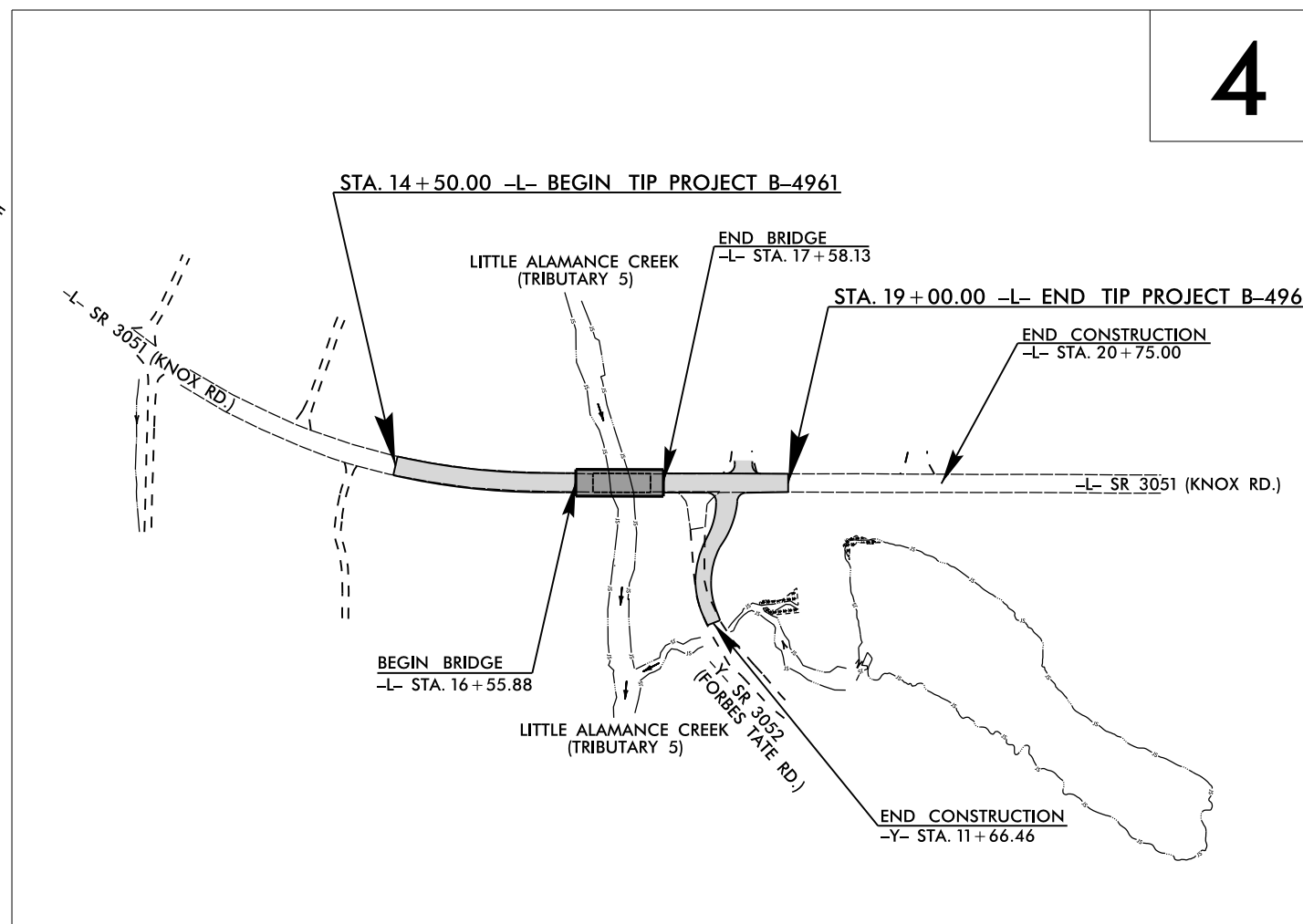
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4961	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40152.1.1	BRZ-3051(1)	PE	

**TIP PROJECT: B-4961**



**VICINITY MAP**

● ● ● OFFSITE DETOUR

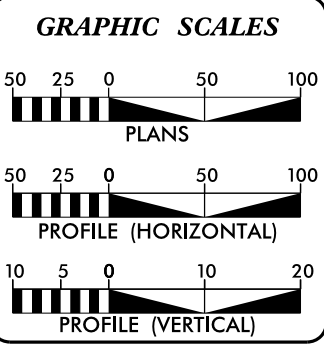


**4**

DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVES AND ASSOCIATED NIGHTTIME STOPPING SIGHT DISTANCES.  
 THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.  
 CLEARING ON THIS PROJECT SHALL BE PREPARED TO THE LIMITS ESTABLISHED BY METHOD II.

**INCOMPLETE PLANS**  
 DO NOT USE FOR R/W ACQUISITION  
**PRELIMINARY PLANS**  
 DO NOT USE FOR CONSTRUCTION

**CONTRACT:**



**DESIGN DATA**

ADT 2016 =	2,080
ADT 2035 =	3,600
K =	14 %
D =	55 %
T =	5 % *
V =	55 MPH
* TTST=1%	DUAL=4%
FUNC CLASS = COLLECTOR	
"SUBREGIONAL TIER"	

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4961	=	0.066 MILES
LENGTH STRUCTURE TIP PROJECT B-4961	=	0.019 MILES
TOTAL LENGTH OF TIP PROJECT B-4961	=	0.085 MILES

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
 1000 Birch Ridge Dr., Raleigh NC, 27610

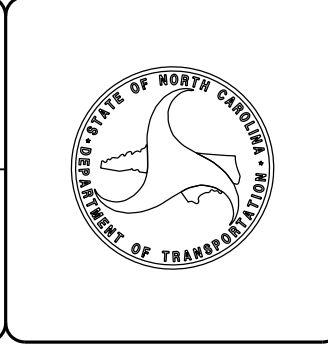
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: OCTOBER 16, 2015	JAMES A. SPEER, PE PROJECT ENGINEER
LETTING DATE: JUNE 21, 2016	DANIEL W. GARDNER, JR., PE PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

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

**ROADWAY DESIGN ENGINEER**

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



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 \$\$\$USERNAME\$\$\$

Note: Not to Scale

\*S.U.E. = Subsurface Utility Engineering

# CONVENTIONAL PLAN SHEET SYMBOLS

## BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	✕
Property Monument	□ EDM
Parcel/Sequence Number	②③
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 Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ?

## BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
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	○
Switch	□
RR Abandoned	-----
RR Dismantled	-----

## RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	○
Proposed Right of Way Line with Concrete or Granite RW Marker	○
Proposed Control of Access Line with Concrete CA Marker	○
Existing Control of Access	○
Proposed Control of Access	○
Existing Easement Line	----- E
Proposed Temporary Construction Easement	----- E
Proposed Temporary Drainage Easement	----- TDE
Proposed Permanent Drainage Easement	----- PDE
Proposed Permanent Drainage / Utility Easement	----- DUE
Proposed Permanent Utility Easement	----- PUE
Proposed Temporary Utility Easement	----- TUE
Proposed Aerial Utility Easement	----- AUE
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

## 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	-----
Single Tree	☼
Single Shrub	☼
Hedge	-----
Woods Line	-----

## VEGETATION:

Orchard	☼ ☼ ☼ ☼
Vineyard	□ 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	-----

## UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊠
Power Transformer	⊠
H-Frame Pole	●
Recorded U/G Power Line	----- P
Designated U/G Power Line (S.U.E.*)	----- P
TELEPHONE:	
Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Booth	□
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	⊕
Recorded U/G Telephone Cable	----- T
Designated U/G Telephone Cable (S.U.E.*)	----- T
Recorded U/G Telephone Conduit	----- TC
Designated U/G Telephone Conduit (S.U.E.*)	----- TC
Recorded U/G Fiber Optics Cable	----- T FO
Designated U/G Fiber Optics Cable (S.U.E.*)	----- T FO

## WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	----- A/G Water

## TV:

TV Satellite Dish	☼
TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	⊕
Recorded U/G TV Cable	----- TV
Designated U/G TV Cable (S.U.E.*)	----- TV
Recorded U/G Fiber Optic Cable	----- TV FO
Designated U/G Fiber Optic Cable (S.U.E.*)	----- TV FO

