



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

May 16, 2014

May 27, 2014

Wilmington Regulatory Field Office
US Army Corps of Engineers
69 Darlington Avenue
Wilmington, NC 28403

ATTN: Ms. Liz Hair
NCDOT Coordinator

Dear Madam:

Subject: **Application for Section 404 Individual Permit and Section 401 Water Quality Certification** for the proposed Interchange at US 701 and 87 Bypass Intersection, in Bladen County. Federal Aid Project No. STP-0005(252), TIP No. R-4903. Debit \$570.00 from WBS 40226.1.1.

The North Carolina Department of Transportation (NCDOT), Division of Highways, in consultation with the Federal Highway Administration (FHWA), proposes to replace the present at-grade intersection at the NC 87 Bypass/US 701 intersection with a grade-separated interchange, Bladen County.

The purpose of this letter is to request approval for a Section 404 Individual Permit and Section 401 Water Quality Certification. In addition to the cover letter, this application package includes the following for R-4903: ENG Form 4345, stormwater management plan, permit drawings, roadway plans, Privateer Farms Restoration Site Debit Ledger and 4B/4C merger meeting minutes.

1.0 Purpose and Need

The purpose for this project, as identified in the Categorical Exclusion (CE), is to improve safety and capacity in the study area.

2.0 Project Description

The project involves improvements to the intersection of NC 87 Bypass and US 701.

3.0 Summary of Impacts

Waters of the U.S.: Proposed permanent impacts to jurisdictional areas total 0.60 acres of permanent wetland impacts and 1,054 feet of permanent stream impacts.

4.0 Summary of Mitigation

The proposed construction of R-4903 will impact 0.41 acres of riparian wetlands and 0.19 acres of non-riparian wetlands that will require mitigation. In addition, the unavoidable impacts to 1,054 linear feet of jurisdictional stream will also require mitigation. See attached Privateer Farms Restoration Site Debit Ledger for additional information.

5.0 Project Schedule

Currently, R-4903 has a review date of October 27, 2014 and is scheduled to let December 15, 2014; it will be available for construction shortly thereafter. The let date, however, may advance as additional funds become available.

6.0 NEPA Document Status

The FHWA and NCDOT completed the CE in July 2010 in compliance with the NEPA guidelines. The CE explains the purpose and need for the project, provides a description of the alternatives considered, and characterizes the social, economic, and environmental effects. The CE was approved and circulated to federal, state, and local agencies. On February 8, 2013 a Right of Way Consultation was completed. Both documents are posted on the NCDOT website at <https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>, under *Quick Links > Environmental Documents*.

6.1 Independent Utility

R-4903 is in compliance with 23 CFR Part 771.111(f) which lists the FHWA characteristics of the independent utility of a project. The project meets the criteria for independent utility as discussed below:

- The project has logical termini and independent utility and is of sufficient length to address environmental matters on a broad scope;
- The project is usable and a reasonable expenditure of funds, even if no additional transportation improvements are made in the area; and
- The project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

7.0 Resource Status

The project is located in the Cape Fear River Basin and lies within Hydrologic Unit 03030005 (Subbasin 03-06-16). This is within the Middle Atlantic Coastal Plain eco-region. The project crosses Browns Creek, as well as several tributaries to waters of the U.S., and multiple wetlands.

Wetland and stream delineations were completed between May and June 2007. Jurisdictional areas within the project study area were reviewed by the USACE (Brad Shaver) and by the NCDWR (Mason Herndon) on July 8, 2010.

7.1 Wetland Delineations

A wetland identification and preliminary assessment analysis for the study area was performed and summarized in the 2007 Natural Resources Technical Report (NRTR). The wetlands within the study area were delineated based on the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual and a preliminary design was prepared to avoid and minimize wetlands to the maximum extent possible.

7.2 Stream Delineations

The stream channels within the project study area were identified, evaluated, and classified using the NCDWQ stream identification form and the Cowardin classification system. Water quality information for the streams within the project study area was derived from available sources provided through the NCDENR.

7.3 R-4903: Characterization of Jurisdictional Sites

7.3.1 Wetlands

There are three wetland types found within the project study area based on the Cowardin classification: Palustrine Forested (PFO) and Palustrine Emergent (PEM). More detailed information about these wetlands can be found in the CE and the NRTR which includes figures showing the wetlands within the project area.

