STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

February 22, 2011

U.S. Army Corps of Engineers
Regulatory Field Office
P.O. Box 1000
Washington, NC 27889-1000

ATTENTION: Thomas Steffens
NCDOT Coordinator

Dear Sir:

Subject: **Application for Section 404 Nationwide Permit 23, Section 401 Water Quality Certification, and Neuse Riparian Buffer Authorization** for the proposed construction of the Neuse River Greenway from Wake/Johnston County Line to Sam's Branch Creek in Johnston County, TIP EB-4993.

Please find the enclosed PCN form, permit drawings, and half-size plans sheets for the above referenced project. A Categorical Exclusion (CE) was completed for this project in September 2009, and distributed shortly thereafter. Additional copies will be made available upon request. The North Carolina Department of Transportation (NCDOT) proposes to construct a 10' wide greenway along the Neuse River between the Wake/Johnston County Line and Sam's Branch Creek. The project involves the construction of approximately 3.5 miles of asphalt trail, including pedestrian bridges over the Neuse River (195-foot) and Marks Creek (100-foot). There will be 0.16 acres of permanent impact to riparian wetlands resulting from fill, excavation, and mechanized clearing on this project; as well as 409 linear feet of permanent stream impacts and 251,256 sq. ft. of riparian buffer impacts.

This is a Design-Build project that will begin construction as soon as permits are approved.

Regulatory approvals

Section 404 Permit: All aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (72 CFR; 11092-1198, March 12, 2007)

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PROGRAM MANAGEMENT
1595 MAIL SERVICE CENTER
RALEIGH NC 27699-1595

TELEPHONE: 919-250-4234
FAX: 919-212-5711

WEBSITE:
WWW.NCDOT.GOV

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-1
1020 BIRCH RIDGE DRIVE
RALEIGH NC

Section 401 Water Quality Certification: We anticipate 401 General Certification number 3701 will apply to this project. All general conditions of the Water Quality Certification will be met. NCDOT is providing five copies of this application to the NCDWQ for their review and approval.

Neuse Riparian Buffer Authorization: NCDOT requests that the NC Division of Water Quality review this application and issue a written approval for the Neuse River Buffer Authorization.

A copy of this application will be posted on the NCDOT website at:

http://www.ncdot.gov/doh/preconstruct/pe/neu/permit.html

Thank you for your time and assistance with this project. Please contact Amy James at aejames@ncdot.gov or (919) 707-6129 if you have any questions or need additional information.

Sincerely,

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

CC:
W/attachment
Mr. Brian Wrenn, NCDWQ (5 copies)

W/O attachment (see website for attachments)
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Dewayne Sykes, P.E. Utilities
Mr. Mark Staley, Roadside Environmental
Mr. Robert W. Lewis, P.E., Div. 4 Engineer
Mr. Chad Coggins, Div. 4 Environmental Officer
Mr. Gary Jordan, USFWS
Mr. Travis Wilson, NCWRC
Mr. Ron Sechler, NMFS
Ms. Anne Deaton, NCDMF
Mr. Jay Bennett, P.E., Roadway Design
Mr Majed Alghandour, P.E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Ms. Beth Harmon, EEP
Mr. Phillip Ayscue, NCDOT External Audit Branch
Ms. Kristine O'Connor, PDEA

Office Use Only:
Corps action ID no. _____
DWQ project no. **10-0525**
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:	☒ Section 404 Permit ☐ Section 10 Permit	
1b. Specify Nationwide Permit (NWP) number: 23	or General Permit (GP) number:	
1c. Has the NWP or GP number been verified by the Corps?	☒ Yes	☐ No
1d. Type(s) of approval sought from the DWQ (check all that apply): ☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit ☐ 401 Water Quality Certification – Express ☒ Riparian Buffer Authorization		
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☐ Yes ☒ No	For the record only for Corps Permit: ☐ Yes ☒ 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.	☒ Yes	☐ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	☐ Yes	☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	☐ Yes	☒ No

2. Project Information

2a. Name of project:	EB-4993
2b. County:	Johnston
2c. Nearest municipality / town:	Clayton
2d. Subdivision name:	N/A
2e. NCDOT only, T.I.P. or state project no:	N/A

3. Owner Information

3a. Name(s) on Recorded Deed:	Multiple, Please see attached
3b. Deed Book and Page No.	Multiple, Please see attached
3c. Responsible Party (for LLC if applicable):	Gregory J. Thorpe, PhD, PD&EA Branch Manager
3d. Street address:	1 South Wilmington Street
3e. City, state, zip:	Raleigh, NC 27601
3f. Telephone no.:	919-733-3141
3g. Fax no.:	919-733-9794
3h. Email address:	gthorpe@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☒ Agent ☐ Other, specify:
4b. Name:	
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
5. Agent/Consultant Information (if applicable)	
5a. Name:	Benjamin Crawford, PE
5b. Business name (if applicable):	Stewart Engineering, Inc.
5c. Street address:	421 Fayetteville, Ste. 400
5d. City, state, zip:	Raleigh, NC 27601
5e. Telephone no.:	919-866-4735
5f. Fax no.:	919-380-8752
5g. Email address:	bcrawford@stewart-eng.com

B. Project Information and Prior Project History	
1. Property Identification	
1a. Property identification no. (tax PIN or parcel ID):	Multiple, see attached
1b. Site coordinates (in decimal degrees):	Latitude: 35.7008 (DD.DDDDDD) Longitude: - 78.4506 (-DD.DDDDDD)
1c. Property size:	Multiple Parcels = 779.92 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Neuse River
2b. Water Quality Classification of nearest receiving water:	WS-IV
2c. River basin:	Neuse
3. Project Description	

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:

Project runs parallel to the Neuse River. The trail alignment follows an existing sewer easement south of the Riverwood Subdivision and runs through forest (about 1.7 miles) north of Riverwood Subdivision. The land use along the project corridor is predominantly residential.

3b. List the total estimated acreage of all existing wetlands on the property:

1.3 AC delineated per the attached NRTR

3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property:

5,974 LF of Perennial Streams, 1,502 LF of Intermittent Streams – delineated per NRTR and supplemented by ESI

3d. Explain the purpose of the proposed project:

EB-4993 is a greenway project that will connect to the future Neuse River Trail at the Wake/Johnston County line to the west and continues along the Neuse River to connect to the Sam's Branch Greenway trail (under construction). In addition to acting as a link in the Mountains-to-Sea Trail, locally the trail will connect recreational and residential nodes providing an alternative mode of transportation and increasing recreational opportunities. The major areas being connected with this trail are the Riverwood Subdivision and the Town of Clayton.

3e. Describe the overall project in detail, including the type of equipment to be used:

The project involves constructing a 10' paved greenway trail from the Sam's Branch Greenway (under construction) to the Wake/Johnston county line. The proposed greenway will also connect to an existing greenway in the Riverwood Subdivision.

The project includes two pedestrian bridges, one over the Neuse River and the other over Marks Creek.

The contractor will determine the equipment used on the project. However, given the nature of the project there are limited requirements for additional clearing. Trail contractors generally use small paving machines and earth moving equipment which have lower impacts to the project area than traditional highway construction equipment. Multiple construction entrances have been identified to minimize trip distances of equipment. Nationwide Permit 14 General Conditions will be included in construction documents to direct contractor operations in and around wetlands.

4. Jurisdictional Determinations	
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:	☒ Yes ☐ No ☐ Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☒ Preliminary ☐ Final
4c. If yes, who delineated the jurisdictional areas? Name (if known): NCDOT NEU Gail Tyner (ESI) Tim Savidge (The Catena Group)	Agency/Consultant Company: NCDOT/NEU Environmental Services Inc, 524 S. New Hope Road Raleigh, NC The Catena Group 410-B Millstone Drive Hillsborough, NC 27278
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. A JD field visit with the USACE was conducted on 2/17/2010 with The Catena Group; however, no hardcopy JD was received.	
5. Project History	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes ☒ No ☐ Unknown
5b. If yes, explain in detail according to “help file” instructions.	
6. Future Project Plans	
6a. Is this a phased project?	☐ Yes ☒ No
6b. If yes, explain.	

C. Proposed Impacts Inventory
1. Impacts Summary
1a. Which sections were completed below for 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. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)
1 ☒ P ☐ T (NRTR c-wd)	Fill, Mechanized Clearing	PFO	☒ Yes ☐ No	☒ Corps ☐ DWQ	<0.01
4 ☒ P ☐ T (NRTR c-we)	Fill	PFO	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.11
8 ☒ P ☐ T (ESI)	Excavation, Mechanized Clearing	PFO	☒ Yes ☐ No	☒ Corps ☐ DWQ	.04
9 ☒ P ☐ T (ESI)	Fill, Mechanized Clearing	PFO	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.01
2g. **Total wetland impacts**					0.16

2h. Comments: There is a total of 0.11 acres of Hand Clearing on the project at sites 2, 4, 5, & 8. See Attached Wetland Permit Impact Summary and Wetland / Stream Permit Drawings

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. 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)
3 ☒ P ☐ T (NRTR c-sg)	Installation of 30" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☐ PER ☒ INT	☒ Corps ☐ DWQ	2-4	33 LF
3 ☐ P ☒ T (NRTR c-sg)	Installation of 30" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☐ PER ☒ INT	☒ Corps ☐ DWQ	2-4	20 LF
6 ☒ P ☐ T (NRTR t-sb)	Installation of 42" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☒ PER ☐ INT	☒ Corps ☐ DWQ	2-4	45 LF
6 ☐ P ☒ T (NRTR t-sb)	Installation of 42" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☒ PER ☐ INT	☒ Corps ☐ DWQ	2-4	42 LF
7 ☒ P ☐ T (NRTR t-sc)	Installation of 60" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☒ PER ☐ INT	☒ Corps ☐ DWQ	2-4	62 LF
7 ☐ P ☒ T (NRTR t-sc)	Installation of 60" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☒ PER ☐ INT	☒ Corps ☐ DWQ	2-4	29 LF
8 ☐ P ☒ T (NRTR Marks Creek)	Installation of 102' bridge over Marks Creek	Marks Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	34	66 LF
10 ☒ P ☐ T (NRTR t-sa)	Installation of 24" HDPE and Rip	UT to Neuse	☒ PER ☐ INT	☒ Corps ☐ DWQ	4-6	40 LF

	Rap Energy Dissipator					
10 ☐ P ☒ T (NRTR t-sa)	Installation of 24" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☒ PER ☐ INT	☒ Corps ☐ DWQ	4-6	20 LF
11 ☒ P ☐ T (NRTR c-sd)	Installation of 18" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☐ PER ☒ INT	☒ Corps ☐ DWQ	1-3	32 LF
11 ☐ P ☒ T (NRTR c-sd)	Installation of 18" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☐ PER ☒ INT	☒ Corps ☐ DWQ	1-3	20 LF
12 ☒ P ☐ T (NRTR c-sc)	Installation of 48" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☒ PER ☐ INT	☒ Corps ☒ DWQ	8-10	36 LF
12 ☐ P ☒ T (NRTR c-sc)	Installation of 48" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☒ PER ☐ INT	☒ Corps ☒ DWQ	8-10	20 LF
13 ☒ P ☐ T (NRTR c-sb)	Installation of 24" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☐ PER ☒ INT	☒ Corps ☒ DWQ	1-3	50 LF
13 ☐ P ☒ T (NRTR c-sb)	Installation of 24" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☐ PER ☒ INT	☒ Corps ☒ DWQ	1-3	20 LF
14 ☒ P ☐ T (NRTR c-sa)	Installation of 66" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☒ PER ☐ INT	☒ Corps ☒ DWQ	14-16	50 LF
14 ☐ P ☒ T (NRTR c-sa)	Installation of 66" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☒ PER ☐ INT	☒ Corps ☒ DWQ	14-16	20 LF
15 ☒ P ☐ T (NRTR c-se)	Installation of dual 66" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☒ PER ☐ INT	☒ Corps ☒ DWQ	8-10	61 LF
15 ☐ P ☒ T (NRTR c-se)	Installation of dual 66" HDPE and Rip Rap Energy Dissipator	UT to Neuse	☒ PER ☐ INT	☒ Corps ☒ DWQ	8-10	30 LF
3h. **Total stream and tributary impacts**						409 LF Perm. 287 LF Temp.
3i. Comments: See attached Wetland Permit Impact Summary and Wetland / Stream Permit Drawings						

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 ☐ P ☐ T				
O2 ☐ P ☐ T				
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
4f. Total open water impacts				

4g. Comments: There are no Open Water impacts

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								
5f. Total								

5g. Comments:

5h. Is a dam high hazard permit required?	☐ Yes ☒ 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?	☒ Neuse ☐ Tar-Pamlico ☐ Other: ☐ Catawba ☐ Randleman				
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)
1 ☒ P ☐ T	Cut/Fill	Neuse River/Unnamed Tributary to Neuse	☐ Yes ☒ No	6,638	26,909
1A ☒ P ☐ T	Cut/Fill	Neuse River/Unnamed Tributary to Neuse	☐ Yes ☒ No	0	327
1B ☒ P ☐ T	Cut/Fill	Neuse River/Unnamed Tributary to Neuse	☐ Yes ☒ No	37,207	44,486
2 ☒ P ☐ T	Cut/Fill	Neuse River/Unnamed Tributary to Neuse	☐ Yes ☒ No	8,585	5,601
3 ☒ P ☐ T	Cut/Fill	Neuse River	☐ Yes ☒ No	2,898	9,174
4 ☒ P ☐ T	Cut/Fill	Neuse River/Unnamed Tributary to Neuse	☐ Yes ☒ No	7,127	26,206
5 ☒ P ☐ T	Cut/Fill	Marks Creek	☐ Yes ☒ No	8,282	4,884
6 ☒ P ☐ T	Cut/Fill	Unnamed Tributary to Neuse	☐ Yes ☒ No	3,788	2,678
7 ☒ P ☐ T	Cut/Fill	Neuse River/Unnamed Tributary to Neuse	☐ Yes ☒ No	4,177	11,762
8 ☒ P ☐ T	Cut/Fill	Neuse River/Unnamed Tributary to Neuse	☐ Yes ☒ No	14,484	15,356
9 ☒ P ☐ T	Cut/Fill	Neuse River	☐ Yes ☒ No	0	93
10 ☒ P ☐ T	Cut/Fill	Neuse River/Unnamed Tributary to Neuse	☐ Yes ☒ No	4,429	1,697
11 ☒ P ☐ T	Cut/Fill	Neuse River/Unnamed Tributary to Neuse	☐ Yes ☒ No	4,612	10,243
		6h. **Total buffer impacts**		*102,227*	*154,986*

6i. Comments: Greenway Trails are an allowable use within buffer zones. The rip rap encroaching into the Buffer Zones 1 and 2 are NCDOT specified culvert velocity dissipator pads for the drainage culverts beneath the proposed Greenway Trail.

D. Impact Justification and Mitigation

1. Avoidance and Minimization

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

The horizontal alignment adjusts accordingly to avoid or minimize impacts as much as possible. The trail itself matches existing grade as to minimize the amount of cut and fill, therefore avoiding or minimizing impacts. Double headwalls have been used at culvert locations to further reduce impacts.

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

The contractor shall be responsible for minimizing the impacts through construction techniques. The bid specification will call for hand clearing where possible, use of construction mats in sensitive areas, small paving machines and generally low impact machines to be used on the project in sensitive areas. Multiple construction entrances have been provided to minimize trip distances of heavy equipment. Nationwide 23 General Conditions will be included in construction specifications.

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 yes, mitigation is required by (check all that apply):	☐ DWQ ☒ Corps	
2c. If yes, which mitigation option will be used for this project?	☐ Mitigation bank ☒ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation	
3. Complete if Using a Mitigation Bank		
3a. Name of Mitigation Bank:		
3b. Credits Purchased (attach receipt and letter)	Type	Quantity
3c. Comments:		
4. Complete if Making a Payment to In-lieu Fee Program		
4a. Approval letter from in-lieu fee program is attached.	☒ Yes	
4b. Stream mitigation requested:	linear feet	
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐ cold	
4d. Buffer mitigation requested (DWQ only):	square feet	
4e. Riparian wetland mitigation requested:	0.16 acres	
4f. Non-riparian wetland mitigation requested:	acres	
4g. Coastal (tidal) wetland mitigation requested:	acres	
4h. Comments:		

5. Complete if Using a Permittee Responsible Mitigation Plan				
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			3 (2 for Catawba)	
Zone 2			1.5	
	6f. **Total buffer mitigation required:**			
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).				
6h. Comments:				

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
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. If yes, then is a diffuse flow plan included? If no, explain why. Comments: The runoff directed into the Riparian Buffers occur at culverts that flow under the proposed greenway trail. All outlets of these culverts have been provided with NCDOT standard sized rip rap velocity dissipater pads. All other runoff shall sheet flow across the trail and be of an adequately diffuse flow.	☐ Yes ☒ No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	0.012%
2b. Does this project require a Stormwater Management Plan?	☒ Yes ☐ 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 NCDOT Highway Stormwater Program Stormwater Management Plan	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☒ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	Town of Clayton
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	☐ Coastal counties ☐ HQW ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☐ Yes ☐ No
5b. Have all of the 401 Unit submittal requirements been met?	☐ Yes ☐ No

F. Supplementary Information		
1. Environmental Documentation (DWQ Requirement)		
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.) Comments: See attached PCE	☒ Yes	☐ No
2. Violations (DWQ Requirement)		
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)?	☐ Yes	☒ No
2b. Is this an after-the-fact permit application?	☐ Yes	☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):		
3. Cumulative Impacts (DWQ 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 "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. The project is a greenway and will therefore not affect development.		
4. Sewage Disposal (DWQ Requirement)		
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. 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 ☐ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? NCNHP – See attached NRTR		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS – See attached NRTR		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
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? SHPO, see NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☒ Yes	☐ No
8b. If yes, explain how project meets FEMA requirements: A flood study was conducted as a part of this project and a "MOA" has been secured for this project.		
8c. What source(s) did you use to make the floodplain determination? NC Floodmaps		

Applicant/Agent's Printed Name	_____ Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	

Released: July 2010 (DRAFT)

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

Version 1.1

Page **of**

General Project Information

Project No.:	EB-4993		**Date:**	5-Jan-11		
City/Town:	Clayton		**Designer:**	Leah Young		
County(ies):	Johnston County		**Project Manager:**	Jeffrey Reck		
River Basin(s):	**Neuse**		**CAMA County?**	no	**TVA County?**	no
Primary Receiving Water:	Neuse River & Marks Creek		**NCDWQ Stream Index:**	Neuse River: 27-(36);27-(38.5), Marks Creek: 27-38		
NCDWQ Surface Water Classification for Primary Receiving Water		**Primary:**	Water Supply V (WS-V)			
		Supplemental:	Nutrient Sensitive Waters (NSW)			
Other Stream Classification:						
303(d) Stream?	yes	**Type(s) of Impairment:**	Copper	Turbidity	Zinc	
State Stormwater Permit Required?	no	**If yes, why?**	N/A			
Could the Project Impact Threatened or Endangered Species?			no			
Description:	Biological conclusion was that the project would have no effect on the endangered species.					
Anadromous Fish Present?	**yes**					
Description:	Inland Nursery Area					
Buffer Rules in Effect?	yes		**Buffer Rules:**	Neuse River Basin		

Existing Site

Description of Existing Project Area:	Project area emcompasses an area adjacent and parallel to the Neuse River and Marks Creek. The project area begins at a point on the Neuse River east of SR1708 (near ex. pump station), continuing north along the river to a point crossing SR1700, and continuing further north along the river to a point terminating at the Wake/Johnston County Line.
Average Daily Traffic (existing):	N/A
Existing Cross Section:	N/A - Project Area primarily within Neuse River Buffers and existing S/S Easements
Surrounding Land Use:	Neuse Buffer Zones, Agricultural, Low-Density Residential
General Comments:	

Project Description

Description of Proposed Project:	Project consists of the construction of a greenway trail system (divided into 5 segments) and the construction of (2) pre-fabricated steel truss bridges. One bridge is proposed to cross the Neuse River and the other is proposed to cross Marks Creek.			
Average Daily Traffic (proposed):	N/A - Only pedestrian or bicycle traffic proposed			
Proposed Cross-Section:	N/A			
Interchange Modification:	no	**Median Type:**	N/A	
North **Terminus:**	Point North of and adjacent to the Neuse River at the Wake/Johnston County Line			
South **Terminus:**	Point east of SR1708 (near ex. Pump station) and adjacent to the Neuse River			
Project Length (lin. miles/feet):	3.446/18,195	**Added Impervious Area (ac.):**	4.15	
General Comments:	Stormwater management is not require since the project is a permitted use. Diffuse flow was promoted throughout the project.			

09/08/09

TIP PROJECT: EB–4993

CONTRACT: C202381

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	EB–4993	1	

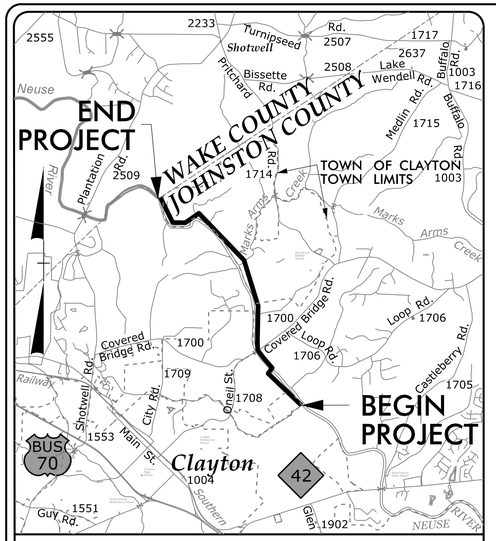
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
40892.3.ST1	STM–000S(533)	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

LOCATION: ***NEUSE RIVER GREENWAY FROM WAKE/JOHNSTON COUNTY LINE TO SAM'S BRANCH CREEK IN JOHNSTON COUNTY***

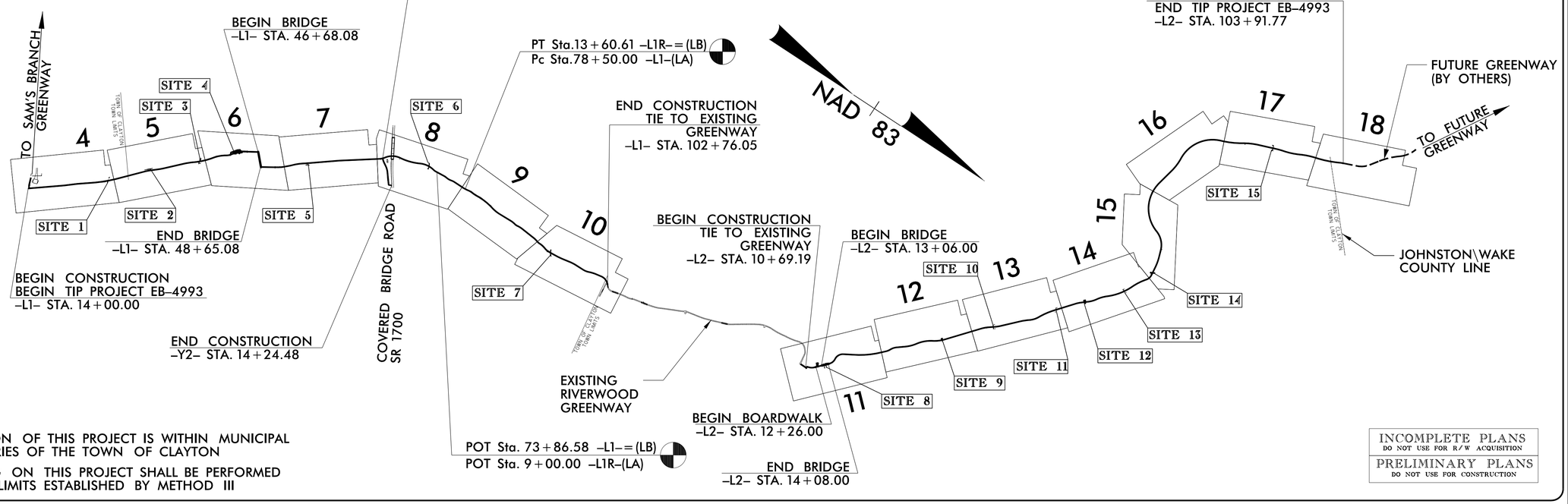
TYPE OF WORK: ***GRADING, PAVING, STRUCTURES, BOARDWALK, DRAINAGE, EROSION CONTROL AND SIGNING.***



VICINITY MAP

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STREAM & WETLAND IMPACTS



A PORTION OF THIS PROJECT IS WITHIN MUNICIPAL BOUNDARIES OF THE TOWN OF CLAYTON

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

DESIGN SPEED = 20 MPH
LEAN ANGLE = 15 DEGREES
FUNC. CLASS. = GREENWAY

PROJECT LENGTH

LENGTH OF GREENWAY TIP EB–4993 = 3.389 MILES
LENGTH OF STRUCTURES TIP EB–4993 = 0.057 MILES
LENGTH OF PROJECT TIP EB–4993 = 3.446 MILES

Prepared in the Office of:
STEWART ENGINEERING
For
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 20, 2010

LETTING DATE:
APRIL 20, 2010

BENJAMIN R. CRAWFORD, PE
PROJECT ENGINEER

JONATHAN C. HEFNER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

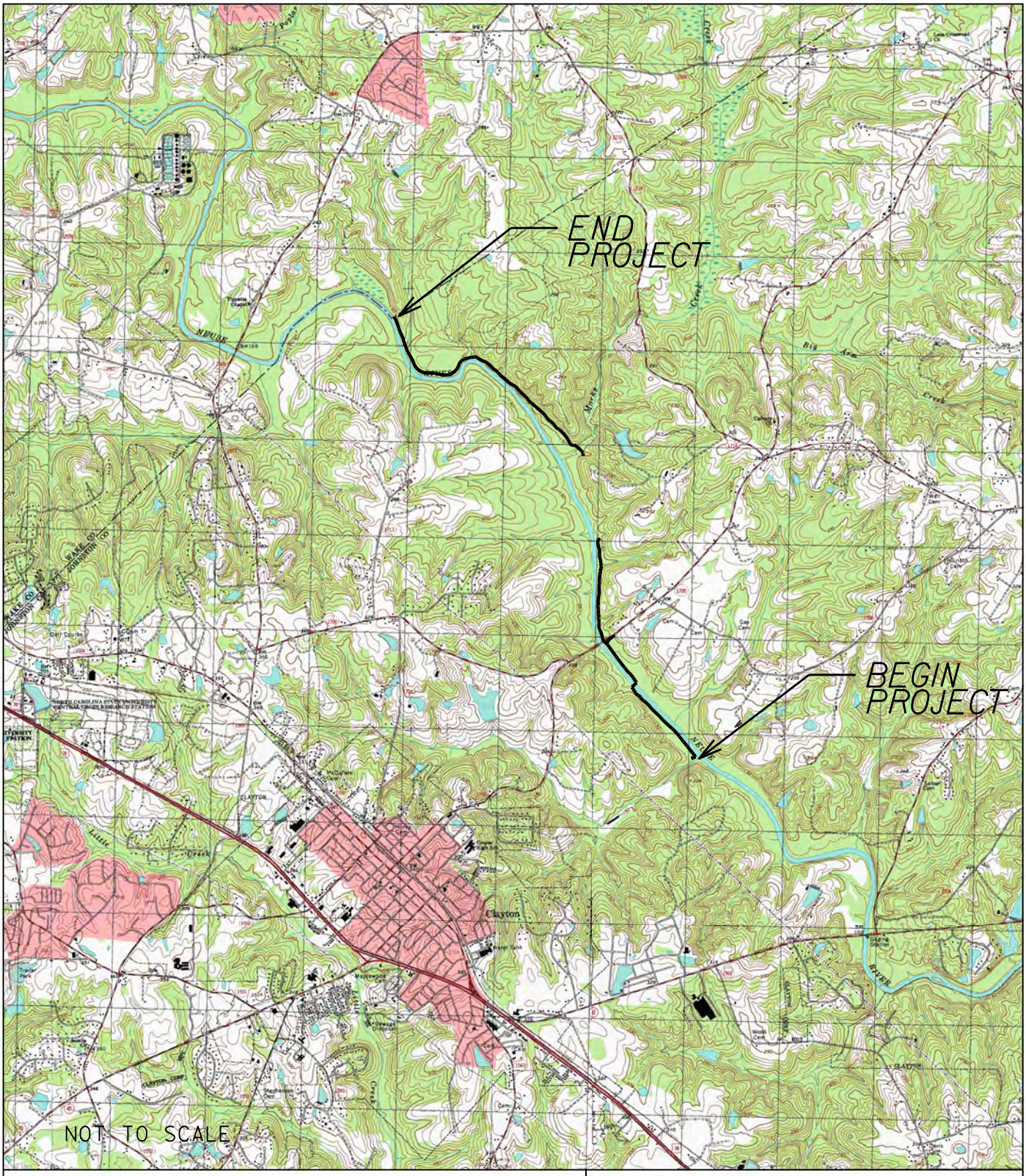
ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

2/17/2011
...\EB4993_PRM_wet_TSH.dgn
USER:bcrawford



NEUSE RIVER BUFFER
VICINITY MAPS

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
JOHNSTON COUNTY

PROJECT: 40892.3.ST1 (EB-4993)

NEUSE RIVER GREENWAY
SAM'S BRANCH TO WAKE CO.

SHEET OF

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	Town of Clayton	P.O. Box 879, Clayton NC 27528
2	Donald C. Adams	1340 Old Drug Store Road, Garner NC 27529
3	John Wesley Massey	C/O James Watson, 3301 North Ocean Blvd, Myrtle Beach SC 29577-2955
5	Mavis C. House	2873 Covered Bridge Road, Clayton NC 27527
10	The State of North Carolina	N/A

NCDOT

DIVISION OF HIGHWAYS

JOHNSTON COUNTY

PROJECT: 40892.3.ST1 (EB-4993)

NEUSE RIVER GREENWAY

SAM'S BRANCH TO WAKE CO.

SHEET OF 1/05/10

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	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)
1	25+17 L1	42" HDPE	<0.01			<0.01						
2	31+27	N/A					0.02					
3	38+23 L1	30" HDPE						0.01	0.01	33	20	
4	42+55 to 44+40 L1	15" HDPE	0.11				0.07					
5	55+40	N/A					<0.01					
6	72+50 L1	42" HDPE						0.01	0.01	45	42	
7	93+44 L1	60" HDPE						0.01	0.01	62	29	
8	13+06 to 14+08 L2	1@102' PreFab			0.02	<0.01	0.02		0.02		66	
9	30+71 L2	18" HDPE	0.01			<0.01						
10	38+07 L2	24" HDPE						0.01	<0.01	40	20	
11	47+21 L2	18" HDPE						<0.01	<0.01	32	20	
TOTALS:			0.13		0.02	0.01	0.11	0.04	0.04	212	197	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

COUNTY
WBS - 40892.3.ST1 (EB-4993)

ATN Revised 3/31/05

SHEET 2/17/2011

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	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)
12	51+39 L2	48" HDPE						0.02	0.01	36	20	
13	57+04 L2	24" HDPE						<0.01	<0.01	50	20	
14	61+88 L2	66" HDPE						0.02	0.01	50	20	
15	93+89 L2	2 - 66' HDPE						0.01	0.01	61	30	
TOTALS:			0.13		0.02	0.01	0.11	0.09	0.07	409	287	

Existing Channel Impacts Permanent include 30' of RIP RAP Bank Stabilization.

Existing Channel Impacts Temporary include 45' of PRSM Bank Stabilization.

Area impacts are calculated to the thousandth and rounded to the hundredth

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

COUNTY

WBS - 40892.3.ST1 (EB-4993)

ATN Revised 3/31/05

SHEET 2/17/2011

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
EB–4993	2B
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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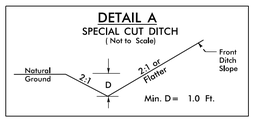
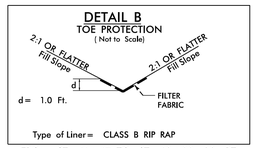
60% ROADWAY SUBMITTAL

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 25+28.5 TO STA. 27+25 –L1– LT
FROM STA. 63+50 TO STA. 65+50 –L1– LT
FROM STA. 65+50 TO STA. 65+68.9 –L1– RT
FROM STA. 65+68.9 TO STA. 66+22.6 –L1– LT
FROM STA. 71+25 TO STA. 72+33.9 –L1– RT
FROM STA. 92+00 TO STA. 92+75 –L1– LT
FROM STA. 93+42.6 TO STA. 96+00 –L1– LT
FROM STA. 96+68.9 TO STA. 100+25 –L1– LT
FROM STA. 15+50 TO STA. 16+92.2 –L2– RT
FROM STA. 23+50 TO STA. 24+01.7 –L2– RT
FROM STA. 24+01.7 TO STA. 24+75 –L2– RT
FROM STA. 40+00 TO STA. 40+25 –L2– LT
FROM STA. 40+25 TO STA. 42+00 –L2– LT
FROM STA. 47+24 TO STA. 47+50 –L2– LT
FROM STA. 52+75 TO STA. 53+00 –L2– LT
FROM STA. 54+05.9 TO STA. 55+25 –L2– LT
FROM STA. 61+00 TO STA. 61+71.2 –L2– LT
FROM STA. 61+94.8 TO STA. 65+50 –L2– LT
FROM STA. 65+50 TO STA. 67+25 –L2– LT
FROM STA. 67+59.9 TO STA. 68+50 –L2– LT
FROM STA. 67+59.9 TO STA. 70+75 –L2– RT
FROM STA. 69+75 TO STA. 72+00 –L2– LT
FROM STA. 72+25 TO STA. 73+62.4 –L2– RT
FROM STA. 73+62.4 TO STA. 75+50 –L2– RT
FROM STA. 77+72.3 TO STA. 78+25 –L2– LT
FROM STA. 79+25 TO STA. 80+17.4 –L2– LT

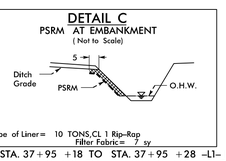
DETAIL B
TOE PROTECTION
(Not to Scale)



Type of Liner= CLASS B RIP RAP

FROM STA. 11+47 TO STA. 12+00 –L2– RT

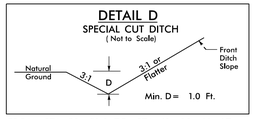
DETAIL C
PSRM AT EMBANKMENT
(Not to Scale)



Type of Liner= 10 TONS,CL 1 Rip–Rap
Filter Fabric= 7 sy

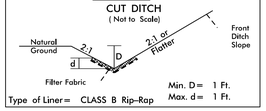
FROM STA. 37+95 +18 TO STA. 37+95 +28 –L1– RT
FROM STA. 38+10 +20 TO STA. 38+10 +32 –L1– RT
FROM STA. 72+30 –17 TO STA. 72+30 –27 –L1– LT
FROM STA. 72+30 +20 TO STA. 72+30 +30 –L1– RT
FROM STA. 72+60 –30 TO STA. 72+60 –40 –L1– LT
FROM STA. 72+60 +13 TO STA. 72+60 +23 –L1– RT
FROM STA. 37+90 –26.9 TO STA. 37+95 –18.5 –L2– LT
FROM STA. 38+15 –18.5 TO STA. 38+15 –28.5 –L2– LT
FROM STA. 47+12 +21.3 TO STA. 47+14 +11.5 –L2– RT
FROM STA. 47+15 –15.7 TO STA. 47+15 –24.9 –L2– LT
FROM STA. 47+30 –14.9 TO STA. 47+30 –24.3 –L2– LT
FROM STA. 51+15 – 20.3 TO STA. 51+15 –30.3 –L2– LT
FROM STA. 51+60 –20.6 TO STA. 51+55 –20.6 –L2– LT
FROM STA. 56+90 –31.8 TO STA. 56+90 –23.7 –L2– LT
FROM STA. 57+10 –33.6 TO STA. 57+15 –24.4 –L2– LT

DETAIL D
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 59+51.9 TO STA. 61+00 –L1– LT
FROM STA. 72+62.9 TO STA. 73+00 –L1– RT
FROM STA. 44+25 TO STA. 47+08.8 –L2– RT
FROM STA. 51+80.8 TO STA. 52+50 –L2– LT
FROM STA. 91+75 TO STA. 93+60.4 –L2– LT
FROM STA. 94+13.8 TO STA. 96+00 –L2– LT

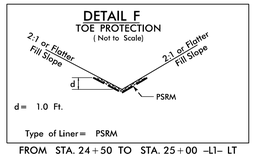
DETAIL E
CUT DITCH
(Not to Scale)



Type of Liner= CLASS B Rip–Rap

FROM STA. 90+75 TO STA. 93+35.8 –L1– RT
FROM STA. 10+14.7 TO STA. 11+00 –Y2– RT

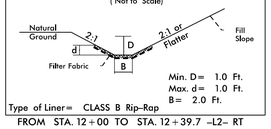
DETAIL F
TOE PROTECTION
(Not to Scale)



Type of Liner= PSRM

FROM STA. 24+50 TO STA. 25+00 –L1– LT
FROM STA. 37+75 TO STA. 37+92 –L1– RT
FROM STA. 38+14.6 TO STA. 39+00 –L1– RT
FROM STA. 41+00 TO STA. 45+07 –L1– RT
FROM STA. 50+66 TO STA. 52+60 –L1– LT
FROM STA. 61+50 TO STA. 63+50 –L1– LT
FROM STA. 70+75 TO STA. 72+00 –L1– LT
FROM STA. 87+00 TO STA. 88+47.7 –L1– RT
FROM STA. 88+47.7 TO STA. 89+50 –L1– RT
FROM STA. 14+24 TO STA. 14+88 –L2– RT
FROM STA. 30+15 TO STA. 31+27 –L2– RT
FROM STA. 37+73.5 TO STA. 37+97.5 –L2– RT
FROM STA. 38+14.4 TO STA. 38+73.4 –L2– RT
FROM STA. 38+14.4 TO STA. 38+73.4 –L2– LT
FROM STA. 47+23 TO STA. 47+34 –L2– RT
FROM STA. 47+75 TO STA. 48+25 –L2– LT
FROM STA. 51+00 TO STA. 51+24 –L2– RT
FROM STA. 51+50 TO STA. 51+75 –L2– RT
FROM STA. 54+02 TO STA. 54+25 –L2– RT
FROM STA. 57+10 TO STA. 57+25 –L2– RT
FROM STA. 65+50 TO STA. 67+50 –L2– RT
FROM STA. 67+25 TO STA. 67+50 –L2– LT
FROM STA. 81+25 TO STA. 82+50 –L2– RT

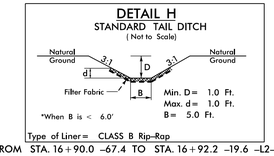
DETAIL G
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Type of Liner= CLASS B Rip–Rap

FROM STA. 12+00 TO STA. 12+39.7 –L2– RT

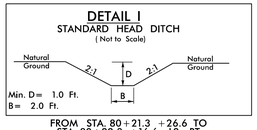
DETAIL H
STANDARD TAIL DITCH
(Not to Scale)



Type of Liner= CLASS B Rip–Rap

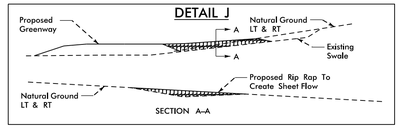
FROM STA. 16+90.0 –67.4 TO STA. 16+92.2 –19.6 –L2– LT
FROM STA. 24+03 –20.5 TO STA. 24+03 –44.8 –L2– LT

DETAIL I
STANDARD HEAD DITCH
(Not to Scale)

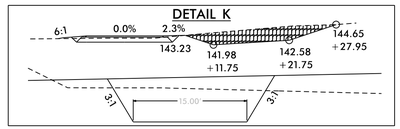


FROM STA. 80+21.3 +26.6 TO
STA. 80+22.3 +16.6 –L2– RT

DETAIL J

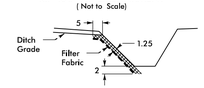


DETAIL K



FROM STA. 68+00 +8.00 –L1– RT

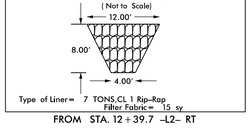
DETAIL L
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= 10 TONS,CL 1 Rip–Rap
Filter Fabric= 7 sy

FROM STA. 25+25 TO STA. 25+35 –L2– LT

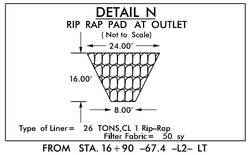
DETAIL M
RIP RAP PAD AT OUTLET
(Not to Scale)



Type of Liner= 7 TONS,CL 1 Rip–Rap
Filter Fabric= 15 sy

FROM STA. 12+39.7 –L2– RT

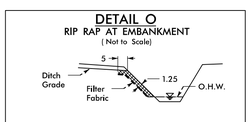
DETAIL N
RIP RAP PAD AT OUTLET
(Not to Scale)



Type of Liner= 26 TONS,CL 1 Rip–Rap
Filter Fabric= 50 sy

FROM STA. 16+90 –67.4 –L2– LT
FROM STA. 24+03 –44.8 –L2– LT

DETAIL O
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= 10 TONS,CL 1 Rip–Rap
Filter Fabric= 7 sy

FROM STA. 93+44 +22 TO STA. 93+48 +31 –L1– RT
FROM STA. 93+20 –16 TO STA. 93+48 –26 –L1– LT
FROM STA. 93+47 –16 TO STA. 93+48 –26 –L1– LT
FROM STA. 61+70 –21.8 TO STA. 61+65 –31.8 –L2– LT
FROM STA. 61+80 +16.6 TO STA. 61+80 +24.4 –L2– RT
FROM STA. 61+90 –23.7 TO STA. 61+95 –14.6 –L2– LT
FROM STA. 62+10 +19.8 TO STA. 62+15 +28.6 –L2– RT
FROM STA. 93+30 –27.1 TO STA. 93+40 –19.4 –L2– LT
FROM STA. 93+55 +26.7 TO STA. 93+60 +17.4 –L2– RT
FROM STA. 94+05 +30.3 TO STA. 94+10 +20.9 –L2– RT
FROM STA. 94+10 –32.2 TO STA. 94+15 –23.0 –L2– LT

2/1/2011
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USER:jccrawford

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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MOFFATT & NICHOL
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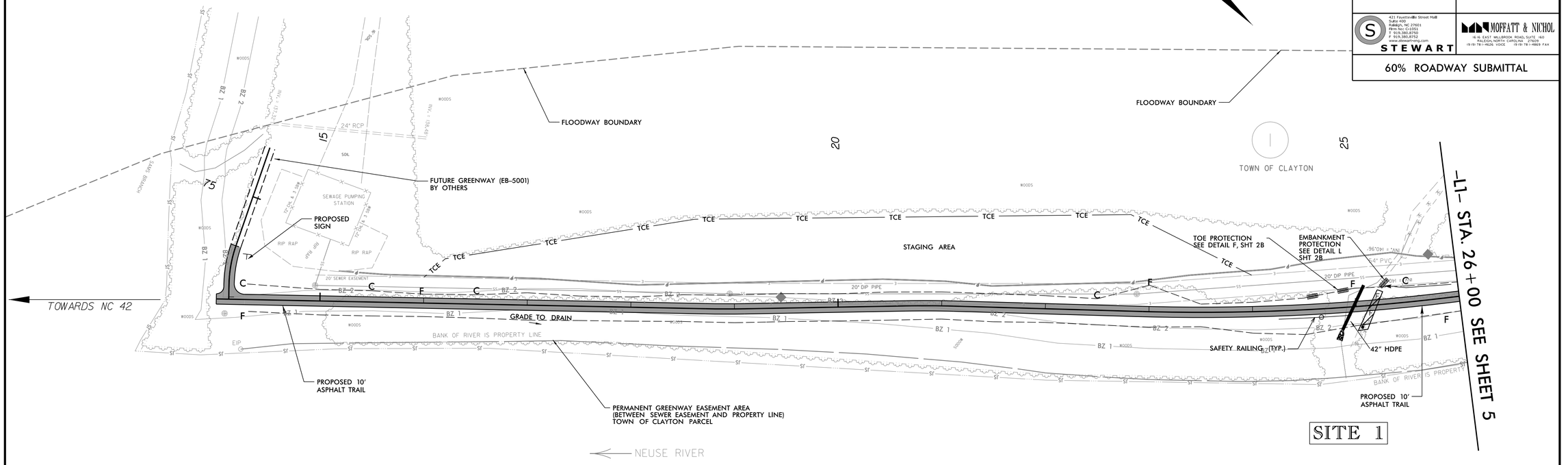
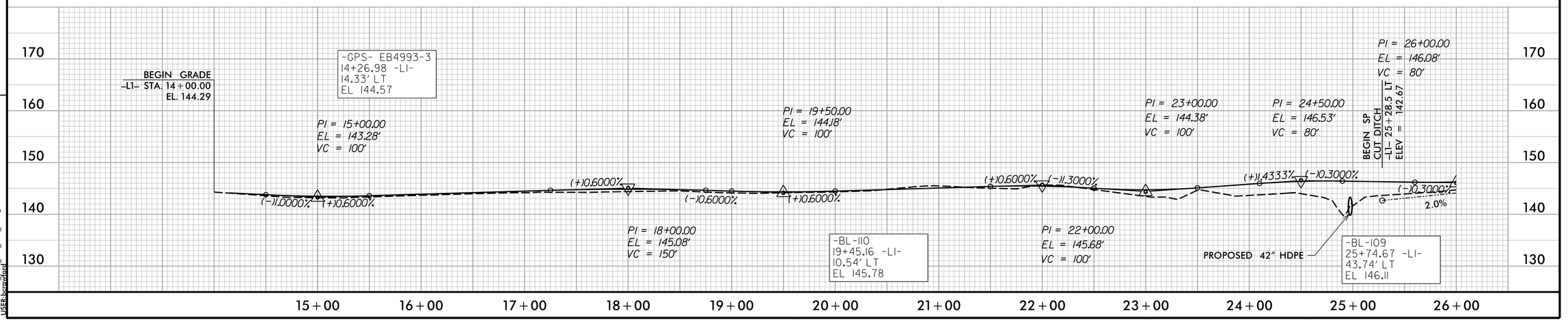
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

60% ROADWAY SUBMITTAL

REVISIONS 8/17/99



STREAM & WETLAND IMPACTS



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PROJECT REFERENCE NO.	SHEET NO.
EB–4993	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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60% ROADWAY SUBMITTAL

8/17/99

REVISIONS

TOWN OF CLAYTON

TOWN OF CLAYTON TOWN LIMITS

FLOODWAY BOUNDARY

DONALD C. ADAMS

30

35

CONTRACTOR SHALL NOT IMPACT WETLANDS. CONTRACTOR WILL CLEAR A MAXIMUM 1' FROM CUT SLOPE AND 5' FROM FILL SLOPE OR TO WETLAND EDGE.