## GAS:

Gas Valve	◇
Gas Meter	⊕
Recorded U/G Gas Line	----- G
Designated U/G Gas Line (S.U.E.*)	----- G
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
Recorded SS Forced Main Line	----- FSS
Designated SS Forced Main Line (S.U.E.*)	----- FSS

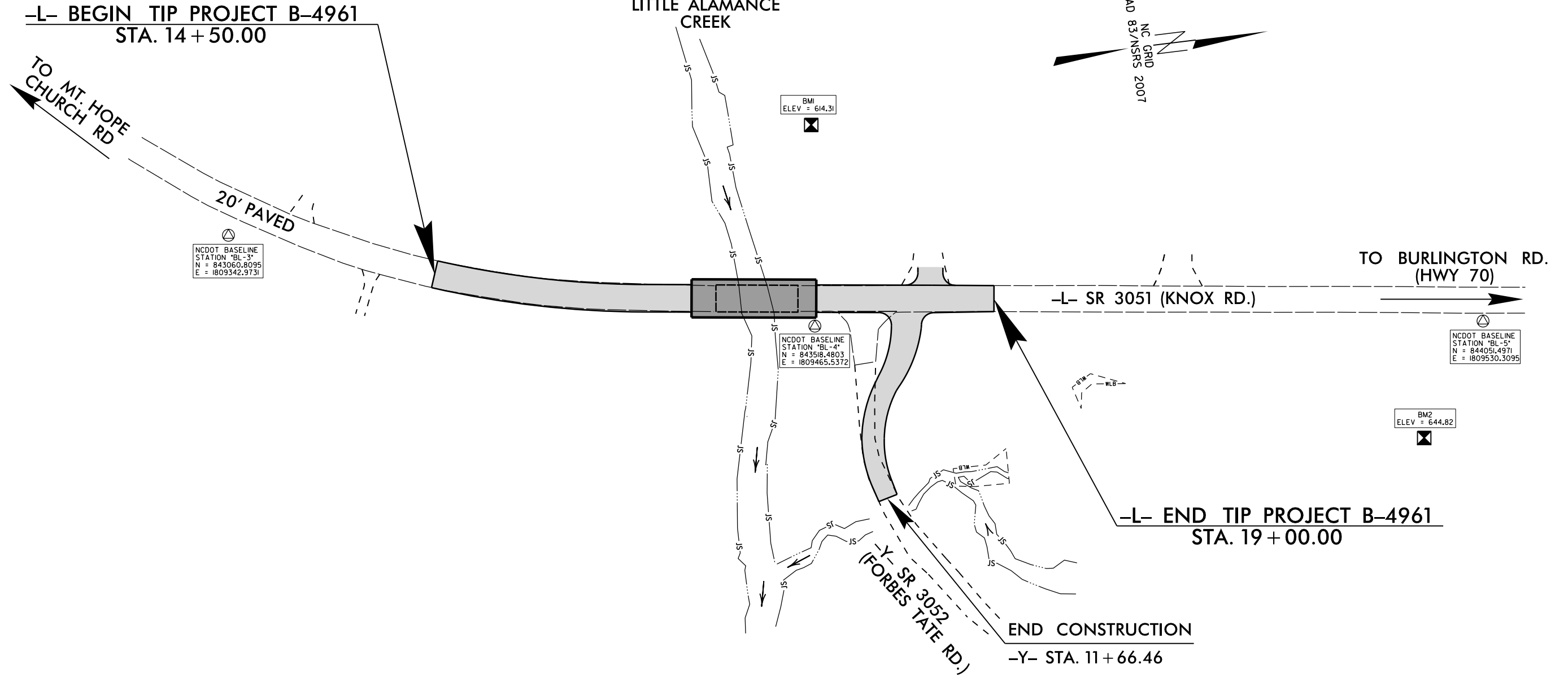
## MISCELLANEOUS:

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

12/01/2005

# B-4961 SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
B-4961	1C-1
Location and Surveys	



## NOTES

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/PAGES/DEFAULT.ASPX](https://connect.ncdot.gov/resources/location/pages/default.aspx)

THE FILES TO BE FOUND ARE AS FOLLOWS:  
 B4961\_LS\_CONTROL.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

⊕ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

### DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4961-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 842650.9330(ft) EASTING: 1808969.9940(ft) ELEVATION: 664.96'(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999458801

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4961-2" TO -L- STATION 14+50.00 IS N 36°37'51" E 710.57'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

## BASELINE DATA

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4961-1		841940.5470	1808230.5780	695.42		OUTSIDE PROJECT LIMITS
2	B4961-2		842650.9330	1808969.9940	664.96		OUTSIDE PROJECT LIMITS
3	BL-3		843060.8095	1809342.9731	639.15	12+85.86	24.69 RT
4	BL-4		843518.4803	1809465.5372	620.26	17+55.29	15.36 RT
5	BL-5		844051.4971	1809530.3095	653.08	22+92.23	13.70 RT

## BENCHMARK DATA

.....  
 BM1 ELEVATION = 614.31  
 N 843535 E 1809312  
 L STATION 17+53.00 139 LEFT  
 RR SPIKE IN ROOT OF 15' SWEET GUM  
 .....  
 BM2 ELEVATION = 644.82  
 N 843993 E 1809620  
 L STATION 22+45.00 110 RIGHT  
 RR SPIKE IN ROOT OF 36' POPLAR  
 .....

NOTE: DRAWING NOT TO SCALE

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# B-4961 SURVEY CONTROL SHEET

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	842857.3336	1809136.4896
PC	11+32.97	842953.5414	1809228.2712
PT	16+20.25	843386.3743	1809433.5934
POT	23+00.00	844060.9065	1809517.6719

Y

TYPE	STATION	NORTH	EAST
POT	10+00.00	843594.5164	1809459.5377
PC	10+16.00	843592.5377	1809475.4121
PRC	10+66.96	843573.2911	1809521.9410
PT	11+53.83	843556.3627	1809604.0911
POT	11+66.46	843559.5374	1809616.3211

-L- PRELIMINARY NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	15+50.00	-50.00	843327.8782	1809372.8755
L	15+50.00	-30.00	843323.5925	1809392.4110
L	16+20.25	-50.00	843392.5588	1809383.9773
L	18+15.00	-50.00	843585.8161	1809408.0663
L	18+15.00	-35.00	843583.9607	1809422.9511

-Y- PRELIMINARY NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y	11+66.46	-30.00	843588.5750	1809608.7833
Y	11+53.83	-30.00	843585.4003	1809596.5534
Y	11+66.46	30.00	843530.4998	1809623.8588
Y	11+53.83	30.00	843527.3250	1809611.6288
Y	10+69.29	30.00	843547.7507	1809505.9782
Y	10+66.96	-30.00	843596.9831	1809540.3446
Y	10+30.50	-30.00	843618.5152	1809497.7999
Y	11+66.46	8.01	843551.7790	1809618.3301
Y	11+66.46	-7.02	843566.3342	1809614.5567

-L- PRELIMINARY NEW PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	20+55.00	-35.00	843822.1177	1809452.6367
L	20+55.00	-60.00	843825.2100	1809427.8287
L	20+70.00	-60.00	843840.0948	1809429.6840
L	20+70.00	-35.00	843837.0026	1809454.4921
L	20+75.00	35.00	843833.3059	1809524.5730
L	20+75.00	40.00	843832.6874	1809529.5346

-L- PRELIMINARY NEW PERMANENT DRAINAGE UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	14+70.00	30.00	843230.6054	1809428.9854
L	14+70.00	50.00	843224.3011	1809447.9658

-Y- PRELIMINARY NEW PERMANENT DRAINAGE UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y	10+90.00	30.00	843534.0719	1809529.4905

-Y- PRELIMINARY NEW PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y	10+55.00	-30.00	843605.8291	1809527.3444

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4961-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 842650.9330(ft) EASTING: 1808969.9940(ft) ELEVATION: 664.96'(ft)