7.3.2 Streams

The Best Usage Classification for the Browns Creek and unnamed streams on the project is “C”. Details for the jurisdictional streams within the project area are provided in the CE and NRTR.

There are no waters within the project vicinity classified as High Quality Waters (HQW). Neither Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds), nor Outstanding Resource Waters (ORW) occur within 1.0 mile of the project area. Streams within the R-4903 project area are not designated as North Carolina Natural or Scenic Rivers, or as National Wild and Scenic Rivers. Additionally, these waters are not listed on the 2012 303(d) list of impaired waters due to sedimentation or turbidity.

7.4 Impacts to Jurisdictional Resources

Impacts to jurisdictional wetlands and surface waters for R-4903 are summarized below in Tables 1 and 2 respectively.

Table 1. R-4903 Wetlands Impacts

Permit Drawing Site Number (2013)	Map Label in CE (2010)	Type	Permanent Impacts (ac.)	Temporary Impacts (ac.)	Mitigation Required* (2:1)
1	WH	Non-riparian	0.11	0.04	Yes
3	WJ	Riparian	0.32	<0.01	Yes
6	WB	Riparian	0.05	0.01	Yes
7	WF	Non-riparian	0.08	0.02	Yes
9	WP	Riparian	0.03	0.02	Yes
10	WI	Non-riparian	0	0.01	No
12	WA	Riparian	0.01	0.01	Yes
Total Riparian:			0.41	0.5	
Total Non-riparian:			0.19	0.6	
Grand Total:			0.60	0.11	

* For permanent jurisdictional wetland impacts

Table 2. R-4903 Surface Water Impacts

Permit Drawing Site Number	Waterbody Labeled in CE	Permanent (ft)	Permanent (ac.)	Temporary (ft)	Temporary (ac.)	USACE Mitigation Required (2:1)
3	SA5	279	0.02			Yes
3*	SA5	12	<0.01	10	<0.01	No
4	SA2	709	0.06	10	<0.01	Yes
4*	SA2	12	<0.01	20	<0.01	No
5	SA2	10	<0.01	8	<0.01	Yes
5*	SA2	10	<0.01	5	<0.01	No
8	SA7	7	<0.01			Yes
8*	SA7	10	<0.01	10	<0.01	No
11*	SA1	5	<0.01	15		No
Total:		1,054	0.08**	68	<0.01	

*Denotes bank stabilization; when necessary, mitigation required by the USACE exceeds the amount required by NCDWR

Permanent Impacts: Proposed permanent impacts for R-4903 include fill, excavation, and mechanized clearing in 0.41 acres of riparian wetlands, and 0.19 acres of non-riparian wetlands. Proposed permanent impacts to jurisdictional streams are 1,054 linear feet. Bank stabilization totals 49 linear feet.

Temporary Impacts: There will be 53 linear feet of temporary impacts to jurisdictional streams due to culvert installations. Also, there will be 0.03 acre of temporary fill in wetlands in the hand clearing areas for the installation of erosion control measures, including temporary silt fence and/or special sediment control fence.

Hand-Clearing: There will be 0.11 acres of hand-clearing in jurisdictional wetlands due to project construction.

Utility Impacts: There are no jurisdictional impacts resulting from utility relocation on this project.

8.0 Protected Species

The United States Fish and Wildlife Service (USFWS) list 7 federally protected species for Bladen County as of the May 6, 2014 listing (Table 3).

Table 3. Federally Protected Species in Bladen County

Common Name	Scientific Name	Habitat	Federal Status	Biological Conclusion
American alligator	<i>Alligator mississippiensis</i>	No	T (S/A)	N/A
Red-cockaded woodpecker	<i>Picoides borealis</i>	No	E	No Effect
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	No	E	No Effect
American chaffseed*	<i>Schwalbea americana</i>	No	E	No Effect
Pondberry*	<i>Lindera melissifolia</i>	Yes	E	No Effect
Rough-leaved loosestrife	<i>Lysimachia asperulaefolia</i>	No	E	No Effect
Atlantic sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	No	E	No Effect

Notes: E Endangered
T S/A Threatened (Similarity of Appearance)
*Historic record

A US Fish and Wildlife Service proposal for listing the northern long-eared bat (*Myotis septentrionalis*) as an Endangered species was published in the Federal Register in October 2013. The listing may become effective as soon as October 2014. Furthermore, this species is included in USFWS's current list of protected species for Bladen County. NCDOT is working closely with the USFWS to understand how this proposed listing may impact NCDOT projects. NCDOT will continue to coordinate appropriately with USFWS to determine if this project will incur potential effects to the Northern long-eared bat, and how to address these potential effects, if necessary.