–L1– STA. 26+00 SEE SHEET 4

PROPERTY CORNER IS A SYCAMORE TREE

PROPOSED 10' ASPHALT TRAIL

PERMANENT GREENWAY EASEMENT AREA (BETWEEN SEWER EASEMENT AND PROPERTY LINE) TOWN OF CLAYTON PARCEL

GRADE TO DRAIN

SITE 2

NEUSE RIVER

BANK OF RIVER IS PROPERTY LINE

FLOODWAY BOUNDARY

PROPOSED 10' ASPHALT TRAIL

REMOVE 30" HDPE

SAFETY RAILING (TYP.)

TOE PROTECTION SEE DETAIL F SHT 2B

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

TOE PROTECTION SEE DETAIL F SHT 2B

SITE 3

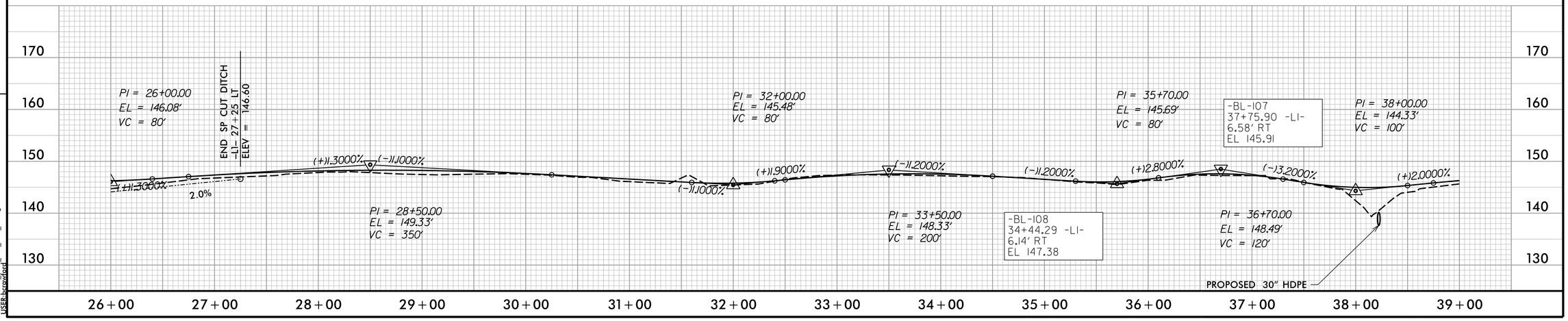
–L1– STA. 39+00 SEE SHEET 6

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES HAND CLEARING

STREAM & WETLAND IMPACTS



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PROJECT REFERENCE NO.	SHEET NO.
EB–4993	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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60% ROADWAY SUBMITTAL

REVISIONS 8/17/99

SITE 4

CONTRACTOR SHALL NOT IMPACT WETLANDS. CONTRACTOR WILL CLEAR A MAXIMUM 1' FROM CUT SLOPE AND 5' FROM FILL SLOPE OR TO WETLAND EDGE.

DONALD C. ADAMS

FLOODWAY BOUNDARY

–L1– STA. 39+00 SEE SHEET 5

–L1– STA. 52+00 SEE SHEET 7

PROPOSED MILE MARKER

PROPOSED 10' ASPHALT TRAIL

APPROXIMATE LOCATION 8" DIP FORCEMAIN

TOE PROTECTION SEE DETAIL F SHT 2B

15" HDPE FOR WETLAND OVERFLOW

SLOPE PROTECTION LINED WITH PSRM FROM STA –L1– 44+00.00 TO STA –L1– 45+07.10

BEGIN APPROACH SLAB –L1– STA. 44+97.08

END APPROACH SLAB BEGIN BOARDWALK –L1– STA. 45+07.08

SAFETY RAILING (TYP.)

CLASS II RIP RAP

END BOARDWALK BEGIN BRIDGE –L1– STA. 46+68.08

20'X20' BOARDWALK CONNECTION TO BRIDGE

NEUSE RIVER

SLOPE PROTECTION LINED WITH PSRM FROM STA –L1– 50+66.1 TO STA –L1– 51+85.8

END BRIDGE BEGIN BOARDWALK –L1– STA. 48+65.08

END APPROACH SLAB –L1– STA. 50+66.08

END BOARDWALK BEGIN APPROACH SLAB –L1– STA. 50+66.08

JOHN WESLEY MASSEY

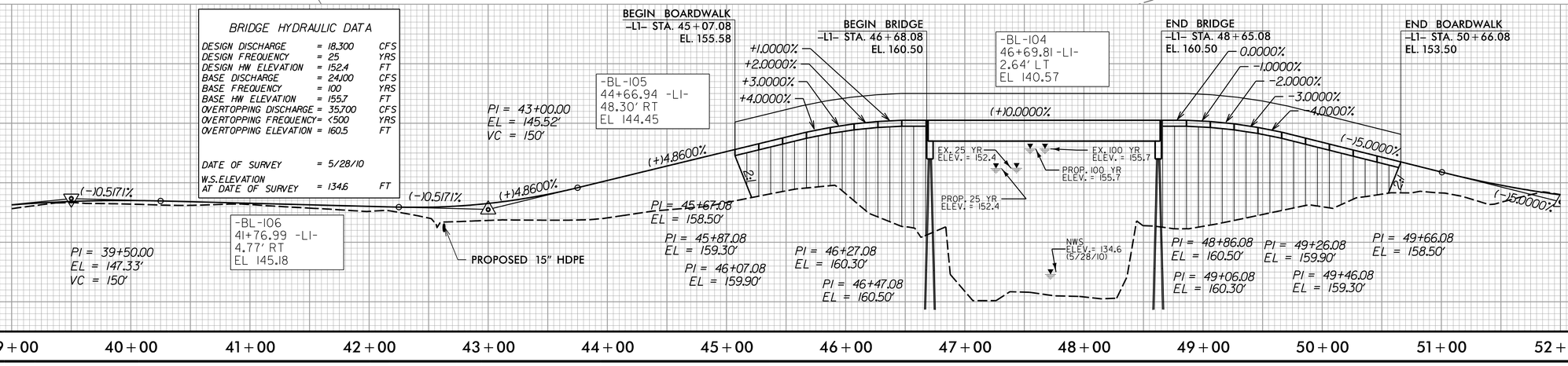
DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

STREAM & WETLAND IMPACTS

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 18,300	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 152.4	FT
BASE DISCHARGE	= 24,100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 155.7	FT
OVERTOPPING DISCHARGE	= 35,700	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 160.5	FT
DATE OF SURVEY	= 5/28/10	
W.S.ELEVATION AT DATE OF SURVEY	= 134.6	FT



2/17/2011
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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

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FLOODWAY BOUNDARY

N 42°12'08" W 80.00'

25.41'49" E 600.00'

BZ 2 / BZ 1 / Z 1

WOODS

Sf

S 36°52'46" E 648.12'

RICHARD EARP MOORE
DB 3118 PG 335

N 78°19'25" E 1865.32'

S 41°47'02" E 335.11'

JOHN WESLEY MASSEY & LOU MASSEY WATSON
DB 830 PG 535

S 27°16'01" E 3,542.40'

55

60

SITE 5

NEUSE RIVER

PROPOSED 10' ASPHALT TRAIL

TOE PROTECTION SEE DETAIL F SHT 2B

-L1- STA. 52+00 SEE SHEET 6

-L1- STA. 65+00 SEE SHEET 8

F / C / PGE / TCE / HC

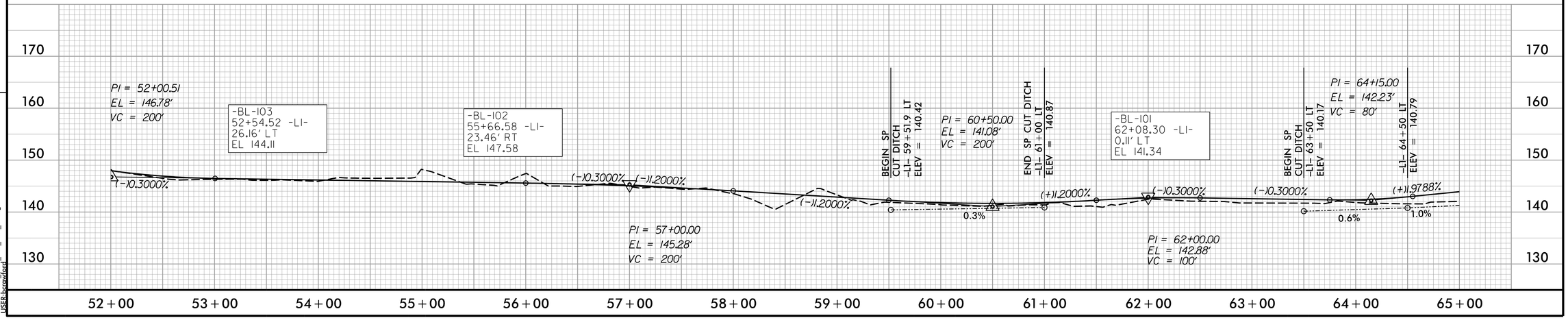
CONTRACTOR SHALL NOT IMPACT WETLANDS. CONTRACTOR WILL CLEAR A MAXIMUM 1' FROM CUT SLOPE AND 5' FROM FILL SLOPE OR TO WETLAND EDGE.

JOHN WESLEY MASSEY

3

DENOTES HAND CLEARING

STREAM & WETLAND IMPACTS



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USER:brcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB–4993	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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60% ROADWAY SUBMITTAL

SEE SHEET 18 FOR –Y2– PROFILE

REVISIONS 8/17/99

SITE 6

NEUSE RIVER

JOHN WESLEY MASSEY & LOU MASSEY WATSON
DB 830 PG 535

PROPOSED SIGN AND MILE MARKER

FLOODWAY BOUNDARY

PROPOSED 10' ASPHALT TRAIL

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

TOE PROTECTION SEE DETAIL F SHT 2B

SAFETY RAILING (TYP.)

42" HDPE

15" HDPE

–L1– STA. 65+00 SEE SHEET 7

–L1R– STA. 13+10.61 SEE SHEET 9

DAVID M. SORRELL, ET UX
DB 959, PG 116
4

MAVIS C. HOUSE
DB 705, PG 629
5

JOHN WESLEY MASSEY
DB 1778 PG 679
3

BEAVER DAM

S 01°48'52" W 131.80'

N 82°29'08" W 210.63'

S 55°56'22" W 80.00'

4' SEWER EASEMENT

20' SEWER EASEMENT

SEWER PUMPING STATION

COVERED BRIDGE RD. SR 1700

ABBROXIMATE LOCATION OF 12" WATERLINE

TOWN OF CLAYTON SEWER EASEMENT

4 SPAN CONC. BRIDGE

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

END CONSTRUCTION
–Y2– STA. 13+89.00

STREAM & WETLAND IMPACTS

-BL-100
66+91.18 -LI-
38.24' RT
EL 159.17

-BL-97
72+08.08 -LI-
22.32' RT
EL 144.17

-BL-99
68+35.76 -LI-
229.11' RT
EL 158.14

-BL-98
67+89.58 -LI-
6.73' LT
EL 142.34

-BL-96
12+24.86 -LIR-
7.00' RT
EL 152.07

BEGIN SP CUT DITCH –L1– 65+50 RT ELEV = 142.40

END SP CUT DITCH –L1– 65+50 LT ELEV = 141.77

END SP CUT DITCH –L1– 65+68.9 RT ELEV = 142.10

BEGIN SP CUT DITCH –L1– 65+68.9 LT ELEV = 141.90

PI = 65+80.00
EL = 145.50'
VC = 80'

PROPOSED 15" HDPE

(+)1.9788%

(–)1.9852%

1.6%

0.9%

END SP CUT DITCH –L1– 66+22.6 LT ELEV = 141.44

8' MIN CLEARANCE

COVERED ROAD BRIDGE STRUCTURE

PI = 67+15.00
EL = 142.82'
VC = 80'

(+)0.4000%

BEGIN SP CUT DITCH –L1– 71+25 RT ELEV = 142.88

PI = 71+00.00
EL = 144.36'
VC = 100'

(–)0.7000%

0.8%

END SP CUT DITCH –L1– 72+33.9 RT ELEV = 142.06

BEGIN SPL CUT DITCH –L1– 72+69.6 RT ELEV = 142.47

END SP CUT DITCH –L1– 73+00 RT ELEV = 143.03

PI = 72+50.00
EL = 143.31'
VC = 150'

1.7%

PROPOSED 42" HDPE

(+)2.0000%

BEGIN GRADE
Sta.9+00.00 –LIR–= (LA)
Sta.73+86.58 –LI– (LB)
ELEV. 146.04

(+)2.0000%

PI = 10+00.00
EL = 148.04'
VC = 104'

(+)4.7000%

PI = 11+50.00
EL = 155.09'
VC = 80'

(–)11.3804%

PI = 12+75.00
EL = 153.37'
VC = 120'

(+)11.6400%

170 160 150 140 130

65+00 66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00 10+13.42 11+13.42 12+13.42 13+10.61

2/17/2011
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8/17/99

REVISIONS

STREAM & WETLAND IMPACTS

SS DENOTES IMPACTS IN SURFACE WATER

TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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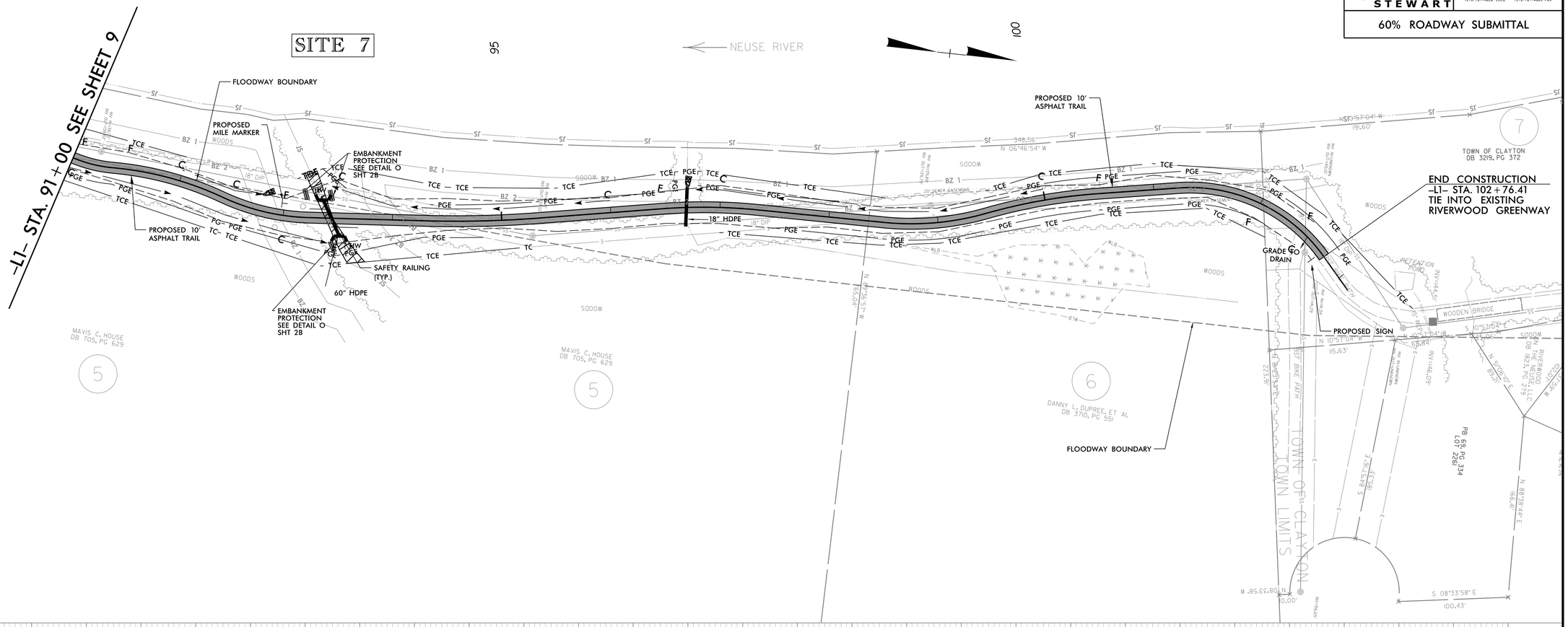
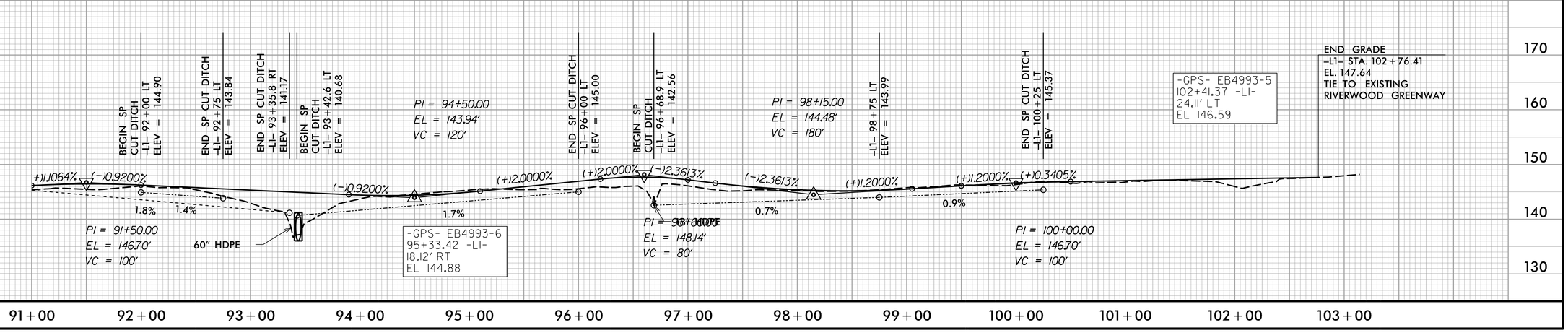
60% ROADWAY SUBMITTAL





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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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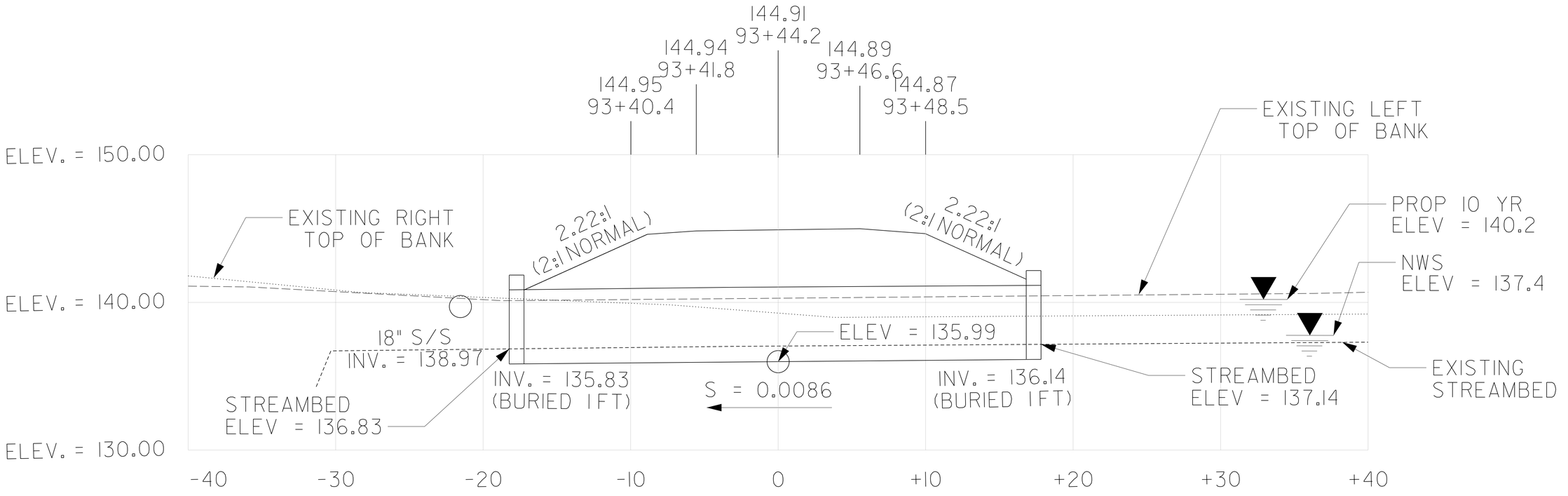

L1 93+44.2 SKEW 64.4°

2/17/2011
L1 93+44.2 PROFILE.dgn
USER:hcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

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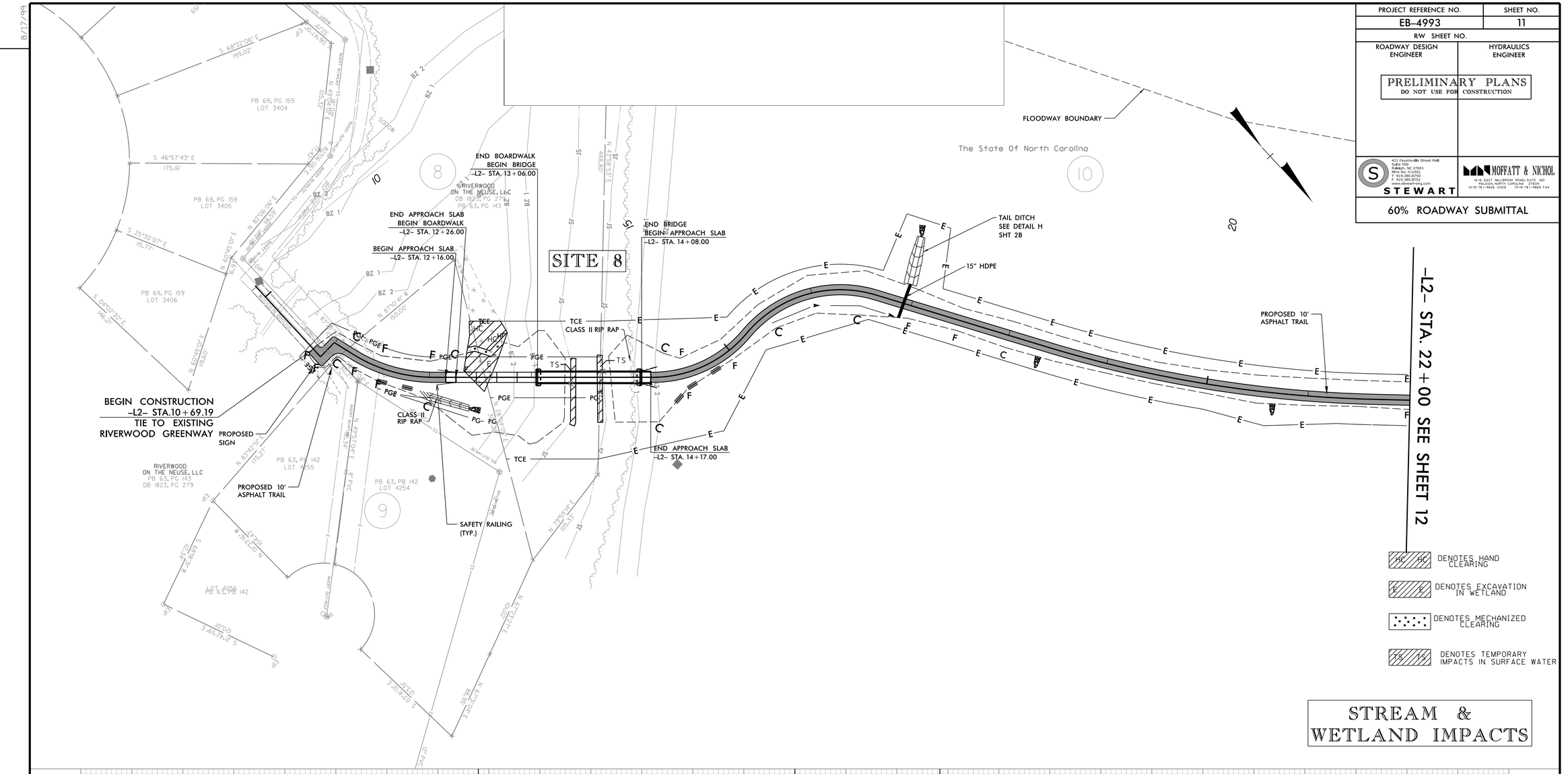
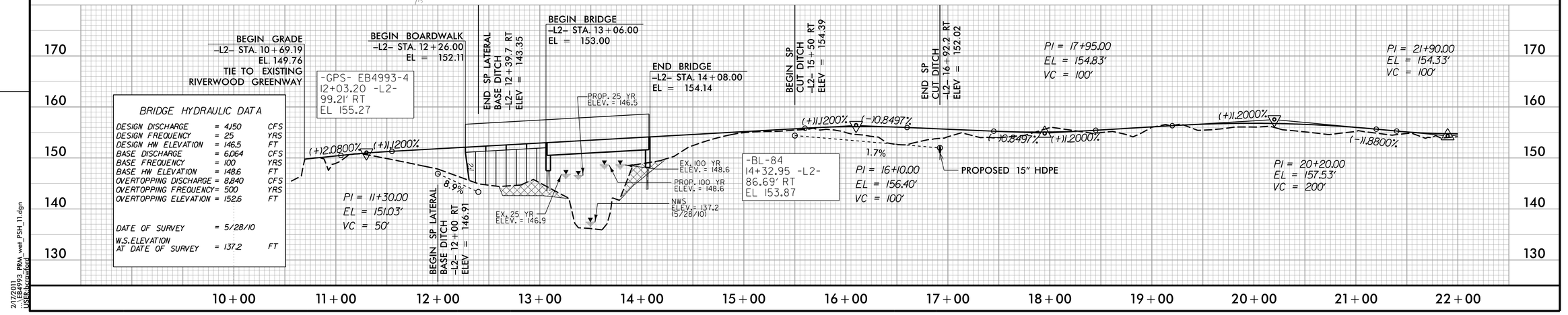


STREAM & WETLAND IMPACTS



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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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60% ROADWAY SUBMITTAL

REVISIONS

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F/F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

NEUSE RIVER

BANK OF RIVER IS PROPERTY LINE

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

WOODS

WOODS

WOODS

10

The State Of North Carolina

-L2- STA. 22+00 SEE SHEET 11

-L2- STA. 35+00 SEE SHEET 13

15" HDPE

PROPOSED 10' ASPHALT TRAIL

SAFETY RAILING (TYP.)

PROPOSED 10' ASPHALT TRAIL

18" HDPE

TOE PROTECTION SEE DETAIL F SHT 2B

SITE 9

The State Of North Carolina

10

STREAM & WETLAND IMPACTS

PI = 23+70.00
EL = 157.07'
VC = 200'

BEGIN SP CUT DITCH -L2- 23+50 RT ELEV = 153.80

-L2- 24+01.7 RT ELEV = 152.33

END SP CUT DITCH -L2- 24+75 RT ELEV = 154.15

-BL-79
24+36.05 -L2-
355.78' LT
EL 152.23

PI = 27+00.00
EL = 153.11'
VC = 100'

-BL-78
27+83.79 -L2-
310.17' LT
151.06

PI = 29+20.00
EL = 153.43'
VC = 100'

-BL-77
31+54.47 -L2-
243.13' LT
EL 152.11

(+)1.5200%

(-)1.2000%

2.8%

2.5%

PROPOSED 15" HDPE

(-)1.2000%

(+)2.5000%

(-)2.6800%

PI = 28+20.00
EL = 156.11'
VC = 100'

(+)2.0000%

PROPOSED 15" HDPE

(-)1.6000%

PI = 31+40.00
EL = 157.83'
VC = 200'

170
160
150
140
130

22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00

2/17/2011
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8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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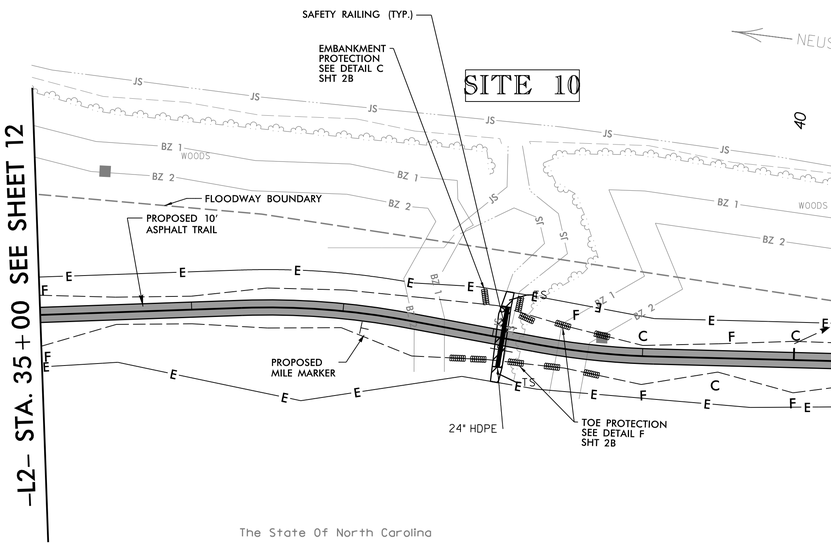
STREAM & WETLAND IMPACTS

FLOODWAY BOUNDARY

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

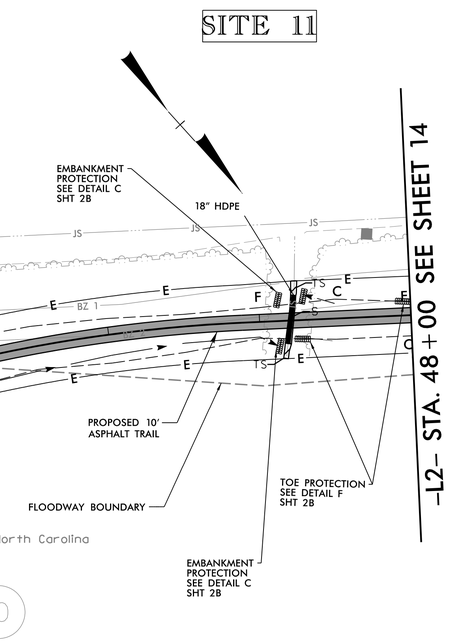
SITE 10



The State Of North Carolina

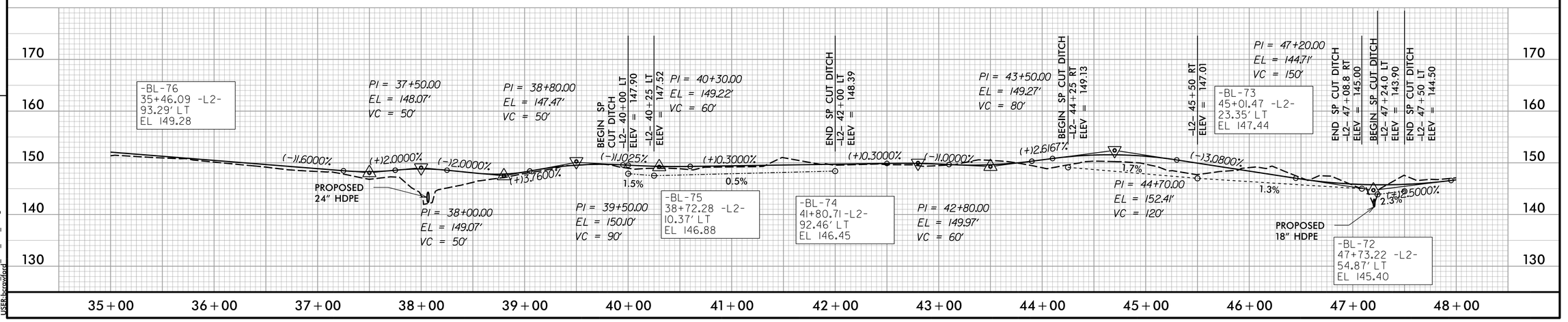
10

SITE 11



The State Of North Carolina

10



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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

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STREAM & WETLAND IMPACTS

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

SS DENOTES IMPACTS IN SURFACE WATER

TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 13

-L2- STA. 48+00 SEE SHEET 13

-L2- STA. 61+00 SEE SHEET 15

NEUSE RIVER

BANK OF RIVER IS PROPERTY LINE

WOODS

TOE PROTECTION SEE DETAIL F SHT 2B

SAFETY RAILING (TYP.)

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

48" HDPE

15" HDPE

24" HDPE

PROPOSED 10' ASPHALT TRAIL

FLOODWAY BOUNDARY

FILL DRAW W/ CLASS 1 RIP RAP EST 7 TONS EST 15 SY FF SEE DETAIL J SHT 2B

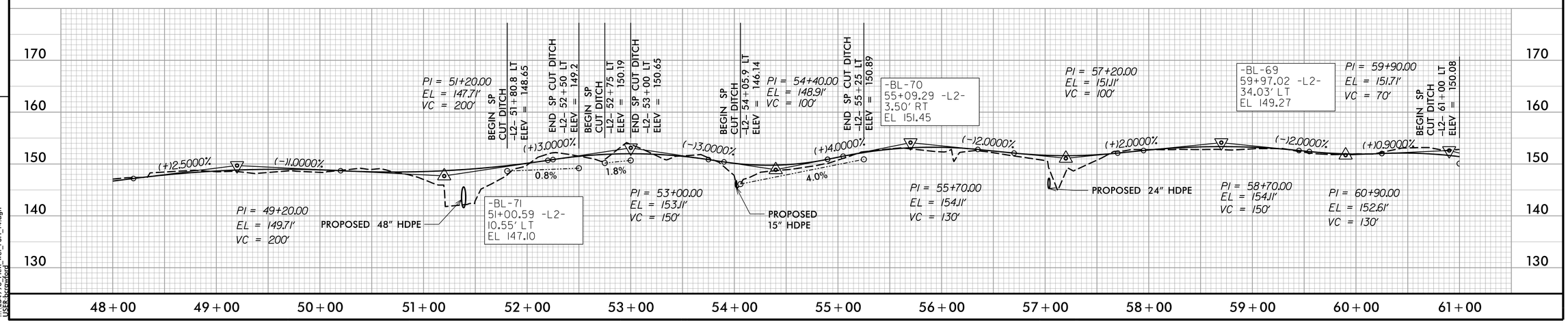
SITE 12

The State Of North Carolina

10

The State Of North Carolina

10



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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MOFFATT & NICHOL

60% ROADWAY SUBMITTAL

8/17/99

REVISIONS

STREAM & WETLAND IMPACTS

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FLOODWAY BOUNDARY

NEUSE RIVER

SITE 14

-L2- STA. 61+00 SEE SHEET 14

-L2- STA. 74+00 SEE SHEET 16

BANK OF RIVER IS PROPERTY LINE

WOODS

EMBANKMENT PROTECTION SEE DETAIL O SHT 2B

PROPOSED 10' ASPHALT TRAIL

TOE PROTECTION SEE DETAIL F SHT 2B

66" HDPE

15" HDPE

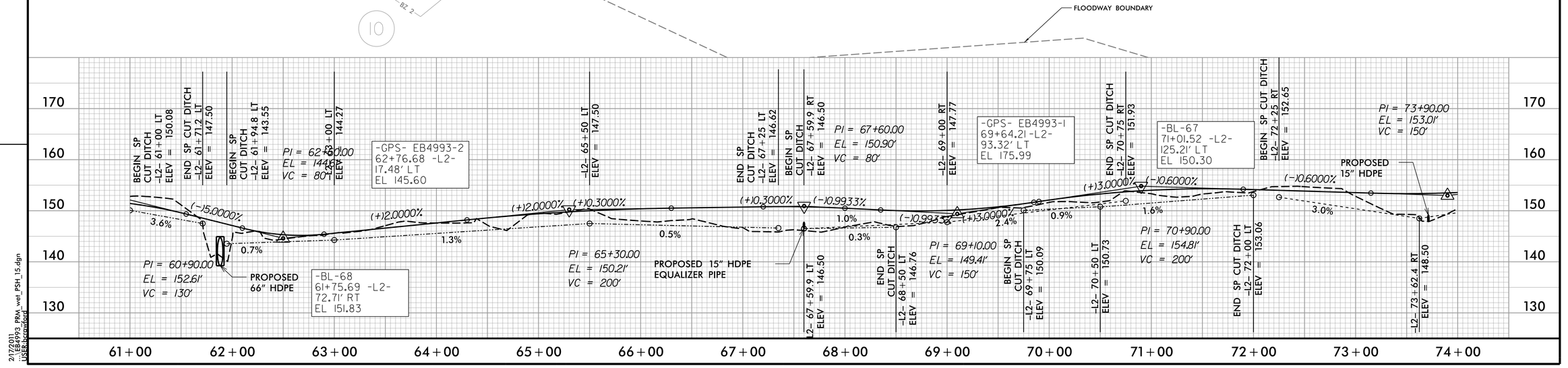
SAFETY RAILING (TYP.)

15" HDPE EQUALIZER PIPE

PROPOSED MILE MARKER

The State Of North Carolina

10



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EB-4993	
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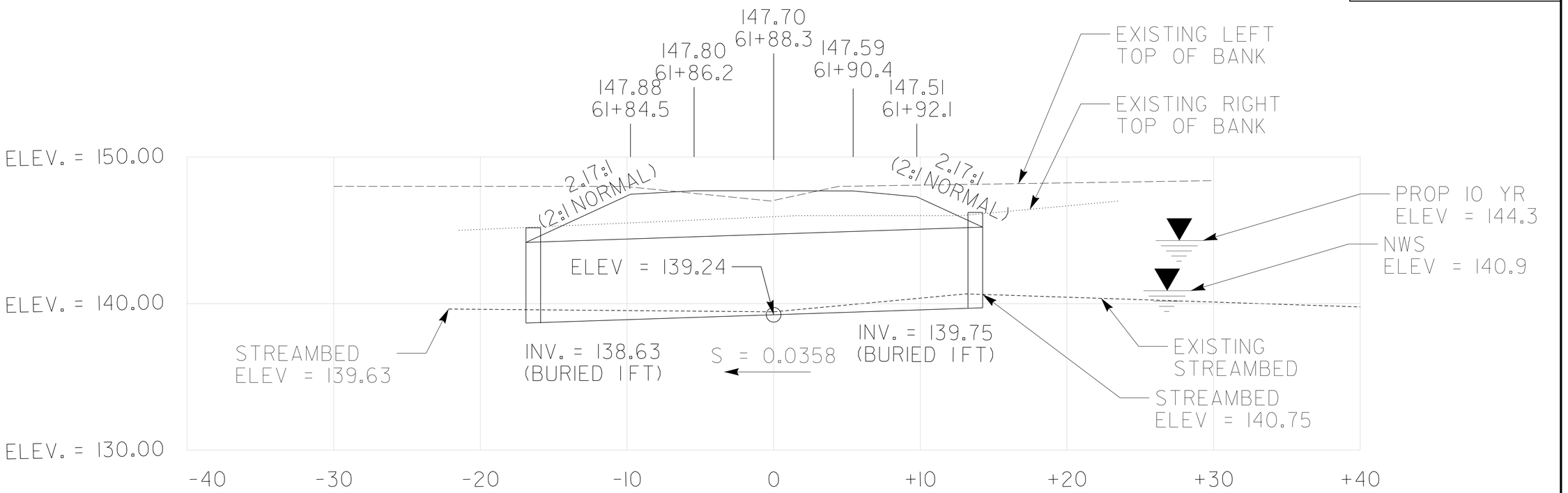

L2 61+88.3 SKEW 67.4°

217201
L2 61+88.3 PROFILE.dgn
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PROJECT REFERENCE NO.	SHEET NO.
EB–4993	17
R/W SHEET NO.	
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FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

STREAM & WETLAND IMPACTS

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NEUSE RIVER

SITE 15

90

95

EMBANKMENT PROTECTION SEE DETAIL O SHT 2B

2X 66" HDPE

BANK OF RIVER IS PROPERTY LINE

NAIL IN 30" DEAD SPANISH OAK

NAIL

WOODS

BZ 1

BZ 2

JS

E

F

C

TCE

PGE

PROPOSED 10' ASPHALT TRAIL

PROPOSED MILE MARKER

SAFETY RAILING (TYP.)

EMBANKMENT PROTECTION SEE DETAIL O SHT 2B

Edith Watkins Romaine etal

99/14

N 00°34'28" E

PROPOSED 10' ASPHALT TRAIL

FLOODWAY BOUNDARY

–L2– STA. 87+00 SEE SHEET 16

–L2– STA. 100+00 SEE SHEET 18

FLOODWAY BOUNDARY

The State Of North Carolina

-BL-62
91+16.93 -L2-
15.67' LT
EL 154.56

-BL-61
94+72.66 -L2-
59.16' LT
EL 154.87

-BL-60
97+86.37 -L2-
60.57' RT
EL 157.57

(+)0.4000%

(−)1.6000%

(−)5.0000%

(+)4.0000%

(+)0.3000%

3.2%

3.3%

PI = 89+90.00
EL = 157.15'
VC = 200'

PI = 92+60.00
EL = 152.83'
VC = 130'

PI = 93+90.00
EL = 146.33'
VC = 130'

PI = 96+00.00
EL = 154.73'
VC = 200'

PI = 100+00.00
EL = 155.93'
VC = 100'

PROPOSED DUAL 66" HDPE

BEGIN SP CUT DITCH –L2– 91+75 LT ELEV = 152.85

END SP CUT DITCH –L2– 93+60.4 LT ELEV = 146.88

BEGIN SP CUT DITCH –L2– 94+13.8 LT ELEV = 146.33

END SP CUT DITCH –L2– 96+00 LT ELEV = 152.47

170 160 150 140 130

87+00 88+00 89+00 90+00 91+00 92+00 93+00 94+00 95+00 96+00 97+00 98+00 99+00 100+00

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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	
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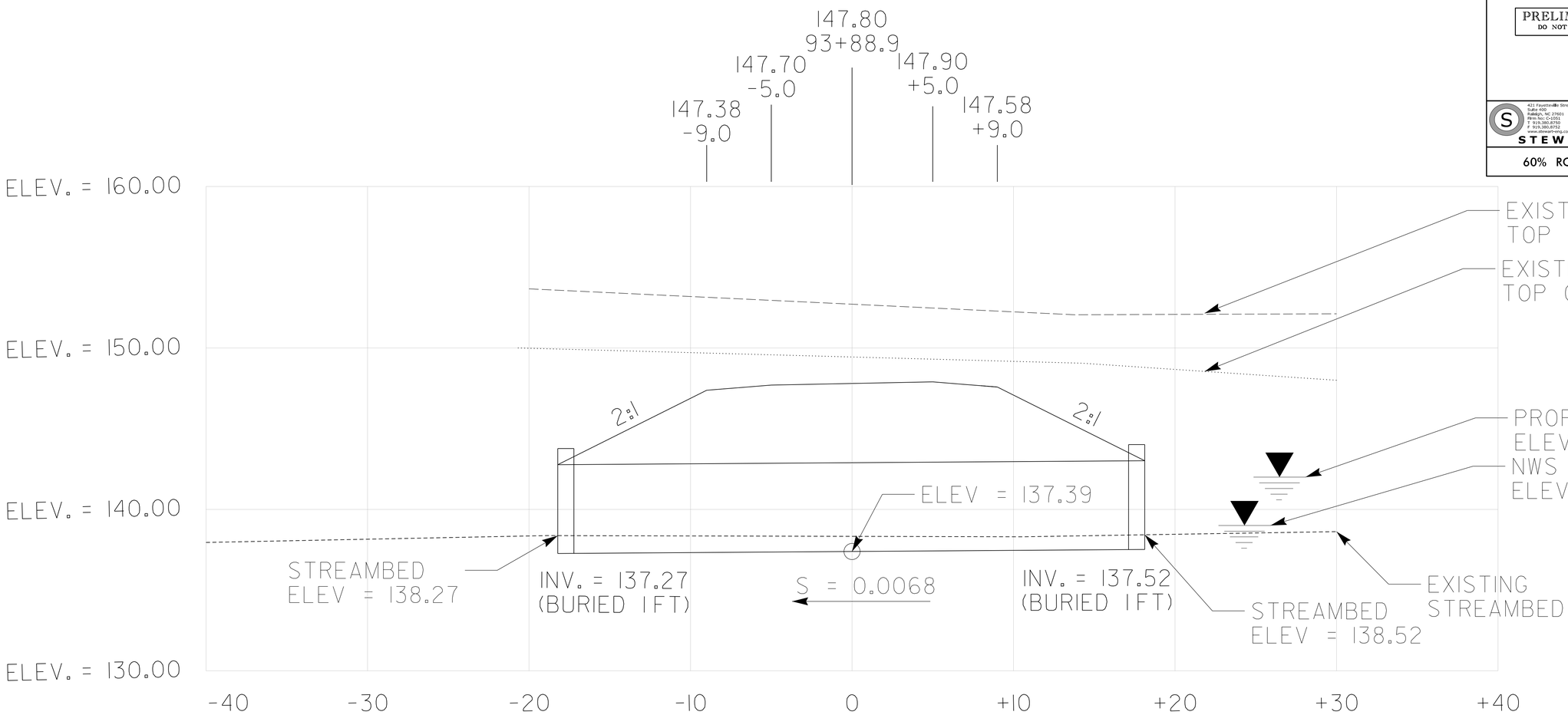
REVISIONS



L2 93+88.9 SKEW 90°

2172201
L2 93+88.9 PROFILE.dgn
USER:jccrawford

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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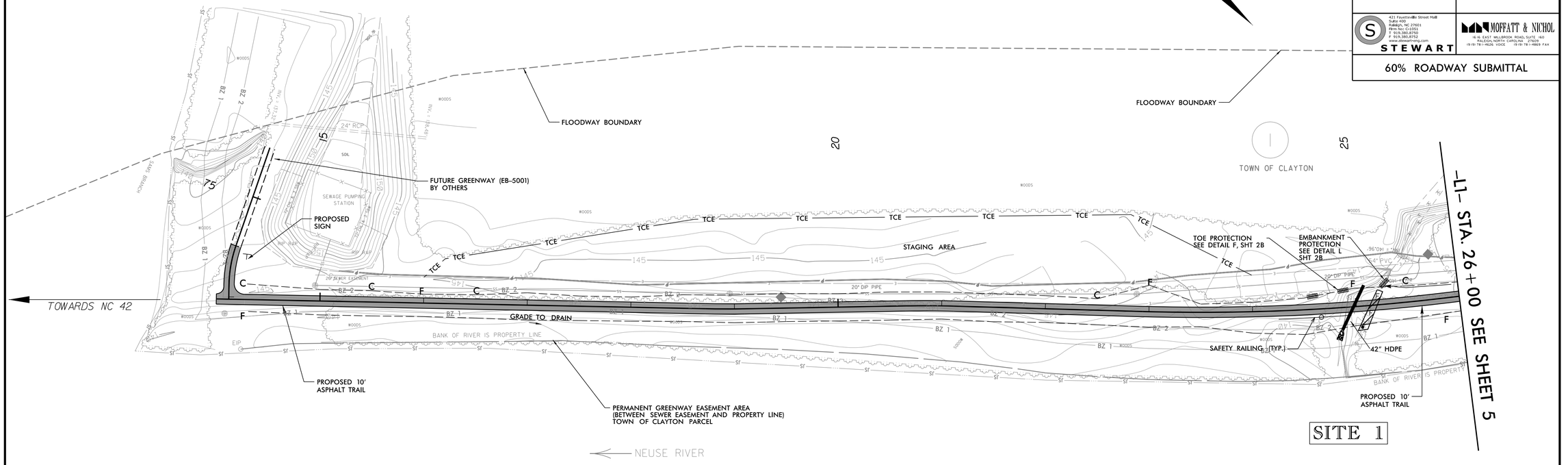
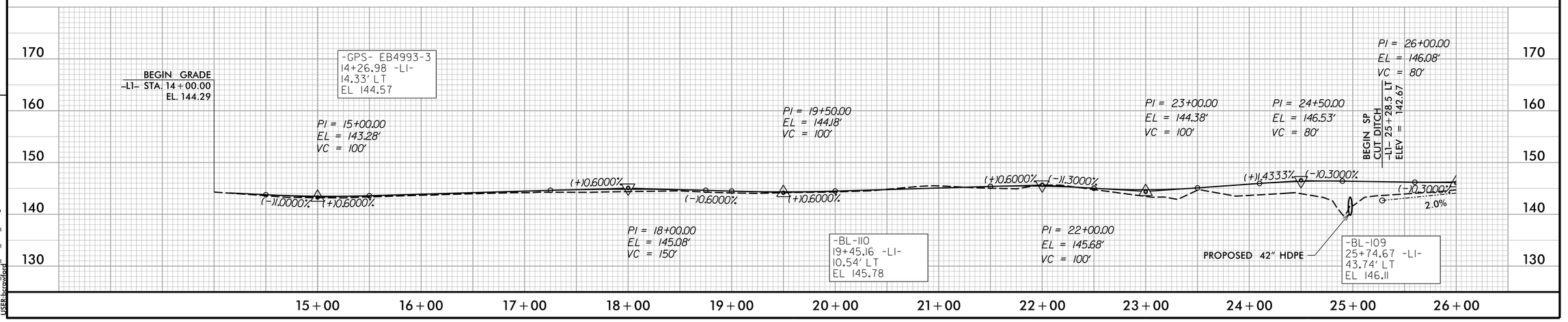
REVISIONS



DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

STREAM & WETLAND IMPACTS



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USER:bcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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60% ROADWAY SUBMITTAL

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REVISIONS

TOWN OF CLAYTON

TOWN OF CLAYTON TOWN LIMITS

FLOODWAY BOUNDARY

DONALD C. ADAMS

30

35

CONTRACTOR SHALL NOT IMPACT WETLANDS. CONTRACTOR WILL CLEAR A MAXIMUM 1' FROM CUT SLOPE AND 5' FROM FILL SLOPE OR TO WETLAND EDGE.