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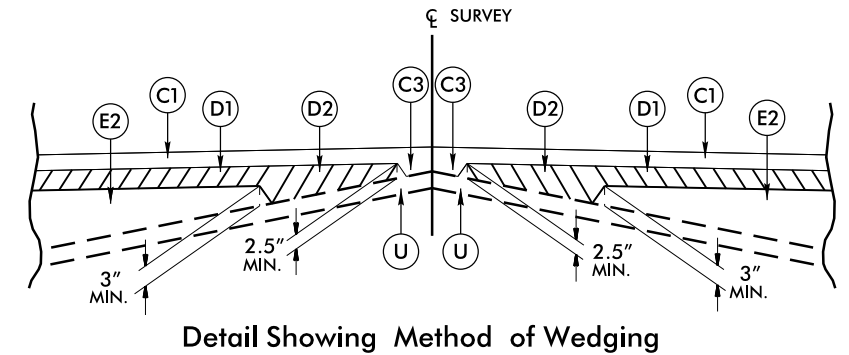
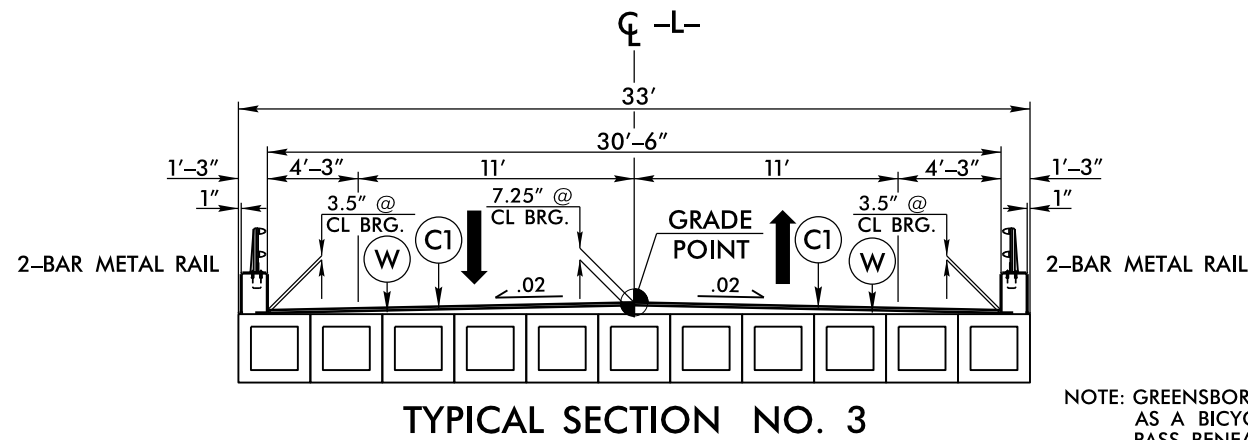
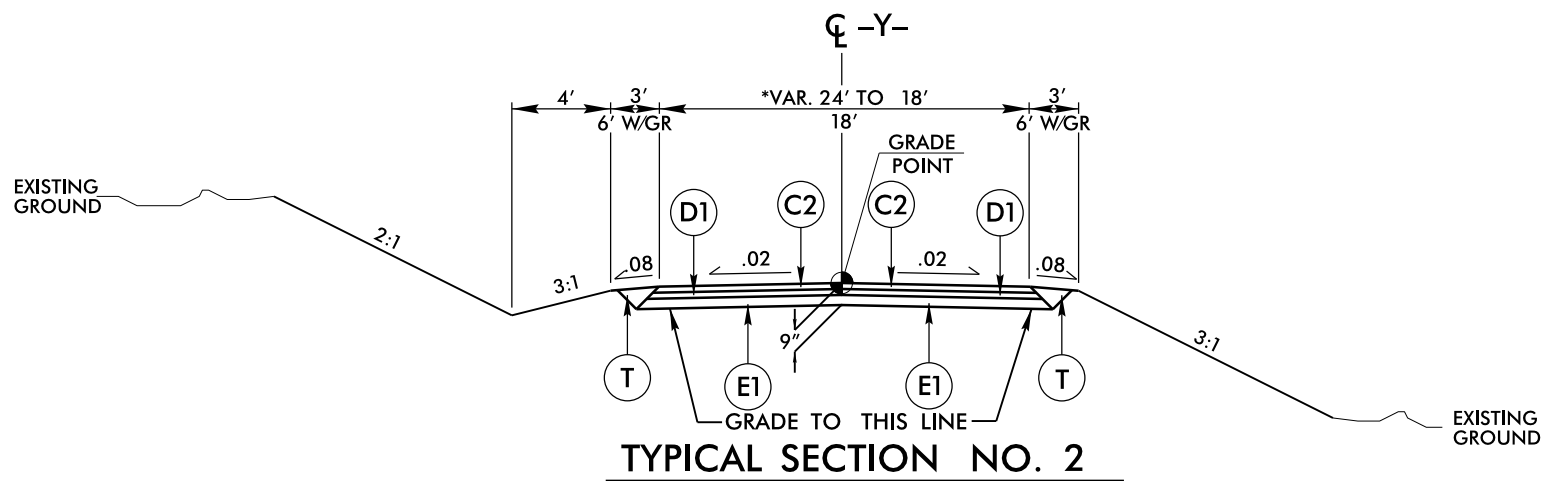
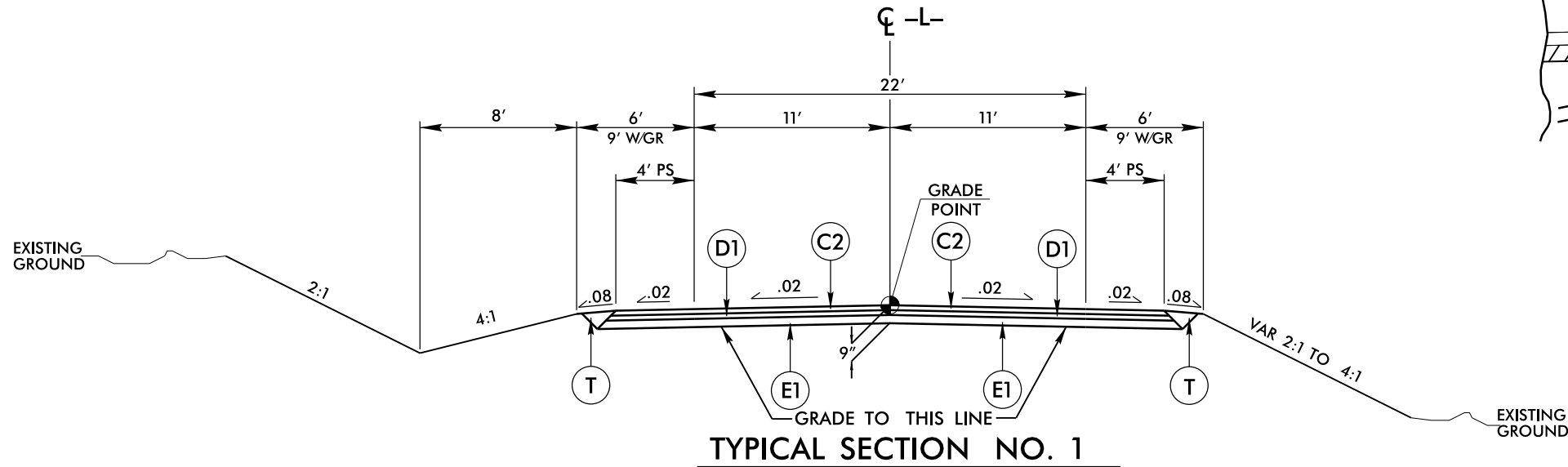
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO. <b>B-4961</b>	SHEET NO. <b>2A-1</b>
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

PAVEMENT SCHEDULE			
C1	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.	E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
C2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	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.
C3	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 TO EXCEED 1 1/2" IN DEPTH.	T	EARTH MATERIAL.
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

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



NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1  
-L- STA. 14+50.00 TO STA. 15+00.00

USE TYPICAL SECTION NO. 1

-L- STA. 15+00.00 TO STA. 16+55.88 (BEGIN BRIDGE)  
-L- STA. 17+58.13 (END BRIDGE) TO STA. 18+50.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING  
-L- STA. 18+50.00 TO STA. 19+00.00