8.1 Bald and Golden Eagle Protection Act (BGPA)

In the July 9, 2007 Federal Register (72:37346-37372), the bald eagle was declared recovered, and removed (de-listed) from the Federal List of Threatened and Endangered wildlife. This delisting took effect August 8, 2007. After delisting, the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d) became the primary law protecting bald eagles. Nesting and foraging habitat are not present in the project area, nor have bald eagle nests or individuals have been seen within a 660-foot radius of the project area.

8.2 *Moratoria*

There is no in-stream work moratorium required for R-4903 for anadromous fish species.

9.0 *Cultural Resources*

All properties greater than 50 years of age located in the APE have been considered, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project. Therefore, the project will not impact any properties listed on or eligible for the National Register of Historic Places.

According to a letter from the State Historic Preservation Office dated March 28, 2006 (refer to Appendix A), there are no known archaeological sites within the proposed project area. Based on the HPO's knowledge of the area, it is unlikely that any archaeological resources that may be eligible for listing on the National Register of Historic Places will be affected by the project. Their recommendation was that no archaeological investigation be conducted in connection with this project. Therefore, no archaeological investigations have been conducted for the project and it is anticipated the project will not impact any archaeological sites listed on or eligible for the National Register of Historic Places.

10.0 *FEMA Compliance*

The project has been coordinated with appropriate state and local officials and the Federal Emergency Management Agency (FEMA) to assure compliance with FEMA, state, and local floodway regulations.

11.0 *Mitigation Options*

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and NEPA compliance stages; minimization measures were incorporated as part of the project design.

11.1 *Avoidance and Minimization*

All jurisdictional features were delineated, field verified and surveyed within the corridor for R-4903. Using these surveyed features, preliminary designs were adjusted to avoid and/or minimize impacts to jurisdictional areas. NCDOT employs many strategies to avoid and minimize impacts to jurisdictional areas in all of its designs. Many of these strategies have been incorporated into BMP documents that have been reviewed and approved by the resource agencies and which will be followed throughout construction. All wetland areas not affected by the project will be protected from unnecessary encroachment. Individual avoidance and minimization items are as follows:

- No staging of construction equipment or storage of construction supplies will be allowed in wetlands or near surface waters.
- The project was designed to avoid or minimize disturbance to aquatic life movements.
- NCDOT and its contractors will not excavate, fill, or perform land clearing activities within Waters of the U.S. or any areas under the jurisdiction of the USACE, except as authorized by the USACE. To ensure that all borrow and waste activities occur on high ground, except as authorized by permit, the NCDOT shall require its contractors to identify all areas to be used to borrow material, or to dispose of dredged, fill or waste material. Documentation of the location and characteristics of all borrow and disposal sites associated with the project will be available to the USACE on request.
- Grass Swale treatments have been incorporated in areas where flat slopes can be maintained.
- Proposed culverts will be buried 1 ft. to provide for fish passage.
- Cross pipes in jurisdictional streams will be buried 1ft. for all pipes.
- All wetlands will receive diffused flow.
- Special Sediment Control Fence will be used were applicable.
- The use of hand clearing rather than mechanized clearing where possible.
- Bank stabilization at outlets of culverts will not impact the stream bed.
- Considering environmental, hydraulic, and roadway perspectives, 3:1 slopes are proposed within the wetlands where most practical.

11.2 Compensation

The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The unavoidable impacts to Waters of the U.S. will be offset by compensatory mitigation provided by Privateer Farms Restoration Site.

12.0 Indirect and Cumulative Effects

Project construction is expected to result in minimal indirect and cumulative growth-related effects. It is expected that growth will occur in the area irrespective of the proposed project. Development activity is already occurring in the vicinity due to Elizabethtown's planning efforts to direct new growth along the NC 87 Bypass. Land is available, access is good and there is a high level of visibility at the existing intersections. In addition, the intersection's proximity to downtown Elizabethtown and the adjacent Bladen County Industrial Park is a factor in the ongoing modest rate of development.