-L1- STA. 26+00 SEE SHEET 4

-L1- STA. 39+00 SEE SHEET 6

PROPERTY CORNER IS A SYCAMORE TREE

PROPOSED 10' ASPHALT TRAIL

PERMANENT GREENWAY EASEMENT AREA (BETWEEN SEWER EASEMENT AND PROPERTY LINE) TOWN OF CLAYTON PARCEL

GRADE TO DRAIN

SITE 2

NEUSE RIVER

FLOODWAY BOUNDARY

PROPOSED 10' ASPHALT TRAIL

REMOVE 30" HDPE

SAFETY RAILING (TYP.)

TOE PROTECTION SEE DETAIL F SHT 2B

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

TOE PROTECTION SEE DETAIL F SHT 2B

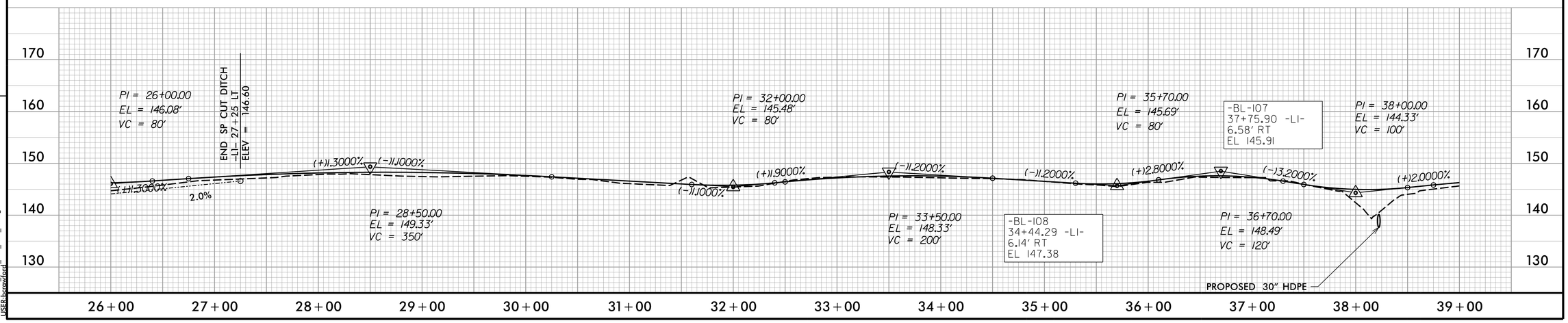
SITE 3

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

HC HC DENOTES HAND CLEARING

STREAM & WETLAND IMPACTS



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USER:bcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB–4993	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

DONALD C. ADAMS

DONALD C. ADAMS

JOHN WESLEY MASSEY

CONTRACTOR SHALL NOT IMPACT WETLANDS. CONTRACTOR WILL CLEAR A MAXIMUM 1' FROM CUT SLOPE AND 5' FROM FILL SLOPE OR TO WETLAND EDGE.

SITE 4

FLOODWAY BOUNDARY

PROPOSED MILE MARKER

PROPOSED 10' ASPHALT TRAIL

APPROXIMATE LOCATION 8" DIP FORCEMAIN

TOE PROTECTION SEE DETAIL F SHT 2B

15" HDPE FOR WETLAND OVERFLOW

SLOPE PROTECTION LINED WITH PSRM FROM STA –L1– 44+00.00 TO STA –L1– 45+07.10

BEGIN APPROACH SLAB –L1– STA. 44+97.08

END APPROACH SLAB BEGIN BOARDWALK –L1– STA. 45+07.08

SAFETY RAILING (TYP.)

CLASS II RIP RAP

END BOARDWALK BEGIN BRIDGE –L1– STA. 46+68.08

20'X20' BOARDWALK CONNECTION TO BRIDGE

NEUSE RIVER

TOE PROTECTION SEE DETAIL F SHT 2B

PROPOSED 10' ASPHALT TRAIL

SLOPE PROTECTION LINED WITH PSRM FROM STA –L1– 50+66.1 TO STA –L1– 51+85.8

END BRIDGE BEGIN BOARDWALK –L1– STA. 48+65.08

CLASS II RIP RAP

END APPROACH SLAB –L1– STA. 50+66.08

END BOARDWALK BEGIN APPROACH SLAB –L1– STA. 50+66.08

–L1– STA. 39+00 SEE SHEET 5

–L1– STA. 52+00 SEE SHEET 7

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

STREAM & WETLAND IMPACTS

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 18,300	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 152.4	FT
BASE DISCHARGE	= 24,100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 155.7	FT
OVERTOPPING DISCHARGE	= 35,700	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 160.5	FT
DATE OF SURVEY	= 5/28/10	
W.S.ELEVATION AT DATE OF SURVEY	= 134.6	FT

-BL-105
44+66.94 -L1-
48.30' RT
EL 144.45

-BL-106
41+76.99 -L1-
4.77' RT
EL 145.18

-BL-104
46+69.81 -L1-
2.64' LT
EL 140.57

BEGIN BOARDWALK –L1– STA. 45+07.08 EL. 155.58

BEGIN BRIDGE –L1– STA. 46+68.08 EL. 160.50

END BRIDGE –L1– STA. 48+65.08 EL. 160.50

END BOARDWALK –L1– STA. 50+66.08 EL. 153.50

PI = 43+00.00
EL = 145.52'
VC = 150'

PI = 39+50.00
EL = 147.33'
VC = 150'

PI = 45+67.08
EL = 158.50'

PI = 45+87.08
EL = 159.30'

PI = 46+07.08
EL = 159.90'

PI = 46+27.08
EL = 160.30'

PI = 46+47.08
EL = 160.50'

PI = 48+86.08
EL = 160.50'

PI = 49+06.08
EL = 160.30'

PI = 49+26.08
EL = 159.90'

PI = 49+46.08
EL = 159.30'

PI = 49+66.08
EL = 158.50'

PROPOSED 15" HDPE

EX. 25 YR ELEV. = 152.4

EX. 100 YR ELEV. = 155.7

PROP. 100 YR ELEV. = 155.7

PROP. 25 YR ELEV. = 152.4

NWS ELEV. = 134.6 (5/28/10)

FLOODWAY BOUNDARY

2/17/2011
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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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FLOODWAY BOUNDARY

RICHARD EARP MOORE
DB 318 PG 335

JOHN WESLEY MASSEY & LOU MASSEY WATSON
DB 830 PG 535

SITE 5

NEUSE RIVER

PROPOSED 10' ASPHALT TRAIL

TOE PROTECTION SEE DETAIL F SHT 2B

-L1- STA. 52+00 SEE SHEET 6

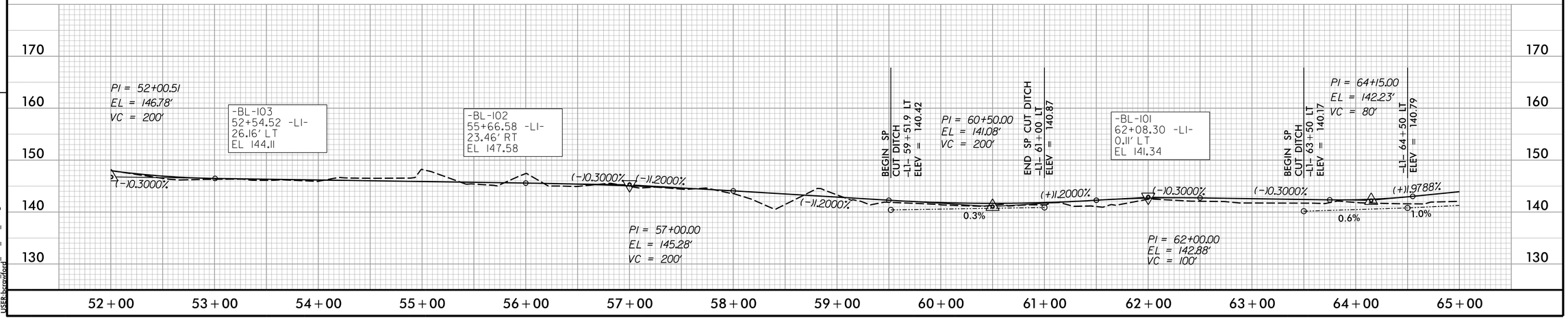
-L1- STA. 65+00 SEE SHEET 8

CONTRACTOR SHALL NOT IMPACT WETLANDS. CONTRACTOR WILL CLEAR A MAXIMUM 1' FROM CUT SLOPE AND 5' FROM FILL SLOPE OR TO WETLAND EDGE.

JOHN WESLEY MASSEY

DENOTES HAND CLEARING

STREAM & WETLAND IMPACTS



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PROJECT REFERENCE NO.	SHEET NO.
EB–4993	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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SEE SHEET 18 FOR –Y2– PROFILE

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REVISIONS

NEUSE RIVER

SITE 6

JOHN WESLEY MASSEY, & LOU MASSEY, WATSON
DB 830 PG 559

FLOODWAY BOUNDARY

PROPOSED SIGN AND MILE MARKER

PROPOSED 10' ASPHALT TRAIL

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

TOE PROTECTION SEE DETAIL F SHT 2B

SAFETY RAILING (TYP.)

42" HDPE

15" HDPE

DAVID M. SORRELL, ET UX
DB 959, PG 116

BEAVER DAM

COVERED BRIDGE RD. SR 1700

SEWER EASEMENT

TOWN OF CLAYTON SEWER EASEMENT

JOHN WESLEY MASSEY
DB 1778 PG 679

MAVIS C. HOUSE
DB 1705, PG 629

–L1– STA. 65+00 SEE SHEET 7

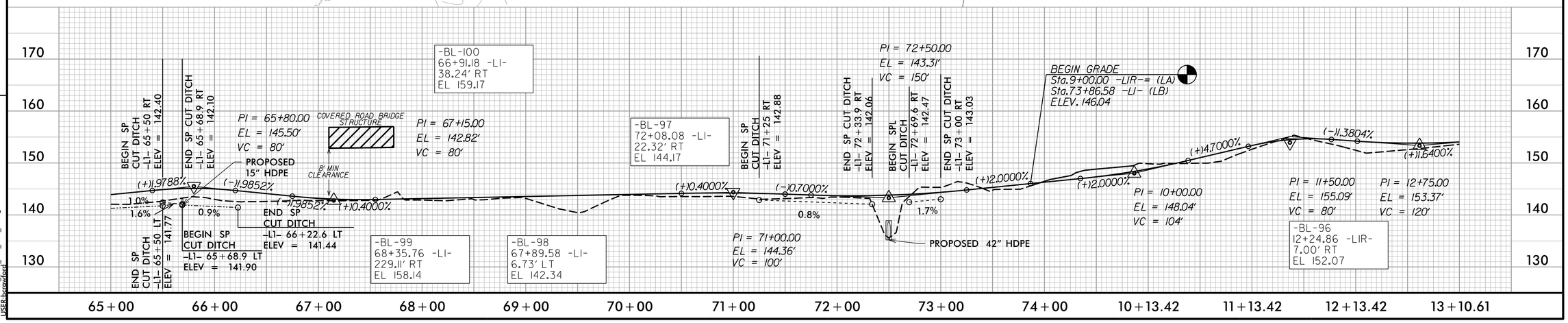
–L1R– STA. 13+10.61 SEE SHEET 9

END CONSTRUCTION
–Y2– STA. 13+89.00

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

STREAM & WETLAND IMPACTS



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REVISIONS

STREAM & WETLAND IMPACTS

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	10
R/W SHEET NO.	
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SITE 7

NEUSE RIVER

-L1- STA. 91+00 SEE SHEET 9

FLOODWAY BOUNDARY

PROPOSED MILE MARKER

PROPOSED 10' ASPHALT TRAIL

EMBANKMENT PROTECTION SEE DETAIL O SHT 28

SAFETY RAILING (TYP.)

60" HDPE

18" HDPE

18" DIP

PROPOSED 10' ASPHALT TRAIL

END CONSTRUCTION
-L1- STA. 102+76.41
TIE INTO EXISTING RIVERWOOD GREENWAY

GRADE TO DRAIN

PROPOSED SIGN

TOWN OF CLAYTON DB 3215, PG 372

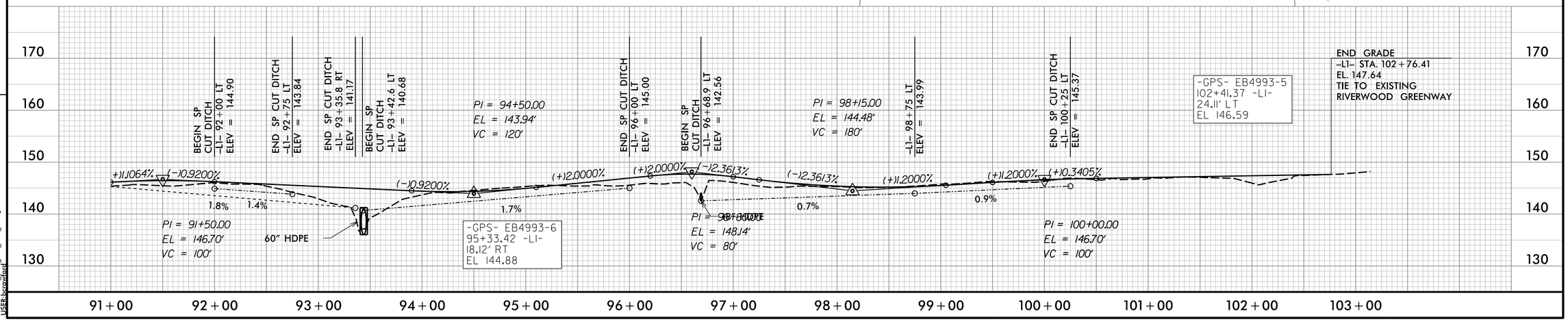
MAVIS C. HOUSE DB 705, PG 629

DANNY L. DUPREE, ET AL DB 3710, PG 551

TOWN OF CLAYTON CORPORATE LIMITS

PB 69, PG 334 LOT 226

FLOODWAY BOUNDARY



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REVISIONS

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FLOODWAY BOUNDARY

The State Of North Carolina

SITE 8

BEGIN CONSTRUCTION
-L2- STA.10+69.19
TIE TO EXISTING
RIVERWOOD GREENWAY

PROPOSED SIGN

PROPOSED 10' ASPHALT TRAIL

END BOARDWALK
BEGIN BRIDGE
-L2- STA. 13+06.00

END APPROACH SLAB
BEGIN BOARDWALK
-L2- STA. 12+26.00

BEGIN APPROACH SLAB
-L2- STA. 12+16.00

END BRIDGE
BEGIN APPROACH SLAB
-L2- STA. 14+08.00

END APPROACH SLAB
-L2- STA. 14+17.00

TAIL DITCH
SEE DETAIL H
SHT 2B

15" HDPE

PROPOSED 10' ASPHALT TRAIL

-L2- STA. 22+00 SEE SHEET 12

TCE
CLASS II RIP RAP

CLASS II RIP RAP

SAFETY RAILING (TYP.)

RIVERWOOD ON THE NEUSE, LLC
PB 63, PG 143
DB 1823, PG 279

PB 69, PG 159
LOT 3404

PB 69, PG 159
LOT 3405

PB 69, PG 159
LOT 3406

PB 63, PB 142
LOT 4255

PB 63, PB 142
LOT 4254

PB 63, PB 142
LOT 4256

HC HC DENOTES HAND CLEARING

E E DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

STREAM & WETLAND IMPACTS

BEGIN GRADE
-L2- STA. 10+69.19
EL. 149.76
TIE TO EXISTING
RIVERWOOD GREENWAY

BEGIN BOARDWALK
-L2- STA. 12+26.00
EL = 152.11

-GPS- EB4993-4
12+03.20 -L2-
99.21' RT
EL 155.27

END SP LATERAL
BASE DITCH
-L2- 12+39.7 RT
ELEV = 143.35

BEGIN BRIDGE
-L2- STA. 13+06.00
EL = 153.00

END BRIDGE
-L2- STA. 14+08.00
EL = 154.14

BEGIN SP
CUT DITCH
-L2- 15+50 RT
ELEV = 154.39

END SP
CUT DITCH
-L2- 16+92.2 RT
ELEV = 152.02

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 4,150	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 146.5	FT
BASE DISCHARGE	= 6,064	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 148.6	FT
OVERTOPPING DISCHARGE	= 8,840	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 152.6	FT
DATE OF SURVEY	= 5/28/10	
W.S.ELEVATION AT DATE OF SURVEY	= 137.2	FT

PROP. 25 YR ELEV. = 146.5

EX. 100 YR ELEV. = 148.6

PROP. 100 YR ELEV. = 148.6

NWS ELEV. = 137.2 (5/28/10)

EX. 25 YR ELEV. = 146.9

(+)12.0800%

(+)11.1200%

8.9%

PI = 11+30.00
EL = 151.03'
VC = 50'

-BL-84
14+32.95 -L2-
86.69' RT
EL 153.87

(+)11.1200%

(-)10.8497%

1.7%

PI = 16+10.00
EL = 156.40'
VC = 100'

PROPOSED 15" HDPE

(-)10.8497%

(+)11.2000%

PI = 17+95.00
EL = 154.83'
VC = 100'

(+)11.2000%

PI = 20+20.00
EL = 157.53'
VC = 200'

(-)11.8800%

PI = 21+90.00
EL = 154.33'
VC = 100'

170 160 150 140 130

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00

2/17/2011
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PROJECT REFERENCE NO.	SHEET NO.
EB–4993	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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60% ROADWAY SUBMITTAL

REVISIONS

8/17/99

F / F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

NEUSE RIVER

BANK OF RIVER IS PROPERTY LINE

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

The State Of North Carolina

The State Of North Carolina

-L2- STA. 22+00 SEE SHEET 11

-L2- STA. 35+00 SEE SHEET 13

15" HDPE

PROPOSED 10' ASPHALT TRAIL

SAFETY RAILING (TYP.)

PROPOSED 10' ASPHALT TRAIL

18" HDPE

TOE PROTECTION SEE DETAIL F SHT 2B

SITE 9

STREAM & WETLAND IMPACTS

PI = 23+70.00
EL = 157.07'
VC = 200'

BEGIN SP CUT DITCH -L2- 23+50 RT ELEV = 153.80

-L2- 24+01.7 RT ELEV = 152.33

END SP CUT DITCH -L2- 24+75 RT ELEV = 154.15

-BL-79
24+36.05 -L2-
355.78' LT
EL 152.23

PI = 27+00.00
EL = 153.11'
VC = 100'

-BL-78
27+83.79 -L2-
310.17' LT
151.06

PI = 29+20.00
EL = 153.43'
VC = 100'

-BL-77
31+54.47 -L2-
243.13' LT
EL 152.11

(+)1.5200%

(−)1.2000%

2.8%

2.5%

PROPOSED 15" HDPE

(−)1.2000%

(+)2.5000%

(−)2.6800%

PI = 28+20.00
EL = 156.11'
VC = 100'

(+)2.0000%

PROPOSED 15" HDPE

(−)1.6000%

PI = 31+40.00
EL = 157.83'
VC = 200'

170
160
150
140
130

22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00

2/17/2011
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USER:bcrawford

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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STREAM & WETLAND IMPACTS

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 10

SAFETY RAILING (TYP.)

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

NEUSE RIVER

PROPOSED 10' ASPHALT TRAIL

FLOODWAY BOUNDARY

PROPOSED MILE MARKER

24" HDPE

TOE PROTECTION SEE DETAIL F SHT 2B

-L2- STA. 35+00 SEE SHEET 12

The State Of North Carolina

SITE 11

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

18" HDPE

PROPOSED 10' ASPHALT TRAIL

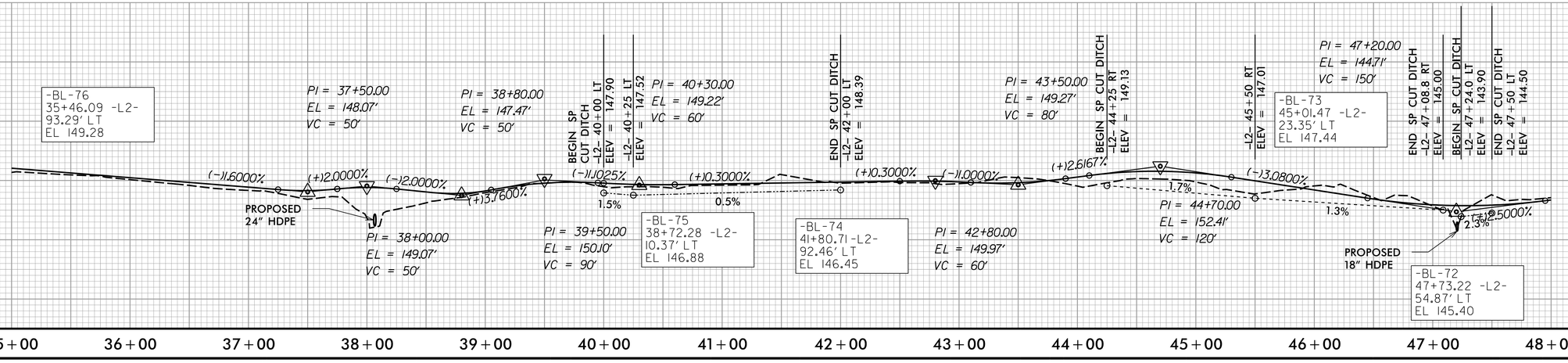
FLOODWAY BOUNDARY

TOE PROTECTION SEE DETAIL F SHT 2B

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

-L2- STA. 48+00 SEE SHEET 14

The State Of North Carolina



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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

STREAM & WETLAND IMPACTS

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NEUSE RIVER

SITE 13

SITE 12

-L2- STA. 48+00 SEE SHEET 13

-L2- STA. 61+00 SEE SHEET 15

BANK OF RIVER IS PROPERTY LINE

TOE PROTECTION SEE DETAIL F SHT 2B

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

SAFETY RAILING (TYP.)

48" HDPE

15" HDPE

24" HDPE

PROPOSED 10' ASPHALT TRAIL

FLOODWAY BOUNDARY

FILL DRAW W/ CLASS 1 RIP RAP EST 7 TONS EST 15 SY FF SEE DETAIL J SHT 2B

WOODS

BZ 1

BZ 2

The State Of North Carolina

The State Of North Carolina

PI = 49+20.00
EL = 149.71'
VC = 200'

PROPOSED 48" HDPE

-BL-71
51+00.59 -L2-
10.55' LT
EL 147.10

PI = 51+20.00
EL = 147.71'
VC = 200'

BEGIN SP CUT DITCH -L2- 51+80.8 LT ELEV = 148.65

END SP CUT DITCH -L2- 52+50 LT ELEV = 149.2

BEGIN SP CUT DITCH -L2- 52+75 LT ELEV = 150.19

END SP CUT DITCH -L2- 53+00 LT ELEV = 150.65

PI = 53+00.00
EL = 153.11'
VC = 150'

PI = 54+40.00
EL = 148.91'
VC = 100'

BEGIN SP CUT DITCH -L2- 54+05.9 LT ELEV = 146.14

PROPOSED 15" HDPE

END SP CUT DITCH -L2- 55+25 LT ELEV = 150.89

-BL-70
55+09.29 -L2-
3.50' RT
EL 151.45

PI = 55+70.00
EL = 154.11'
VC = 130'

PI = 57+20.00
EL = 151.11'
VC = 100'

PROPOSED 24" HDPE

PI = 58+70.00
EL = 154.11'
VC = 150'

-BL-69
59+97.02 -L2-
34.03' LT
EL 149.27

PI = 59+90.00
EL = 151.71'
VC = 70'

PI = 60+90.00
EL = 152.61'
VC = 130'

BEGIN SP CUT DITCH -L2- 61+00 LT ELEV = 150.08

(+)2.5000%

(-)11.0000%

(+)3.0000%

0.8%

1.8%

(-)13.0000%

(+)4.0000%

4.0%

(-)12.0000%

(+)2.0000%

(-)12.0000%

(+)10.9000%

170
160
150
140
130

48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00

2/17/2011
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8/17/99

REVISIONS

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

STREAM & WETLAND IMPACTS

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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60% ROADWAY SUBMITTAL

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

NEUSE RIVER

SITE 14

BANK OF RIVER IS PROPERTY LINE

-L2- STA. 61+00 SEE SHEET 14

-L2- STA. 74+00 SEE SHEET 16

EMBANKMENT PROTECTION SEE DETAIL O SHT 2B

PROPOSED 10' ASPHALT TRAIL

TOE PROTECTION SEE DETAIL F SHT 2B

15" HDPE

PROPOSED 10' ASPHALT TRAIL

SAFETY RAILING (TYP.)

66" HDPE

EMBANKMENT PROTECTION SEE DETAIL O SHT 2B

FLOODWAY BOUNDARY

15" HDPE EQUALIZER PIPE

PROPOSED MILE MARKER

TOE PROTECTION SEE DETAIL F SHT 2B

The State Of North Carolina

10

The State Of North Carolina

10

FLOODWAY BOUNDARY

BEGIN SP CUT DITCH -L2- 61+00 LT ELEV = 150.08

END SP CUT DITCH -L2- 61+71.2 LT ELEV = 147.50

BEGIN SP CUT DITCH -L2- 61+94.8 LT ELEV = 143.55

-L2- 63+00 LT ELEV = 144.27

PI = 62+60.00
EL = 144.65
VC = 80'

-GPS- EB4993-2
62+76.68 -L2-
17.48' LT
EL 145.60

-L2- 65+50 LT ELEV = 147.50

END SP CUT DITCH -L2- 67+25 LT ELEV = 146.62

BEGIN SP CUT DITCH -L2- 67+59.9 RT ELEV = 146.50

PI = 67+60.00
EL = 150.90'
VC = 80'

-L2- 69+00 RT ELEV = 147.77

-GPS- EB4993-1
69+64.21 -L2-
93.32' LT
EL 175.99

END SP CUT DITCH -L2- 70+75 RT ELEV = 151.93

-BL-67
71+01.52 -L2-
125.21' LT
EL 150.30

BEGIN SP CUT DITCH -L2- 72+25 RT ELEV = 152.65

PI = 73+90.00
EL = 153.01'
VC = 150'

PROPOSED 15" HDPE

(-)15.0000%

3.6%

0.7%

(+)2.0000%

1.3%

(+)2.0000%

(+)0.3000%

0.5%

(+)0.3000%

(-)0.9933%

1.0%

(-)0.9933%

0.3%

(+)3.0000%

2.4%

0.9%

(+)3.0000%

1.6%

(-)0.6000%

3.0%

(-)0.6000%

PI = 60+90.00
EL = 152.61'
VC = 130'

PROPOSED 66" HDPE

-BL-68
61+75.69 -L2-
72.71' RT
EL 151.83

PI = 65+30.00
EL = 150.21'
VC = 200'

PROPOSED 15" HDPE EQUALIZER PIPE

-L2- 67+59.9 LT ELEV = 146.50

END SP CUT DITCH -L2- 68+50 LT ELEV = 146.76

PI = 69+10.00
EL = 149.41'
VC = 150'

BEGIN SP CUT DITCH -L2- 69+75 LT ELEV = 150.09

-L2- 70+50 LT ELEV = 150.73

PI = 70+90.00
EL = 154.81'
VC = 200'

END SP CUT DITCH -L2- 72+00 LT ELEV = 153.06

-L2- 73+62.4 RT ELEV = 148.50

170 160 150 140 130

61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00

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PROJECT REFERENCE NO.	SHEET NO.
EB–4993	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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60% ROADWAY SUBMITTAL

REVISIONS 8/17/99

STREAM & WETLAND IMPACTS

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NEUSE RIVER

SITE 15

90

95

EMBANKMENT PROTECTION SEE DETAIL O SHT 2B

2X 66" HDPE

BANK OF RIVER IS PROPERTY LINE

NAIL IN 30" DEAD SPANISH OAK

NAIL

WOODS

-L2- STA. 87+00 SEE SHEET 16

-L2- STA. 100+00 SEE SHEET 18

PROPOSED 10' ASPHALT TRAIL

PROPOSED MILE MARKER

SAFETY RAILING (TYP.)

EMBANKMENT PROTECTION SEE DETAIL O SHT 2B

Edith Watkins Romaine etal

PROPOSED 10' ASPHALT TRAIL

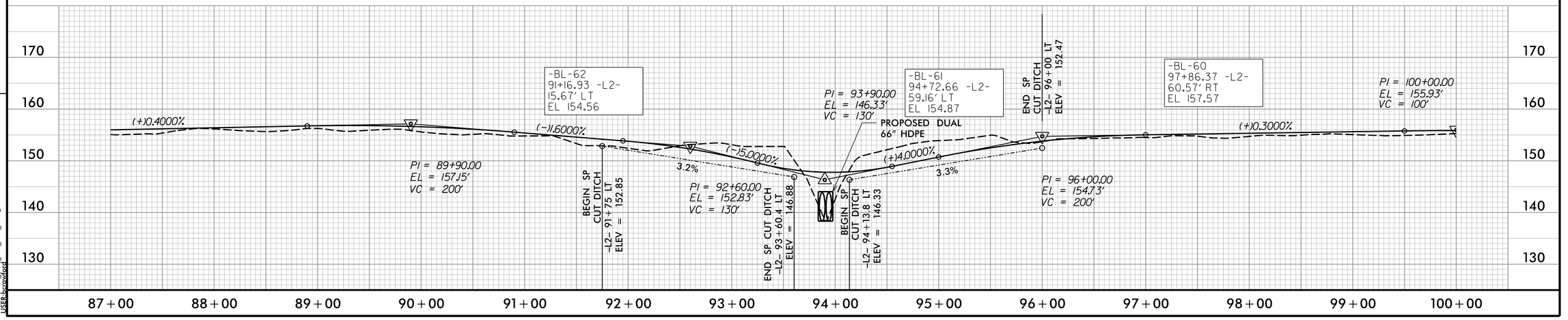
FLOODWAY BOUNDARY

N 90°34'28"E

FLOODWAY BOUNDARY

The State Of North Carolina

10



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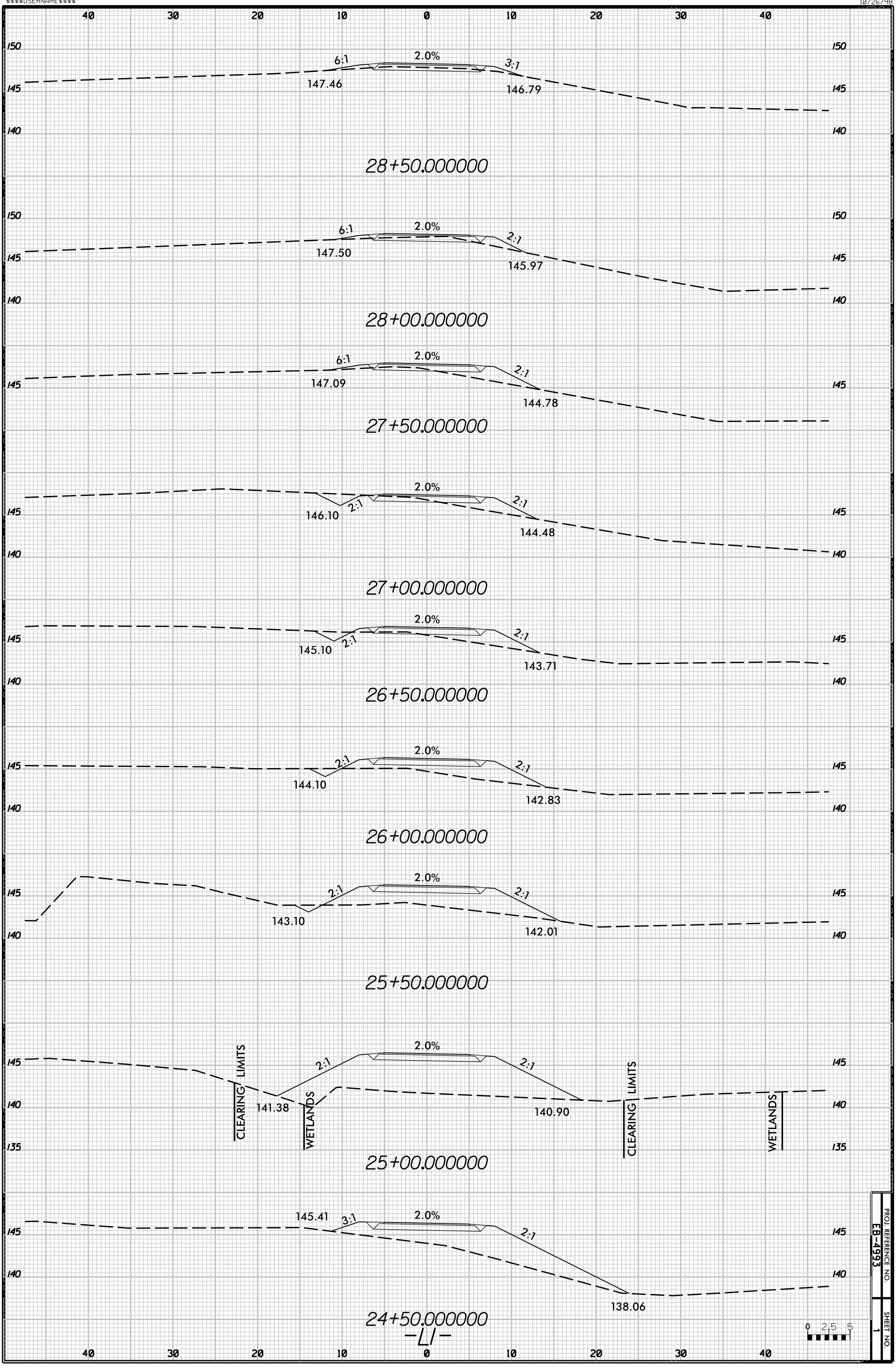
$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

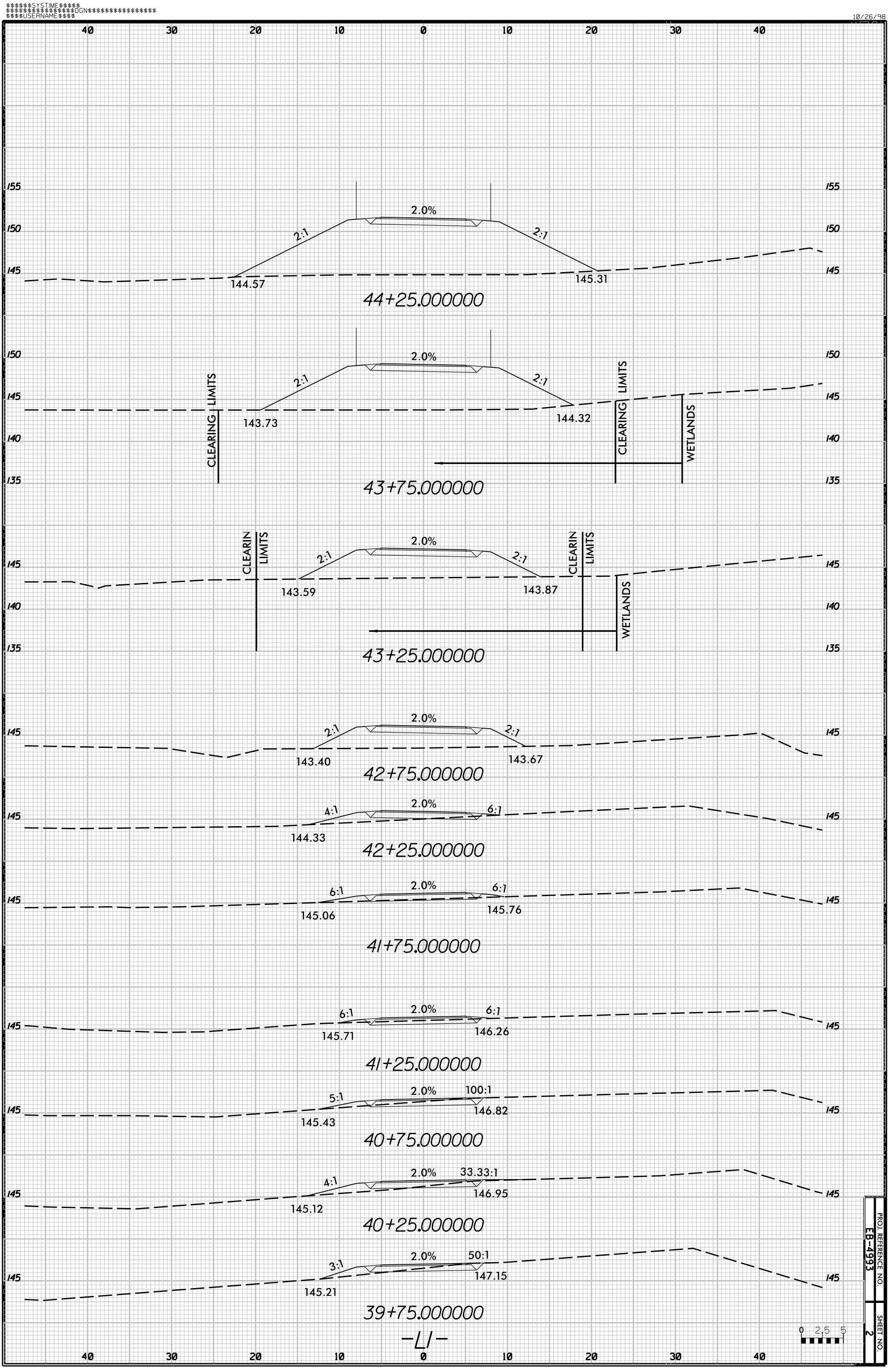
10/26/98



PROJ. REFERENCE NO.
EB-4993
SHEET NO.
1

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

10/26/98



PROJ. REFERENCE NO. EB-4993

SHEET NO. 2

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

10/26/98

40 30 20 10 0 10 20 30 40

155 150 145

FLOODPLAIN EXCAVATION

14+00.000000

13+50.000000

FLOODPLAIN EXCAVATION

13+00.000000

CLEARING LIMITS

WETLANDS

FLOODPLAIN EXCAVATION

MATCHLINE

2:1 2:1

142.10

MATCHLINE

CLEARING LIMITS

12+50.000000

1.7%

2:1 2:1

147.79 146.91

12+00.000000

2.0%

6:1 6:1

149.82 150.72

11+50.000000

1.0%

6:1 3:1

149.06 150.54

11+00.000000

-L2-

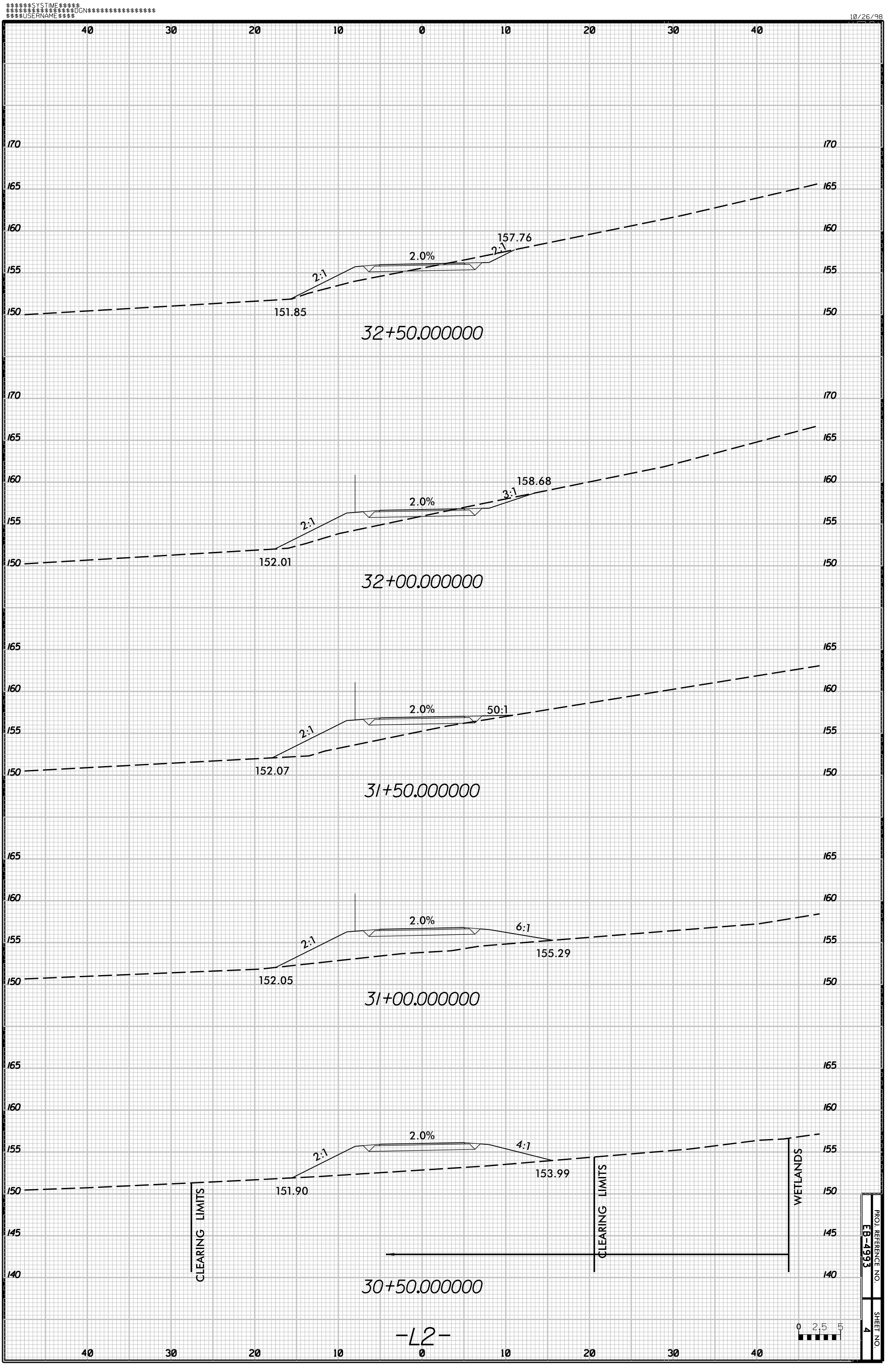
0 2.5 5

PROJ. REFERENCE NO. EB-4993

SHEET NO. 3

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

10/26/98



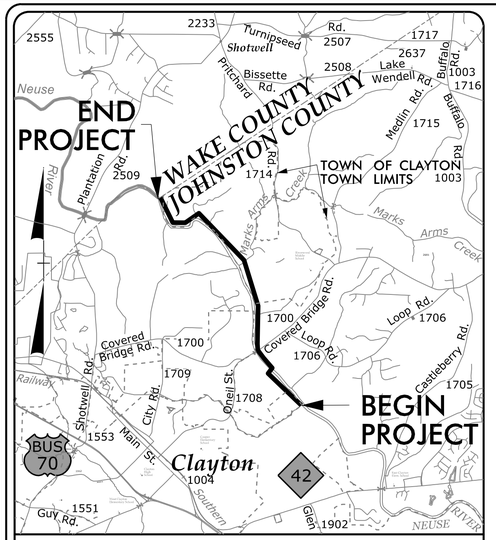
PROJ. REFERENCE NO. EB-4993

SHEET NO. 4

09/08/09

TIP PROJECT: EB–4993

CONTRACT: C202381



VICINITY MAP

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	EB–4993	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
40892.3.ST1	STM–000S(533)	