USE TYPICAL SECTION NO. 2

\*-Y- STA. 10+22.51 TO STA. 10+72.51  
-Y- STA. 10+72.51 TO STA. 11+16.46

NOTE: TRANSITION FROM TYPICAL SECTION NO. 2 TO EXISTING  
-Y- STA. 11+16.46 TO STA. 11+66.46

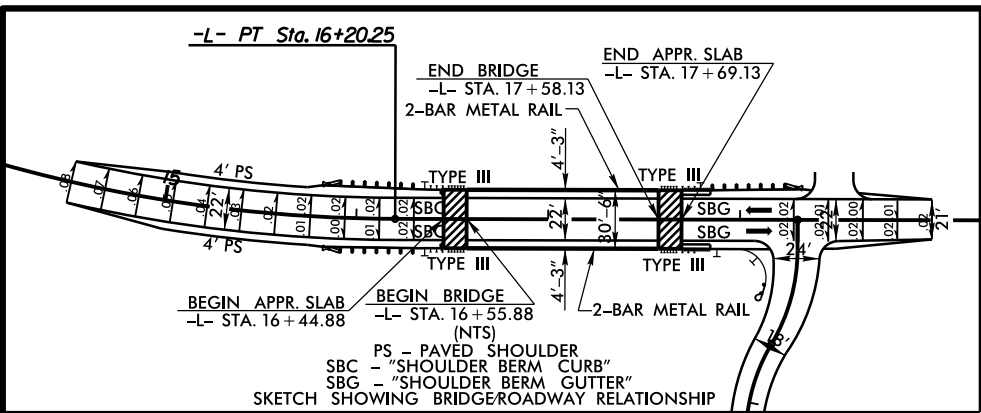
USE TYPICAL SECTION NO. 3

-L- STA. 16+55.88 (BEGIN BRIDGE) TO STA. 17+58.13 (END BRIDGE)

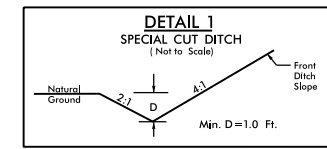
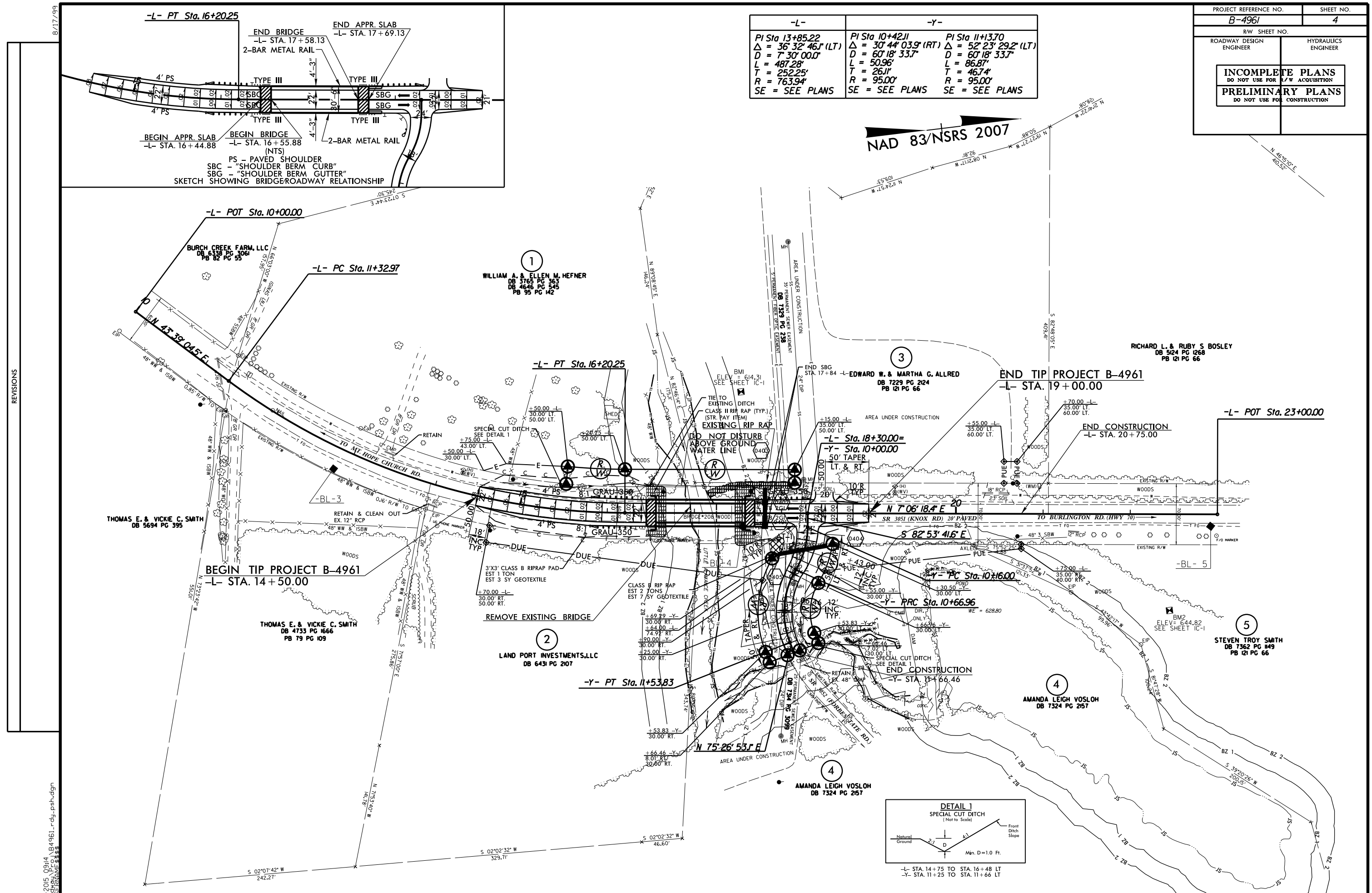
NOTE: GREENSBORO MPO'S BICYCLE, PEDESTRIAN, AND GREENWAY'S MASTER PLAN IDENTIFIES SR 3051 (KNOX ROAD) AS A BICYCLE ROUTE. THE PLAN ALSO IDENTIFIES THE FUTURE SEDALIA GREENWAY (GREENWAY # 80) TO PASS BENEATH BRIDGE # 208 (NORTH SIDE).

PROJECT REFERENCE NO.	SHEET NO.
B-4961	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

-L-	-Y-	
PI Sta 13+85.22	PI Sta 10+42.11	PI Sta 11+13.70
$\Delta = 36' 32" 46.1' (LT)$	$\Delta = 30' 44" 03.9' (RT)$	$\Delta = 52' 23' 29.2' (LT)$
$D = 7' 30" 00.0'$	$D = 60' 18' 33.7"$	$D = 60' 18' 33.7"$
$L = 487.28'$	$L = 50.96'$	$L = 86.87'$
$T = 252.25'$	$T = 26.11'$	$T = 46.74'$
$R = 763.94'$	$R = 95.00'$	$R = 95.00'$
SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS



NAD 83/NSRS 2007



NOTE: PAVED SHOULDER TRANSITION FROM -L- STA. 14+50.00 TO 15+00.00 AND -L- STA. 18+50.00 TO 19+00.00

SEE SHEET 5 FOR -L- AND -Y- PROFILE  
SEE SHEETS S-1 THRU S-2 FOR STRUCTURE PLANS

REVISIONS

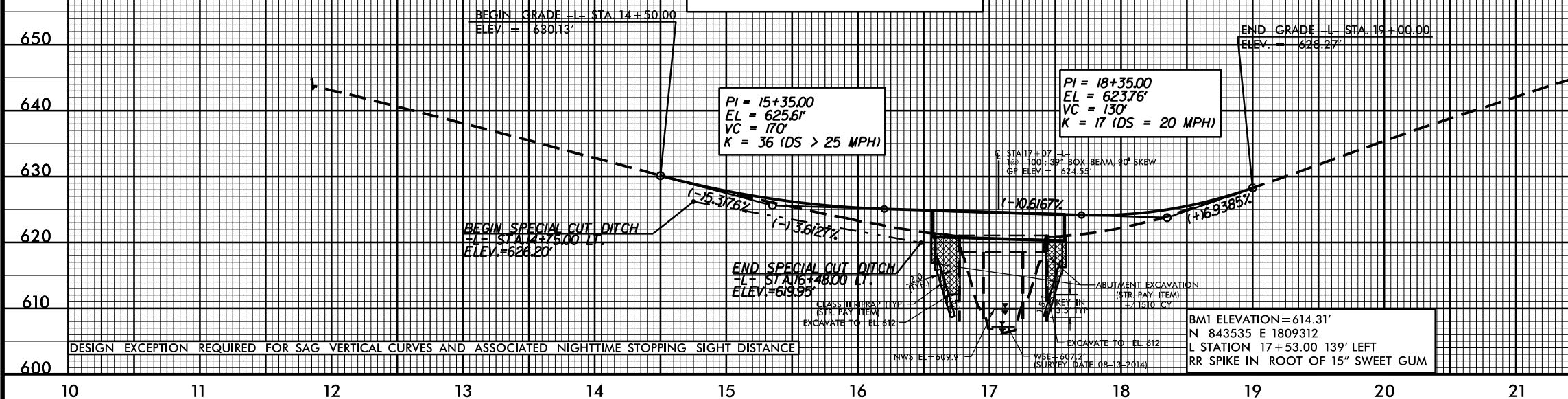
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ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER  
**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION  
**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

**-L-**

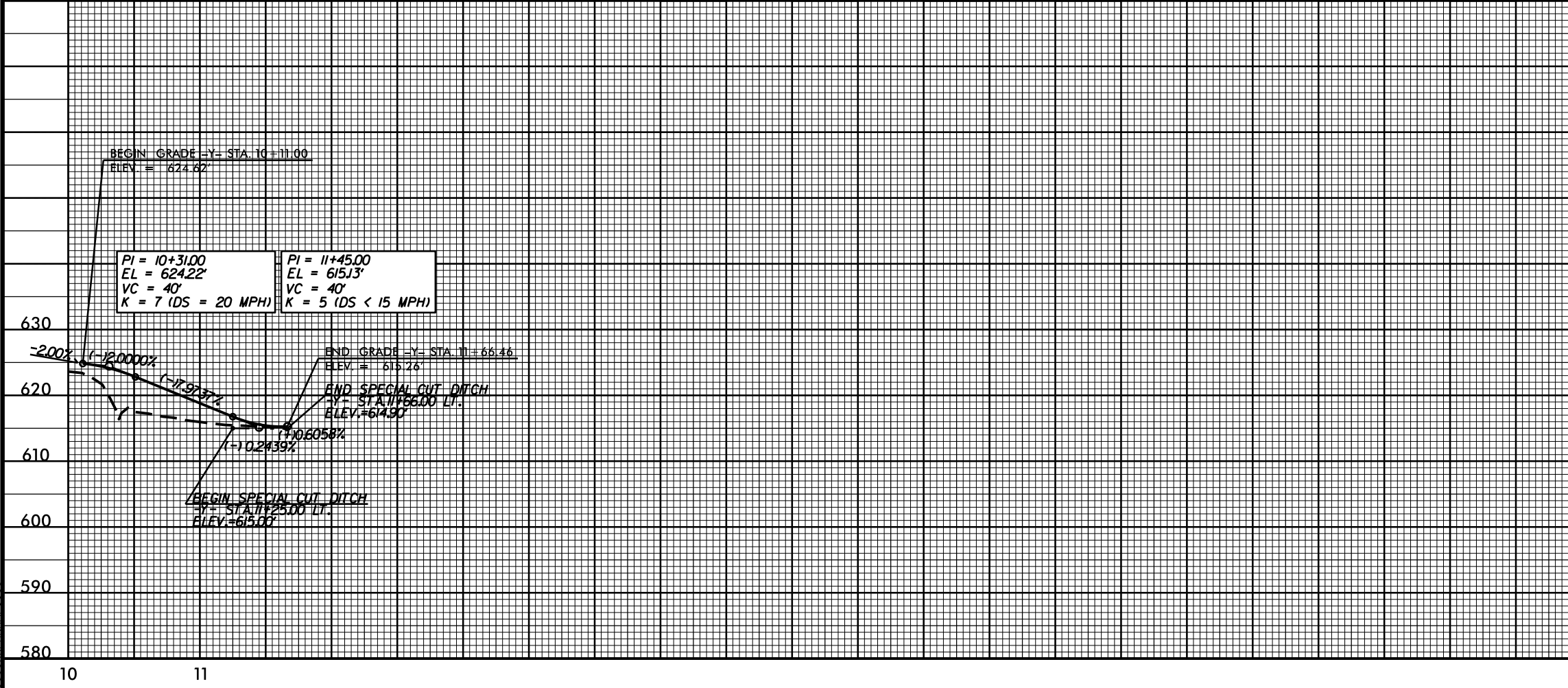
**BRIDGE HYDRAULIC DATA**  
DESIGN DISCHARGE = 1704 CFS  
DESIGN FREQUENCY = 25 YRS  
DESIGN HW ELEVATION = 615J FT  
BASE DISCHARGE = 2408 CFS  
BASE FREQUENCY = 100 YRS  
BASE HW ELEVATION = 616.9I FT  
OVERTOPPING DISCHARGE = 3255+ CFS  
OVERTOPPING FREQUENCY = 500+ YRS  
OVERTOPPING ELEVATION = 624J FT  
  
DATE OF SURVEY = 08-13-2014  
W.S. ELEVATION AT DATE OF SURVEY = 607.2 FT



BM2 ELEVATION = 644.82'  
N 843993 E 1809620  
L STATION 22+45.00 110' RIGHT  
RR SPIKE IN ROOT OF 36" POPLAR

**DITCH LEGEND**  
LEFT DITCH - - - - -  
SEE SHEET 4 FOR PLAN VIEW

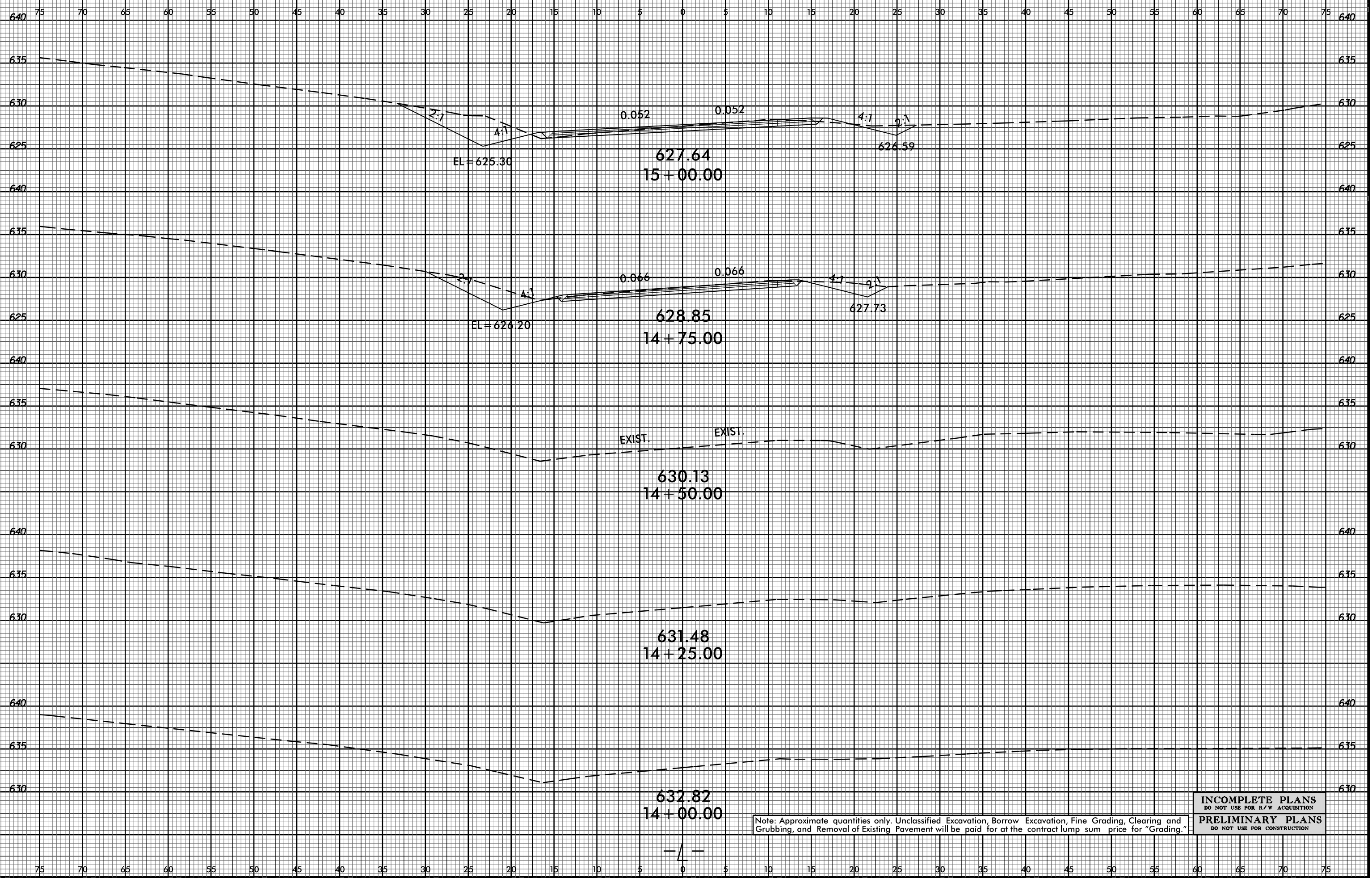
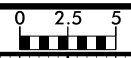
**-Y-**