Due to its proximity to Elizabethtown, land availability and high level of visibility, development is anticipated to continue in the along the NC 87 Bypass. This growth would likely occur with or without the project. Consequently, STIP Project R-4903 will not markedly contribute further to the actions and potential effects cited above. Direct environmental will be evaluated and addressed by programmatic agreements with the permitting agencies. Additionally, based on the analysis contained within this report, STIP Project R-4903 will not likely result in cumulative effects on notable features of the human and/or natural environment.

13.0 Essential Fish Habitat

The project will not impact any essential fish habitat afforded protection under the Magnuson-Stevens Act of 1996 (16 U.S.C 1801 et seq.).

14.0 Regulatory Approvals

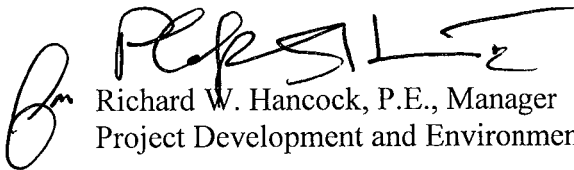
Section 404: Application is hereby made for a USACE Individual 404 Permit as required for the above-described activities.

Section 401: We are requesting a Section 401 Water Quality Certification from NCDWR. We are providing this application to the NCDWR, for their approval. Authorization to debit the \$570 Permit Application Fee from WBS Element 34548.1.1 is hereby given.

A copy of this permit application and its distribution list will be posted on the NCDOT website at: <https://connect.ncdot.gov/resources/Environmental/>

If you have any questions or need additional information, please contact John Merritt at 919-707-6140 or jsmerritt@ncdot.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Hancock', is written over the typed name.

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

cc:

NCDOT Permit Application Standard Distribution List.

U.S. ARMY CORPS OF ENGINEERS
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
33 CFR 325. The proponent agency is CECW-CO-R.

Form Approved -
OMB No. 0710-0003
Expires: 31-AUGUST-2013

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
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(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME First - Richard Middle - W. Last - Hancock, P.E. Company - NCDOT - PDEA E-mail Address -		8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) First - Middle - Last - Company - E-mail Address -	
6. APPLICANT'S ADDRESS: Address- 1598 Mail Service Center City - Raleigh State - NC Zip - 27699 Country - USA		9. AGENT'S ADDRESS: Address- City - State - Zip - Country -	
7. APPLICANT'S PHONE NOS. w/AREA CODE a. Residence b. Business c. Fax 919-707-6140		10. AGENTS PHONE NOS. w/AREA CODE a. Residence b. Business c. Fax	

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions) R-4903			
13. NAME OF WATERBODY, IF KNOWN (if applicable)		14. PROJECT STREET ADDRESS (if applicable) Address NC 87 Bypass/US 70 intersection	
15. LOCATION OF PROJECT Latitude: °N 36.603727 Longitude: °W -78.617447		City - Elizabethtown State- NC Zip-	
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID Municipality Section - Township - Range -			

17. DIRECTIONS TO THE SITE

See attached cover letter

From Elizabeth Town, travel south on US 701 for approximately 11/2 miles to the project site at the intersection of NC 87 Bypass and US 701.

18. Nature of Activity (Description of project, include all features)

The project involves construction of an interchange at the intersection of US 701 and NC 87 Bypass.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

This project's purpose is to improve safety and capacity in the study area. See attached cover letter for more information.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Roadway fill due to road construction.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
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See attached cover letter & permit drawings

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres See attached cover letter & permit drawings

or

Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

See attached cover letter

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- See list provided via email

City -

State -

Zip -

b. Address-

City -

State -

Zip -

c. Address-

City -

State -

Zip -

d. Address-

City -

State -

Zip -

e. Address-

City -

State -

Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

 05/16/2014
SIGNATURE OF APPLICANT DATE

SIGNATURE OF AGENT DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

Privateer
WM 026-005

The Privateer Farms Restoration Site (Site) is located in Bladen and Cumberland Counties, North Carolina, approximately fourteen miles southeast of Fayetteville. Prior to restoration, land use on the Site over the past 20 years had been primarily row crop agriculture. Stream and riparian functions on the Site had been severely impacted as a result of agricultural conversion. Harrison Creek had historically meandered through the Site, but was channelized in the early 1980s to reduce flooding and provide a drainage outlet for the extensive network of ditches excavated across the Site. Subsequent to channelization, Harrison Creek existed as a large canal running straight through the Site.