LOCATION: *NEUSE RIVER GREENWAY FROM WAKE/JOHNSTON COUNTY LINE TO SAM'S BRANCH CREEK IN JOHNSTON COUNTY*

TYPE OF WORK: *GRADING, PAVING, STRUCTURES, BOARDWALK, DRAINAGE, EROSION CONTROL AND SIGNING.*

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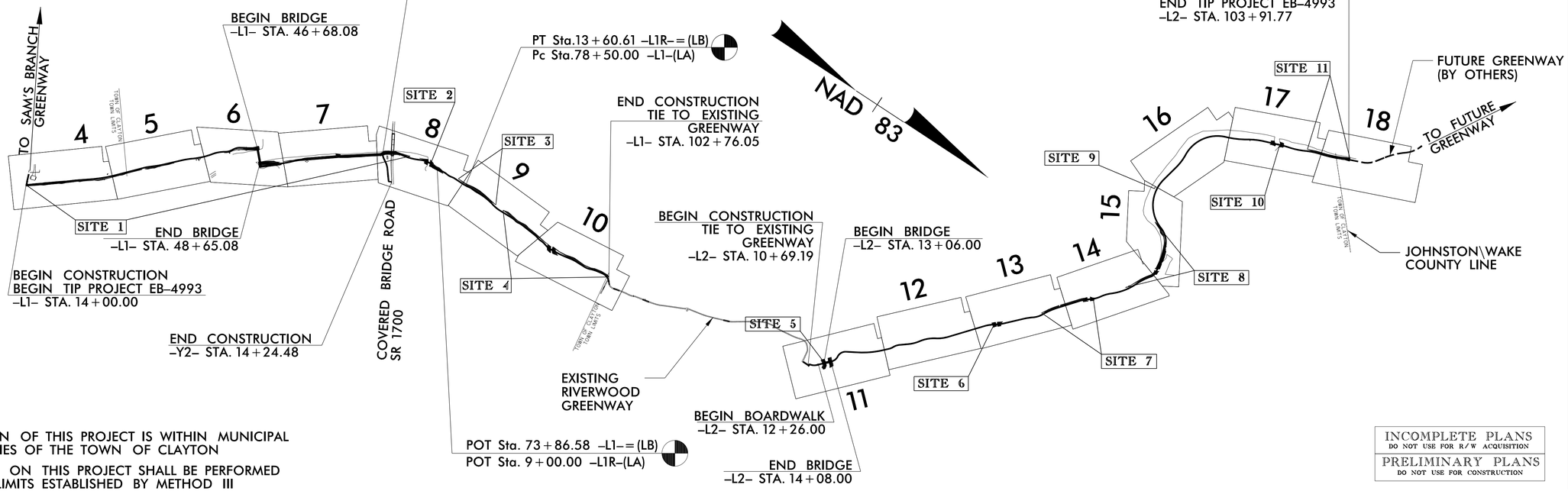
BUFFER IMPACTS



A PORTION OF THIS PROJECT IS WITHIN MUNICIPAL BOUNDARIES OF THE TOWN OF CLAYTON

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

DESIGN SPEED = 20 MPH
LEAN ANGLE = 15 DEGREES
FUNC. CLASS. = GREENWAY

PROJECT LENGTH

LENGTH OF GREENWAY TIP EB–4993 = 3.389 MILES
LENGTH OF STRUCTURES TIP EB–4993 = 0.057 MILES
LENGTH OF PROJECT TIP EB–4993 = 3.446 MILES

Prepared in the Office of:
STEWART ENGINEERING
For
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 20, 2010

LETTING DATE:
APRIL 20, 2010

BENJAMIN R. CRAWFORD, PE
PROJECT ENGINEER

JONATHAN C. HEFNER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

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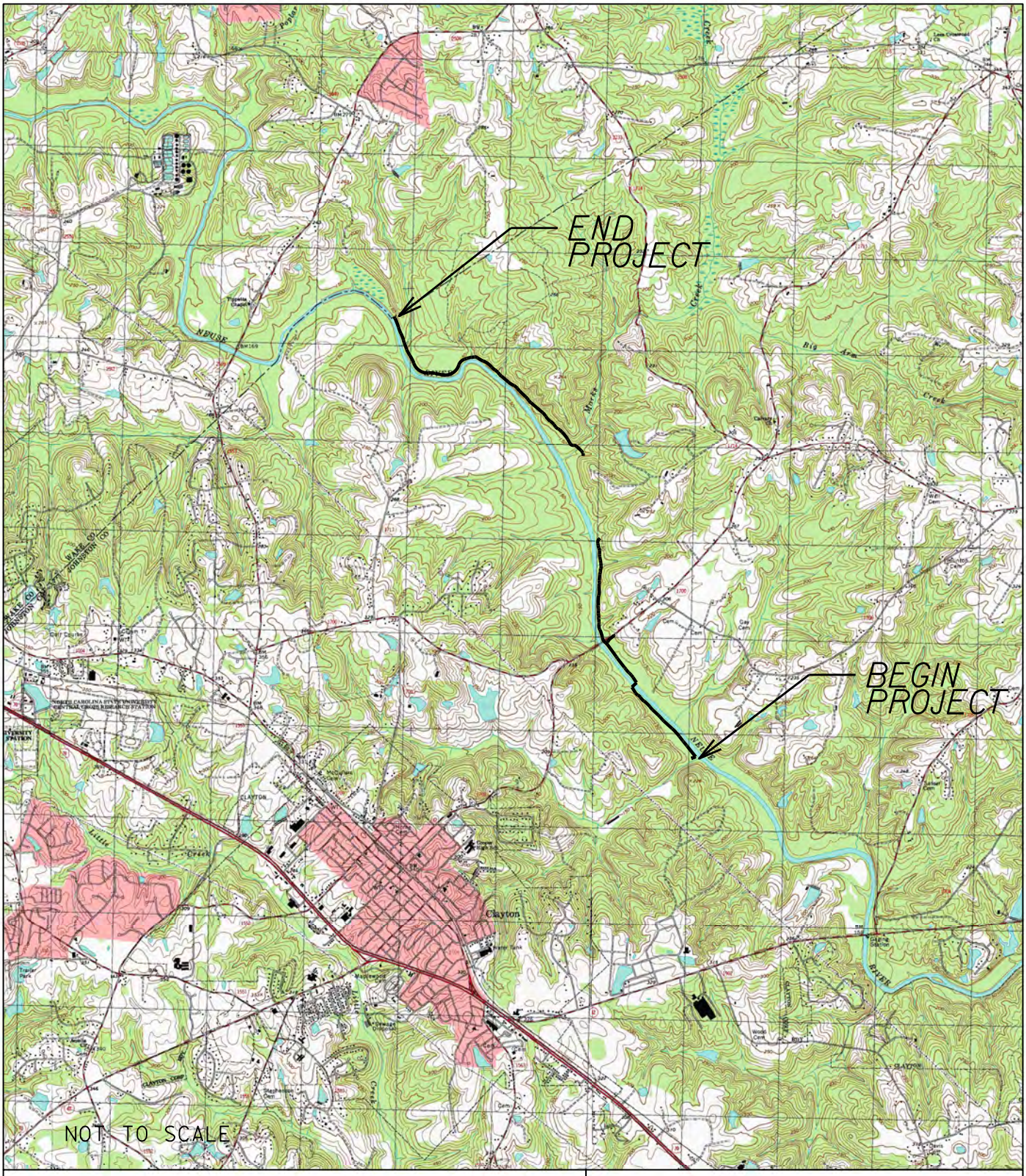

NEUSE RIVER BUFFER
VICINITY MAPS

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
JOHNSTON COUNTY

PROJECT: 40892.3.ST1 (EB-4993)

NEUSE RIVER GREENWAY
SAM'S BRANCH TO WAKE CO.

SHEET OF

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	N/A	14+00 to 34+75 L1			X	6638	26909	33547					
1A	30" HDPE	37+85 to 38+50 L1	X				327	327					
1B	1@195' PreFab	41+90 to 69+70 L1	X	X	X	37207	44486	81693					
2	42" HDPE	71+04 to 74+90 L1	X		X	8585	5601	14186					
3	N/A	77+14 to 83+44 L1			X	2898	9174	12072					
4	60" HDPE	84+76 to 102+18 L1	X		X	7127	26206	33333					
5	1@102' PreFab	12+66 to 14+23 L2	X			8282	4884	13166					
6	24" HDPE	37+36 L1R to 38+95 L1	X			3788	2678	6466					
7	48" HDPE	44+56 to 52+04 L2	X		X	4177	11762	15939					
8	66" HDPE	56+74 to 94+34 L2	X		X	14484	15356	29840					
TOTAL:						93186	147383	240569	0.0	0.0	0.0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY
PROJECT: 40892.3.ST1 (EB-4993)

2/17/2011
SHEET OF

Rev. May 2006

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
9	15" HDPE	73+85 L2	X			0	93	93					
10	2 - 66" HDPE	92+75 to 94+73 L2	X			4429	1697	6126					
11	N/A	98+02 to 103+92 L2			X	4612	10243	4468					
TOTAL:						102227	159416	251256	0.0	0.0	0.0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY
PROJECT: 40892.3.ST1 (EB-4993)

2/17/2011
SHEET OF

Rev. May 2006

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)		WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
1	25+00 L1			56
1	42+53 to 44+43 L1			587
TOTAL:			0	643

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY
PROJECT: 40892.3.ST1 (EB-4993)

2/17/2011
SHEET OF

Rev. Jan 2009

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
EB–4993	2B
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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

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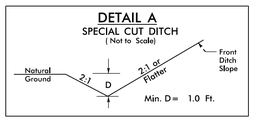
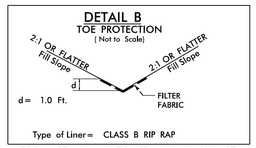
60% ROADWAY SUBMITTAL

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 25+28.5 TO STA. 27+25 –L1– LT
FROM STA. 63+50 TO STA. 65+50 –L1– LT
FROM STA. 65+50 TO STA. 65+68.9 –L1– RT
FROM STA. 65+68.9 TO STA. 66+22.6 –L1– LT
FROM STA. 71+25 TO STA. 72+33.9 –L1– RT
FROM STA. 92+00 TO STA. 92+75 –L1– LT
FROM STA. 93+42.6 TO STA. 96+00 –L1– LT
FROM STA. 96+68.9 TO STA. 100+25 –L1– LT
FROM STA. 15+50 TO STA. 16+92.2 –L2– RT
FROM STA. 23+50 TO STA. 24+01.7 –L2– RT
FROM STA. 24+01.7 TO STA. 24+75 –L2– RT
FROM STA. 40+00 TO STA. 40+25 –L2– LT
FROM STA. 40+25 TO STA. 42+00 –L2– LT
FROM STA. 47+24 TO STA. 47+50 –L2– LT
FROM STA. 52+75 TO STA. 53+00 –L2– LT
FROM STA. 54+05.9 TO STA. 55+25 –L2– LT
FROM STA. 61+00 TO STA. 61+71.2 –L2– LT
FROM STA. 61+94.8 TO STA. 65+50 –L2– LT
FROM STA. 65+50 TO STA. 67+25 –L2– LT
FROM STA. 67+59.9 TO STA. 68+50 –L2– LT
FROM STA. 67+59.9 TO STA. 70+75 –L2– RT
FROM STA. 69+75 TO STA. 72+00 –L2– LT
FROM STA. 72+25 TO STA. 73+62.4 –L2– RT
FROM STA. 73+62.4 TO STA. 75+50 –L2– RT
FROM STA. 77+72.3 TO STA. 78+25 –L2– LT
FROM STA. 79+25 TO STA. 80+17.4 –L2– LT

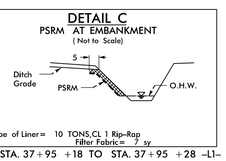
DETAIL B
TOE PROTECTION
(Not to Scale)



Type of Liner= CLASS B RIP RAP

FROM STA. 11+47 TO STA. 12+00 –L2– RT

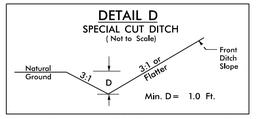
DETAIL C
PSRM AT EMBANKMENT
(Not to Scale)



Type of Liner= 10 TONS,CL 1 Rip–Rap
Filter Fabric= 7 sy

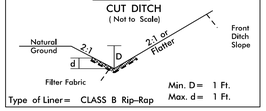
FROM STA. 37+95 +18 TO STA. 37+95 +28 –L1– RT
FROM STA. 38+10 +20 TO STA. 38+10 +32 –L1– RT
FROM STA. 72+30 –17 TO STA. 72+30 –27 –L1– LT
FROM STA. 72+30 +20 TO STA. 72+30 +30 –L1– RT
FROM STA. 72+60 –30 TO STA. 72+60 –40 –L1– LT
FROM STA. 72+60 +13 TO STA. 72+60 +23 –L1– RT
FROM STA. 37+90 –26.9 TO STA. 37+95 –18.5 –L2– LT
FROM STA. 38+15 –18.5 TO STA. 38+15 –28.5 –L2– LT
FROM STA. 47+12 +21.3 TO STA. 47+14 +11.5 –L2– RT
FROM STA. 47+15 –15.7 TO STA. 47+15 –24.9 –L2– LT
FROM STA. 47+30 –14.9 TO STA. 47+30 –24.3 –L2– LT
FROM STA. 51+15 – 20.3 TO STA. 51+15 –30.3 –L2– LT
FROM STA. 51+60 –20.6 TO STA. 51+55 –20.6 –L2– LT
FROM STA. 56+90 –31.8 TO STA. 56+90 –23.7 –L2– LT
FROM STA. 57+10 –33.6 TO STA. 57+15 –24.4 –L2– LT

DETAIL D
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 59+51.9 TO STA. 61+00 –L1– LT
FROM STA. 72+62.9 TO STA. 73+00 –L1– RT
FROM STA. 44+25 TO STA. 47+08.8 –L2– RT
FROM STA. 51+80.8 TO STA. 52+50 –L2– LT
FROM STA. 91+75 TO STA. 93+60.4 –L2– LT
FROM STA. 94+13.8 TO STA. 96+00 –L2– LT

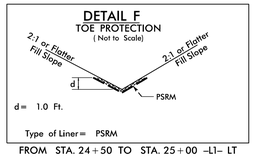
DETAIL E
CUT DITCH
(Not to Scale)



Type of Liner= CLASS B Rip–Rap

FROM STA. 90+75 TO STA. 93+35.8 –L1– RT
FROM STA. 10+14.7 TO STA. 11+00 –Y2– RT

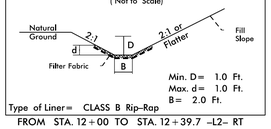
DETAIL F
TOE PROTECTION
(Not to Scale)



Type of Liner= PSRM

FROM STA. 24+50 TO STA. 25+00 –L1– LT
FROM STA. 37+75 TO STA. 37+92 –L1– RT
FROM STA. 38+14.6 TO STA. 39+00 –L1– RT
FROM STA. 41+00 TO STA. 45+07 –L1– RT
FROM STA. 50+66 TO STA. 52+60 –L1– LT
FROM STA. 61+50 TO STA. 63+50 –L1– LT
FROM STA. 70+75 TO STA. 72+00 –L1– LT
FROM STA. 87+00 TO STA. 88+47.7 –L1– RT
FROM STA. 88+47.7 TO STA. 89+50 –L1– RT
FROM STA. 14+24 TO STA. 14+88 –L2– RT
FROM STA. 30+15 TO STA. 31+27 –L2– RT
FROM STA. 37+73.5 TO STA. 37+97.5 –L2– RT
FROM STA. 38+14.4 TO STA. 38+73.4 –L2– RT
FROM STA. 38+14.4 TO STA. 38+73.4 –L2– LT
FROM STA. 47+23 TO STA. 47+34 –L2– RT
FROM STA. 47+75 TO STA. 48+25 –L2– LT
FROM STA. 51+00 TO STA. 51+24 –L2– RT
FROM STA. 51+50 TO STA. 51+75 –L2– RT
FROM STA. 54+02 TO STA. 54+25 –L2– RT
FROM STA. 57+10 TO STA. 57+25 –L2– RT
FROM STA. 65+50 TO STA. 67+50 –L2– RT
FROM STA. 67+25 TO STA. 67+50 –L2– LT
FROM STA. 81+25 TO STA. 82+50 –L2– RT

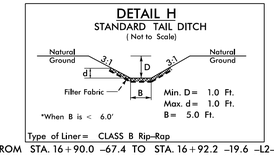
DETAIL G
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Type of Liner= CLASS B Rip–Rap

FROM STA. 12+00 TO STA. 12+39.7 –L2– RT

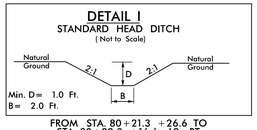
DETAIL H
STANDARD TAIL DITCH
(Not to Scale)



Type of Liner= CLASS B Rip–Rap

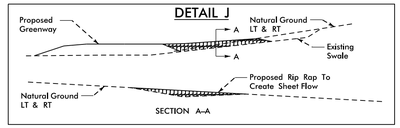
FROM STA. 16+90.0 –67.4 TO STA. 16+92.2 –19.6 –L2– LT
FROM STA. 24+03 –20.5 TO STA. 24+03 –44.8 –L2– LT

DETAIL I
STANDARD HEAD DITCH
(Not to Scale)

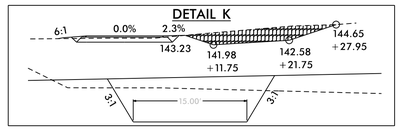


FROM STA. 80+21.3 +26.6 TO
STA. 80+22.3 +16.6 –L2– RT

DETAIL J

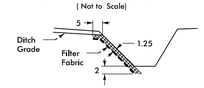


DETAIL K



FROM STA. 68+00 +8.00 –L1– RT

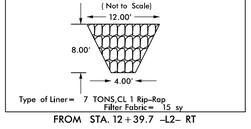
DETAIL L
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= 10 TONS,CL 1 Rip–Rap
Filter Fabric= 7 sy

FROM STA. 25+25 TO STA. 25+35 –L2– LT

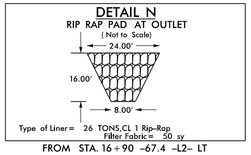
DETAIL M
RIP RAP PAD AT OUTLET
(Not to Scale)



Type of Liner= 7 TONS,CL 1 Rip–Rap
Filter Fabric= 15 sy

FROM STA. 12+39.7 –L2– RT

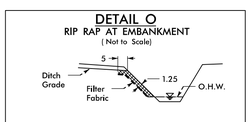
DETAIL N
RIP RAP PAD AT OUTLET
(Not to Scale)



Type of Liner= 26 TONS,CL 1 Rip–Rap
Filter Fabric= 50 sy

FROM STA. 16+90 –67.4 –L2– LT
FROM STA. 24+03 –44.8 –L2– LT

DETAIL O
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= 10 TONS,CL 1 Rip–Rap
Filter Fabric= 7 sy

FROM STA. 93+44 +22 TO STA. 93+48 +31 –L1– RT
FROM STA. 93+20 –16 TO STA. 93+48 –26 –L1– LT
FROM STA. 93+47 –16 TO STA. 93+48 –26 –L1– LT
FROM STA. 61+70 –21.8 TO STA. 61+65 –31.8 –L2– LT
FROM STA. 61+80 +16.6 TO STA. 61+80 +24.4 –L2– RT
FROM STA. 61+90 –23.7 TO STA. 61+95 –14.6 –L2– LT
FROM STA. 62+10 +19.8 TO STA. 62+15 +28.6 –L2– RT
FROM STA. 93+30 –27.1 TO STA. 93+40 –19.4 –L2– LT
FROM STA. 93+55 +26.7 TO STA. 93+60 +17.4 –L2– RT
FROM STA. 94+05 +30.3 TO STA. 94+10 +20.9 –L2– RT
FROM STA. 94+10 –32.2 TO STA. 94+15 –23.0 –L2– LT

2/1/2011
J:\Proj\EB4993_RDY_TYP.dgn
USER:jccrawford

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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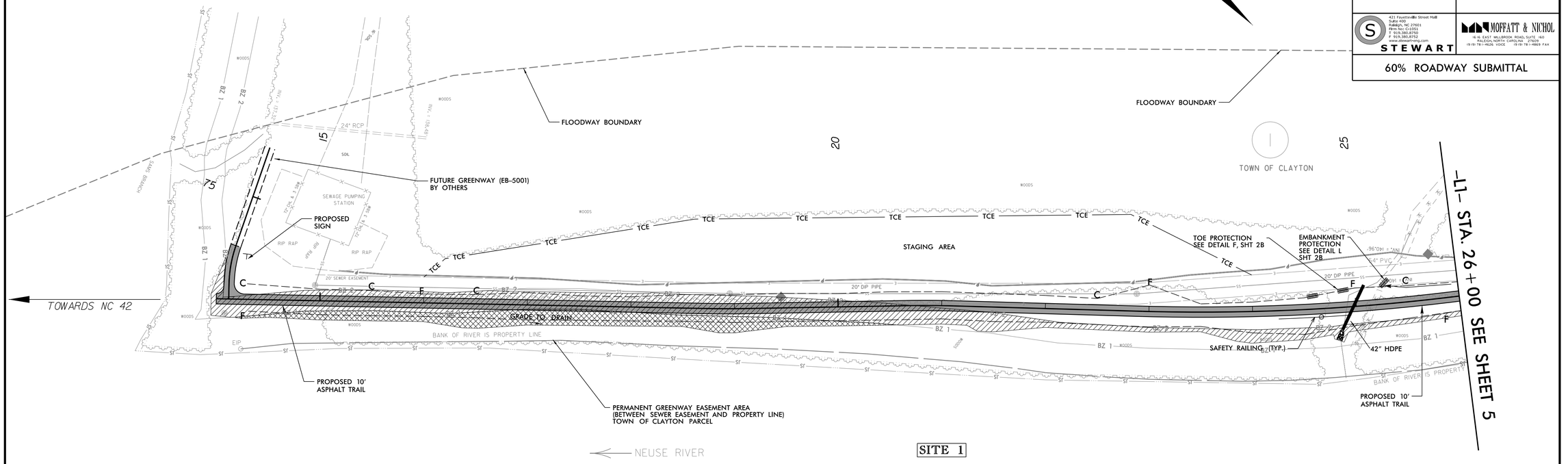
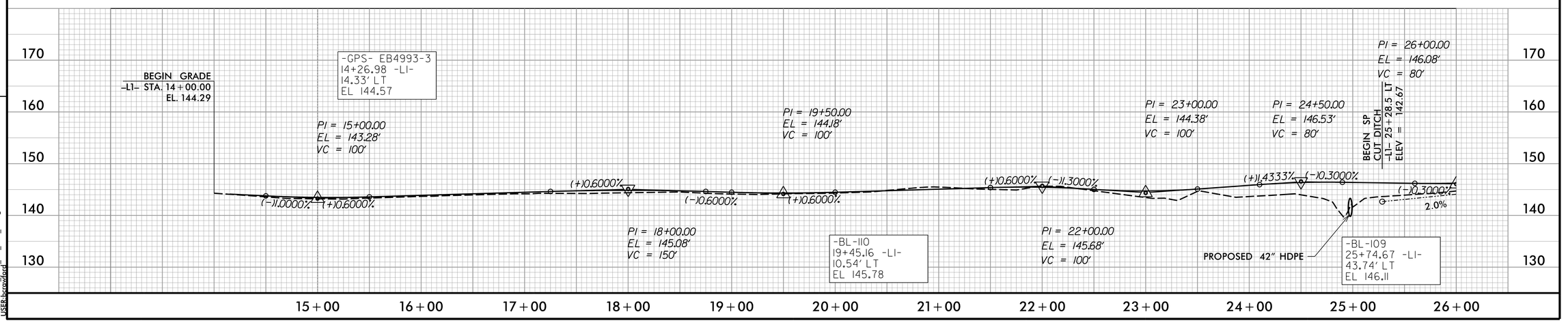
REVISIONS 8/17/99



BUFFER IMPACTS



2/17/2011
(EB4993_PRM_buf_PSH_04.dgn
USER:bcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB–4993	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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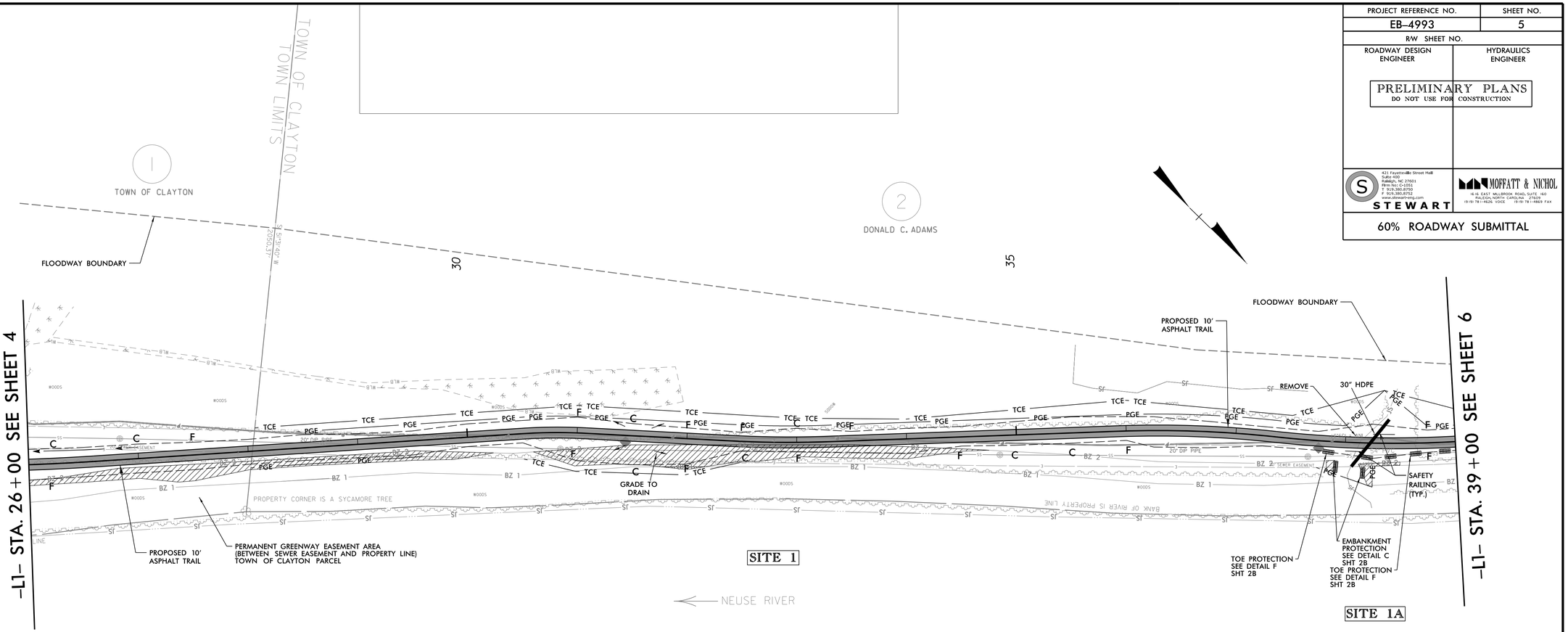
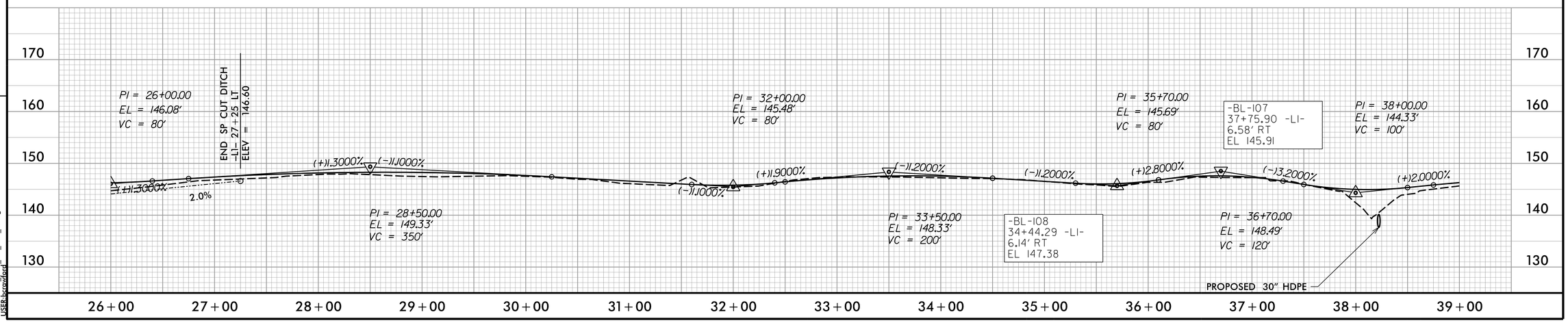


BUFFER IMPACTS

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2



2/17/2011
EB4993_PRM_buf_PSH_05.dgn
USER:bcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB–4993	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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8/17/99

REVISIONS

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

DONALD C. ADAMS

JOHN WESLEY MASSEY

–L1– STA. 39+00 SEE SHEET 5

–L1– STA. 52+00 SEE SHEET 7

SITE 1B

FLOODWAY BOUNDARY

PROPOSED MILE MARKER

PROPOSED 10' ASPHALT TRAIL

APPROXIMATE LOCATION 8" DIP FORCEMAIN

TOE PROTECTION SEE DETAIL F SHT 2B

15" HDPE FOR WETLAND OVERFLOW

SLOPE PROTECTION LINED WITH PSRM FROM STA –L1– 44+00.00 TO STA –L1– 45+07.10

BEGIN APPROACH SLAB –L1– STA. 44+97.08

END APPROACH SLAB BEGIN BOARDWALK –L1– STA. 45+07.08

SAFETY RAILING (TYP.)

CLASS II RIP RAP

END BOARDWALK BEGIN BRIDGE –L1– STA. 46+68.08

20'X20' BOARDWALK CONNECTION TO BRIDGE

SLOPE PROTECTION LINED WITH PSRM FROM STA –L1– 50+66.1 TO STA –L1– 51+85.8

END BRIDGE BEGIN BOARDWALK –L1– STA. 48+65.08

END APPROACH SLAB –L1– STA. 50+66.08

END BOARDWALK BEGIN APPROACH SLAB –L1– STA. 50+66.08

NEUSE RIVER

BUFFER IMPACTS

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 18,300	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 152.4	FT
BASE DISCHARGE	= 24,100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 155.7	FT
OVERTOPPING DISCHARGE	= 35,700	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 160.5	FT
DATE OF SURVEY	= 5/28/10	
W.S.ELEVATION AT DATE OF SURVEY	= 134.6	FT

-BL-105
44+66.94 -LI-
48.30' RT
EL 144.45

-BL-106
41+76.99 -LI-
4.77' RT
EL 145.18

-BL-104
46+69.81 -LI-
2.64' LT
EL 140.57

BEGIN BOARDWALK –L1– STA. 45+07.08 EL. 155.58

BEGIN BRIDGE –L1– STA. 46+68.08 EL. 160.50

END BRIDGE –L1– STA. 48+65.08 EL. 160.50

END BOARDWALK –L1– STA. 50+66.08 EL. 153.50

PI = 43+00.00
EL = 145.52'
VC = 150'

PI = 39+50.00
EL = 147.33'
VC = 150'

PI = 45+67.08
EL = 158.50'

PI = 45+87.08
EL = 159.30'

PI = 46+07.08
EL = 159.90'

PI = 46+27.08
EL = 160.30'

PI = 46+47.08
EL = 160.50'

PI = 48+86.08
EL = 160.50'

PI = 49+06.08
EL = 160.30'

PI = 49+26.08
EL = 159.90'

PI = 49+46.08
EL = 159.30'

PI = 49+66.08
EL = 158.50'

(–)0.5171%
(+)4.8600%
(+)1.0000%
(+)2.0000%
(+)3.0000%
(+)4.0000%
(+)0.0000%
0.0000%
–1.0000%
–2.0000%
–3.0000%
–4.0000%
(–)15.0000%

EX. 25 YR ELEV. = 152.4
PROP. 25 YR ELEV. = 152.4
EX. 100 YR ELEV. = 155.7
PROP. 100 YR ELEV. = 155.7
NWS ELEV. = 134.6 (5/28/10)

170 160 150 140 130

39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00

2/17/2011
I:\EB4993_PRM_buf_PSH_06.dgn
USER:bcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	7
R/W SHEET NO.	
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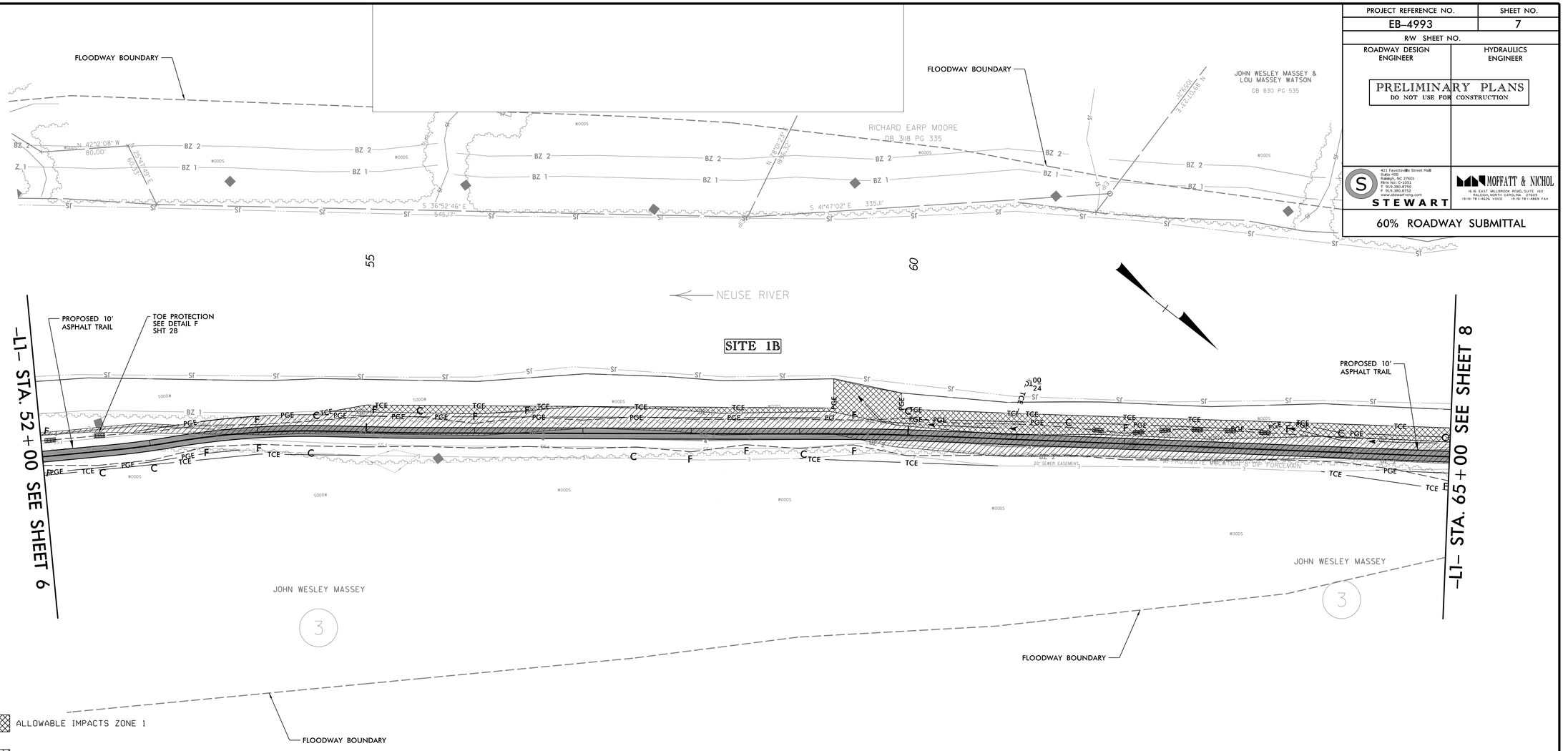
REVISIONS

8/17/99



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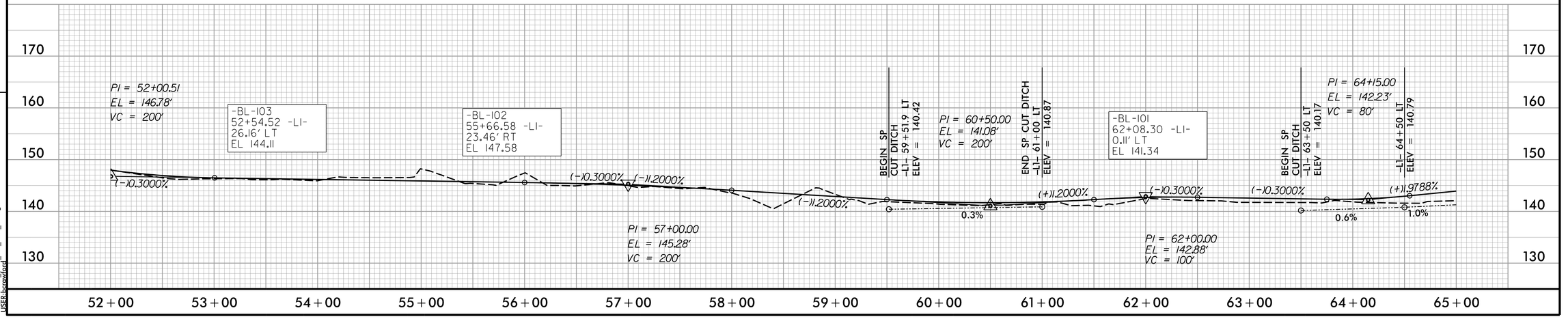

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USER:bcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB–4993	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

421 Fayetteville Street Mall
Suite 400
Raleigh, NC 27601
Ph 919.380.8750
F 919.380.8752
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MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

60% ROADWAY SUBMITTAL

SEE SHEET 18 FOR –Y2– PROFILE

REVISIONS

8/17/99

JOHN WESLEY MASSEY & LOU MASSEY WATSON
DB 830 PG 535

NEUSE RIVER

SITE 1B

SITE 2

SITE 3

PROPOSED SIGN AND MILE MARKER

FLOODWAY BOUNDARY

PROPOSED 10' ASPHALT TRAIL

TOE PROTECTION SEE DETAIL F SHT 2B

SAFETY RAILING (TYP.)

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

42" HDPE

15" HDPE

–L1– STA. 65+00 SEE SHEET 7

–L1R– STA. 13+10.61 SEE SHEET 9

4
DAVID M. SORRELL, ET UX
DB 959, PG 116

5
MAVIS C. HOUSE
DB 705, PG 629

3
JOHN WESLEY MASSEY
DB 1778 PG 679

BEAVER DAM

S 01°48'52" W 131.80'

N 82°26'08" W 210.63'

S 55°56'22" W 80.00'

SEWER EASEMENT

TOWN OF CLAYTON SEWER EASEMENT

COVERED BRIDGE RD. SR 1700

APPROXIMATE LOCATION OF 12" WATERLINE

4 SPAN CONC. BRIDGE

24" RCP

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

END CONSTRUCTION
–Y2– STA. 13+89.00

BUFFER IMPACTS

-BL-100
66+91.18 -LI-
38.24' RT
EL 159.17

-BL-97
72+08.08 -LI-
22.32' RT
EL 144.17

-BL-99
68+35.76 -LI-
229.11' RT
EL 158.14

-BL-98
67+89.58 -LI-
6.73' LT
EL 142.34

-BL-96
12+24.86 -LIR-
7.00' RT
EL 152.07

BEGIN SP CUT DITCH –L1– 65+50 RT ELEV = 142.40

END SP CUT DITCH –L1– 65+50 LT ELEV = 141.77

END SP CUT DITCH –L1– 65+68.9 RT ELEV = 142.10

BEGIN SP CUT DITCH –L1– 65+68.9 LT ELEV = 141.90

PI = 65+80.00
EL = 145.50'
VC = 80'

PROPOSED 15" HDPE

(+)1.9788%

(–)1.9852%

(+)0.4000%

1.6%

0.9%

END SP CUT DITCH –L1– 66+22.6 LT ELEV = 141.44

COVERED ROAD BRIDGE STRUCTURE

8' MIN CLEARANCE

PI = 67+15.00
EL = 142.82'
VC = 80'

(+)0.4000%

(–)0.7000%

0.8%

BEGIN SP CUT DITCH –L1– 71+25 RT ELEV = 142.88

PI = 71+00.00
EL = 144.36'
VC = 100'

PI = 72+50.00
EL = 143.31'
VC = 150'

END SP CUT DITCH –L1– 72+33.9 RT ELEV = 142.06

BEGIN SPL CUT DITCH –L1– 72+69.6 RT ELEV = 142.47

END SP CUT DITCH –L1– 73+00 RT ELEV = 143.03

1.7%

PROPOSED 42" HDPE

BEGIN GRADE
Sta.9+00.00 –LIR–= (LA)
Sta.73+86.58 –LI– (LB)
ELEV. 146.04

(+)2.0000%

(+)2.0000%

PI = 10+00.00
EL = 148.04'
VC = 104'

(+)4.7000%

(–)11.3804%

(+)11.6400%

PI = 11+50.00
EL = 155.09'
VC = 80'

PI = 12+75.00
EL = 153.37'
VC = 120'

170
160
150
140
130

65+00 66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00 10+13.42 11+13.42 12+13.42 13+10.61

2/17/2011
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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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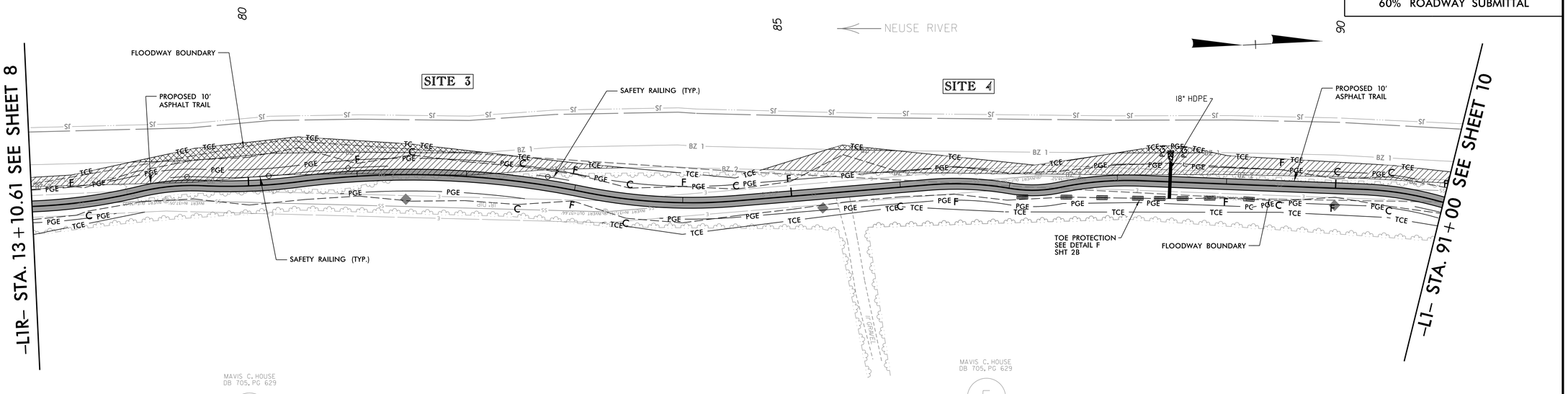
60% ROADWAY SUBMITTAL

REVISIONS

8/17/99



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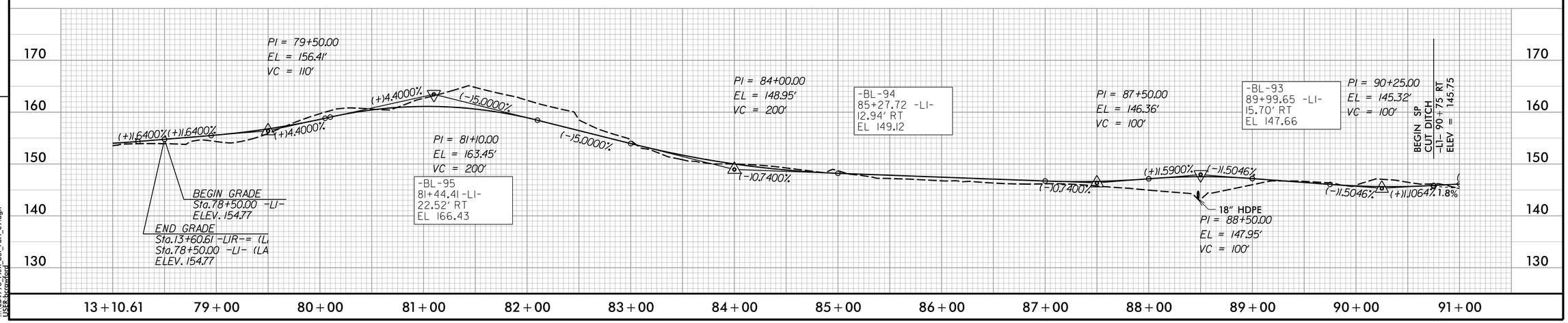