**DITCH LEGEND**  
LEFT DITCH - - - - -  
SEE SHEET 4 FOR PLAN VIEW



8/23/99



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Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

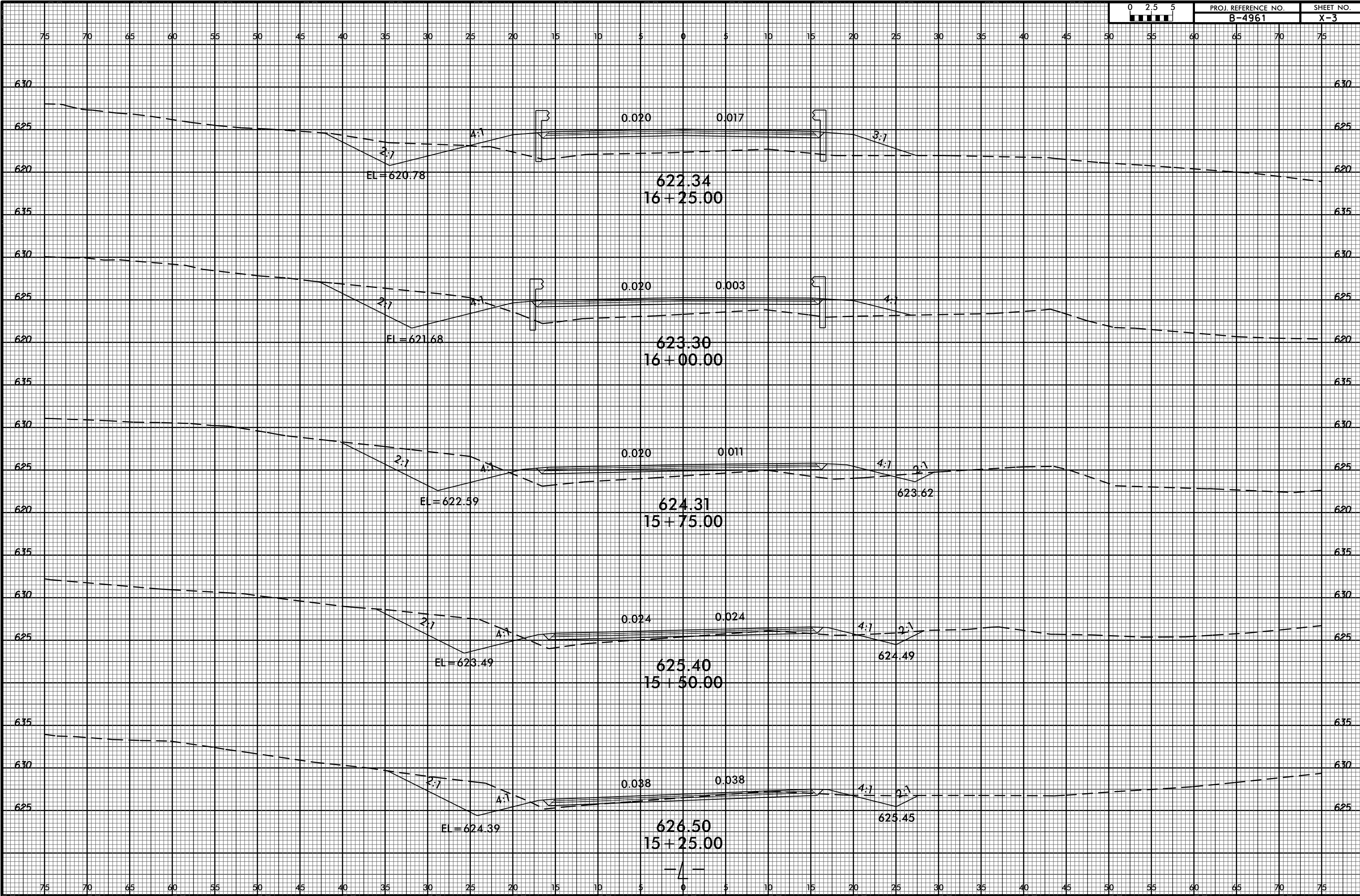
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PROJ. REFERENCE NO.  
B-4961