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PROJECT REFERENCE NO.	SHEET NO.
EB–4993	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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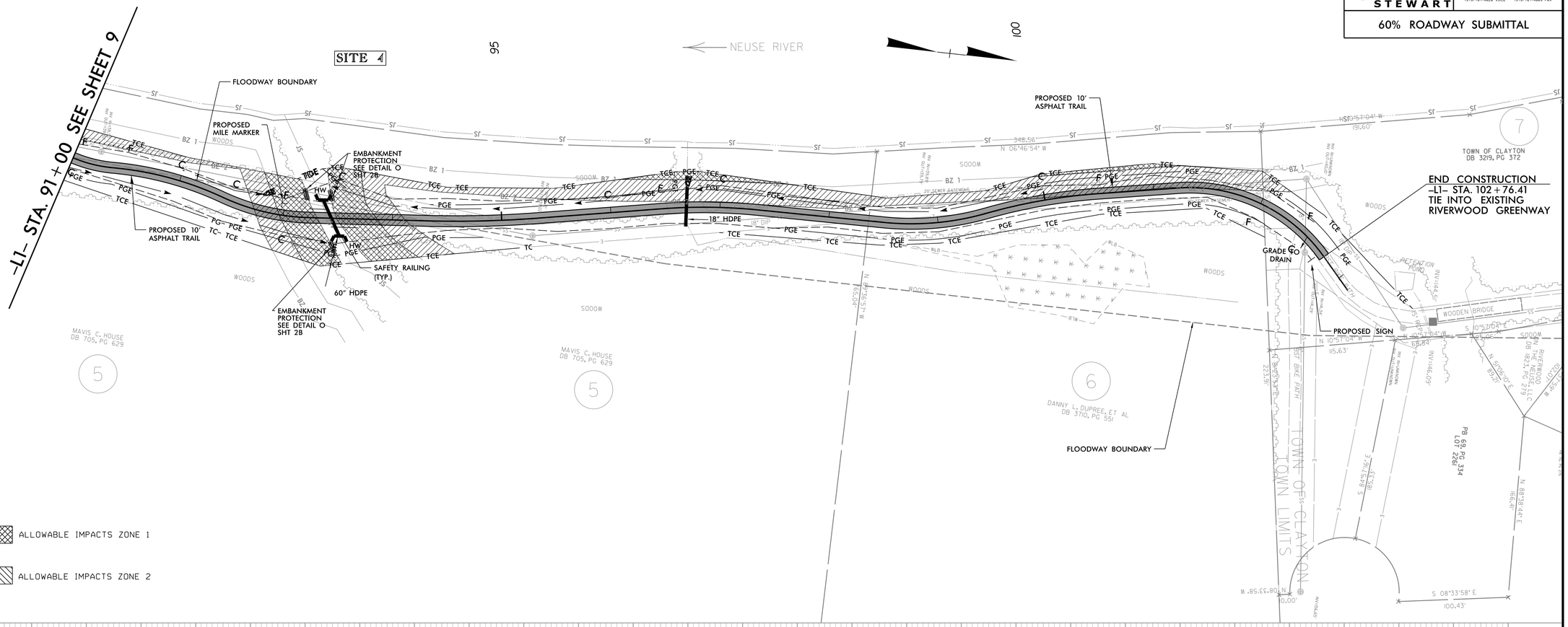
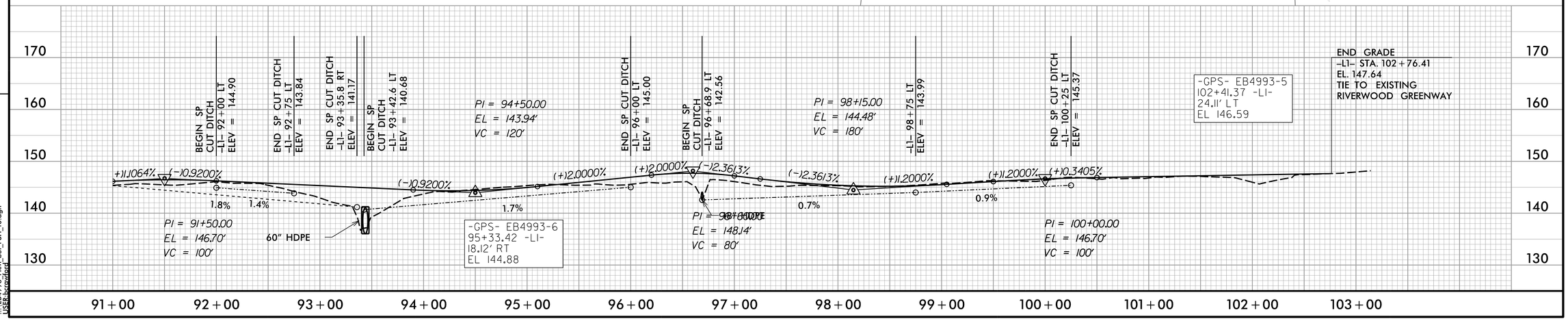
REVISIONS

8/17/99

BUFFER IMPACTS





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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

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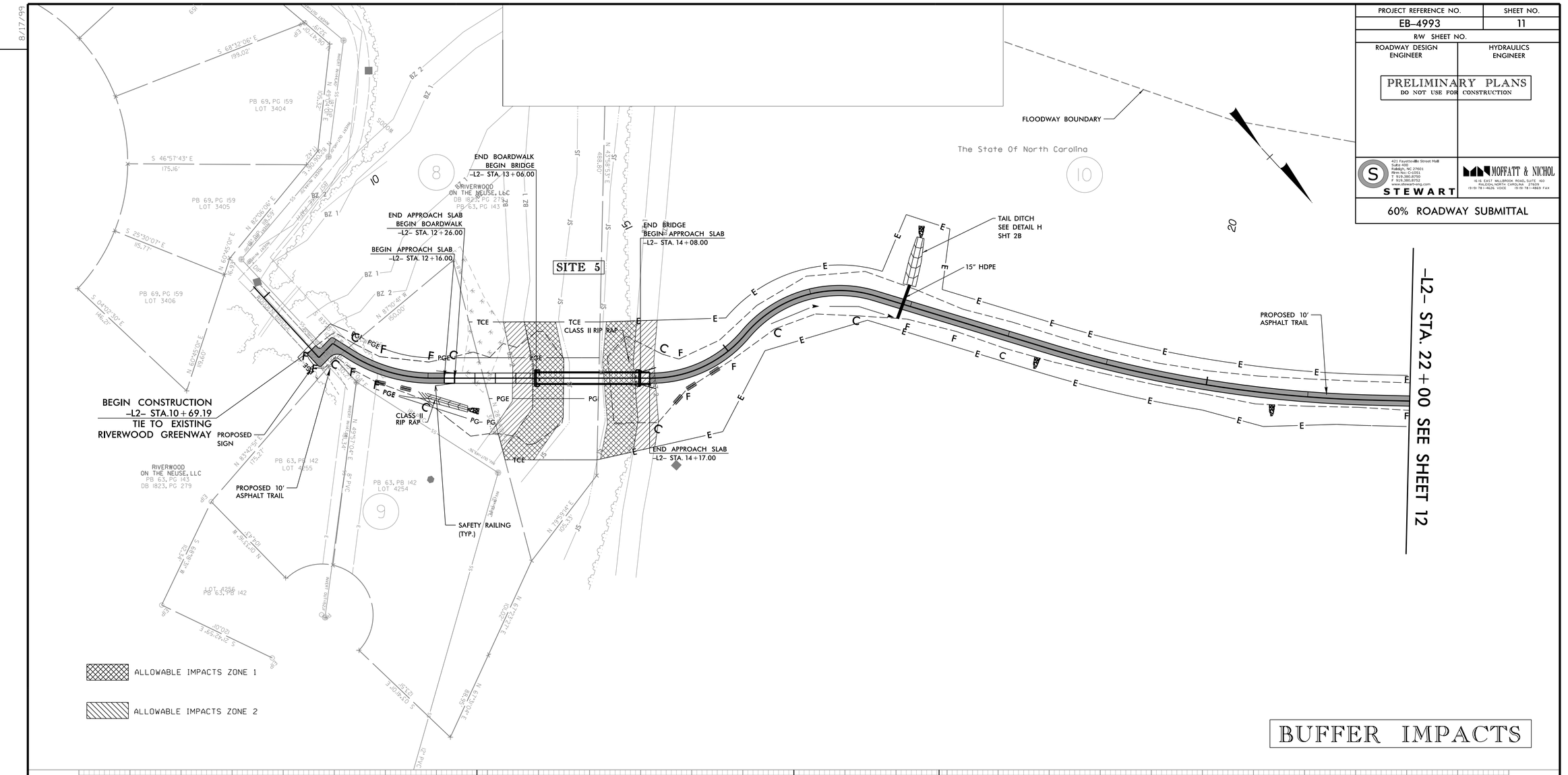

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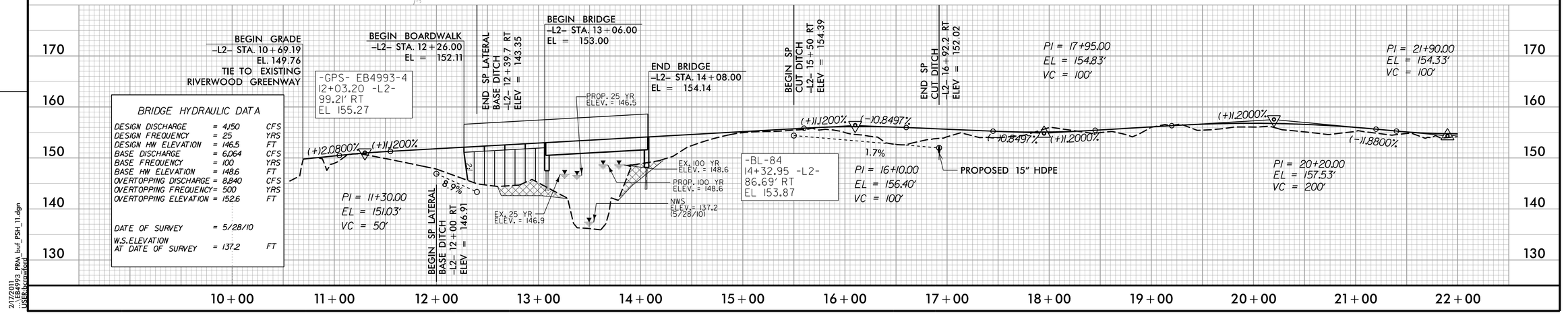

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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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60% ROADWAY SUBMITTAL

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REVISIONS

BUFFER IMPACTS

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

SAFETY RAILING (TYP.)

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

SITE 6

NEUSE RIVER

40

45

SITE 7

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

18" HDPE

-L2- STA. 35+00 SEE SHEET 12

FLOODWAY BOUNDARY

PROPOSED 10' ASPHALT TRAIL

PROPOSED MILE MARKER

24" HDPE

TOE PROTECTION SEE DETAIL F SHT 2B

PROPOSED 10' ASPHALT TRAIL

FLOODWAY BOUNDARY

TOE PROTECTION SEE DETAIL F SHT 2B

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

-L2- STA. 48+00 SEE SHEET 14

The State Of North Carolina

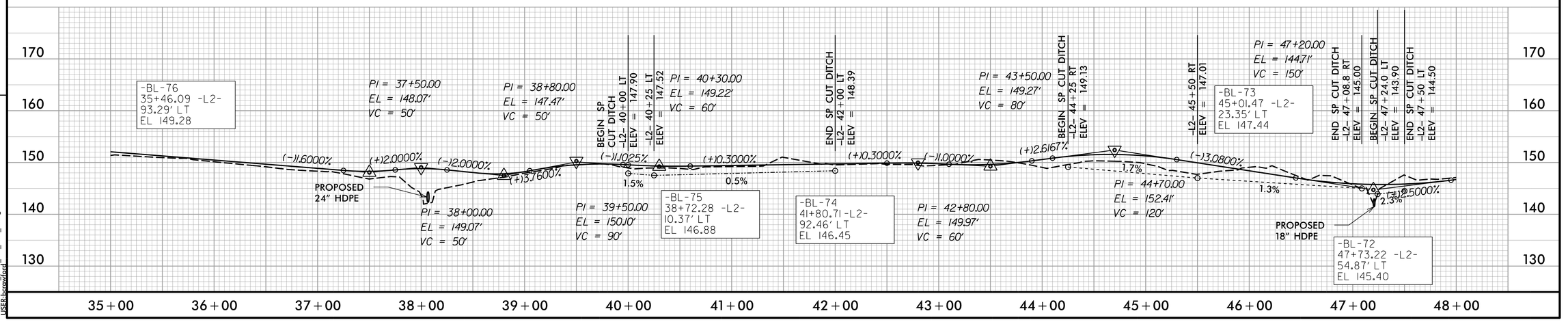
10

The State Of North Carolina

10

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2



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USER:kcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB–4993	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

BUFFER IMPACTS

NEUSE RIVER

SITE 7

SITE 8

–L2– STA. 48+00 SEE SHEET 13

–L2– STA. 61+00 SEE SHEET 15

50

55

60

BANK OF RIVER IS PROPERTY LINE

WOODS

TOE PROTECTION SEE DETAIL F SHT 2B

SAFETY RAILING (TYP.)

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

48" HDPE

15" HDPE

24" HDPE

HW

FLOODWAY BOUNDARY

PROPOSED 10' ASPHALT TRAIL

TOE PROTECTION SEE DETAIL F SHT 2B

FILL DRAW W/ CLASS 1 RIP RAP EST 7 TONS EST 15 SY FF SEE DETAIL J SHT 2B

The State Of North Carolina

10

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

PI = 49+20.00
EL = 149.71'
VC = 200'

PROPOSED 48" HDPE

-BL-71
51+00.59 -L2-
10.55' LT
EL 147.10

PI = 51+20.00
EL = 147.71'
VC = 200'

BEGIN SP CUT DITCH –L2– 51+80.8 LT ELEV = 148.65

END SP CUT DITCH –L2– 52+50 LT ELEV = 149.2

BEGIN SP CUT DITCH –L2– 52+75 LT ELEV = 150.19

END SP CUT DITCH –L2– 53+00 LT ELEV = 150.65

PI = 53+00.00
EL = 153.11'
VC = 150'

PI = 54+40.00
EL = 148.91'
VC = 100'

BEGIN SP CUT DITCH –L2– 54+05.9 LT ELEV = 146.14

END SP CUT DITCH –L2– 55+25 LT ELEV = 150.89

-BL-70
55+09.29 -L2-
3.50' RT
EL 151.45

PI = 55+70.00
EL = 154.11'
VC = 130'

PI = 57+20.00
EL = 151.11'
VC = 100'

PROPOSED 24" HDPE

PI = 58+70.00
EL = 154.11'
VC = 150'

-BL-69
59+97.02 -L2-
34.03' LT
EL 149.27

PI = 59+90.00
EL = 151.71'
VC = 70'

PI = 60+90.00
EL = 152.61'
VC = 130'

BEGIN SP CUT DITCH –L2– 61+00 LT ELEV = 150.08

(+)12.5000%

(–)11.0000%

(+)13.0000%

0.8%

1.8%

(–)13.0000%

(+)4.0000%

4.0%

(–)12.0000%

(+)2.0000%

(–)12.0000%

(+)10.9000%

170
160
150
140
130

48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00

2/17/2011
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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MOFFATT & NICHOL

60% ROADWAY SUBMITTAL

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REVISIONS

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

FLOODWAY BOUNDARY

NEUSE RIVER

FLOODWAY BOUNDARY

SITE 8

SITE 9

-L2- STA. 61+00 SEE SHEET 14

-L2- STA. 74+00 SEE SHEET 16

EMBANKMENT PROTECTION SEE DETAIL O SHT 2B

PROPOSED 10' ASPHALT TRAIL

TOE PROTECTION SEE DETAIL F SHT 2B

BANK OF RIVER IS PROPERTY LINE

WOODS

15" HDPE

PROPOSED 10' ASPHALT TRAIL

SAFETY RAILING (TYP.)

66" HDPE

EMBANKMENT PROTECTION SEE DETAIL O SHT 2B

FLOODWAY BOUNDARY

PROPOSED MILE MARKER

15" HDPE EQUALIZER PIPE

TOE PROTECTION SEE DETAIL F SHT 2B

The State Of North Carolina

10

The State Of North Carolina

10

BUFFER IMPACTS

FLOODWAY BOUNDARY

BEGIN SP CUT DITCH -L2- 61+00 LT ELEV = 150.08

END SP CUT DITCH -L2- 61+71.2 LT ELEV = 147.50

BEGIN SP CUT DITCH -L2- 61+94.8 LT ELEV = 143.55

-L2- 62+00 LT ELEV = 144.27

PI = 62+60.00
EL = 144.60'
VC = 80'

-GPS- EB4993-2
62+76.68 -L2-
17.48' LT
EL 145.60

-L2- 65+50 LT ELEV = 147.50

END SP CUT DITCH -L2- 67+25 LT ELEV = 146.62

BEGIN SP CUT DITCH -L2- 67+59.9 RT ELEV = 146.50

PI = 67+60.00
EL = 150.90'
VC = 80'

-L2- 69+00 RT ELEV = 147.77

-GPS- EB4993-1
69+64.21-L2-
93.32' LT
EL 175.99

END SP CUT DITCH -L2- 70+75 RT ELEV = 151.93

-BL-67
71+01.52 -L2-
125.21' LT
EL 150.30

BEGIN SP CUT DITCH -L2- 72+25 RT ELEV = 152.65

PI = 73+90.00
EL = 153.01'
VC = 150'

PROPOSED 15" HDPE

(-)15.0000%

3.6%

0.7%

(+)2.0000%

1.3%

(+)2.0000%

(+)0.3000%

0.5%

(+)0.3000%

(-)0.9933%

1.0%

(-)0.9933%

0.3%

(+)3.0000%

2.4%

0.9%

(+)3.0000%

(-)0.6000%

1.6%

(-)0.6000%

3.0%

PI = 60+90.00
EL = 152.61'
VC = 130'

PROPOSED 66" HDPE

-BL-68
61+75.69 -L2-
72.71' RT
EL 151.83

PI = 65+30.00
EL = 150.21'
VC = 200'

PROPOSED 15" HDPE EQUALIZER PIPE

-L2- 67+59.9 LT ELEV = 146.50

END SP CUT DITCH -L2- 68+50 LT ELEV = 146.76

PI = 69+10.00
EL = 149.41'
VC = 150'

BEGIN SP CUT DITCH -L2- 69+75 LT ELEV = 150.09

-L2- 70+50 LT ELEV = 150.73

PI = 70+90.00
EL = 154.81'
VC = 200'

END SP CUT DITCH -L2- 72+00 LT ELEV = 153.06

-L2- 73+62.4 RT ELEV = 148.50

170 160 150 140 130

61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00

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PROJECT REFERENCE NO.	SHEET NO.
EB–4993	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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60% ROADWAY SUBMITTAL

8/17/99

REVISIONS

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

BUFFER IMPACTS

NEUSE RIVER

SITE 10

SITE 11

90

95

-L2- STA. 87+00 SEE SHEET 16

-L2- STA. 100+00 SEE SHEET 18

BANK OF RIVER IS PROPERTY LINE

NAIL IN 30" DEAD SPANISH OAK

WOODS

JS

BZ 1

BZ 2

E

F

C

HW

51' 2X 66" HDPE

TCE

PGE

PROPOSED 10' ASPHALT TRAIL

PROPOSED MILE MARKER

SAFETY RAILING (TYP.)

EMBANKMENT PROTECTION SEE DETAIL O SHT 2B

Edith Watkins Romaine etal

N 00°34'28" E

999.14'

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

-BL-62
91+16.93 -L2-
15.67' LT
EL 154.56

-BL-61
94+72.66 -L2-
59.16' LT
EL 154.87

-BL-60
97+86.37 -L2-
60.57' RT
EL 157.57

(+)0.4000%

(−)1.6000%

(−)5.0000%

(+)4.0000%

(+)0.3000%

3.2%

3.3%

PI = 89+90.00
EL = 157.15'
VC = 200'

PI = 92+60.00
EL = 152.83'
VC = 130'

PI = 93+90.00
EL = 146.33'
VC = 130'

PI = 96+00.00
EL = 154.73'
VC = 200'

PI = 100+00.00
EL = 155.93'
VC = 100'

PROPOSED DUAL 66" HDPE

BEGIN SP CUT DITCH -L2- 91+75 LT ELEV = 152.85

END SP CUT DITCH -L2- 93+60.4 LT ELEV = 146.88

BEGIN SP CUT DITCH -L2- 94+13.8 LT ELEV = 146.33

END SP CUT DITCH -L2- 96+00 LT ELEV = 152.47

170 160 150 140 130

87+00 88+00 89+00 90+00 91+00 92+00 93+00 94+00 95+00 96+00 97+00 98+00 99+00 100+00

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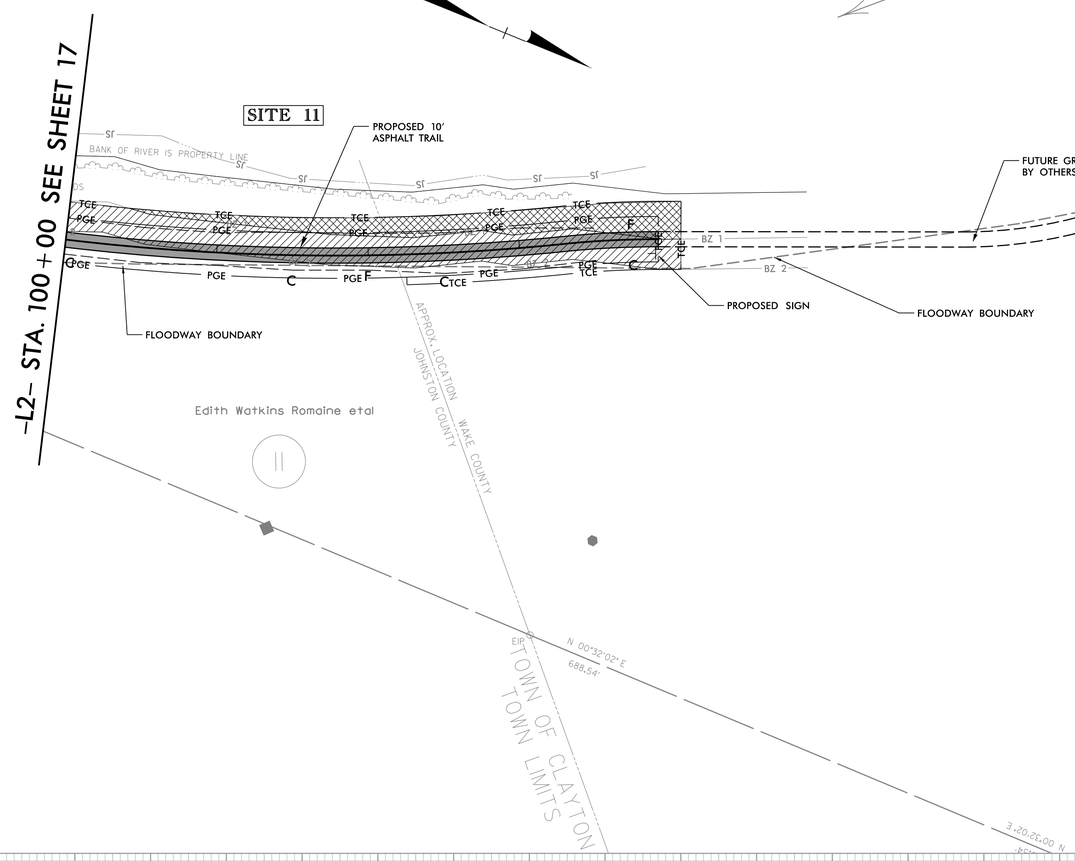
8/17/99

REVISIONS

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2



PROJECT REFERENCE NO.	SHEET NO.
EB-4993	18
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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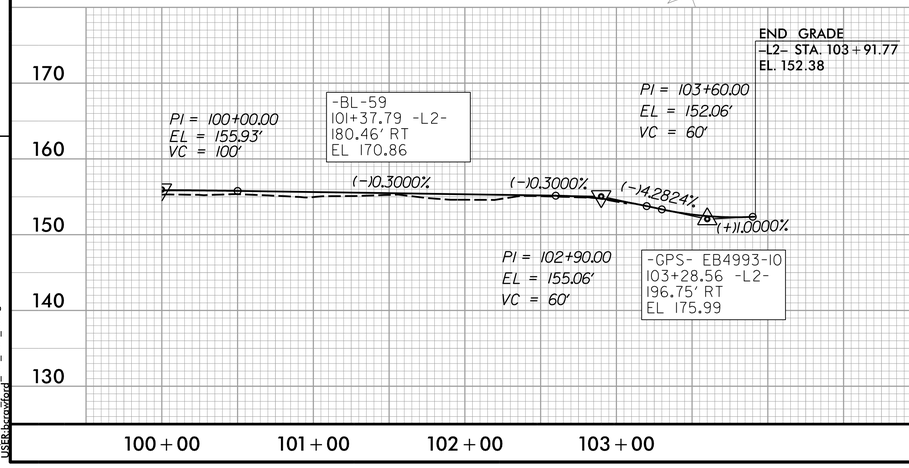
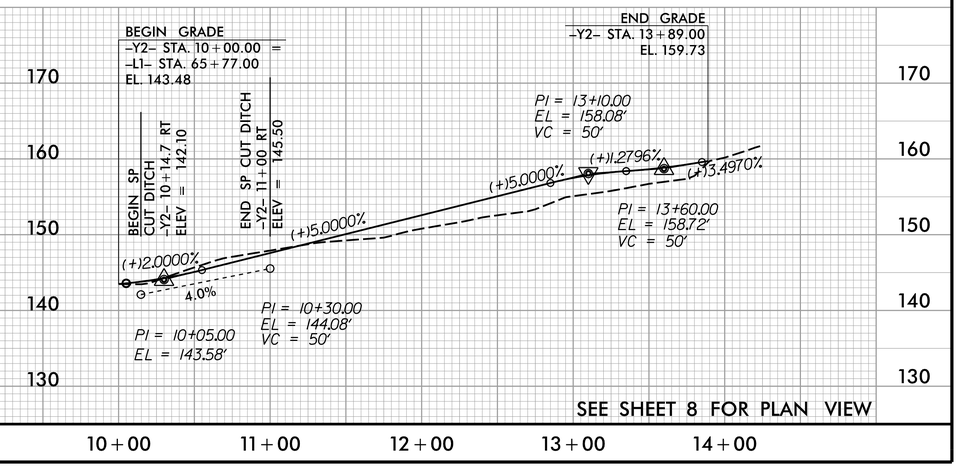
BUFFER IMPACTS





SEE SHEET 8 FOR PLAN VIEW

217281011
EB4993_PRM_buf_PSH_18.dgn
USER:kcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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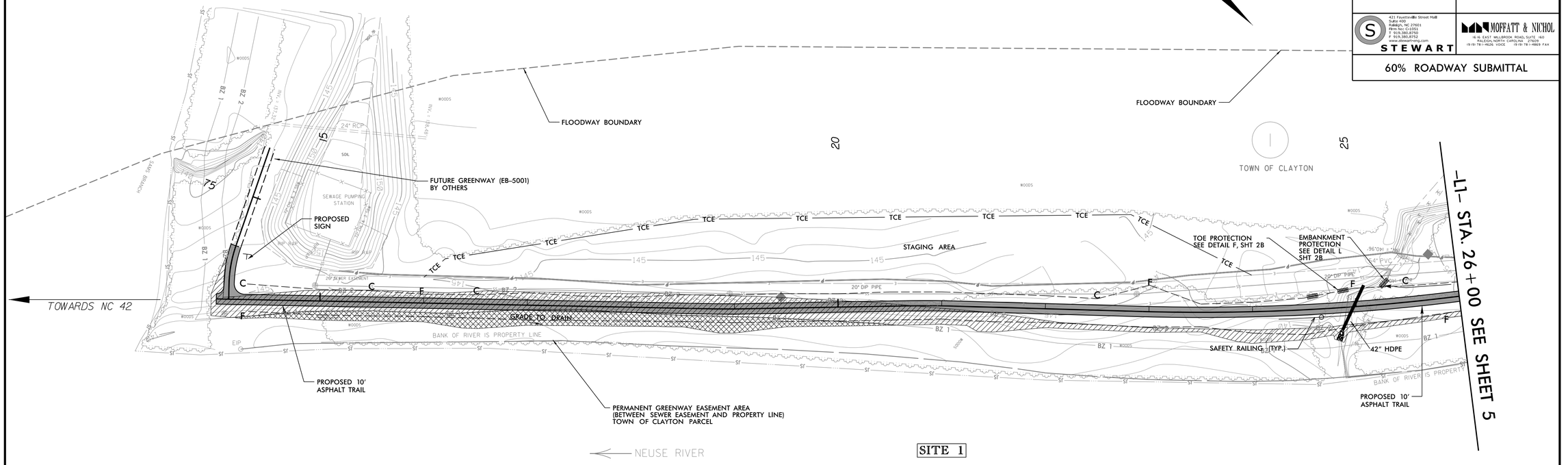
60% ROADWAY SUBMITTAL

REVISIONS 8/17/99

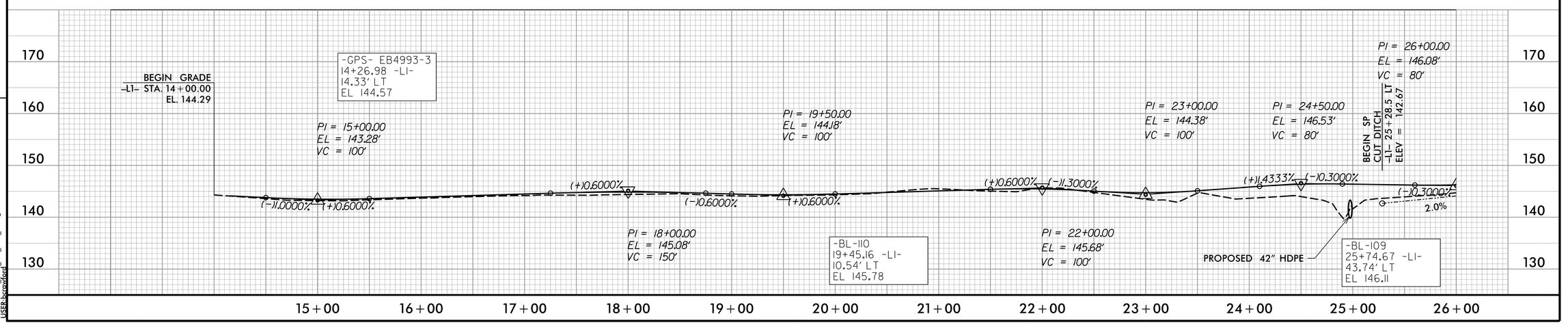


SITE 1

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

BUFFER IMPACTS



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USER:bcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB–4993	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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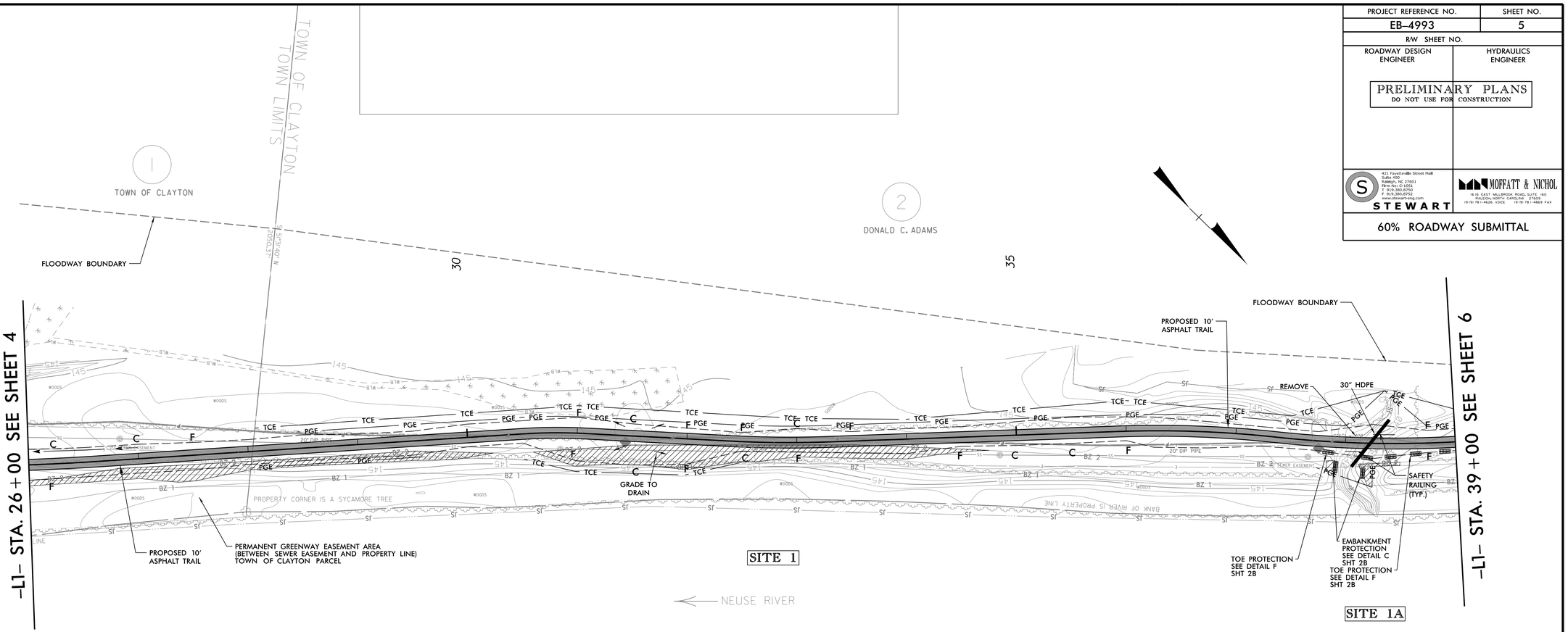
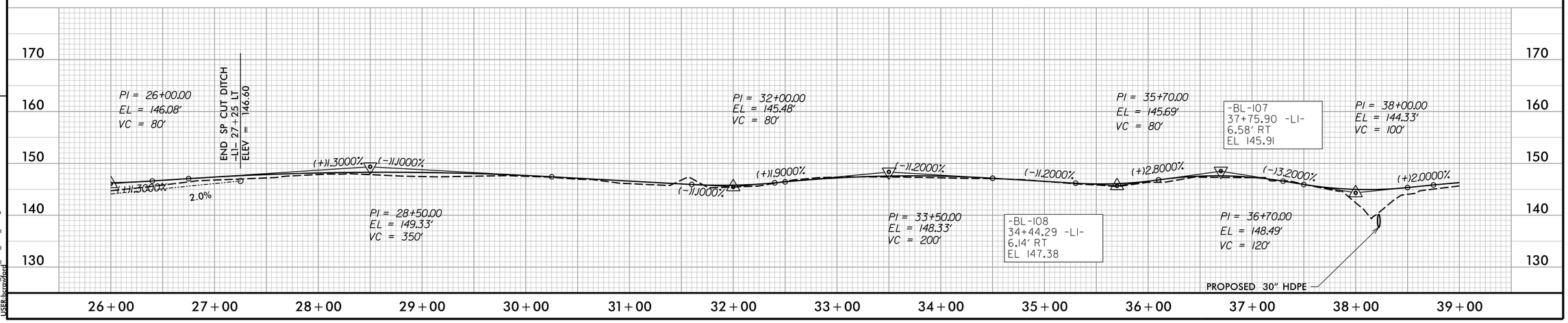


BUFFER IMPACTS

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2



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PROJECT REFERENCE NO.	SHEET NO.
EB–4993	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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60% ROADWAY SUBMITTAL

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DONALD C. ADAMS

FLOODWAY BOUNDARY

SITE 1B

–L1– STA. 39+00 SEE SHEET 5

–L1– STA. 52+00 SEE SHEET 7

BEGIN APPROACH SLAB
–L1– STA. 44+97.08

END APPROACH SLAB
BEGIN BOARDWALK
–L1– STA. 45+07.08

END BOARDWALK
BEGIN BRIDGE
–L1– STA. 46+68.08

20'X20' BOARDWALK
CONNECTION TO BRIDGE

CLASS II RIP RAP

TOE PROTECTION
SEE DETAIL F
SHT 2B

SAFETY RAILING (TYP.)

PROPOSED
MILE MARKER

PROPOSED 10'
ASPHALT TRAIL

15" HDPE
FOR WETLAND
OVERFLOW

SLOPE PROTECTION
LINED WITH PSRM
FROM STA –L1– 44+00.00
TO STA –L1– 45+07.10

SLOPE PROTECTION
LINED WITH PSRM
FROM STA –L1– 50+66.1
TO STA –L1– 51+85.8

END BRIDGE
BEGIN BOARDWALK
–L1– STA. 48+65.08

END APPROACH SLAB
–L1– STA. 50+66.08

END BOARDWALK
BEGIN APPROACH SLAB
–L1– STA. 50+66.08

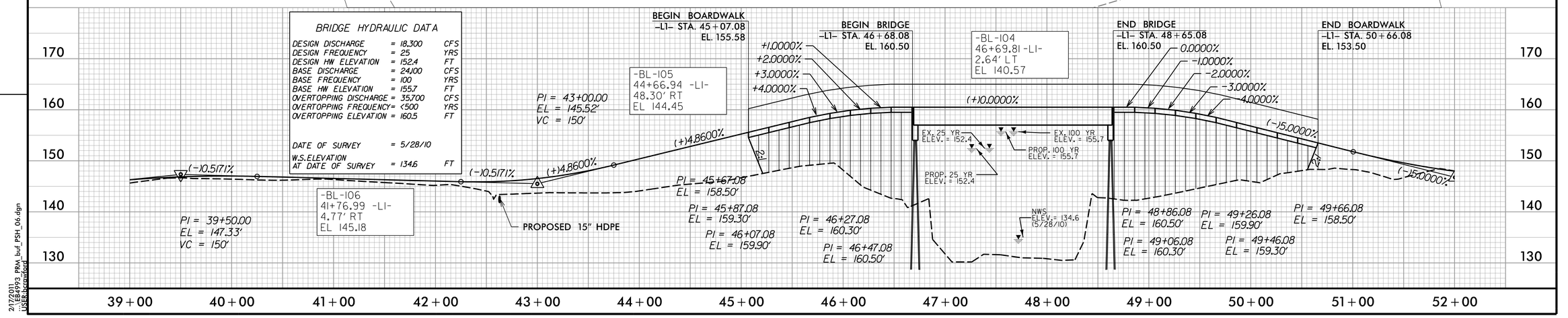
NEUSE RIVER

JOHN WESLEY MASSEY

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

BUFFER IMPACTS



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USER:hcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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FLOODWAY BOUNDARY

RICHARD EARP MOORE
DB 318 PG 335

JOHN WESLEY MASSEY & LOU MASSEY WATSON
DB 830 PG 535

NEUSE RIVER

SITE 1B

PROPOSED 10' ASPHALT TRAIL

TOE PROTECTION SEE DETAIL F SHT 2B

-L1- STA. 52+00 SEE SHEET 6

-L1- STA. 65+00 SEE SHEET 8

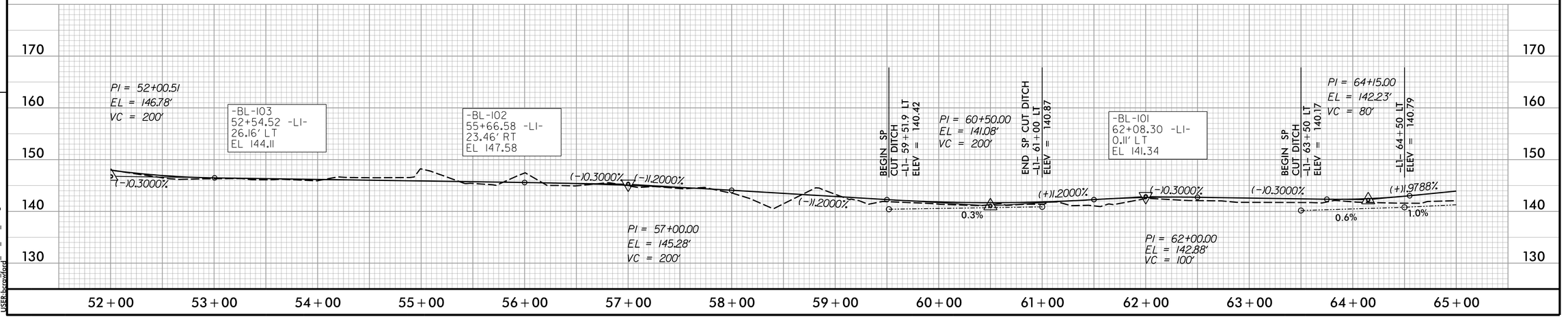
JOHN WESLEY MASSEY

3

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

BUFFER IMPACTS



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USER:bcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB–4993	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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60% ROADWAY SUBMITTAL

SEE SHEET 18 FOR –Y2– PROFILE

REVISIONS

8/17/99

NEUSE RIVER

SITE 1B

SITE 2

SITE 3

PROPOSED SIGN AND MILE MARKER

FLOODWAY BOUNDARY

PROPOSED 10' ASPHALT TRAIL

TOE PROTECTION SEE DETAIL F SHT 2B

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

SAFETY RAILING (TYP.)