SHEET NO.  
X-3



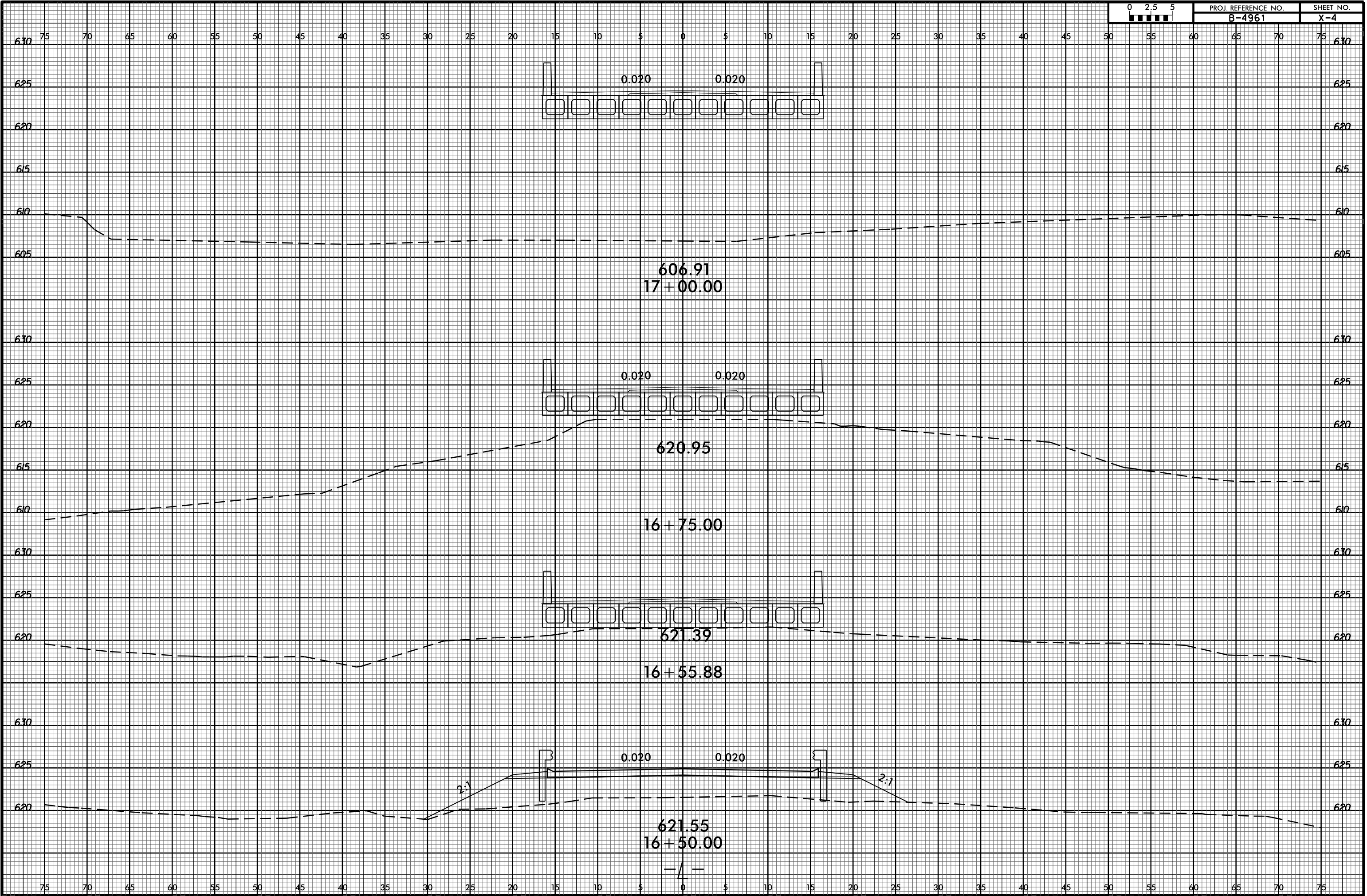
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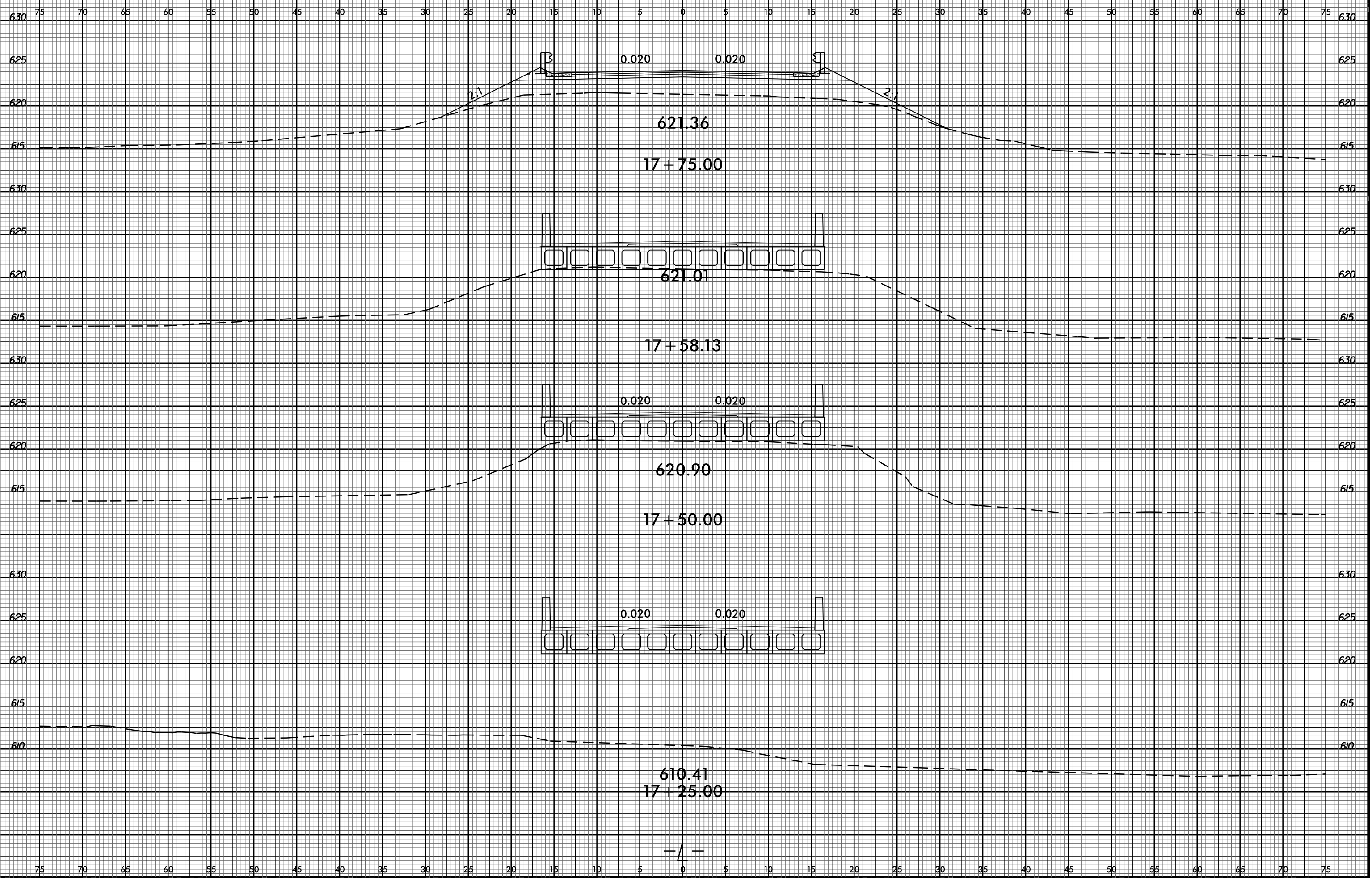


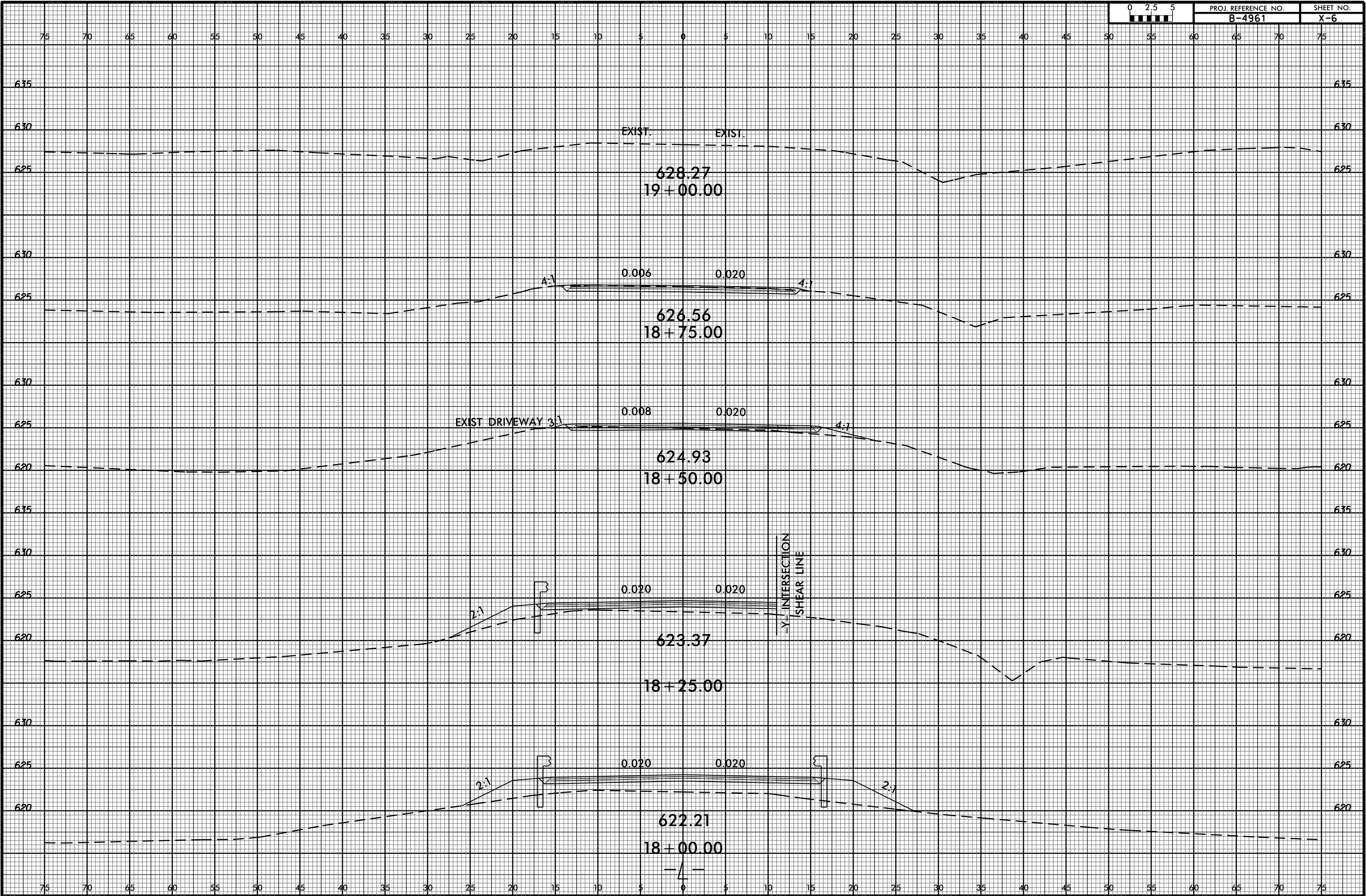
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B-4961