42" HDPE

15" HDPE

–L1– STA. 65+00 SEE SHEET 7

–L1R– STA. 13+10.61 SEE SHEET 9

JOHN WESLEY MASSEY & LOU MASSEY WATSON
DB 830 PG 559

DAVID M. SORRELL, ET UX
DB 959, PG 116

BEAVER DAM

MAVIS C. HOUSE
DB 1705, PG 629

JOHN WESLEY MASSEY
DB 1778 PG 679

TOWN OF CLAYTON SEWER EASEMENT

SEWER PUMPING STATION

COVERED BRIDGE RD. SR 1700

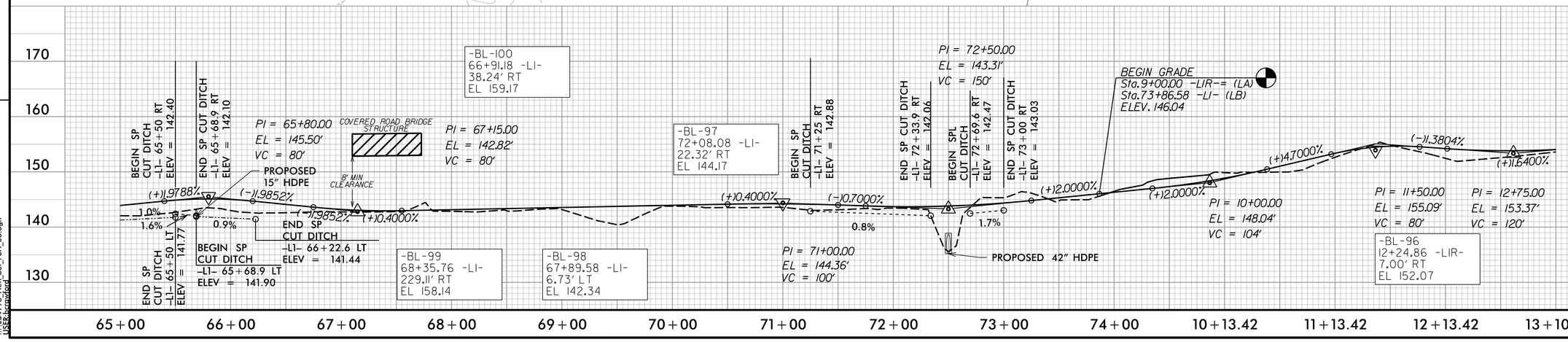
4-SPAN CONC. BRIDGE

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

END CONSTRUCTION
–Y2– STA. 13+89.00

BUFFER IMPACTS



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PROJECT REFERENCE NO.	SHEET NO.
EB–4993	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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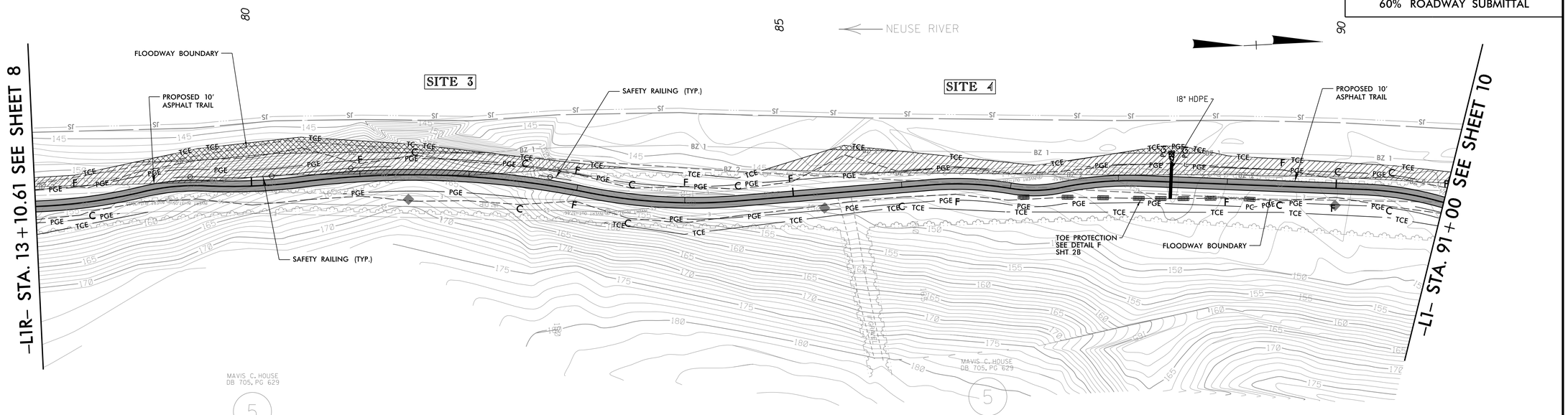
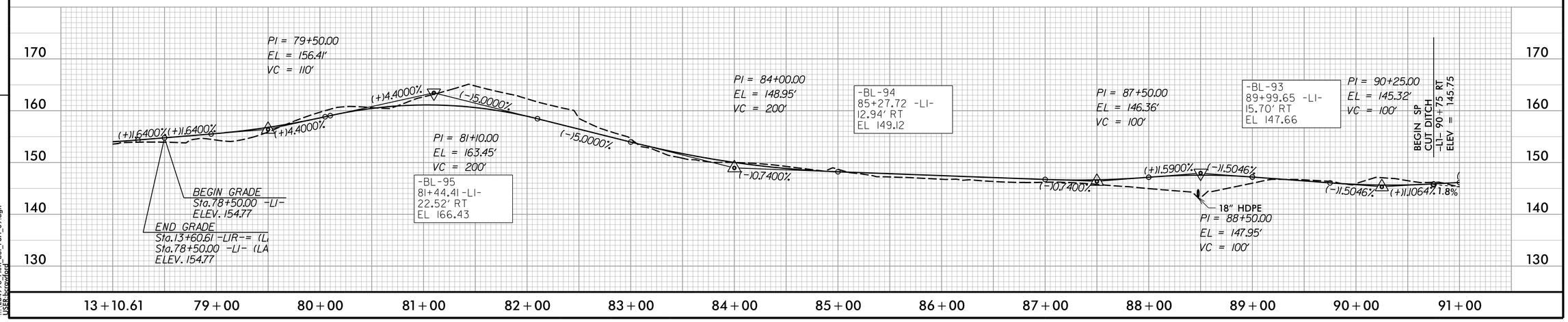


ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

BUFFER IMPACTS



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USER:bcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB–4993	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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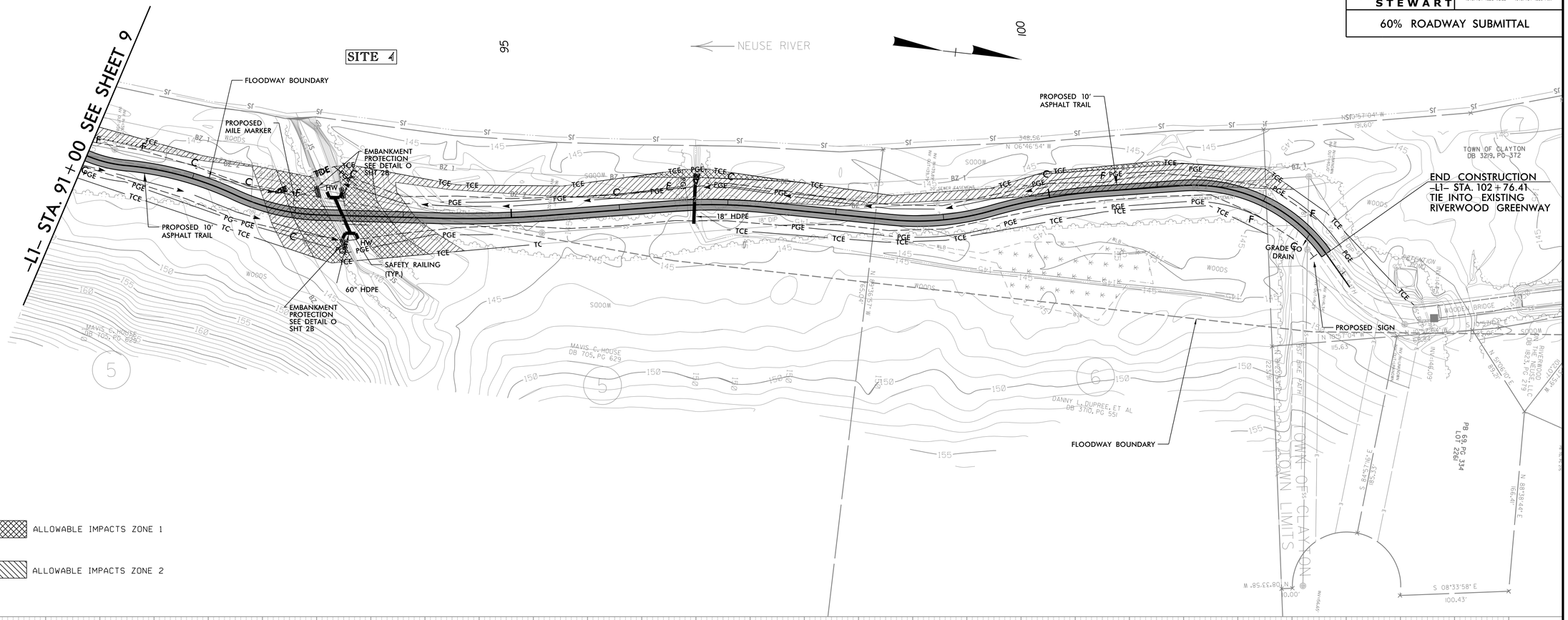
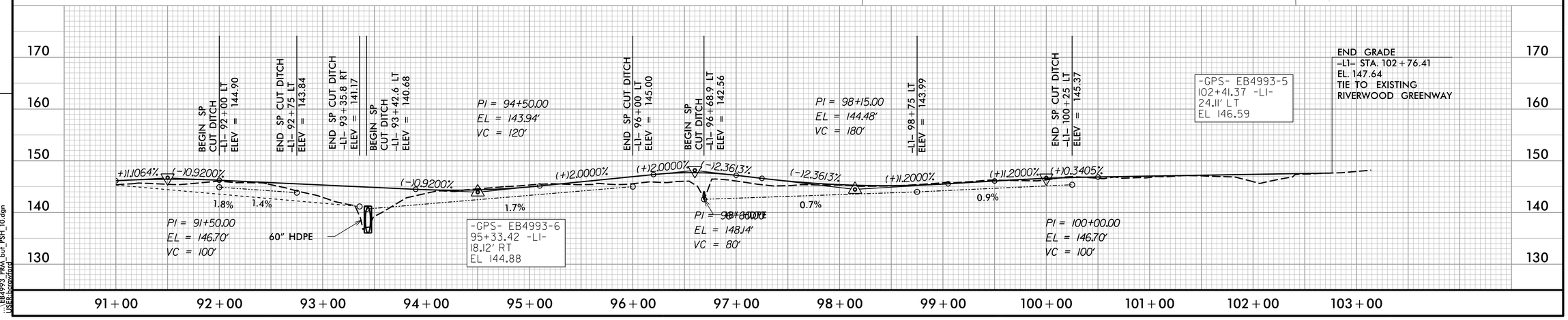
REVISIONS

BUFFER IMPACTS





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USER:bcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

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FLOODWAY BOUNDARY

The State Of North Carolina

PB 69, PG 159
LOT 3404

PB 69, PG 159
LOT 3405

PB 69, PG 159
LOT 3406

RIVERWOOD
ON THE NEUSE, LLC
DB 1823, PG 279
PB 63, PG 143

PB 63, PB 142
LOT 4255

PB 63, PB 142
LOT 4254

PB 63, PB 142
LOT 4256

END BOARDWALK
BEGIN BRIDGE
–L2– STA. 13+06.00

END APPROACH SLAB
BEGIN BOARDWALK
–L2– STA. 12+26.00

BEGIN APPROACH SLAB
–L2– STA. 12+16.00

SITE 5

END BRIDGE
BEGIN APPROACH SLAB
–L2– STA. 14+08.00

TAIL DITCH
SEE DETAIL H
SHT 2B

15" HDPE

PROPOSED 10'
ASPHALT TRAIL

TCE

TCE
CLASS II RIP RAP

PGE

PG

CLASS II
RIP RAP

END APPROACH SLAB
–L2– STA. 14+17.00

BEGIN CONSTRUCTION
–L2– STA.10+69.19
TIE TO EXISTING
RIVERWOOD GREENWAY

PROPOSED
SIGN

PROPOSED 10'
ASPHALT TRAIL

SAFETY RAILING
(TYP.)

–L2– STA. 22+00 SEE SHEET 12

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

BUFFER IMPACTS

BEGIN GRADE
–L2– STA. 10+69.19
EL. 149.76
TIE TO EXISTING
RIVERWOOD GREENWAY

BEGIN BOARDWALK
–L2– STA. 12+26.00
EL = 152.11

BEGIN BRIDGE
–L2– STA. 13+06.00
EL = 153.00

END BRIDGE
–L2– STA. 14+08.00
EL = 154.14

END SP LATERAL
BASE DITCH
–L2– 12+39.7 RT
ELEV = 143.35

BEGIN SP LATERAL
BASE DITCH
–L2– 12+00 RT
ELEV = 146.91

BEGIN SP
CUT DITCH
–L2– 15+50 RT
ELEV = 154.39

END SP
CUT DITCH
–L2– 16+92.2 RT
ELEV = 152.02

-GPS- EB4993-4
12+03.20 -L2-
99.21' RT
EL 155.27

-BL-84
14+32.95 -L2-
86.69' RT
EL 153.87

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 4,150	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 146.5	FT
BASE DISCHARGE	= 6,064	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 148.6	FT
OVERTOPPING DISCHARGE	= 8,840	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 152.6	FT
DATE OF SURVEY	= 5/28/10	
W.S.ELEVATION AT DATE OF SURVEY	= 137.2	FT

PROP. 25 YR ELEV. = 146.5
EX. 100 YR ELEV. = 148.6
PROP. 100 YR ELEV. = 148.6
NWS ELEV. = 137.2 (5/28/10)
EX. 25 YR ELEV. = 146.9

(+)12.0800%
(+)11.1200%
(-)10.8497%
(+)10.8497%
(+)11.2000%
(+)11.2000%
(-)11.8800%
1.7%
8.9%

PI = 11+30.00
EL = 151.03'
VC = 50'

PI = 16+10.00
EL = 156.40'
VC = 100'

PI = 17+95.00
EL = 154.83'
VC = 100'

PI = 20+20.00
EL = 157.53'
VC = 200'

PI = 21+90.00
EL = 154.33'
VC = 100'

PROPOSED 15" HDPE

170 160 150 140 130

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00

2/17/2011
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PROJECT REFERENCE NO.	SHEET NO.
EB–4993	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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BUFFER IMPACTS

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

SAFETY RAILING (TYP.)

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

SITE 6

NEUSE RIVER

SITE 7

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

18" HDPE

PROPOSED 10' ASPHALT TRAIL

FLOODWAY BOUNDARY

PROPOSED MILE MARKER

24" HDPE

TOE PROTECTION SEE DETAIL F SHT 2B

PROPOSED 10' ASPHALT TRAIL

FLOODWAY BOUNDARY

TOE PROTECTION SEE DETAIL F SHT 2B

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

-L2- STA. 35+00 SEE SHEET 12

-L2- STA. 48+00 SEE SHEET 14

The State Of North Carolina

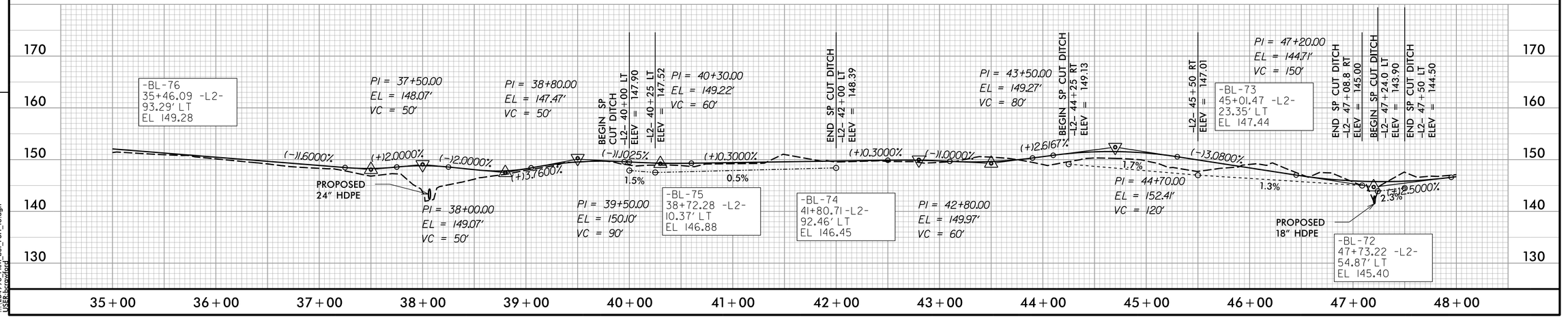
The State Of North Carolina

10

10

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2



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USER:bcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB–4993	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

BUFFER IMPACTS

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

NEUSE RIVER

SITE 7

SITE 8

-L2- STA. 48+00 SEE SHEET 13

-L2- STA. 61+00 SEE SHEET 15

50

55

60

BANK OF RIVER IS PROPERTY LINE

TOE PROTECTION SEE DETAIL F SHT 2B

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

SAFETY RAILING (TYP.)

48" HDPE

HW

15" HDPE

24" HDPE

PROPOSED 10' ASPHALT TRAIL

FLOODWAY BOUNDARY

FILL DRAW W/ CLASS 1 RIP RAP EST 7 TONS EST 15 SY FF SEE DETAIL J SHT 2B

WOODS

JS

BZ 1

BZ 2

E

F

C

The State Of North Carolina

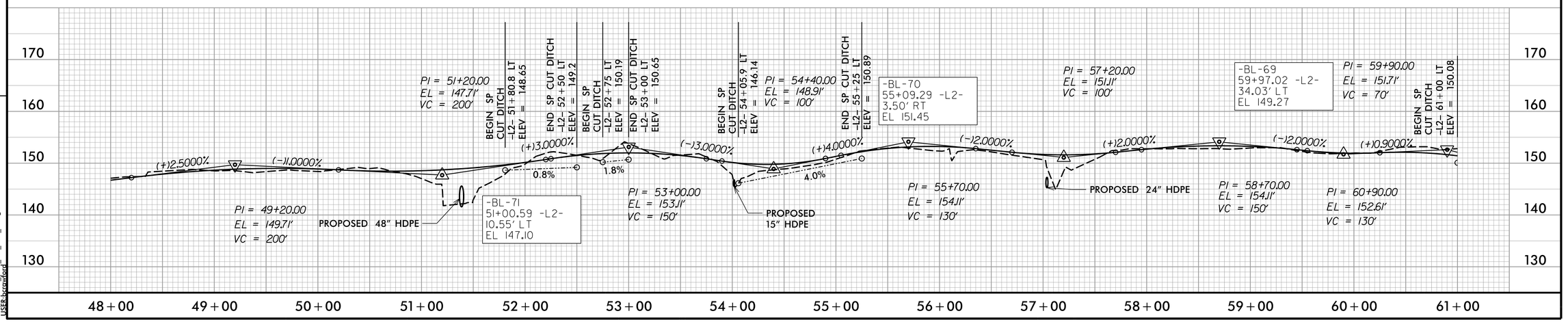
10

The State Of North Carolina

10

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2



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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	15
R/W SHEET NO.	
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ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

FLOODWAY BOUNDARY

NEUSE RIVER

FLOODWAY BOUNDARY

BANK OF RIVER IS PROPERTY LINE

SITE 8

SITE 9

-L2- STA. 61+00 SEE SHEET 14

-L2- STA. 74+00 SEE SHEET 16

EMBANKMENT PROTECTION SEE DETAIL O SHT 2B

PROPOSED 10' ASPHALT TRAIL

TOE PROTECTION SEE DETAIL F SHT 2B

15" HDPE

66" HDPE

EMBANKMENT PROTECTION SEE DETAIL O SHT 2B

PROPOSED 10' ASPHALT TRAIL

SAFETY RAILING (TYP.)

FLOODWAY BOUNDARY

PROPOSED MILE MARKER

15" HDPE EQUALIZER PIPE

TOE PROTECTION SEE DETAIL F SHT 2B

The State Of North Carolina

10

The State Of North Carolina

10

BUFFER IMPACTS

FLOODWAY BOUNDARY

BEGIN SP CUT DITCH -L2- 61+00 LT ELEV = 150.08

END SP CUT DITCH -L2- 61+71.2 LT ELEV = 147.50

BEGIN SP CUT DITCH -L2- 61+94.8 LT ELEV = 143.55

-L2- 63+00 LT ELEV = 144.27

PI = 62+60.00
EL = 144.65
VC = 80'

-GPS- EB4993-2
62+76.68 -L2-
17.48' LT
EL 145.60

-L2- 65+50 LT ELEV = 147.50

PI = 65+30.00
EL = 150.21'
VC = 200'

PROPOSED 15" HDPE EQUALIZER PIPE

END SP CUT DITCH -L2- 67+25 LT ELEV = 146.62

BEGIN SP CUT DITCH -L2- 67+59.9 RT ELEV = 146.50

-L2- 67+59.9 LT ELEV = 146.50

PI = 67+60.00
EL = 150.90'
VC = 80'

END SP CUT DITCH -L2- 68+50 LT ELEV = 146.76

-L2- 69+00 RT ELEV = 147.77

PI = 69+10.00
EL = 149.41'
VC = 150'

-GPS- EB4993-1
69+64.21 -L2-
93.32' LT
EL 175.99

BEGIN SP CUT DITCH -L2- 69+75 LT ELEV = 150.09

-L2- 70+50 LT ELEV = 150.73

END SP CUT DITCH -L2- 70+75 RT ELEV = 151.93

-BL-67
71+01.52 -L2-
125.21' LT
EL 150.30

PI = 70+90.00
EL = 154.81'
VC = 200'

BEGIN SP CUT DITCH -L2- 72+25 RT ELEV = 152.65

END SP CUT DITCH -L2- 72+00 LT ELEV = 153.06

PI = 73+90.00
EL = 153.01'
VC = 150'

PROPOSED 15" HDPE

-L2- 73+62.4 RT ELEV = 148.50

PI = 60+90.00
EL = 152.61'
VC = 130'

PROPOSED 66" HDPE

-BL-68
61+75.69 -L2-
72.71' RT
EL 151.83

(-)15.0000%
3.6%
0.7%
(+)2.0000%
1.3%
(+)2.0000%
(+)0.3000%
0.5%
(+)0.3000%
(-)0.9933%
1.0%
(-)0.9933%
0.3%
(+)3.0000%
2.4%
0.9%
(+)3.0000%
(-)0.6000%
1.6%
(-)0.6000%
3.0%

170 160 150 140 130

61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00

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PROJECT REFERENCE NO.	SHEET NO.
EB–4993	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STEWART
421 Fayetteville Street Mall
Suite 400
Raleigh, NC 27601
Phone
P 919.380.8750
F 919.380.8752
www.stewart-eng.com

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

60% ROADWAY SUBMITTAL

REVISIONS

8/17/99

BUFFER IMPACTS

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

NEUSE RIVER

SITE 10

SITE 11

90

95

-L2- STA. 87+00 SEE SHEET 16

-L2- STA. 100+00 SEE SHEET 18

BANK OF RIVER IS PROPERTY LINE

NAIL IN 30" DEAD SPANISH OAK

2X 66" HDPE

HW

PROPOSED 10' ASPHALT TRAIL

PROPOSED MILE MARKER

SAFETY RAILING (TYP.)

EMBANKMENT PROTECTION SEE DETAIL O SHT 2B

EMBANKMENT PROTECTION SEE DETAIL O SHT 2B

FLOODWAY BOUNDARY

Edith Watkins Romaine etal

PROPOSED 10' ASPHALT TRAIL

FLOODWAY BOUNDARY

N 90°14'28"E

The State Of North Carolina

10

-BL-62
91+16.93 -L2-
15.67' LT
EL 154.56

-BL-61
94+72.66 -L2-
59.16' LT
EL 154.87

-BL-60
97+86.37 -L2-
60.57' RT
EL 157.57

(+)0.4000%

(−)1.6000%

(−)5.0000%

(+)4.0000%

(+)0.3000%

3.2%

3.3%

PI = 89+90.00
EL = 157.15'
VC = 200'

PI = 92+60.00
EL = 152.83'
VC = 130'

PI = 93+90.00
EL = 146.33'
VC = 130'

PI = 96+00.00
EL = 154.73'
VC = 200'

PI = 100+00.00
EL = 155.93'
VC = 100'

BEGIN SP CUT DITCH -L2- 91+75 LT ELEV = 152.85

END SP CUT DITCH -L2- 93+60.4 LT ELEV = 146.88

BEGIN SP CUT DITCH -L2- 94+13.8 LT ELEV = 146.33

END SP CUT DITCH -L2- 96+00 LT ELEV = 152.47

PROPOSED DUAL 66" HDPE

170
160
150
140
130

87+00 88+00 89+00 90+00 91+00 92+00 93+00 94+00 95+00 96+00 97+00 98+00 99+00 100+00

2/17/2011
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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STEWART
421 Fayetteville Street Mall
Suite 400
Raleigh, NC 27601
P 919.380.8750
F 919.380.8752
www.stewart-eng.com

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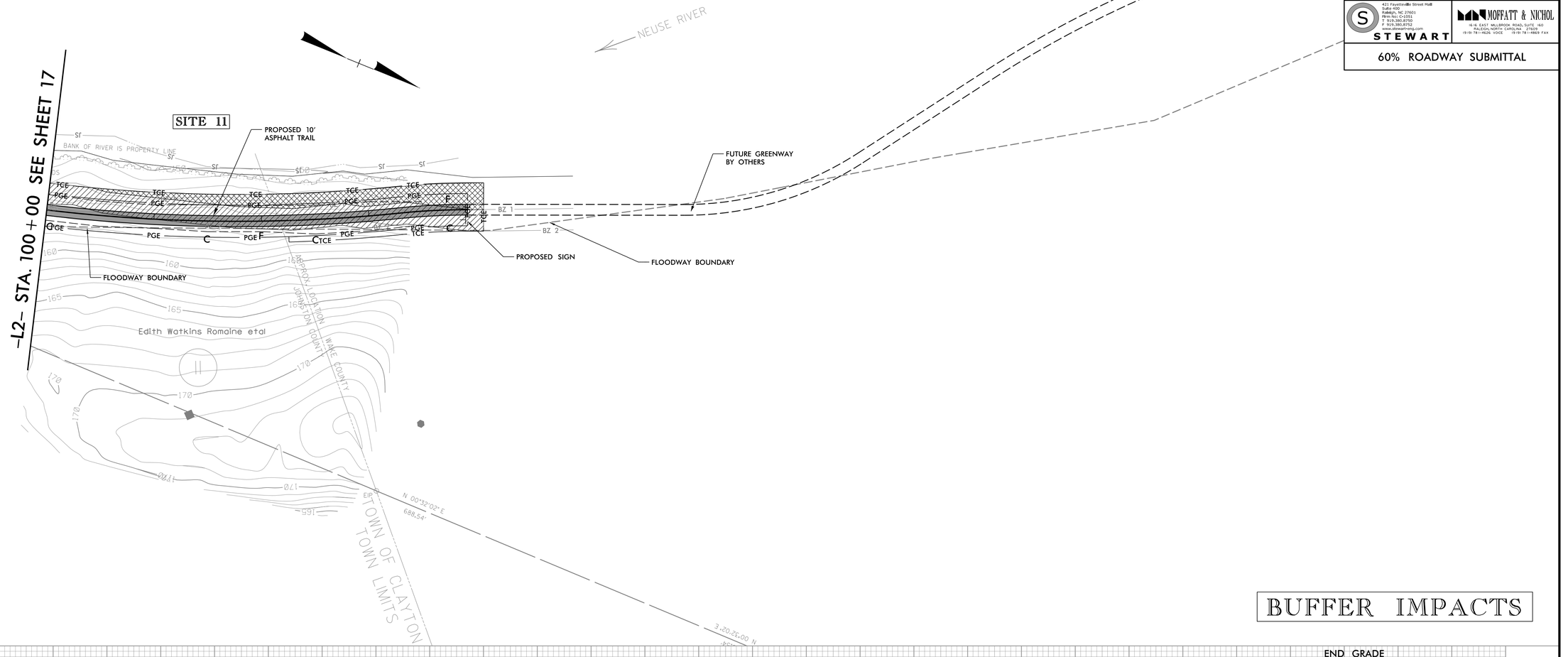
(919) 781-4626 VOICE (919) 781-4869 FAX

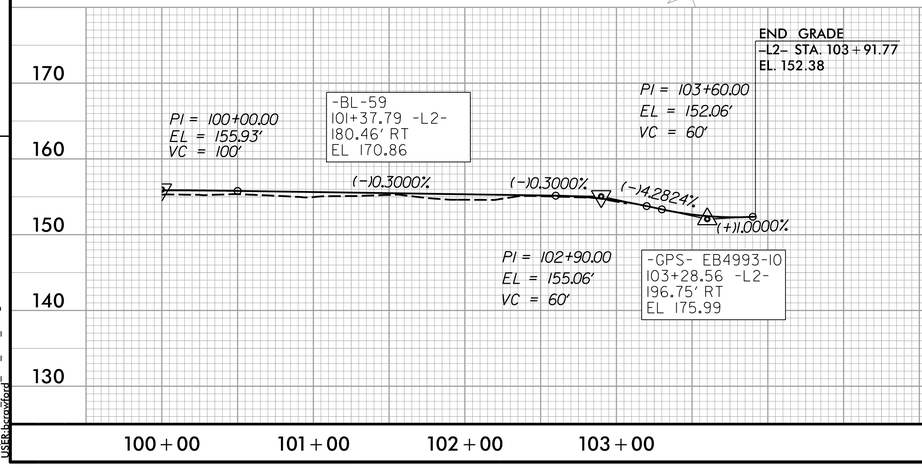
60% ROADWAY SUBMITTAL

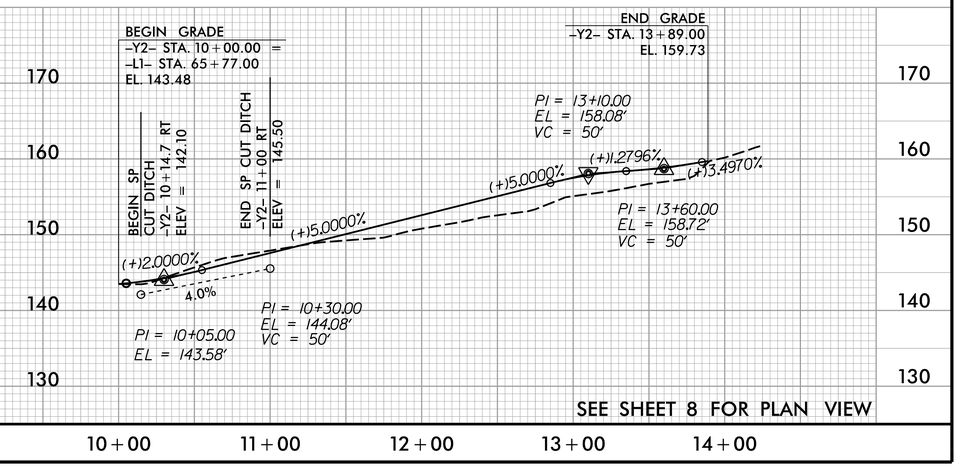
ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2



BUFFER IMPACTS





SEE SHEET 8 FOR PLAN VIEW

REVISIONS 8/17/99

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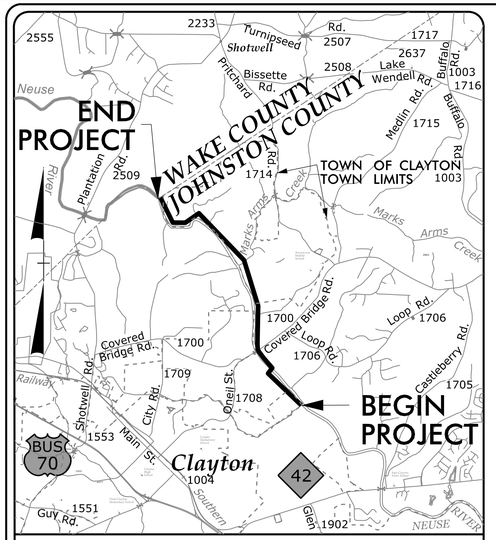
USER:kcrawford

09/08/09

TIP PROJECT: EB–4993

CONTRACT: C202381



VICINITY MAP

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	EB–4993	1	

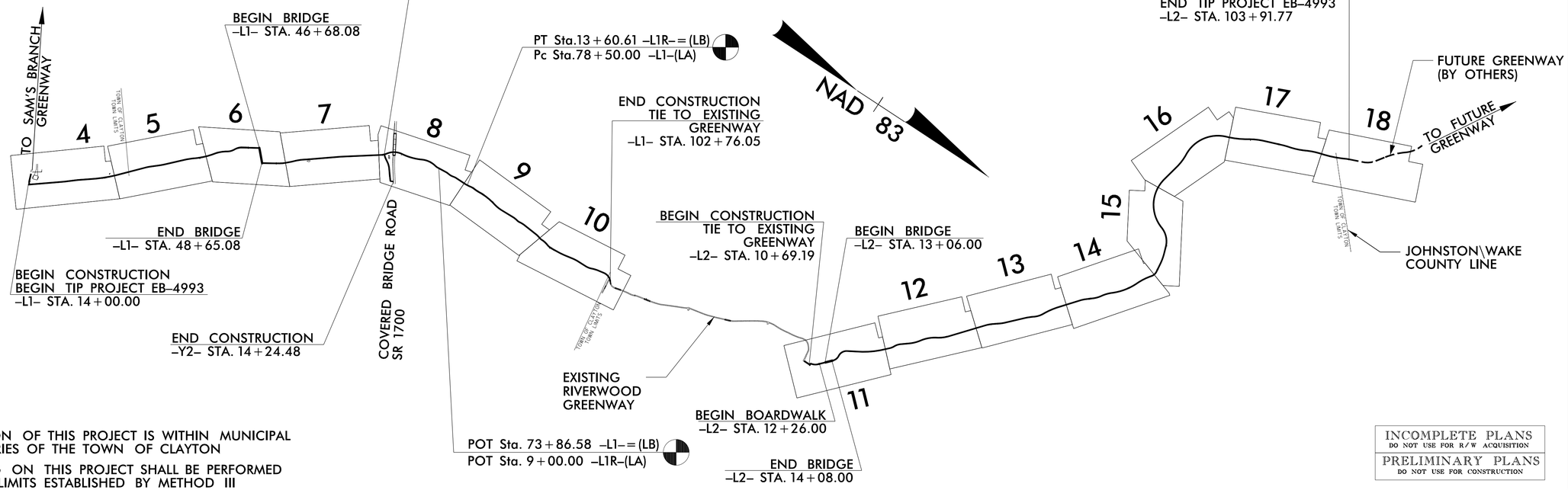
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
40892.3.ST1	STM–000S(533)	

LOCATION: *NEUSE RIVER GREENWAY FROM WAKE/JOHNSTON COUNTY LINE TO SAM'S BRANCH CREEK IN JOHNSTON COUNTY*

TYPE OF WORK: *GRADING, PAVING, STRUCTURES, BOARDWALK, DRAINAGE, EROSION CONTROL AND SIGNING.*

S STEWART
421 Fayetteville Street Mall
Suite 400
Raleigh, NC 27601
Firm No: C-1051
T 919.380.8750
F 919.380.8752
www.stewart-eng.com

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX



A PORTION OF THIS PROJECT IS WITHIN MUNICIPAL BOUNDARIES OF THE TOWN OF CLAYTON

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

DESIGN SPEED = 20 MPH

LEAN ANGLE = 15 DEGREES

FUNC. CLASS. = GREENWAY

PROJECT LENGTH

LENGTH OF GREENWAY TIP EB–4993 = 3.389 MILES

LENGTH OF STRUCTURES TIP EB–4993 = 0.057 MILES

LENGTH OF PROJECT TIP EB–4993 = 3.446 MILES

Prepared in the Office of:
STEWART ENGINEERING
For
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 20, 2010

LETTING DATE: APRIL 20, 2010

BENJAMIN R. CRAWFORD, PE
PROJECT ENGINEER

JONATHAN C. HEFNER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

2/17/2011
\\Proj\EB4993_RDY_TSH.dgn
USER:bcrawford

09/08/09

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	1B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Safety Railing
- 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

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 — FLOW
- False Sump

RAILROADS:

- Standard Gauge
- RR Signal Milepost — CSX TRANSPORTATION, MILEPOST 35
- Switch — 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 — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — TCE
- Proposed Temporary Easement — E
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Permanent Greenway Easement — PGE
- 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 Wheel Chair Ramp — WCR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- 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 — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- 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 — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- 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 — MOFFATT & NICHOL, 1616 EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27609, (919) 781-4550 VOICE, (919) 781-4869 FAX
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- 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

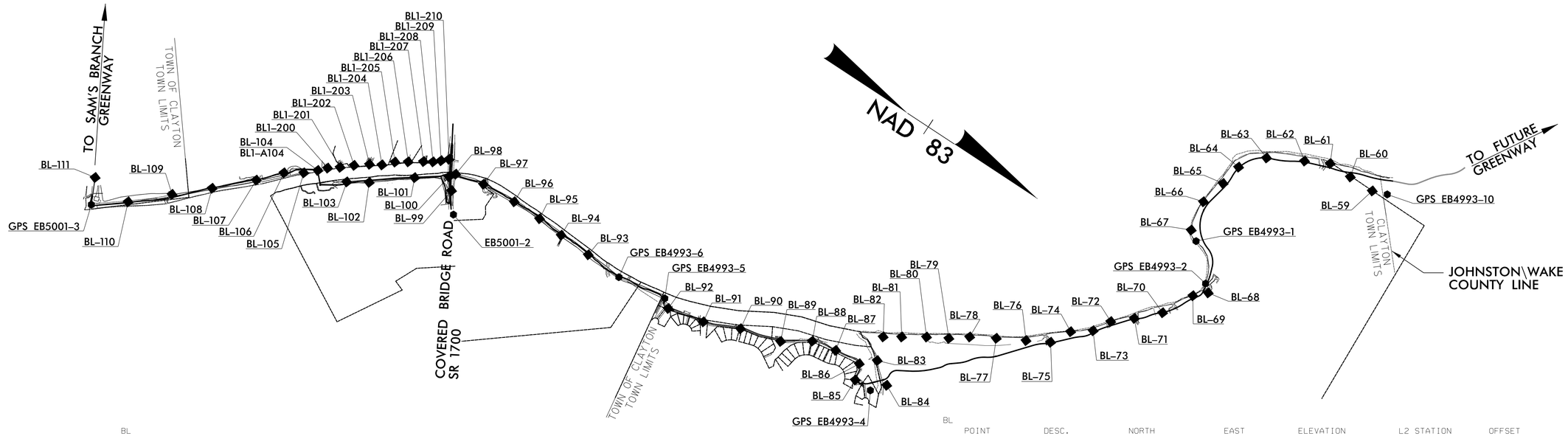
MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	1C
Location and Surveys	

SURVEY CONTROL SHEET EB-4993



BL

POINT	DESC.	NORTH	EAST	ELEVATION	L1 STATION	OFFSET
5	GPS EB4993-5	704603.0610	2167371.0960	146.59	102+41.37	24.11 LT
6	GPS EB4993-6	703900.8860	2167476.2610	144.88	95+33.42	18.12 RT
93	BL-93	703369.0420	2167448.6240	147.66	89+99.65	15.70 RT
94	BL-94	702900.6960	2167427.9940	149.12	85+27.72	12.94 RT
95	BL-95	702519.3000	2167401.4270	166.43	81+44.41	22.52 RT
96	BL-96	702091.1280	2167398.1510	152.07	77+14.26	7.00 RT
97	BL-97	701594.8070	2167429.7470	144.17	72+08.08	22.32 RT
98	BL-98	701191.6290	2167526.6740	142.34	67+89.58	6.73 LT
99	BL-99	701269.6340	2167751.3150	158.14	68+35.76	229.11 RT
100	BL-100	701130.6750	2167608.0500	159.17	66+91.18	38.24 RT
101	BL-101	700736.3850	2167883.7370	141.34	62+08.30	0.11 LT
102	BL-102	700239.6030	2168289.9920	147.58	55+66.58	23.46 RT
103	BL-103	699972.7850	2168457.5030	144.11	52+54.52	26.16 LT
104	BL-104	699544.2460	2168546.5200	140.57	46+69.81	2.64 LT
105	BL-105	699397.9690	2168682.7540	144.45	44+66.94	48.30 RT
106	BL-106	699165.5140	2168836.6820	145.18	41+76.99	4.77 LT
107	BL-107	698896.8150	2169134.9750	145.91	37+75.90	6.58 RT
108	BL-108	698441.4080	2169571.4520	147.38	31+44.29	6.14 RT
109	BL-109	698018.0390	2169952.7130	146.11	25+74.67	43.74 LT
110	BL-110	697559.9710	2170378.8220	145.78	19+45.16	10.54 LT
3	GPS EB5001-3	697150.8570	2170696.1270	144.57	14+26.98	14.33 LT
111	BL-111	696985.5680	2170348.4610	146.20	15+10.70	390.07 LT

BL1

POINT	DESC.	NORTH	EAST	ELEVATION	L1 STATION	OFFSET
A104	BL-104	699544.2460	2168546.5200	140.57	46+69.81	2.64 LT
200	BL-200	699641.8480	2168442.9340	142.53	46+61.91	144.74 LT
201	BL-201	699782.3920	2168337.6680	144.38	51+98.98	244.16 LT
202	BL-202	699930.7510	2168207.2840	142.34	53+91.14	232.78 LT
203	BL-203	700103.9580	2168075.8220	142.28	55+91.29	228.84 LT
204	BL-204	700254.4450	2167986.2220	144.16	57+65.06	206.98 LT
205	BL-205	700385.5770	2167852.6880	145.50	59+49.49	231.68 LT
206	BL-206	700538.9120	2167747.8860	144.36	61+27.58	225.80 LT
207	BL-207	700716.1200	2167626.5970	145.28	63+42.26	220.54 LT
208	BL-208	700830.2220	2167557.0900	147.20	64+75.46	210.18 LT
209	BL-209	700915.8140	2167481.1280	142.81	66+42.29	203.86 LT
210	BL-210	700997.9900	2167403.2760	143.62	67+04.71	205.19 LT

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L2 STATION	OFFSET
10	GPS EB4993-10	712280.1430	2160576.2700	175.99	103+28.56	196.75 RT
59	BL-59	712077.8260	2160649.6760	170.86	101+37.79	180.46 RT
60	BL-60	711712.4700	2160654.5680	157.57	97+86.37	60.57 RT
61	BL-61	711372.6100	2160653.4120	154.87	94+72.66	59.16 LT
62	BL-62	711052.1590	2160821.4070	154.56	91+16.93	15.67 LT
63	BL-63	710582.7970	2161078.4420	154.81	85+81.50	0.27 LT
64	BL-64	710325.5280	2161401.9560	154.38	81+59.02	7.67 LT
65	BL-65	710269.8340	2161713.4400	153.97	78+41.50	47.30 LT
66	BL-66	710179.6110	2162079.6910	147.69	74+70.07	66.98 LT
67	BL-67	710254.6090	2162506.0730	150.30	71+01.52	125.21 LT
1	GPS EB4993-1	710396.8010	2162598.7930	147.06	69+64.21	93.32 LT
2	GPS EB4993-2	710836.3240	2163023.4990	145.60	62+76.68	17.48 LT
68	BL-68	710938.9260	2163111.8580	151.83	61+75.69	72.71 RT
69	BL-69	710781.4260	2163263.6880	149.27	59+97.02	34.03 LT
70	BL-70	710556.5620	2163696.7480	151.45	55+09.29	3.50 RT
71	BL-71	710268.0620	2163981.8390	147.10	51+00.59	10.55 LT
72	BL-72	710016.6950	2164200.3490	145.40	47+73.22	54.87 LT
73	BL-73	709879.7730	2164443.8940	147.44	45+01.47	23.35 LT
74	BL-74	709623.2080	2164628.9850	146.45	41+80.71	92.46 LT
75	BL-75	709469.7650	2164907.6690	146.88	38+72.28	10.37 LT
76	BL-76	709168.4090	2165077.4010	149.28	35+46.09	93.29 LT
77	BL-77	708801.5460	2165280.4420	152.11	31+54.47	243.13 LT
78	BL-78	708479.4640	2165469.6350	151.06	27+83.79	310.17 LT
79	BL-79	708246.0870	2165647.6250	152.23	24+36.05	355.78 LT
80	BL-80	707973.3810	2165803.7880	151.78	21+77.02	459.46 LT
81	BL-81	707681.6720	2165994.5830	152.23	17+01.51	473.05 LT
82	BL-82	707463.0690	2166136.5500	148.00	16+19.84	502.40 LT
83	BL-83	707576.4870	2166460.6080	143.82	15+59.51	258.26 LT
84	BL-84	707878.5050	2166677.1220	153.87	14+32.95	86.69 RT
4	GPS EB4993-4	707725.5760	2166863.3440	155.27	12+03.20	99.21 RT
85	BL-85	707468.4140	2166856.8670	150.04	10+90.89	94.80 LT
86	BL-86	707390.1700	2166636.3080	148.89	69+69.75	EXISTING GREENWAY
87	BL-87	707010.4050	2166661.5220	148.82	69+94.40	EXISTING GREENWAY
88	BL-88	706664.1770	2166733.4940	149.65	70+12.40	EXISTING GREENWAY
89	BL-89	706294.8150	2166981.3630	150.91	70+20.93	EXISTING GREENWAY
90	BL-90	705725.9430	2167141.5670	152.65	70+42.87	EXISTING GREENWAY
91	BL-91	705236.9990	2167347.1050	149.18	70+56.08	EXISTING GREENWAY
92	BL-92	704721.0348	2167462.1223	150.44	70+72.96	EXISTING GREENWAY

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "EB 5001-2"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 701476.800(ft) EASTING: 2168018.595(ft)
ELEVATION: 166.62(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989558
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "EB 5001-2" TO -L1- STATION 14+00.00 IS
S 31°56'51.9" E 5112.83
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   EB4993_LS_CONTROL_110107.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.
   NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

2/17/2011 EB4993_RDY_TYP.dgn
USER:brayford

8/17/99

REVISIONS

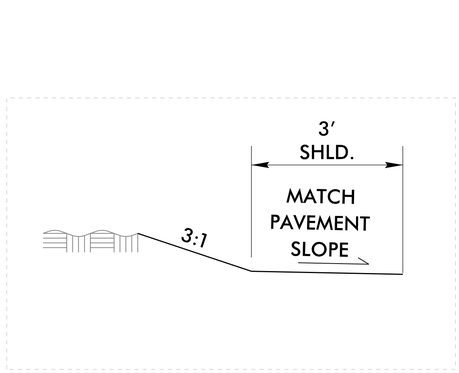
PROJECT REFERENCE NO.	SHEET NO.
EB–4993	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

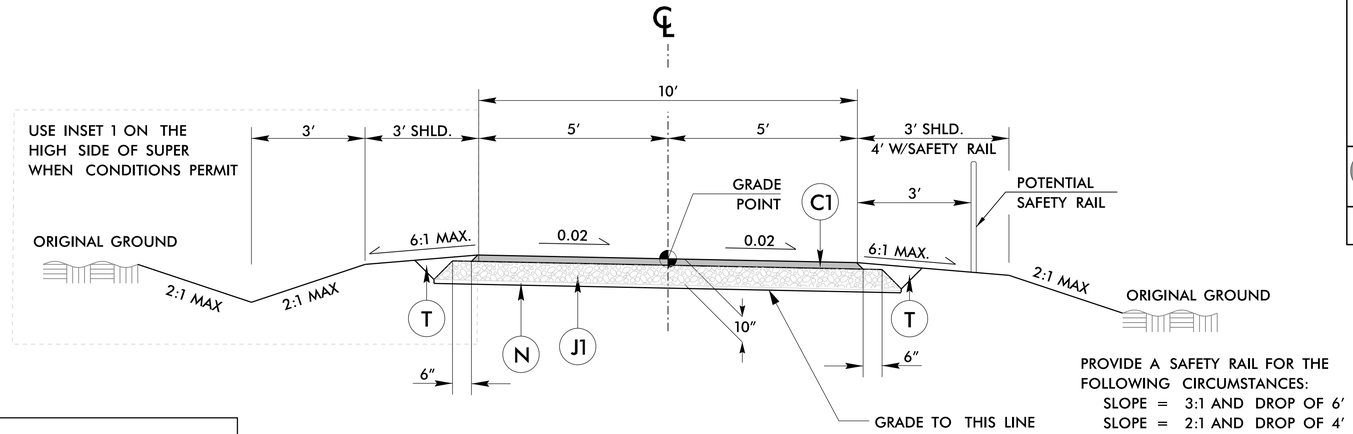
421 Fayetteville Street Mall
Suite 400
Raleigh, NC 27601
P 919.380.8750
F 919.380.8752
www.stewart-eng.com
STEWART

1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
MOFFATT & NICHOL

60% ROADWAY SUBMITTAL



INSET 1



PROVIDE A SAFETY RAIL FOR THE FOLLOWING CIRCUMSTANCES:
SLOPE = 3:1 AND DROP OF 6′
SLOPE = 2:1 AND DROP OF 4′

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
J1	PROP. 8″ AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
N	TYPE IV ENGINEERING FABRIC

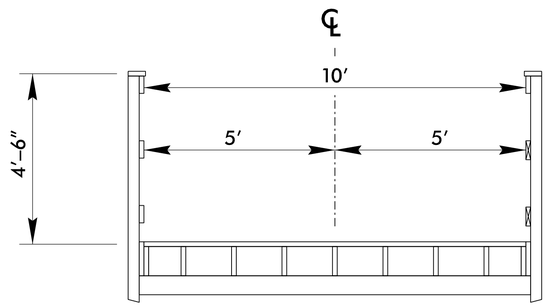
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

GREENWAY TYPICAL SECTION

USE GREENWAY TYPICAL SECTION

–L1– STA. 14+00.00 TO –L1– STA. 45+07.08 (BEGIN BOARDWALK)
–L1– STA. 50+66.08 (END BOARDWALK) TO –L1– STA. 102+76.05
–L2– STA. 10+80.64 TO –L2– STA. 12+26.00 (BEGIN BOARDWALK)
–L2– STA. 14+08.00 (END BRIDGE) TO –L2– STA. 103+91.77

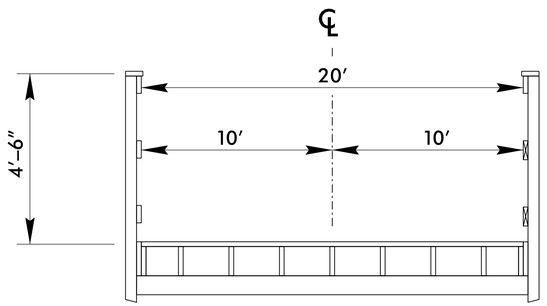
NOTE:
WHERE UNDERCUT IS REQUIRED FOR SOIL STABILIZATION, TYPE III MATERIAL SHALL BE ADDED BETWEEN TYPE IV ENGINEERING FABRIC AND ABC STONE.



BOARDWALK TYPICAL SECTION

USE BOARDWALK TYPICAL SECTION

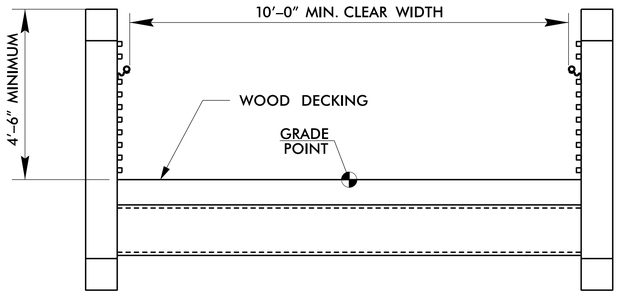
–L1– STA. 45+07.08 (END PAVEMENT) TO –L1– STA. 46+47.08 (BEGIN PLATFORM)
–L1– STA. 48+65.08 (END BRIDGE) TO –L1– STA. 48+86.08 (END PLATFORM)
–L2– STA. 12+26.00 (END PAVEMENT) TO –L2– STA. 13+06.00 (BEGIN BRIDGE)



PLATFORM TYPICAL SECTION

USE BOARDWALK TYPICAL SECTION

–L1– STA. 46+47.08 (END BOARDWALK) TO –L1– STA. 46+68.08 (BEGIN BRIDGE)
–L1– STA. 48+65.08 (END BRIDGE) TO –L1– STA. 48+86.08 (BEGIN BOARDWALK)



BRIDGE TYPICAL SECTION

USE BRIDGE TYPICAL SECTION

–L1– STA. 46+68.08 (END PLATFORM) TO –L1– STA. 48+65.08 (BEGIN PLATFORM)
–L2– STA. 13+06.00 (END BOARDWALK) TO –L2– STA. 14+08.00 (BEGIN PAVEMENT)

2/17/2011
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USER:dcrawford

8/17/99
REVISIONS

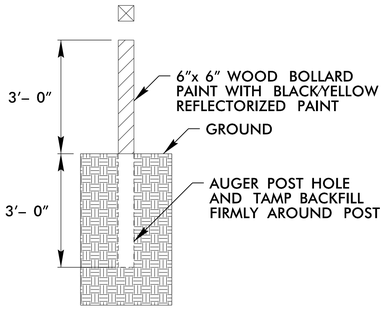
PROJECT REFERENCE NO.	SHEET NO.
EB–4993	2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

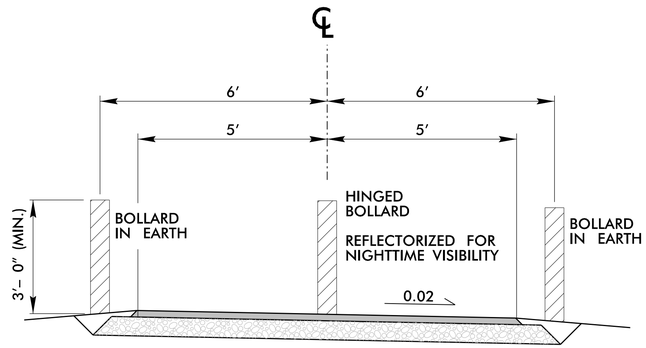
STEWART
421 Fayetteville Street Mall
Suite 400
Raleigh, NC 27601
P 919.380.8750
F 919.380.8752
www.stewart-eng.com

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

60% ROADWAY SUBMITTAL

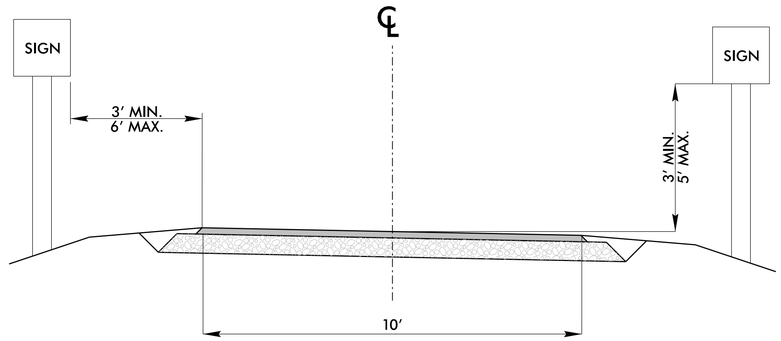


WOOD BOLLARD DETAIL

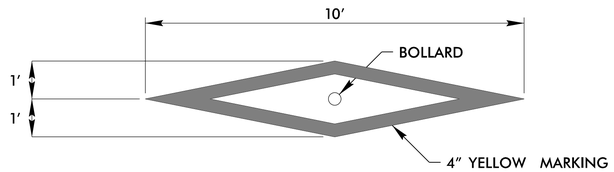


TYPICAL METAL BOLLARD PLACEMENT

FOR MORE EXPLANATION, SEE "RESTRICTION OF MOTOR VEHICLE TRAFFIC", SECTION 7, PAGE 50 OF NORTH CAROLINA BICYCLE FACILITIES PLANNING AND DESIGN GUIDELINES.



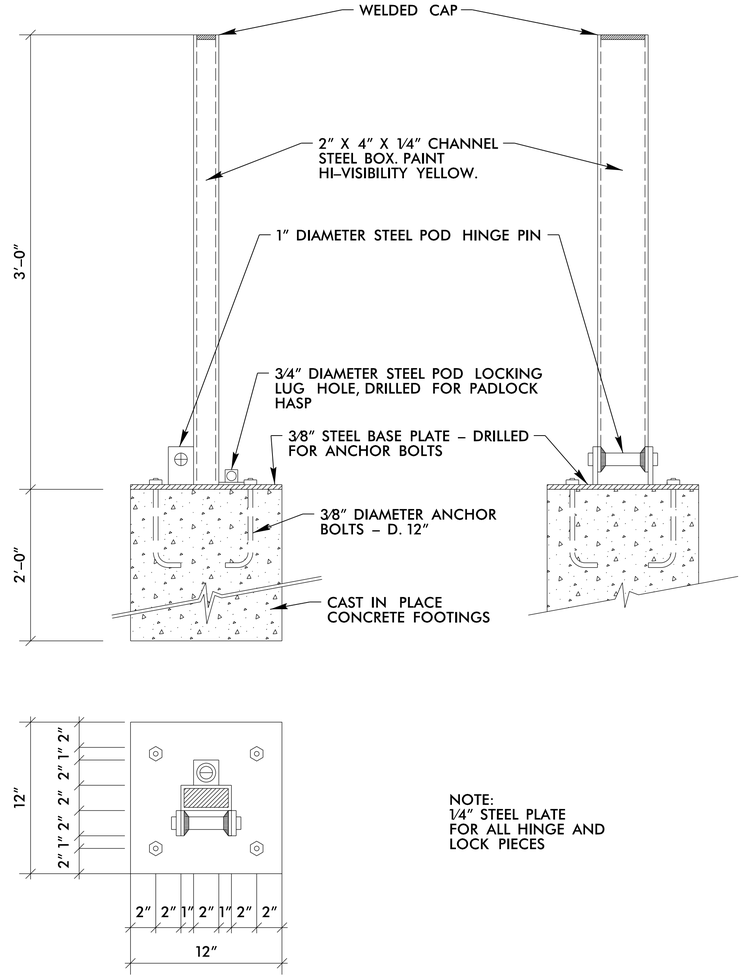
TYPICAL SIGN PLACEMENT ON TRAIL



BOLLARD MARKING DETAIL FOR HINGED BOLLARD

BOLLARD NOTES

1. BOLLARD POST AT INTERSECTIONS TO BE REFLECTORIZED
2. BOLLARD PLACEMENT OFFSET FROM INTERSECTIONS IS A MINIMUM OF 10′ OR BEHIND DITCH LINE
3. BOLLARDS AND SIGNS TO BE INSTALLED BY THE CONTRACTOR
4. ALL METAL TO BE HOT DIPPED GALVANIZED STEEL



NOTE:
1/4″ STEEL PLATE
FOR ALL HINGE AND
LOCK PIECES

HINGED METAL BOLLARD

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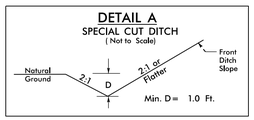
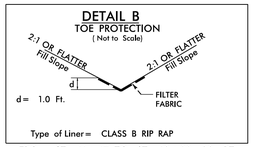
REVISIONS

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 25+28.5 TO STA. 27+25 –L1– LT
FROM STA. 63+50 TO STA. 65+50 –L1– LT
FROM STA. 65+50 TO STA. 65+68.9 –L1– RT
FROM STA. 65+68.9 TO STA. 66+22.6 –L1– LT
FROM STA. 71+25 TO STA. 72+33.9 –L1– RT
FROM STA. 92+00 TO STA. 92+75 –L1– LT
FROM STA. 93+42.6 TO STA. 96+00 –L1– LT
FROM STA. 96+68.9 TO STA. 100+25 –L1– LT
FROM STA. 15+50 TO STA. 16+92.2 –L2– RT
FROM STA. 23+50 TO STA. 24+01.7 –L2– RT
FROM STA. 24+01.7 TO STA. 24+75 –L2– RT
FROM STA. 40+00 TO STA. 40+25 –L2– LT
FROM STA. 40+25 TO STA. 42+00 –L2– LT
FROM STA. 47+24 TO STA. 47+50 –L2– LT
FROM STA. 52+75 TO STA. 53+00 –L2– LT
FROM STA. 54+05.9 TO STA. 55+25 –L2– LT
FROM STA. 61+00 TO STA. 61+71.2 –L2– LT
FROM STA. 61+94.8 TO STA. 65+50 –L2– LT
FROM STA. 65+50 TO STA. 67+25 –L2– LT
FROM STA. 67+59.9 TO STA. 68+50 –L2– LT
FROM STA. 67+59.9 TO STA. 70+75 –L2– RT
FROM STA. 69+75 TO STA. 72+00 –L2– LT
FROM STA. 72+25 TO STA. 73+62.4 –L2– RT
FROM STA. 73+62.4 TO STA. 75+50 –L2– RT
FROM STA. 77+72.3 TO STA. 78+25 –L2– LT
FROM STA. 79+25 TO STA. 80+17.4 –L2– LT

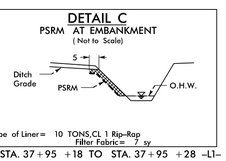
DETAIL B
TOE PROTECTION
(Not to Scale)



Type of Liner = CLASS B RIP RAP

FROM STA. 11+47 TO STA. 12+00 –L2– RT

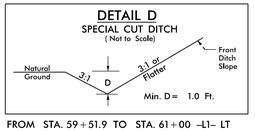
DETAIL C
PSRM AT EMBANKMENT
(Not to Scale)



Type of Liner = 10 TONS,CL 1 Rip–Rap
Filter Fabric = 7 sy

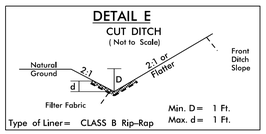
FROM STA. 37+95 +18 TO STA. 37+95 +28 –L1– RT
FROM STA. 38+10 +20 TO STA. 38+10 +32 –L1– RT
FROM STA. 72+30 –17 TO STA. 72+30 –27 –L1– LT
FROM STA. 72+30 +20 TO STA. 72+30 +30 –L1– RT
FROM STA. 72+60 –30 TO STA. 72+60 –40 –L1– LT
FROM STA. 72+60 +13 TO STA. 72+60 +23 –L1– RT
FROM STA. 37+90 –26.9 TO STA. 37+95 –18.5 –L2– LT
FROM STA. 38+15 –18.5 TO STA. 38+15 –28.5 –L2– LT
FROM STA. 47+12 +21.3 TO STA. 47+14 +11.5 –L2– RT
FROM STA. 47+15 –15.7 TO STA. 47+15 –24.9 –L2– LT
FROM STA. 47+30 –14.9 TO STA. 47+30 –24.3 –L2– LT
FROM STA. 51+15 – 20.3 TO STA. 51+15 –30.3 –L2– LT
FROM STA. 51+60 –20.6 TO STA. 51+55 –20.6 –L2– LT
FROM STA. 56+90 –31.8 TO STA. 56+90 –23.7 –L2– LT
FROM STA. 57+10 –33.6 TO STA. 57+15 –24.4 –L2– LT

DETAIL D
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 59+51.9 TO STA. 61+00 –L1– LT
FROM STA. 72+62.9 TO STA. 73+00 –L1– RT
FROM STA. 44+25 TO STA. 47+08.8 –L2– RT
FROM STA. 51+80.8 TO STA. 52+50 –L2– LT
FROM STA. 91+75 TO STA. 93+60.4 –L2– LT
FROM STA. 94+13.8 TO STA. 96+00 –L2– LT

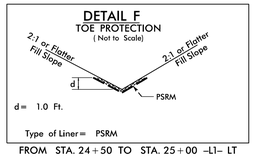
DETAIL E
CUT DITCH
(Not to Scale)



Type of Liner = CLASS B Rip–Rap

FROM STA. 90+75 TO STA. 93+35.8 –L1– RT
FROM STA. 10+14.7 TO STA. 11+00 –Y2– RT

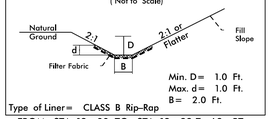
DETAIL F
TOE PROTECTION
(Not to Scale)



Type of Liner = PSRM

FROM STA. 24+50 TO STA. 25+00 –L1– LT
FROM STA. 37+75 TO STA. 37+92 –L1– RT
FROM STA. 38+14.6 TO STA. 39+00 –L1– RT
FROM STA. 41+00 TO STA. 45+07 –L1– RT
FROM STA. 50+66 TO STA. 52+60 –L1– LT
FROM STA. 61+50 TO STA. 63+50 –L1– LT
FROM STA. 70+75 TO STA. 72+00 –L1– LT
FROM STA. 87+00 TO STA. 88+47.7 –L1– RT
FROM STA. 88+47.7 TO STA. 89+50 –L1– RT
FROM STA. 14+24 TO STA. 14+88 –L2– RT
FROM STA. 30+15 TO STA. 31+27 –L2– RT
FROM STA. 37+73.5 TO STA. 37+97.5 –L2– RT
FROM STA. 38+14.4 TO STA. 38+73.4 –L2– RT
FROM STA. 38+14.4 TO STA. 38+73.4 –L2– LT
FROM STA. 47+23 TO STA. 47+34 –L2– RT
FROM STA. 47+75 TO STA. 48+25 –L2– LT
FROM STA. 51+00 TO STA. 51+24 –L2– RT
FROM STA. 51+50 TO STA. 51+75 –L2– RT
FROM STA. 54+02 TO STA. 54+25 –L2– RT
FROM STA. 57+10 TO STA. 57+25 –L2– RT
FROM STA. 65+50 TO STA. 67+50 –L2– RT
FROM STA. 67+25 TO STA. 67+50 –L2– LT
FROM STA. 81+25 TO STA. 82+50 –L2– RT

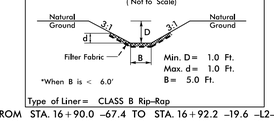
DETAIL G
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Type of Liner = CLASS B Rip–Rap

FROM STA. 12+00 TO STA. 12+39.7 –L2– RT

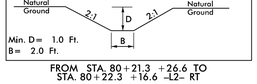
DETAIL H
STANDARD TAIL DITCH
(Not to Scale)



Type of Liner = CLASS B Rip–Rap

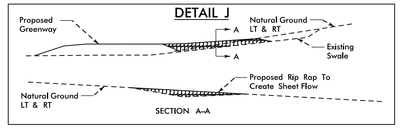
FROM STA. 16+90.0 –67.4 TO STA. 16+92.2 –19.6 –L2– LT
FROM STA. 24+03 –20.5 TO STA. 24+03 –44.8 –L2– LT

DETAIL I
STANDARD HEAD DITCH
(Not to Scale)

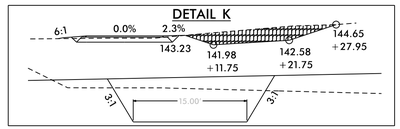


FROM STA. 80+21.3 +26.6 TO
STA. 80+22.3 +16.6 –L2– RT

DETAIL J

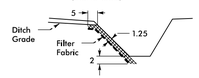


DETAIL K



FROM STA. 68+00 +8.00 –L1– RT

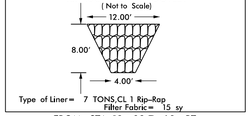
DETAIL L
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = 10 TONS,CL 1 Rip–Rap
Filter Fabric = 7 sy

FROM STA. 25+25 TO STA. 25+35 –L2– LT

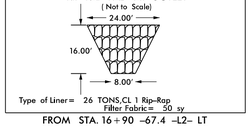
DETAIL M
RIP RAP PAD AT OUTLET
(Not to Scale)



Type of Liner = 7 TONS,CL 1 Rip–Rap
Filter Fabric = 15 sy

FROM STA. 12+39.7 –L2– RT

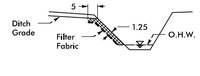
DETAIL N
RIP RAP PAD AT OUTLET
(Not to Scale)



Type of Liner = 26 TONS,CL 1 Rip–Rap
Filter Fabric = 50 sy

FROM STA. 16+90 –67.4 –L2– LT
FROM STA. 24+03 –44.8 –L2– LT

DETAIL O
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = 10 TONS,CL 1 Rip–Rap
Filter Fabric = 7 sy

FROM STA. 93+44 +22 TO STA. 93+48 +31 –L1– RT
FROM STA. 93+20 –16 TO STA. 93+48 –26 –L1– LT
FROM STA. 93+47 –16 TO STA. 93+48 –26 –L1– LT
FROM STA. 61+70 –21.8 TO STA. 61+65 –31.8 –L2– LT
FROM STA. 61+80 +16.6 TO STA. 61+80 +24.4 –L2– RT
FROM STA. 61+90 –23.7 TO STA. 61+95 –14.6 –L2– LT
FROM STA. 62+10 +19.8 TO STA. 62+15 +28.6 –L2– RT
FROM STA. 93+30 –27.1 TO STA. 93+40 –19.4 –L2– LT
FROM STA. 93+55 +26.7 TO STA. 93+60 +17.4 –L2– RT
FROM STA. 94+05 +30.3 TO STA. 94+10 +20.9 –L2– RT
FROM STA. 94+10 –32.2 TO STA. 94+15 –23.0 –L2– LT

PROJECT REFERENCE NO.	SHEET NO.
EB–4993	2B
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

421 Fayetteville Street Mall
Suite 400
Raleigh, NC 27601
Firm License
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F 919.380.8752
www.stewart-eng.com
STEWART

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

60% ROADWAY SUBMITTAL

2/17/2011
J:\Proj\EB4993_RDY_TYP.dgn
USER:jccrawford

COMPUTED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____

8/17/99

REVISIONS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
EB–4993	3A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

60% ROADWAY SUBMITTAL

RAILING SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LENGTH
-L1-	24+25.00	25+25.00	RT	100.0
-L1-	38+00.00	38+15.00	RT	15.0
-L1-	38+25.00	38+45.00	LT	20.0
-L1-	43+45.00	45+07.08	LT	162.1
-L1-	43+55.00	45+07.08	RT	152.1
-L1-	50+66.08	51+45.00	LT	78.9
-L1-	50+66.08	50+85.00	RT	18.9
-L1-	72+35.00	72+50.00	LT	15.0
-L1-	72+50.00	72+60.00	RT	10.0
-L1-	79+00.00	81+25.00	LT	225.0
-L1-	88+25.00	88+50.00	LT	25.0
-L1-	93+20.00	93+35.00	LT	15.0
-L1-	93+40.00	93+65.00	RT	25.0
-L2-	12+10.00	12+27.00	LT	17.0
-L2-	12+05.00	12+27.00	RT	22.0
-L2-	14+07.00	14+35.00	LT	28.0
-L2-	14+07.00	14+20.00	RT	13.0
-L2-	16+00.00	17+00.00	LT	100.0
-L2-	21+00.00	22+00.00	LT	100.0
-L2-	24+00.00	24+50.00	LT	50.0
-L2-	30+55.00	30+85.00	LT	30.0
-L2-	38+00.00	38+15.00	LT	15.0
-L2-	38+00.00	38+15.00	RT	15.0
-L2-	51+20.00	51+55.00	LT	35.0
-L2-	51+10.00	51+45.00	RT	35.0
-L2-	56+85.00	57+15.00	LT	30.0
-L2-	57+00.00	57+10.00	RT	10.0
-L2-	61+70.00	61+95.00	LT	25.0
-L2-	61+85.00	62+00.00	RT	15.0
-L2-	66+85.00	67+25.00	RT	40.0
-L2-	73+70.00	73+95.00	LT	25.0
-L2-	73+60.00	73+75.00	RT	15.0
-L2-	78+90.00	79+10.00	LT	20.0
-L2-	93+75.00	94+05.00	LT	30.0
-L2-	93+80.00	94+05.00	RT	25.0
-Y2-	12+75.00	13+25.00	LT	50.0
			TOTAL:	1607 LF
			SAY:	

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8/17/99

REVISIONS

-BL-III
15+10.70 -LI-
390.07' LT
EL 146.20

-LI- CURVE DATA		
PI STA. 18+90.84	PI STA. 20+88.59	PI STA. 24+76.99
△ = 2° 10' 27.1" (LT)	△ = 2° 39' 06.1" (RT)	△ = 10° 27' 25.3" (LT)
D = 5° 43' 46.5"	D = 5° 43' 46.5"	D = 2° 51' 53.2"
L = 37.95'	L = 46.28'	L = 365.02'
T = 18.98'	T = 23.14'	T = 183.02'
R = 1,000.00'	R = 1,000.00'	R = 2,000.00'

-YI- CURVE DATA
PI Sta 75+69.08
△ = 17° 59' 20.5" (LT)
D = 47° 44' 47.3"
L = 37.68'
T = 18.99'
R = 120.00'

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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60% ROADWAY SUBMITTAL

POT Sta.74+50.00 -YI-

BEGIN CONSTRUCTION -YI-
POT Sta.75+50.00 -YI- =
TIE TO EB-5001

PC Sta.75+50.09 -YI-

N 76° 00' 02.2" E

PT Sta.75+87.76 -YI-

TOWARDS NC 42

BEGIN PROJECT
BEGIN CONSTRUCTION -LI-
POT Sta.14+00.00 -LI-

POT Sta.76+02.20 -YI- =
POT Sta.14+12.00 -LI-

-GPS- EB4993-3
14+26.98 -LI-
14.33' LT
EL 144.57

FUTURE GREENWAY (EB-5001) BY OTHERS

PROPOSED SIGN

PROPOSED 10' ASPHALT TRAIL

FLOODWAY BOUNDARY

PERMANENT GREENWAY EASEMENT AREA (BETWEEN SEWER EASEMENT AND PROPERTY LINE) TOWN OF CLAYTON PARCEL

NEUSE RIVER

N 52° 00' 41.7" E

N 37° 59' 18.3" W

N 40° 09' 45.4" W

N 37° 30' 39.3" W

GRADE TO DRAIN

BANK OF RIVER IS PROPERTY LINE

PC Sta.18+71.86

PT Sta.19+09.81

-BL-110
19+45.16 -LI-
10.54' LT
EL 145.78

PC Sta.20+65.45

PT Sta.21+11.73

PC Sta.22+93.97

STAGING AREA

TOWN OF CLAYTON
DB 714 PG 278

SPECIAL CUT DITCH
SEE DETAIL A
SHT 2B

TOE PROTECTION
SEE DETAIL F, SHT 2B

EMBANKMENT PROTECTION
SEE DETAIL L
SHT 2B

-BL-109
25+74.67 -LI-
43.74' LT
EL 146.11

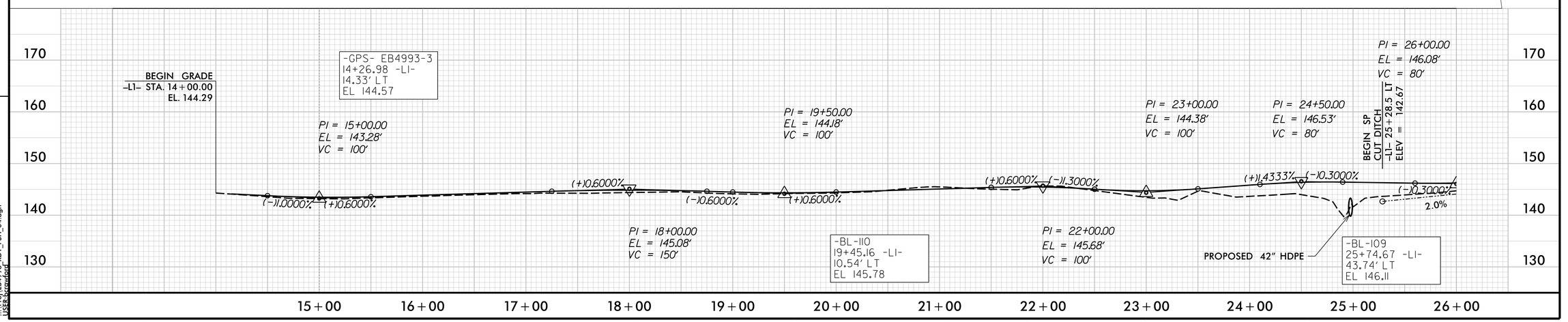
SAFETY RAILING (TYP.)

42" HDPE

RIP RAP PAD
CLASS 1
EST 20 TONS
EST 39 SY FF

PROPOSED 10' ASPHALT TRAIL

-LI- STA. 26+00 SEE SHEET 5



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-LI- CURVE DATA			
PI STA. 30+78.88 Δ = 6° 40' 53.5" (RT) D = 11° 27' 33.0" L = 58.31' T = 29.19' R = 500.00'	PI STA. 32+85.05 Δ = 5° 02' 22.5" (LT) D = 5° 43' 46.5" L = 87.96' T = 44.01' R = 1,000.00'	PI STA. 36+64.89 Δ = 8° 14' 17.8" (RT) D = 5° 43' 46.5" L = 143.79' T = 72.02' R = 1,000.00'	PI STA. 38+78.05 Δ = 16° 05' 47.2" (LT) D = 5° 43' 46.5" L = 280.94' T = 141.40' R = 1,000.00'

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

TOWN OF CLAYTON
DB 714 PG 278

TOWN LIMITS

S79°51'40"W
2260.37'

FLOODWAY BOUNDARY

SPECIAL CUT DITCH SEE DETAIL A SHT 2B

DONALD C. ADAMS
DB 2964 PG 802

-L1- STA. 26+00 SEE SHEET 4

-L1- STA. 39+00 SEE SHEET 6

-BL-108
34+44.29 -LI-
6.14' RT
EL 147.38

-BL-107
37+75.90 -LI-
6.58' RT
EL 145.91

PT Sta.26+58.99

PC Sta.32+41.04

PT Sta.33+29.00

PC Sta.30+49.70

PT Sta.31+08.00

PC Sta.35+92.87

PRC Sta.37+36.65

N 41° 17' 11.1" W

N 47° 58' 04.6" W

N 46° 19' 33.6" W

PROPOSED 10' ASPHALT TRAIL

PERMANENT GREENWAY EASEMENT AREA (BETWEEN SEWER EASEMENT AND PROPERTY LINE) TOWN OF CLAYTON PARCEL

PROPERTY CORNER IS A SYCAMORE TREE

GRADE TO DRAIN

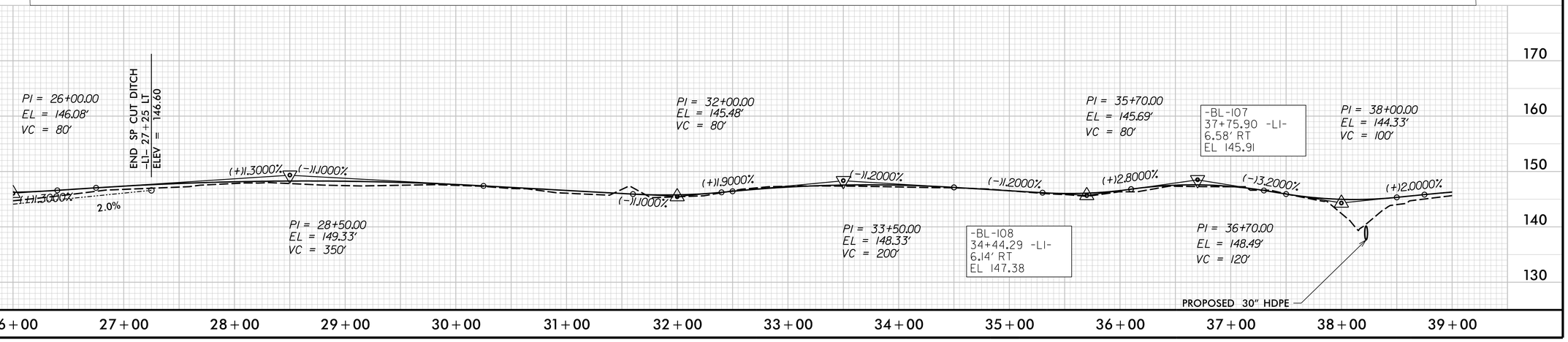
REMOVE 30" HDPE

SAFETY RAILING (TYP.)

TOE PROTECTION SEE DETAIL F SHT 2B

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

NEUSE RIVER



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-L1- CURVE DATA			
PI STA. 41+10.63 Δ = 21° 04' 53.3" (RT) D = 11° 27' 33.0" L = 183.97' T = 93.04' R = 500.00'	PI STA. 42+56.32 Δ = 30° 37' 20.7" (LT) D = 28° 38' 52.4" L = 106.89' T = 54.76' R = 200.00'	PI STA. 43+66.19 Δ = 32° 12' 13.7" (RT) D = 28° 38' 52.4" L = 112.41' T = 57.73' R = 200.00'	PI STA. 51+45.98 Δ = 12° 00' 00.0" (LT) D = 11° 27' 33.0" L = 104.72' T = 52.55' R = 500.00'

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

8/17/99

DONALD C. ADAMS
DB 2964 PG 802

JOHN WESLEY MASSEY
DB 1778 PG 679

FLOODWAY BOUNDARY

-L1- STA. 39+00 SEE SHEET 5

-L1- STA. 52+00 SEE SHEET 7

-BL-106 41+76.99 -LI- 4.77' RT EL 145.18

-BL-105 44+66.94 -LI- 48.30' RT EL 144.45

-BL-104 46+69.81 -LI- 2.64' LT EL 140.57

PRC Sta.40+17.59

PRC Sta.42+05.56

PT Sta.44+20.86

PRC Sta.43+08.45

POT Sta.46+47.08

POT Sta.46+58.08
N 43° 31' 16.7" W

POT Sta.48+75.08
N 43° 31' 16.7" W

POT Sta.48+86.08

POT Sta.50+93.43
N 32° 15' 03.2" W

N 31° 31' 16.7" W

N 46° 28' 43.3" E

PROPOSED MILE MARKER

PROPOSED 10' ASPHALT TRAIL

APPROXIMATE LOCATION 8" DIP FORCEMAIN

RIP RAP PAD CLASS B EST 1 TON EST 5 SY FF

15" HDPE FOR WETLAND OVERFLOW

TOE PROTECTION SEE DETAIL F SHT 2B

SLOPE PROTECTION LINED WITH PSRM FROM STA. -L1- 44+00.00 TO STA. -L1- 45+07.10

SAFETY RAILING (TYP.)

BEGIN APPROACH SLAB -L1- STA. 44+97.08

END APPROACH SLAB
BEGIN BOARDWALK
-L1- STA. 45+07.08

END BOARDWALK
BEGIN BRIDGE
-L1- STA. 46+68.08

20'X20' BOARDWALK CONNECTION TO BRIDGE

END BRIDGE
BEGIN BOARDWALK
-L1- STA. 48+65.08

SLOPE PROTECTION LINED WITH PSRM FROM STA. -L1- 50+66.1 TO STA. -L1- 51+85.8

CLASS II RIP RAP

END APPROACH SLAB
-L1- STA. 50+66.08

END BOARDWALK
BEGIN APPROACH SLAB
-L1- STA. 50+66.08

NEUSE RIVER

-BL-200

BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 18,300	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 152.4	FT
BASE DISCHARGE	= 24,100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 155.7	FT
OVERTOPPING DISCHARGE	= 35,700	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 160.5	FT
DATE OF SURVEY	= 5/28/10	
W.S.ELEVATION AT DATE OF SURVEY	= 134.6	FT

-BL-106
41+76.99 -LI-
4.77' RT
EL 145.18

-BL-105
44+66.94 -LI-
48.30' RT
EL 144.45

-BL-104
46+69.81 -LI-
2.64' LT
EL 140.57

PI = 39+50.00
EL = 147.33'
VC = 150'

PI = 43+00.00
EL = 145.52'
VC = 150'

PI = 45+67.08
EL = 158.50'

PI = 45+87.08
EL = 159.30'

PI = 46+07.08
EL = 159.90'

PI = 46+27.08
EL = 160.30'

PI = 46+47.08
EL = 160.50'

PI = 48+86.08
EL = 160.50'

PI = 49+06.08
EL = 160.30'

PI = 49+26.08
EL = 159.90'

PI = 49+46.08
EL = 159.30'

PI = 49+66.08
EL = 158.50'

(-)0.5171%
(+)4.8600%
(+)0.0000%
(-)15.0000%

PROPOSED 15" HDPE

EX. 25 YR ELEV. = 152.4
EX. 100 YR ELEV. = 155.7
PROP. 100 YR ELEV. = 155.7
PROP. 25 YR ELEV. = 152.4
NWS ELEV. = 134.6 (5/28/10)

170 / 160 / 150 / 140 / 130

39+00 | 40+00 | 41+00 | 42+00 | 43+00 | 44+00 | 45+00 | 46+00 | 47+00 | 48+00 | 49+00 | 50+00 | 51+00 | 52+00

2/17/2011
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-LI- CURVE DATA			
PI STA.52+91.62 Δ = 4°11' 54.2" (LT) D = 7° 38' 22.0" L = 54.96' T = 27.49' R = 750.00'	PI STA.53+90.80 Δ = 10° 55' 27.4" (RT) D = 7° 38' 22.0" L = 143.00' T = 71.72' R = 750.00'	PI STA.55+35.72 Δ = 1° 08' 47.5" (LT) D = 2° 51' 53.2" L = 40.02' T = 20.01' R = 2,000.00'	PI STA.59+77.59 Δ = 2° 08' 48.0" (RT) D = 2° 51' 53.2" L = 74.93' T = 37.47' R = 2,000.00'

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS 8/17/99

FLOODWAY BOUNDARY

-BL-201

-BL-202

-BL-203

-BL-204

-BL-205

-BL-206

-BL-207

RICHARD EARP MOORE
DB 3118 PG 335

JOHN WESLEY MASSEY & LOU MASSEY WATSON
DB 830 PG 535

BZ 1 BZ 2 Sf WOODS

N 42°12'08" W 80.00'

S 25°41'49" E 60.00'

S 36°52'46" E 648.12'

N 78°07'21" E 1085.32'

S 41°47'02" E 335.11'

55 60

NEUSE RIVER

PROPOSED 10' ASPHALT TRAIL

TOE PROTECTION SEE DETAIL F SHT 2B

SPECIAL CUT DITCH SEE DETAIL D SHT 2B

SPECIAL CUT DITCH SEE DETAIL A SHT 2B TIE TO EXISTING

-L1- STA. 52+00 SEE SHEET 6

-L1- STA. 65+00 SEE SHEET 8

PC Sta52+64.13

PRC Sta53+19.09

PC Sta55+15.70

PT Sta55+55.73

PT Sta54+62.09

PC Sta59+40.12

PT Sta60+15.05

N 43° 31' 16.7" W

N 36° 47' 43.5" W

N 37° 56' 31" W

N 35° 47' 43.1" W

20' SEWER EASEMENT

DB PORCEMAN

-BL-103
52+54.52 -LI-
26.16' LT
EL 144.11

-BL-102
55+66.58 -LI-
23.46' RT
EL 147.58

-BL-101
62+08.30 -LI-
0.11' LT
EL 141.34

JOHN WESLEY MASSEY
DB 1778 PG 679

3

FLOODWAY BOUNDARY

PI = 52+00.51
EL = 146.78'
VC = 200'

-BL-103
52+54.52 -LI-
26.16' LT
EL 144.11

-BL-102
55+66.58 -LI-
23.46' RT
EL 147.58

(−)0.3000%

(−)1.2000%

PI = 57+00.00
EL = 145.28'
VC = 200'

BEGIN SP CUT DITCH -L1- 59+51.9 LT ELEV = 140.42

PI = 60+50.00
EL = 141.08'
VC = 200'

END SP CUT DITCH -L1- 61+00 LT ELEV = 140.87

(+)1.2000%

-BL-101
62+08.30 -LI-
0.11' LT
EL 141.34

PI = 62+00.00
EL = 142.88'
VC = 100'

BEGIN SP CUT DITCH -L1- 63+50 LT ELEV = 140.17

PI = 64+15.00
EL = 142.23'
VC = 80'

-L1- 64+50 LT ELEV = 140.79

0.3%

0.6%

1.0%

(+)1.9788%

170 160 150 140 130

52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00

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PROJECT REFERENCE NO.	SHEET NO.
EB-4993	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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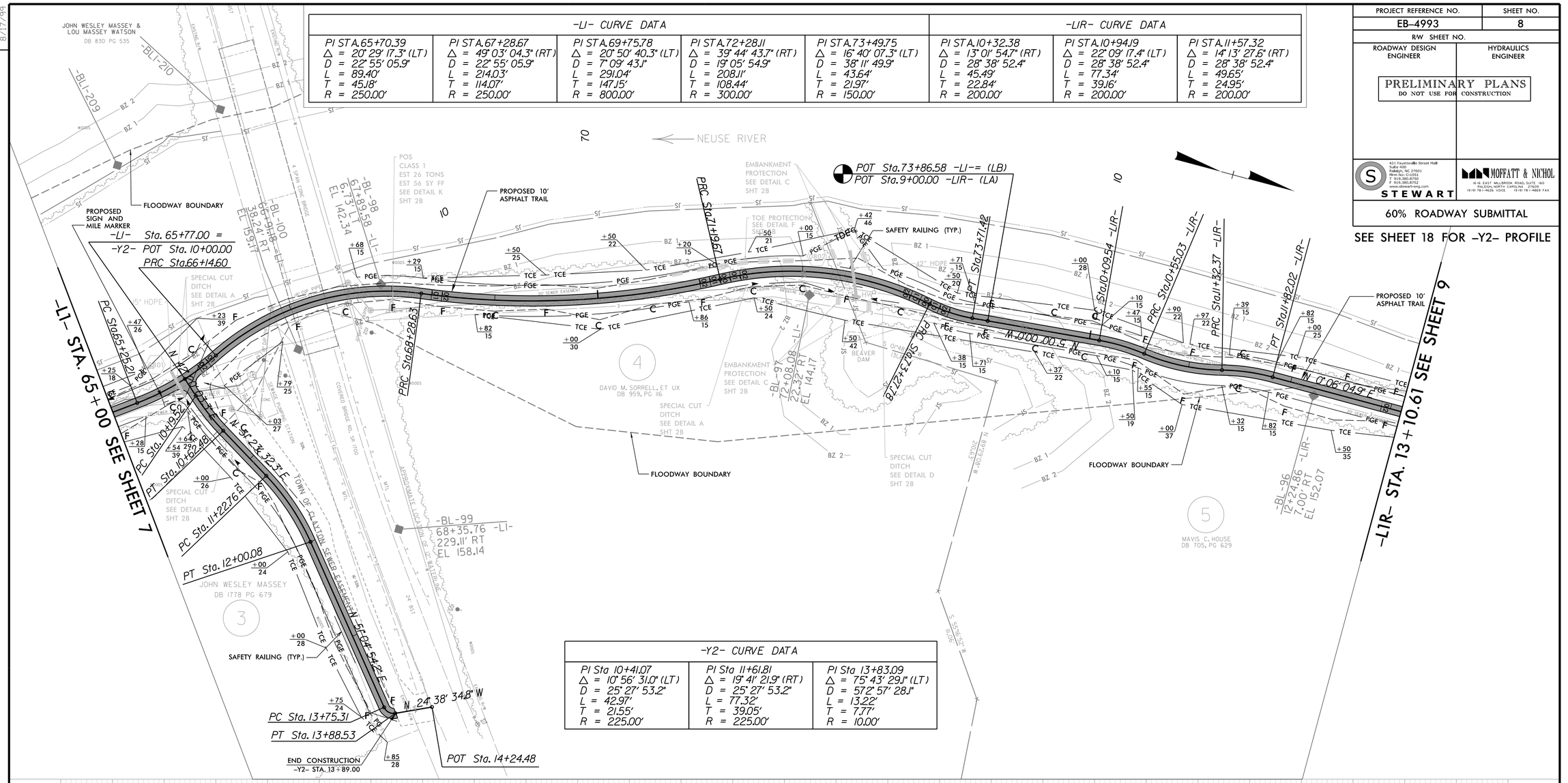
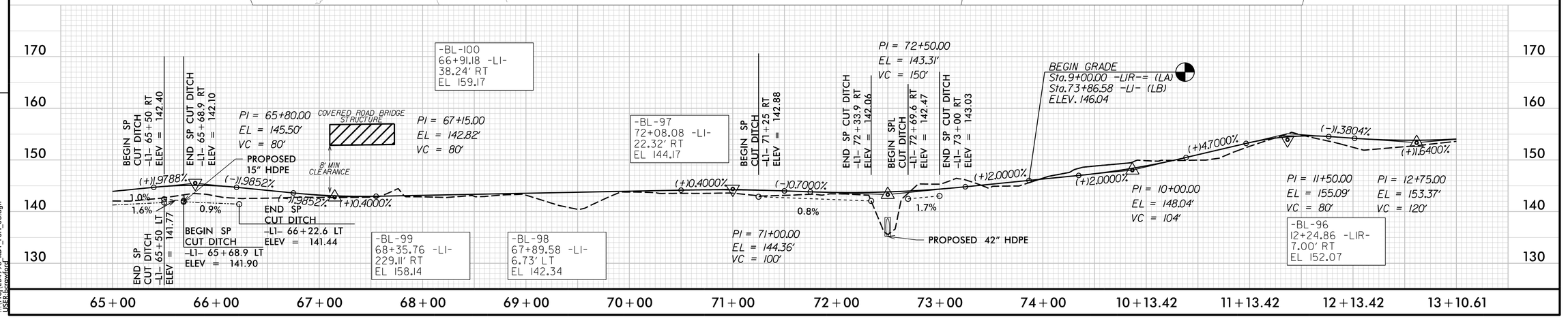
SEE SHEET 18 FOR -Y2- PROFILE

-LI- CURVE DATA					-LIR- CURVE DATA		
PI STA.65+70.39 Δ = 20° 29' 17.3" (LT) D = 22° 55' 05.9" L = 89.40' T = 45.18' R = 250.00'	PI STA.67+28.67 Δ = 49° 03' 04.3" (RT) D = 22° 55' 05.9" L = 214.03' T = 114.07' R = 250.00'	PI STA.69+75.78 Δ = 20° 50' 40.3" (LT) D = 7° 09' 43.1" L = 291.04' T = 147.15' R = 800.00'	PI STA.72+28.11 Δ = 39° 44' 43.7" (RT) D = 19° 05' 54.9" L = 208.11' T = 108.44' R = 300.00'	PI STA.73+49.75 Δ = 16° 40' 07.3" (LT) D = 38° 11' 49.9" L = 43.64' T = 21.97' R = 150.00'	PI STA.10+32.38 Δ = 13° 01' 54.7" (RT) D = 28° 38' 52.4" L = 45.49' T = 22.84' R = 200.00'	PI STA.10+94.19 Δ = 22° 09' 17.4" (LT) D = 28° 38' 52.4" L = 77.34' T = 39.16' R = 200.00'	PI STA.11+57.32 Δ = 14° 13' 27.6" (RT) D = 28° 38' 52.4" L = 49.65' T = 24.95' R = 200.00'

-Y2- CURVE DATA		
PI Sta 10+41.07 Δ = 10° 56' 31.0" (LT) D = 25° 27' 53.2" L = 42.97' T = 21.55' R = 225.00'	PI Sta 11+61.81 Δ = 19° 41' 21.9" (RT) D = 25° 27' 53.2" L = 77.32' T = 39.05' R = 225.00'	PI Sta 13+83.09 Δ = 75° 43' 29.1" (LT) D = 572° 57' 28.1" L = 13.22' T = 7.77' R = 10.00'





REVISIONS

8/17/99

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-LIR- CURVE DATA	-LI- CURVE DATA								
PI STA.13+38.32 Δ = 5° 06' 36.6" (LT) D = 11° 27' 33.0" L = 44.59' T = 22.31' R = 500.00'	PI STA.78+53.00 Δ = 5° 45' 51.6" (LT) D = 11° 27' 33.0" L = 50.33' T = 25.17' R = 500.00'	PI STA.79+29.00 Δ = 16° 19' 55.4" (RT) D = 28° 38' 52.4" L = 57.01' T = 28.70' R = 200.00'	PI STA.80+01.57 Δ = 10° 07' 02.0" (LT) D = 11° 27' 33.0" L = 88.29' T = 44.26' R = 500.00'	PI STA.81+77.95 Δ = 18° 47' 11.9" (RT) D = 7° 09' 43.1" L = 262.31' T = 132.34' R = 800.00'	PI STA.83+79.02 Δ = 16° 11' 12.7" (LT) D = 11° 27' 33.0" L = 141.26' T = 71.10' R = 500.00'	PI STA.86+63.71 Δ = 14° 26' 01.8" (RT) D = 19° 05' 54.9" L = 75.58' T = 37.99' R = 300.00'	PI STA.87+24.13 Δ = 21° 32' 52.6" (LT) D = 47° 44' 47.3" L = 45.13' T = 22.83' R = 120.00'	PI STA.87+83.46 Δ = 14° 04' 21.6" (RT) D = 19° 05' 54.9" L = 73.68' T = 37.03' R = 300.00'	PI STA.90+61.01 Δ = 13° 29' 38.0" (RT) D = 19° 05' 54.9" L = 70.65' T = 35.49' R = 300.00'

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS 8/17/99

-L1R- STA. 13+10.61 SEE SHEET 8

-L1- STA. 91+00 SEE SHEET 10

NEUSE RIVER

FLOODWAY BOUNDARY

PROPOSED 10' ASPHALT TRAIL

SAFETY RAILING (TYP.)