SHEET NO.  
X-4



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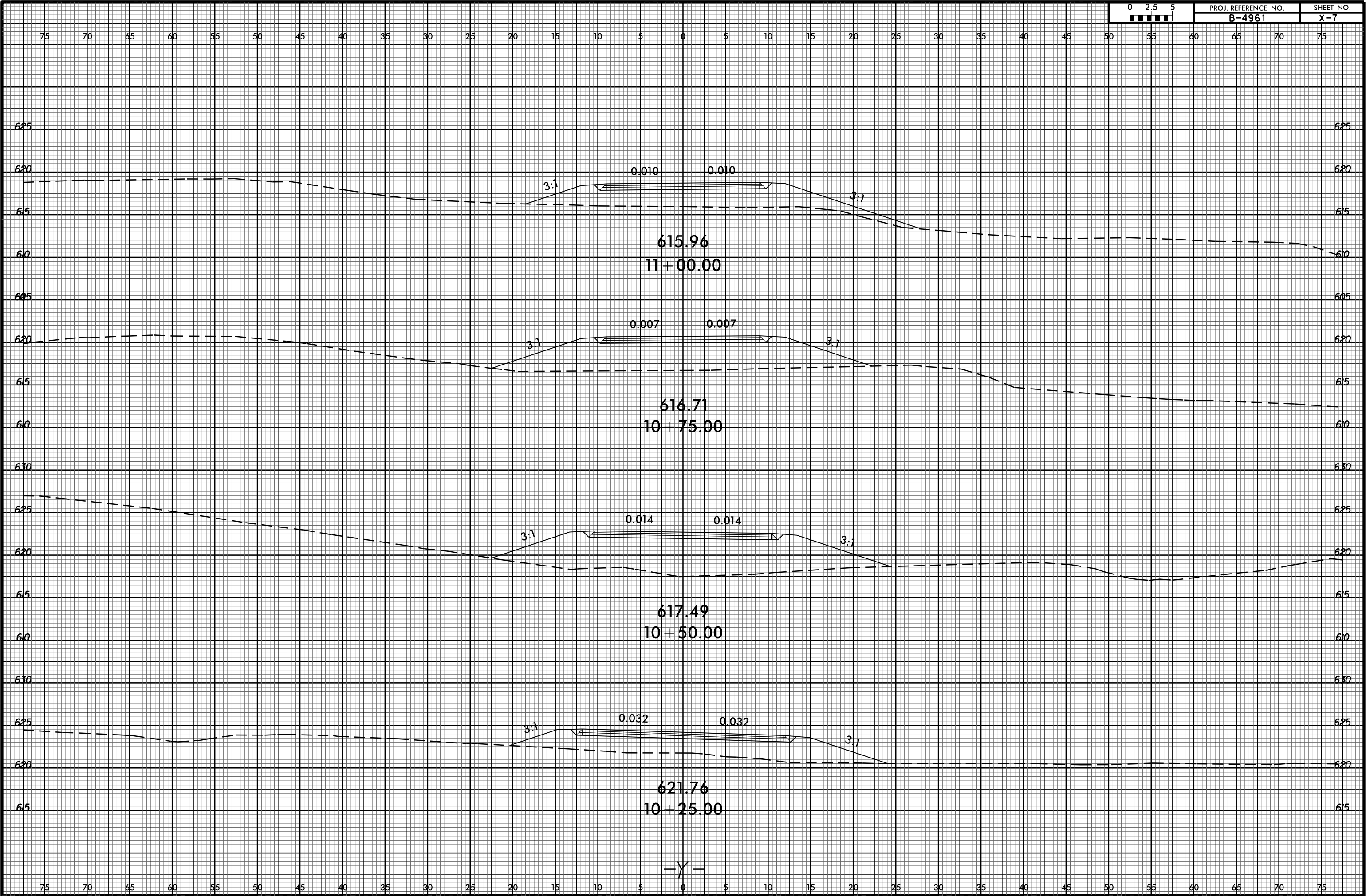


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PROJ. REFERENCE NO.  
B-4961

SHEET NO.  
X-7

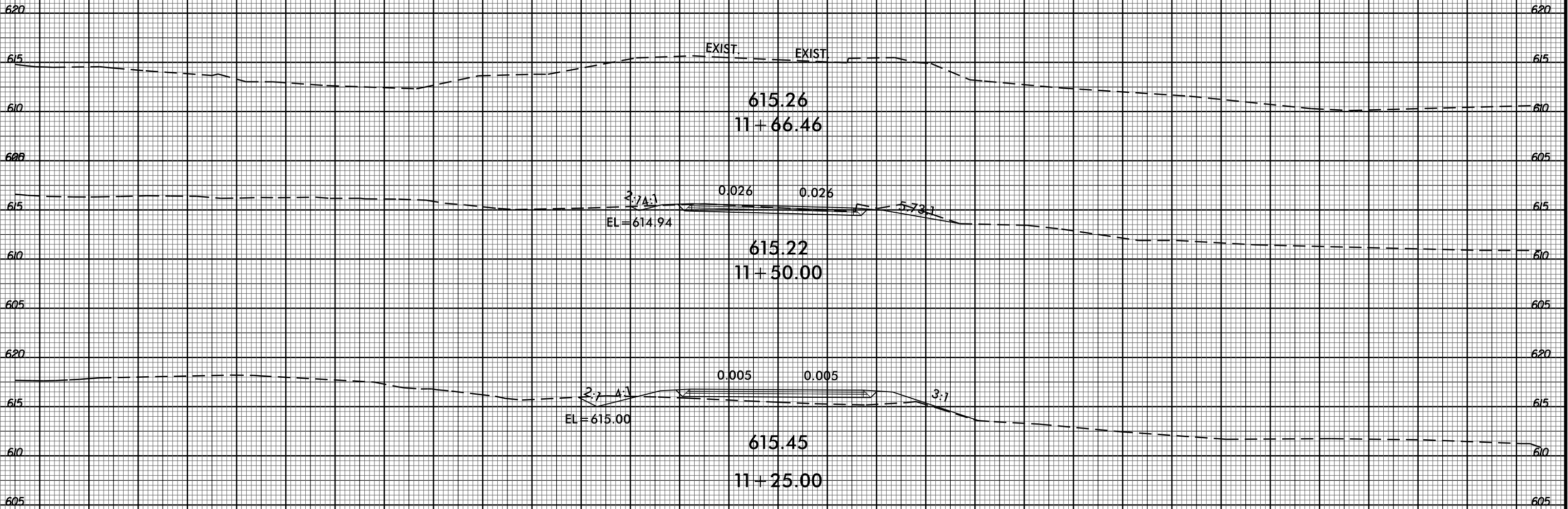


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