PC Sta13+16.01 -LIR-

PRC Sta79+00.30

PRC Sta80+45.60

PT Sta84+49.17

PRC Sta87+46.43

PT Sta88+20.11

PC Sta90+25.52

PRC Sta90+96.17

PT Sta13+60.61 -LIR-= (LB)
Pc Sta78+50.00 -LI- (LA)

PRC Sta79+57.37

PRC Sta83+70.91

PC Sta86+25.72

PRC Sta87+10.30

-BL-95
81+44.41 -LI-
22.52' RT
EL 166.43

-BL-94
85+27.72 -LI-
12.94' RT
EL 149.12

-BL-93
89+99.65 -LI-
15.70' RT
EL 147.66

N 1° 57' 30.8" W

N 5° 00' 00.0" E

RIP RAP PAD
CLASS 1
EST 2 TONS
EST 8 SY FF
PLACE RIP RAP
BELOW PIPE INVERT
PER NCDOT STD 876.02

18" HDPE

TOE PROTECTION
SEE DETAIL F
SHT 2B

MAVIS C. HOUSE
DB 705, PG 629

5

MAVIS C. HOUSE
DB 705, PG 629

5

PI = 79+50.00
EL = 156.41'
VC = 110'

(+)11.6400%

(+)4.4000%

(+)4.4000%

(−)5.0000%

PI = 81+10.00
EL = 163.45'
VC = 200'

-BL-95
81+44.41 -LI-
22.52' RT
EL 166.43

(−)5.0000%

PI = 84+00.00
EL = 148.95'
VC = 200'

-BL-94
85+27.72 -LI-
12.94' RT
EL 149.12

(−)10.7400%

PI = 87+50.00
EL = 146.36'
VC = 100'

-BL-93
89+99.65 -LI-
15.70' RT
EL 147.66

(−)10.7400%

(+)11.5900%

(−)11.5046%

18" HDPE
PI = 88+50.00
EL = 147.95'
VC = 100'

(−)11.5046%

(+)11.1064%

PI = 90+25.00
EL = 145.32'
VC = 100'

BEGIN SP
CUT DITCH
-L1- 90+75 RT
ELEV = 145.75

1.8%

BEGIN GRADE
Sta.78+50.00 -LI-
ELEV. 154.77

END GRADE
Sta.13+60.61 -LIR-= (L
Sta.78+50.00 -LI- (LA
ELEV. 154.77

170
160
150
140
130

13+10.61 79+00 80+00 81+00 82+00 83+00 84+00 85+00 86+00 87+00 88+00 89+00 90+00 91+00

2/17/2011
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USER:bcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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F 919.380.8752
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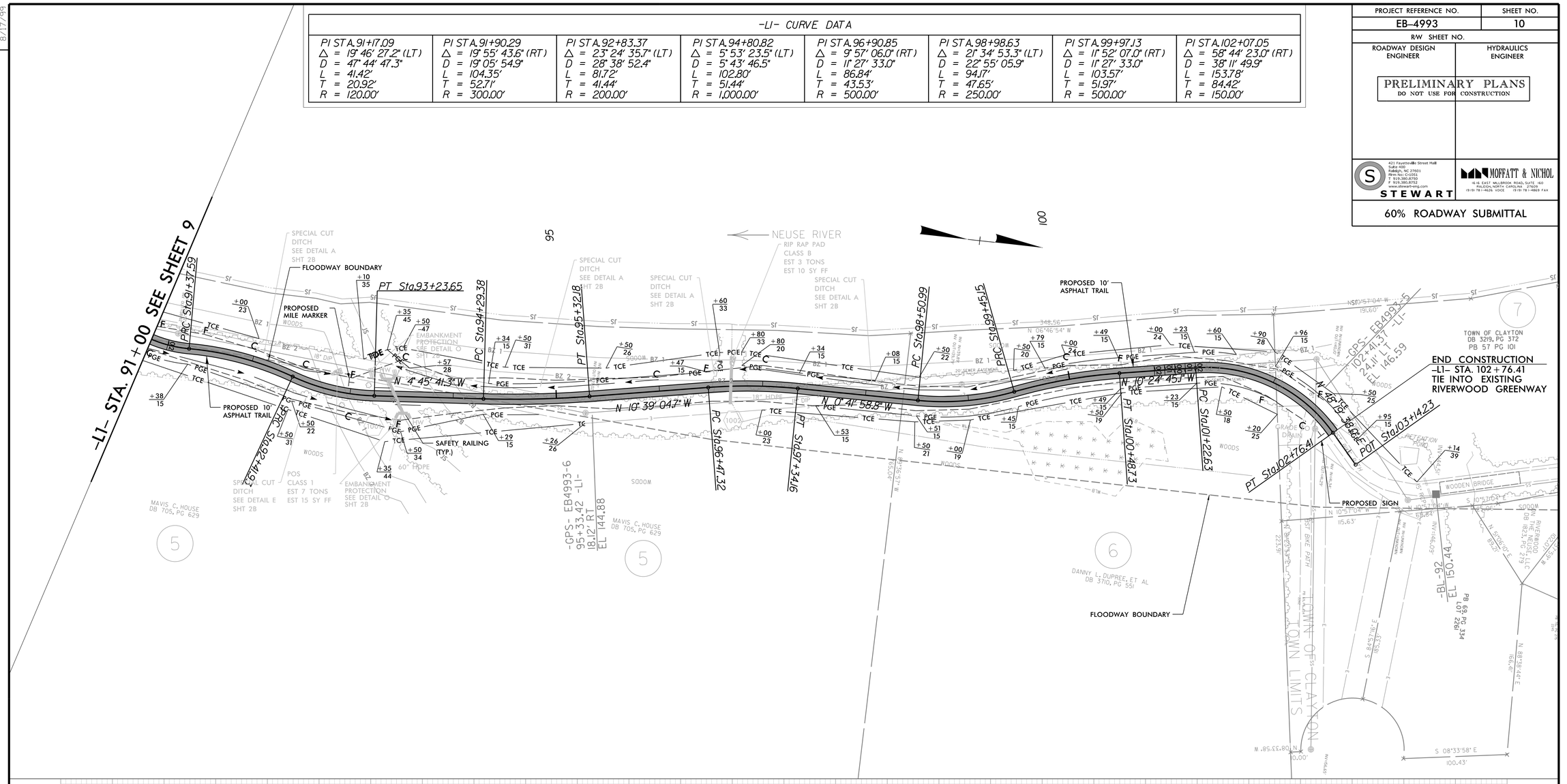
MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

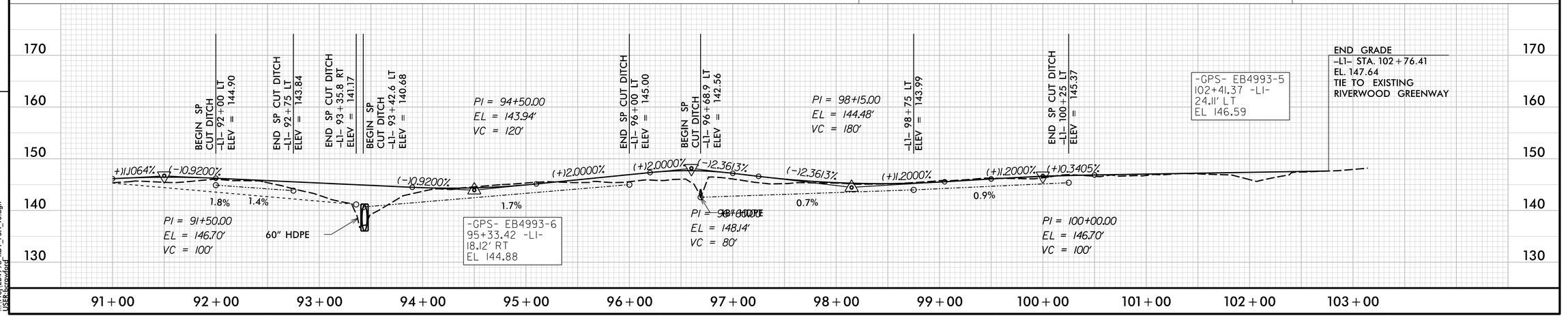
60% ROADWAY SUBMITTAL

8/17/99

REVISIONS

-LI- CURVE DATA							
PI STA. 91+17.09 Δ = 19° 46' 27.2" (LT) D = 47° 44' 47.3" L = 41.42' T = 20.92' R = 120.00'	PI STA. 91+90.29 Δ = 19° 55' 43.6" (RT) D = 19° 05' 54.9" L = 104.35' T = 52.71' R = 300.00'	PI STA. 92+83.37 Δ = 23° 24' 35.7" (LT) D = 28° 38' 52.4" L = 81.72' T = 41.44' R = 200.00'	PI STA. 94+80.82 Δ = 5° 53' 23.5" (LT) D = 5° 43' 46.5" L = 102.80' T = 51.44' R = 1,000.00'	PI STA. 96+90.85 Δ = 9° 57' 06.0" (RT) D = 11° 27' 33.0" L = 86.84' T = 43.53' R = 500.00'	PI STA. 98+98.63 Δ = 21° 34' 53.3" (LT) D = 22° 55' 05.9" L = 94.17' T = 47.65' R = 250.00'	PI STA. 99+97.13 Δ = 11° 52' 07.0" (RT) D = 11° 27' 33.0" L = 103.57' T = 51.97' R = 500.00'	PI STA. 102+07.05 Δ = 58° 44' 23.0" (RT) D = 38° 11' 49.9" L = 153.78' T = 84.42' R = 150.00'





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USER:crawford

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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(919) 781-4626 VOICE (919) 781-4869 FAX

60% ROADWAY SUBMITTAL

-L2- CURVE DATA

PI STA. 11+63.18 Δ = 32° 08' 07.7" (LT) D = 38° 11' 49.9" L = 84.13' T = 43.20' R = 150.00'	PI STA. 14+74.76 Δ = 50° 02' 39.6" (LT) D = 47° 44' 47.3" L = 104.81' T = 56.01' R = 120.00'	PI STA. 16+02.88 Δ = 66° 55' 39.6" (RT) D = 47° 44' 47.3" L = 140.17' T = 79.32' R = 120.00'	PI STA. 20+02.27 Δ = 15° 31' 00.0" (LT) D = 4° 46' 28.7" L = 324.98' T = 163.49' R = 1,200.00'

REVISIONS

8/17/99

-BL-86
EL 148.89

-BL-85
EL 150.04

PB 69, PG 159
LOT 3404

PB 69, PG 159
LOT 3405

PB 69, PG 159
LOT 3406

PB 63, PB 142
LOT 4255

PB 63, PB 142
LOT 4254

RIVERWOOD
ON THE NEUSE, LLC
PB 63, PG 143
DB 1823, PG 279

RIVERWOOD
ON THE NEUSE, LLC
DB 1823, PG 279
PB 63, PG 143

The State Of North Carolina
DB 13326 PG 904
MB 2008 PG 213

FLOODWAY BOUNDARY

BEGIN CONSTRUCTION
-L2- STA. 10+69.19
TIE TO EXISTING
RIVERWOOD GREENWAY

POT Sta10+69.19
S 86° 51' 07.7" W

POT Sta9+84.98
N 15° 08' 52.3" W

POT Sta10+99.19
N 0° 07' 19.9" E

POT Sta10+79.70
N 47° 17' 00.0" W

PC Sta11+19.98

PT Sta12+04.11

END BOARDWALK
BEGIN BRIDGE
-L2- STA. 13+06.00

END APPROACH SLAB
BEGIN BOARDWALK
-L2- STA. 12+26.00

BEGIN APPROACH SLAB
-L2- STA. 12+16.00

END BRIDGE
BEGIN APPROACH SLAB
-L2- STA. 14+08.00

PRC Sta15+23.56

PC Sta14+18.75

PT Sta16+63.74

PC Sta18+38.78

PT Sta21+63.76

N 30° 24' 00.0" W

N 45° 55' 00.0" W

-L2- STA. 22+00 SEE SHEET 12

PROPOSED 10'
ASPHALT TRAIL

PROPOSED
SIGN

PROPOSED 10'
ASPHALT TRAIL

SAFETY RAILING
(TYP.)

TCE

TCE
CLASS II RIP RAP

CLASS I
RIP RAP

RIP RAP PAD
CLASS 1
EST 26 TONS
EST 50 SY FF
SEE DETAIL N
SHT 2B

RIP RAP PAD
CLASS 1
EST 7 TONS
EST 15 SY FF
SEE DETAIL M
SHT 2B

BEGIN
TAIL DITCH
+93.0 -19.6' LT
ELEV = 149.6

END TAIL DITCH
+90.0 -67.4' LT
ELEV = 145.5

TAIL DITCH
SEE DETAIL H
SHT 2B

PI +91.4 -45.0' LT
ELEV = 146.0
15" HDPE

TOE PROTECTION
SEE DETAIL B
SHT 2B

TOE PROTECTION
SEE DETAIL F
SHT 2B

SPECIAL
CUT DITCH
SEE DETAIL A
SHT 2B

SPECIAL STERAL
BASE DITCH
SEE DETAIL G
SHT 2B

TIE DITCH
TO PROPOSED
GRADE

FILL WASHOUT
W/RIP RAP
CLASS 1
EST 26 TONS
EST 50 SY FF
SEE DETAIL J
SHT 2B

FILL DRAW
W/RIP RAP
CLASS 1
EST 4 TONS
EST 10 SY FF
SEE DETAIL J
SHT 2B

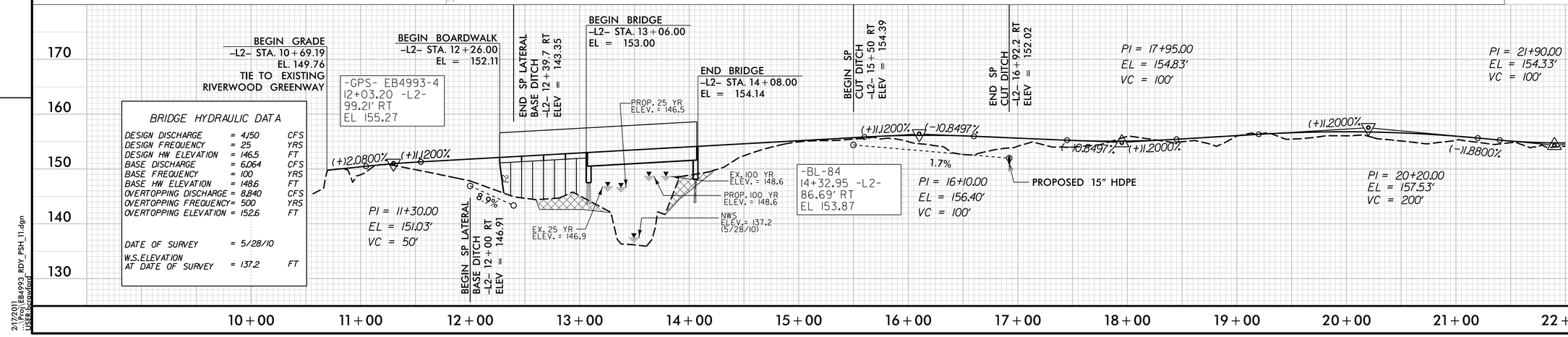
FLOODPLAIN
EXCAVATION
660 CY
SS = 8:1
TIE TO
EXISTING GROUND

FLOODPLAIN
EXCAVATION
500 CY
SS = 8:1
TIE TO
EXISTING GROUND

-BL-84
14+32.95 -L2-
86.69' RT
EL 153.87

-GPS- EB4993-4
12+03.20 -L2-
99.21' RT
EL 155.27

END APPROACH SLAB
-L2- STA. 14+17.00



2/17/2011
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USER:jcrawford

8/17/99

REVISIONS

-L2- CURVE DATA				
PI STA. 22+95.81	PI STA. 23+76.93	PI STA. 26+26.92	PI STA. 28+22.74	PI STA. 30+22.34
Δ = 19° 24' 09.0" (LT)	Δ = 26° 46' 09.0" (RT)	Δ = 18° 08' 27.4" (LT)	Δ = 26° 24' 39.5" (RT)	Δ = 19° 37' 12.1" (LT)
D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 11° 27' 33.0"	D = 11° 27' 33.0"	D = 11° 27' 33.0"
L = 67.73'	L = 93.44'	L = 158.31'	L = 230.48'	L = 171.22'
T = 34.19'	T = 47.59'	T = 79.82'	T = 117.32'	T = 86.46'
R = 200.00'	R = 200.00'	R = 500.00'	R = 500.00'	R = 500.00'

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

60% ROADWAY SUBMITTAL

-L2- STA. 22+00 SEE SHEET 11

-L2- STA. 35+00 SEE SHEET 13

NEUSE RIVER

BANK OF RIVER IS PROPERTY LINE

The State Of North Carolina
DB 13326 PG 904
MB 2008 PG 2113

10

-BL-79
24+36.05 -L2-
355.78' LT
EL 152.23

-BL-78
27+83.79 -L2-
310.17' LT
151.06

-BL-77
31+54.47 -L2-
243.13' LT
EL 152.11

FLOODWAY BOUNDARY

WOODS

25

30

END TAIL DITCH
-03 - 44.8' LT
ELEV = 149.7

RIP RAP PAD
CLASS 1
EST 26 TONS
EST 50 SY FF
SEE DETAIL N, SHT 2B

TAIL DITCH
SEE DETAIL H

BEGIN TAIL DITCH
-03 - 20.5' LT
ELEV = 150.38

15" HDPE

PC Sta 22+61.62

PRC Sta 23+29.34

PT Sta 24+22.79

PC Sta 25+47.10

PRC Sta 27+05.41

PRC Sta 29+35.89

PT Sta 31+07.11

N 45° 55' 00.0" W

N 38° 35' 00.0" W

N 49° 54' 00.0" W

PROPOSED 10' ASPHALT TRAIL

SPECIAL CUT DITCH
SEE DETAIL A
SHT 2B

FILL DRAW W/
CLASS 1 RIP RAP
4 TONS
10 SY FF
SEE DETAIL J
SHT 2B

FILL DRAW W/
CLASS 1 RIP RAP
21 TONS
47 SY FF
SEE DETAIL J
SHT 2B

RIP RAP PAD
CLASS 1
EST 2 TONS
EST 8 SY FF
PLACE RIPRAP
BELOW PIPE INVERT
PER NCDOT STD 876.02

SAFETY RAILING (TYP.)

18" HDPE

TOE PROTECTION
SEE DETAIL F
SHT 2B

PI = 23+70.00
EL = 157.07'
VC = 200'

BEGIN SP CUT DITCH
-L2- 23+50 RT
ELEV = 153.80

-L2- 24+01.7 RT
ELEV = 152.33

END SP CUT DITCH
-L2- 24+75 RT
ELEV = 154.15

PI = 27+00.00
EL = 153.11'
VC = 100'

PI = 28+20.00
EL = 156.11'
VC = 100'

PI = 29+20.00
EL = 153.43'
VC = 100'

PI = 31+40.00
EL = 157.83'
VC = 200'

(+)1.5200%
(-)1.2000%
(+)2.5000%
(-)2.6800%
(+)2.0000%
(-)1.6000%

2.8%
2.5%

PROPOSED 15" HDPE

170
160
150
140
130

22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00

2/17/2011
jlittle
...\EB4993_RDY_PSH_12.dgn
USER:jlittlewood

-L2- CURVE DATA				
PI STA. 36+88.00 △ = 12° 32' 00.0" (RT) D = 11° 27' 33.0" L = 109.37' T = 54.91' R = 500.00'	PI STA. 38+67.83 △ = 9° 04' 00.0" (LT) D = 11° 27' 33.0" L = 79.12' T = 39.64' R = 500.00'	PI STA. 42+55.55 △ = 9° 26' 39.6" (RT) D = 7° 38' 22.0" L = 123.63' T = 61.95' R = 750.00'	PI STA. 43+88.52 △ = 26° 44' 16.3" (LT) D = 19° 05' 54.9" L = 140.00' T = 71.30' R = 300.00'	PI STA. 45+73.31 △ = 13° 14' 36.7" (RT) D = 5° 43' 46.5" L = 231.14' T = 116.09' R = 1,000.00'

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	13
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
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(919) 781-4626 VOICE (919) 781-4869 FAX

60% ROADWAY SUBMITTAL

8/17/99

REVISIONS

FLOODWAY BOUNDARY

SAFETY RAILING (TYP.)

NEUSE RIVER

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

SPECIAL CUT DITCH SEE DETAIL A SHT 2B

TIE DITCH TO EXISTING SWALE

-BL-76
35+46.09 -L2-
93.29' LT
EL 149.28

-BL-75
38+72.28 -L2-
10.37' LT
EL 146.88

-BL-74
41+80.71 -L2-
92.46' LT
EL 146.45

-BL-73
45+01.47 -L2-
23.35' LT
EL 147.44

-BL-72
47+73.22 -L2-
54.87' LT
EL 145.40

PROPOSED 10' ASPHALT TRAIL

PROPOSED MILE MARKER

PC Sta.36+33.10

PT Sta.37+42.47

PC Sta.38+28.19

PT Sta.39+07.31

PC Sta.41+93.60

PRC Sta.43+17.23

PC Sta.44+57.22

PT Sta.46+88.37

24" HDPE

18" HDPE

TOE PROTECTION SEE DETAIL F SHT 2B

SPECIAL CUT DITCH SEE DETAIL D SHT 2B

WOODS

BZ 1

BZ 2

JS

N 37° 22' 00.0" W

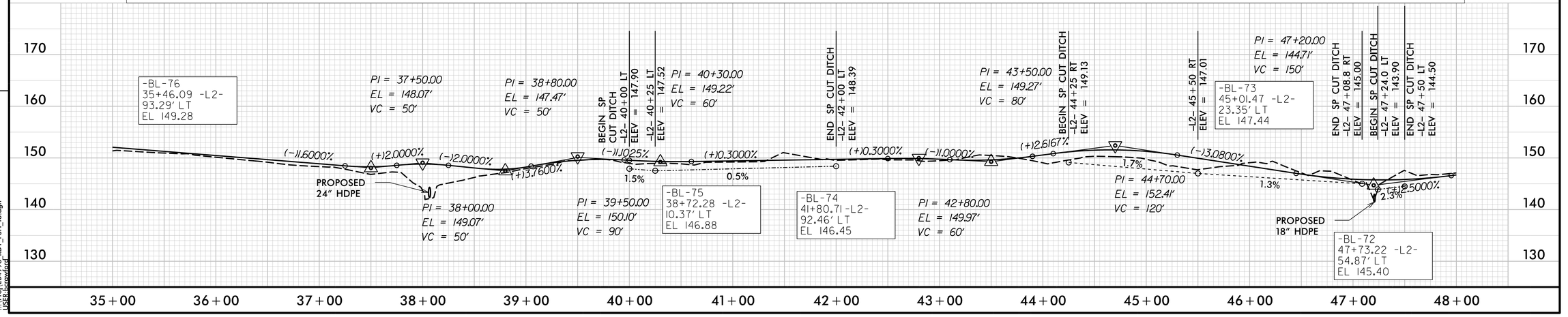
N 46° 26' 00.0" W

-L2- STA. 35+00 SEE SHEET 12

-L2- STA. 48+00 SEE SHEET 14

The State Of North Carolina
DB 13326 PG 904
MB 2008 PG 2113

10



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USER:jcrawford

8/17/99

REVISIONS

-L2- CURVE DATA				
PI STA. 50+42.79 △ = 10° 19' 00.0" (RT) D = 14° 19' 26.2" L = 72.02' T = 36.11' R = 400.00'	PI STA. 52+43.80 △ = 17° 54' 17.8" (LT) D = 14° 19' 26.2" L = 125.00' T = 63.01' R = 400.00'	PI STA. 53+81.93 △ = 17° 19' 06.3" (RT) D = 11° 27' 33.0" L = 151.13' T = 76.15' R = 500.00'	PI STA. 56+50.02 △ = 27° 08' 26.8" (LT) D = 7° 09' 43.1" L = 378.96' T = 193.10' R = 800.00'	PI STA. 59+47.59 △ = 15° 53' 56.6" (RT) D = 7° 09' 43.1" L = 221.99' T = 111.71' R = 800.00'

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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60% ROADWAY SUBMITTAL

-L2- STA. 48+00 SEE SHEET 13

-L2- STA. 61+00 SEE SHEET 15

FLOODWAY BOUNDARY

BANK OF RIVER IS PROPERTY LINE

NEUSE RIVER

N 50° 29' 00.0" W

N 40° 10' 00.0" W

PROPOSED 10' ASPHALT TRAIL

TOE PROTECTION SEE DETAIL F SHT 2B

EMBANKMENT PROTECTION SEE DETAIL C SHT 2B

SPECIAL CUT DITCH SEE DETAIL D SHT 2B

SPECIAL CUT DITCH SEE DETAIL A SHT 2B

SAFETY RAILING (TYP.)

RIP RAP PAD CLASS B EST 2 TONS EST 7 SY FF

FILL DRAW W/ CLASS 1 RIP RAP EST 7 TONS EST 15 SY FF SEE DETAIL J SHT 2B

WOODS

48" HDPE

15" HDPE

24" HDPE

PC Sta 50+06.68

PT Sta 50+78.70

PC Sta 51+80.78

PRC Sta 53+05.78

PRC Sta 54+56.92

PRC Sta 57+35.87

PRC Sta 59+57.86

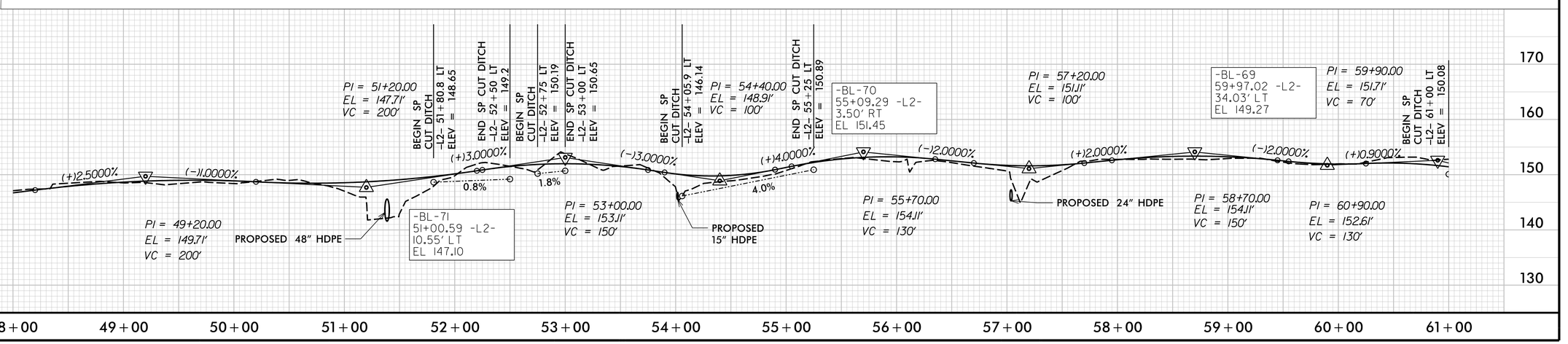
-BL-71
51+00.59 -L2-
10.55' LT
EL 147.10

-BL-70
55+09.29 -L2-
3.50' RT
EL 151.45

-BL-69
59+97.02 -L2-
34.03' LT
EL 149.27

The State Of North Carolina
DB 13326 PG 904
MB 2008 PG 2113

10



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USER:kcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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F 919.380.8752
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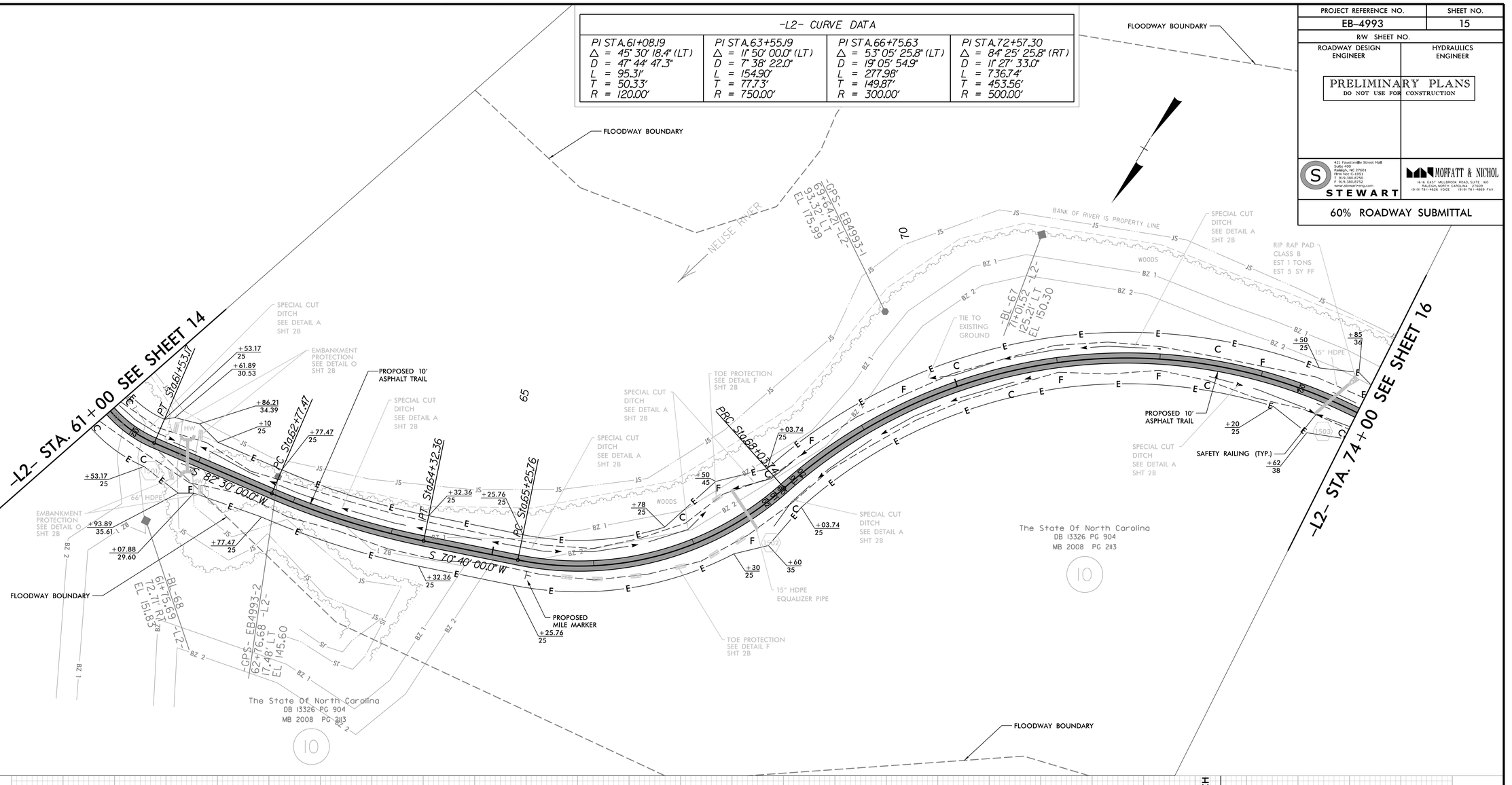
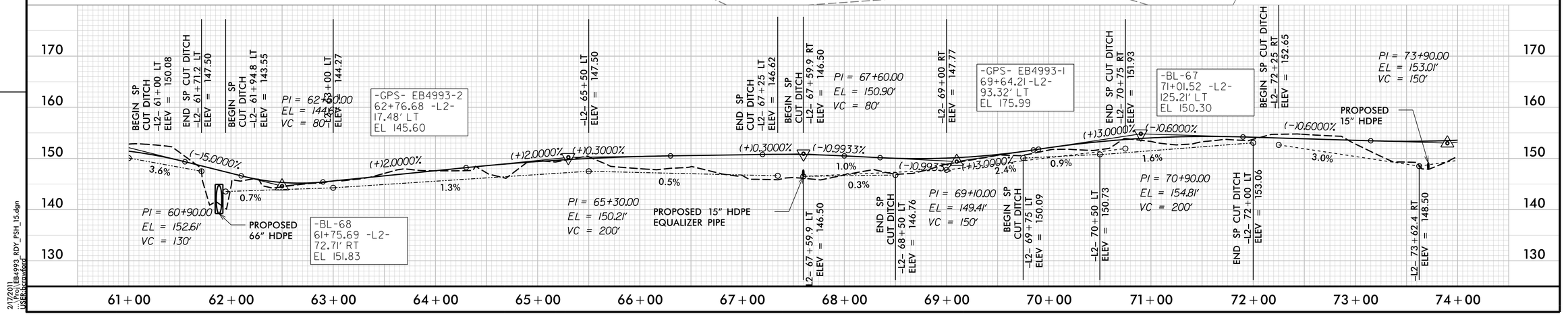
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

60% ROADWAY SUBMITTAL

REVISIONS
8/17/99

-L2- CURVE DATA			
PI STA. 61+08.19 Δ = 45° 30' 18.4" (LT) D = 47° 44' 47.3" L = 95.31' T = 50.33' R = 120.00'	PI STA. 63+55.19 Δ = 11° 50' 00.0" (LT) D = 7° 38' 22.0" L = 154.90' T = 77.73' R = 750.00'	PI STA. 66+75.63 Δ = 5.3° 05' 25.8" (LT) D = 19° 05' 54.9" L = 277.98' T = 149.87' R = 300.00'	PI STA. 72+57.30 Δ = 84° 25' 25.8" (RT) D = 11° 27' 33.0" L = 736.74' T = 453.56' R = 500.00'





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USER:brownford

-L2- CURVE DATA	
PI STA. 78+94.69	PI STA. 83+85.87
△ = 16° 35' 13.0" (LT)	△ = 74° 57' 31.7" (RT)
D = 7° 38' 22.0"	D = 11° 27' 33.0"
L = 217.12'	L = 654.14'
T = 109.33'	T = 383.38'
R = 750.00'	R = 500.00'

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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60% ROADWAY SUBMITTAL

8/17/99

REVISIONS

FLOODWAY BOUNDARY

NEUSE RIVER

BANK OF RIVER IS PROPERTY LINE

SPECIAL CUT DITCH SEE DETAIL A SHT 2B

TURN OUT DITCH +72.3 -28.5' LT TIE TO EXISTING GROUND

-BL-66 74+70.07 -L2- 66.98' LT EL 147.69

-BL-65 78+41.50 -L2- 47.30' LT EL 153.97

-BL-64 81+59.02 -L2- 7.67' LT EL 154.38

-BL-63 85+81.50 -L2- 0.27' RT EL 154.81

PRC Sta80+64.49

PT Sta77+85.37

PRC Sta86+56.63

PROPOSED 10' ASPHALT TRAIL

N 78° 00' 00.0" W

TOE PROTECTION SEE DETAIL F SHT 2B

GRADE DRAIN

END HEAD DITCH +22.3 RT +16.6 ELEV = 151.00

HEAD DITCH SEE DETAIL I SHT 2B

18" HDPE EQUALIZER PIPE

BEGIN HEAD DITCH +21.3 RT +26.6 ELEV = 153.5

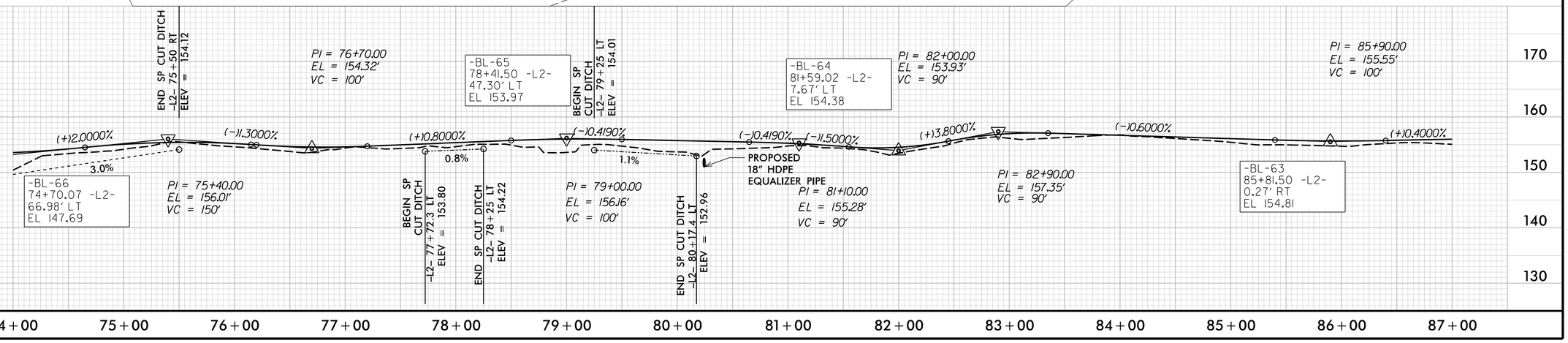
WOODS

The State Of North Carolina
DB 13326 PG 904
MB 2008 PG 2113

10

-L2- STA. 74+00 SEE SHEET 15

-L2- STA. 87+00 SEE SHEET 17



2/17/2011
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USER:bcrawford

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

421 Fayetteville Street Mall
Suite 400
Raleigh, NC 27601
Phone
T 919.380.8750
F 919.380.8752
www.stewart-eng.com
STEWART

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

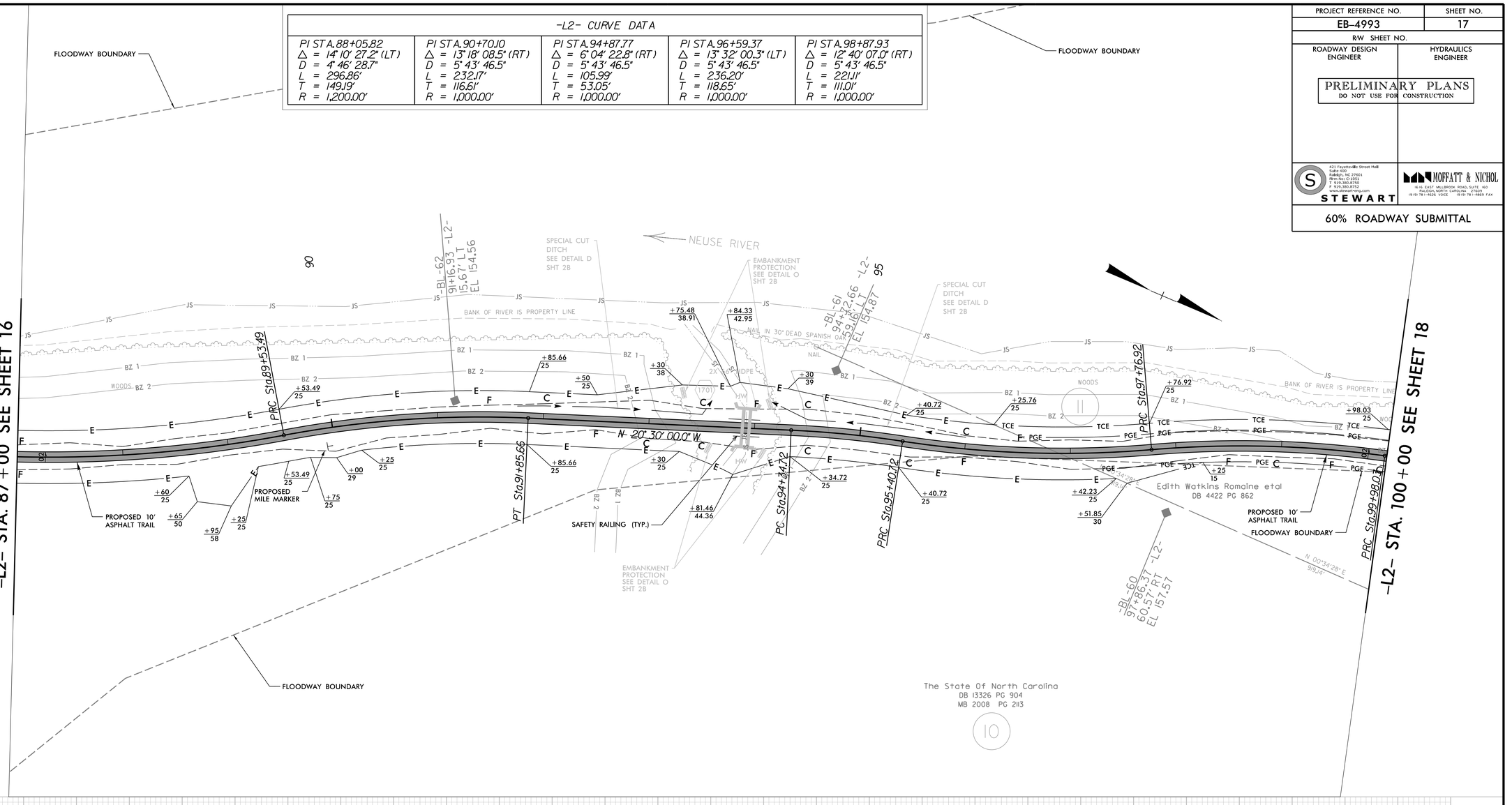
60% ROADWAY SUBMITTAL

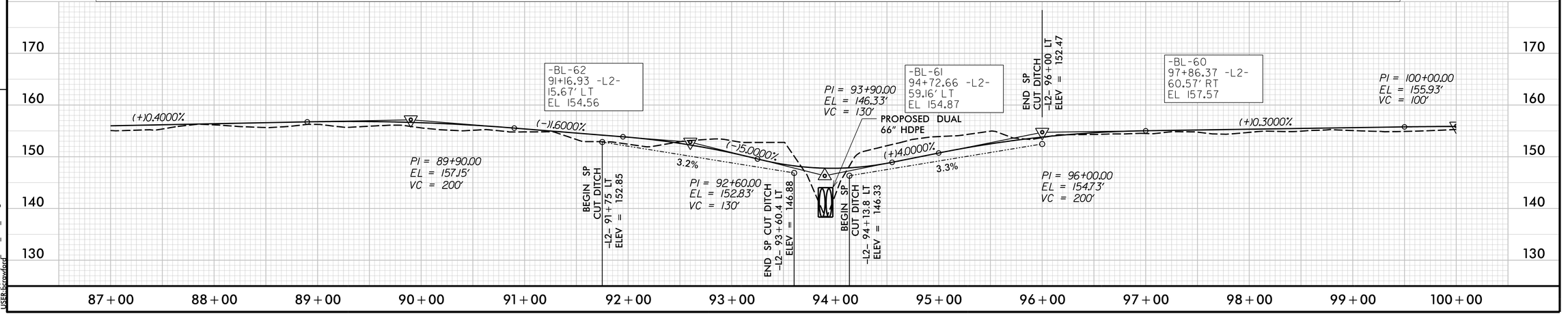
REVISIONS

8/17/99

-L2- CURVE DATA

PI STA. 88+05.82	PI STA. 90+70.10	PI STA. 94+87.77	PI STA. 96+59.37	PI STA. 98+87.93
Δ = 14° 10' 27.2" (LT)	Δ = 13° 18' 08.5" (RT)	Δ = 6° 04' 22.8" (RT)	Δ = 13° 32' 00.3" (LT)	Δ = 12° 40' 07.0" (RT)
D = 4° 46' 28.7"	D = 5° 43' 46.5"	D = 5° 43' 46.5"	D = 5° 43' 46.5"	D = 5° 43' 46.5"
L = 296.86'	L = 232.17'	L = 105.99'	L = 236.20'	L = 221.11'
T = 149.19'	T = 116.61'	T = 53.05'	T = 118.65'	T = 111.01'
R = 1,200.00'	R = 1,000.00'	R = 1,000.00'	R = 1,000.00'	R = 1,000.00'





2/17/2011
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USER:brownford

-L2- CURVE DATA	
PI STA.101+64.79	PI STA.103+61.01
△ = 12° 41' 15.3" (LT)	△ = 5° 52' 53.0" (RT)
D = 3° 49' 11.0"	D = 9° 32' 57.5"
L = 332.16'	L = 61.59'
T = 166.76'	T = 30.82'
R = 1,500.00'	R = 600.00'

PROJECT REFERENCE NO.	SHEET NO.
EB-4993	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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60% ROADWAY SUBMITTAL

REVISIONS

8/17/99

-L2- STA. 100+00 SEE SHEET 17

NEUSE RIVER

PROPOSED 10' ASPHALT TRAIL

BANK OF RIVER IS PROPERTY LINE

Sta.103+30.19

+30.19 / 25

END PROJECT
END CONSTRUCTION -L2-
-L2- STA.103+91.77

+91.78 / 25

FUTURE GREENWAY BY OTHERS

PT Sta.103+91.78

+30.19 / 20

+25 / 15 & 20

+91.78 / 20

PROPOSED SIGN

FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

Edith Watkins Romaine etal
DB 4422 PG 862

APPROX. LOCATION JOHNSTON COUNTY WAKE COUNTY

-GPS- EB4993-10
103+28.56 -L2-
196.75' RT
EL 175.99

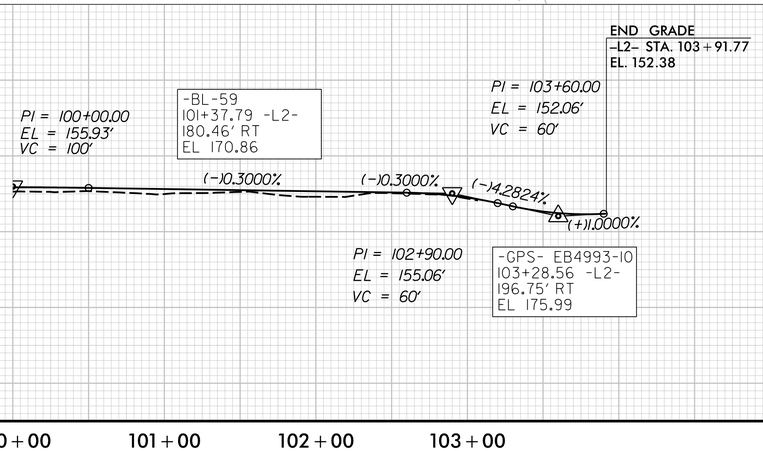
-BL-59
101+37.79 -L2-
180.46' RT
EL 170.86

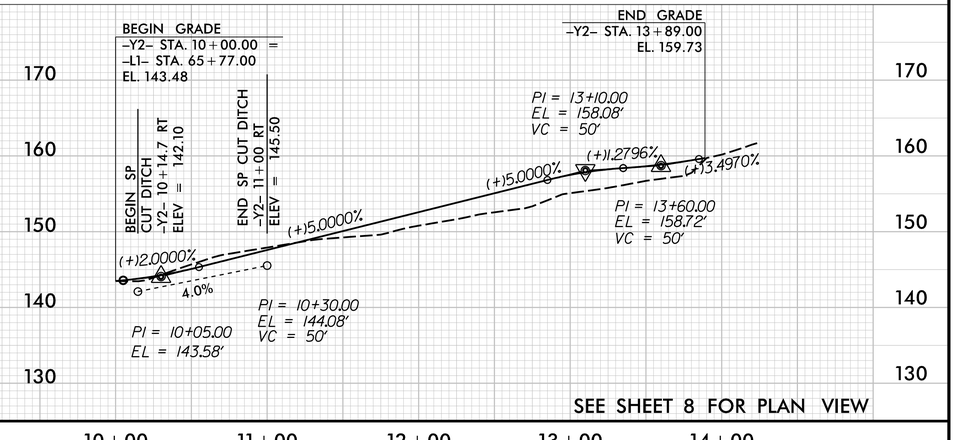
EIP

TOWN OF CLAYTON
TOWN LIMITS

N 00°32'02" E
688.54'

N 00°32'02" E





SEE SHEET 8 FOR PLAN VIEW

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USER:jcrawford