Restoration activities for the Site involved moving the stream channel back to its historic location and elevation, and filling drainage ditches to raise the local water table and restore wetland and stream hydrology. The plan also included scarification of the fields and breaking of the local plow pan to increase surface water storage and provide a range of hydrologic conditions suitable for a variety of native wetland plant species. The restoration plan for the Site predicted the restoration of 405 acres of riverine wetlands, 25 acres of riverine wetland enhancement, and 33,985 linear feet (LF) of stream restoration. Following construction, the as-built data indicated that the total area of restored riverine wetlands was 402.5 acres (excluding 2.5 acres for road accesses), with 25 acres of enhanced riverine wetlands, and 34,005 LF of restored stream channel.

As of fall 2009, the Site has met all prescribed hydrologic and vegetative monitoring criteria and been recommended for closeout.

According to the May 2014 permit application; there are 0.60 acres of wetland impacts and 1,054 linear feet of stream impacts associated to T.I.P. R-4903. To offset the 0.60 acres of unavoidable wetland impacts, the Privateer Farms Mitigation Site will be debited at a 3:1 ratio, totaling 1.8 acres of wetland debits. To offset the 1,054 linear feet of stream impacts, the Privateer Farms Mitigation Site will be debited at a 1.5:1 ratio, totaling 1,581 linear feet of stream. These debits are reflected in the ledger below.

HUC	TYPE	Starting Amount	Additional Notes
3030004	Stream Restoration	25676	**Out of service area ratios: 1.5:1 ratio for stream impacts 3:1 for wetland impacts
3030004	Riparian Wetland Restoration	185.58	**Out of service area ratios: 1.5:1 ratio for stream impacts 3:1 for wetland impacts

Privateer
WM 026-005

Mitigation Type	DEBIT AMOUNT (Ln.Ft.)	Status	Site TIP	Action ID#	NOTES
Stream Restoration	19759.5	Close Out	U-2519	2008-01413	Debit amount includes all modification request including U-2519CB(4/29/14)
Stream Restoration	615	Close Out	U-2519 Mod	2008-01413	
Stream Restoration	1,581	Close Out	R-4903		Out of HUC Ratio (1.5:1)

Mitigation Type	DEBIT AMOUNT (ac)	Status	Site TIP	Action ID#	NOTES
Riparian Wetland Restoration	153.78	Close Out	U-2519	2008-01413	Debit amount includes all modification request including U-2519CB(4/29/14)
Riparian Wetland Restoration	1.29	Close Out	U-2519 Mod	2008-01413	
Riparian Wetland Restoration	7.38	Close Out	R-2303A	1992-03237	
Riparian Wetland Restoration	1.8	Close Out	R-4903		Out of HUC Ratio (3:1) The .19 acres of Non Riparian impacts were debited from the riparian credits totaling 0.60 acres

Subject: Minutes from Interagency Hydraulic Design 4B Review Meeting
on November 17, 2011 for R-4903 in Bladen County

Team Members:

Ronnie Smith- USACE	(present)
Gary Jordan- USFWS	(present)
Travis Wilson-NCWRC	(absent)
Mason Herndon- NCDWQ	(present)
Chris Militscher-EPA	(present)
Ron Lucas-FHWA	(present)
Chris Rivenbark-NCDOT-NEU	(present)
Jay McInnis -PDEA	(present)
Tracey Pittman-DIV 6 Constr	(present)

Participants:

Galen Cail, NCDOT Hydraulics
Bill Elam, NCDOT Hydraulics
Anthony West, NCDOT Roadway
Barry Smith, NCDOT Roadway
John Merritt, NCDOT NEU
Leilani Paugh, NCDOT NEU
Linda Fitzpatrick, NCDOT NEU
Amy Simes, DENR
Mark Staley, Roadside Environmental
Jim Rerko, NCDOT- DEO
Kim Gillespie, NCDOT PDEA
Mack Bailey, NCDOT Structures

GENERAL NOTES:

For ditches draining to wetlands will investigate use of preformed scour holes or rip rap ditch linings to maintain non-erosive velocities at wetland boundary.

Site 6:

Proposing excavation in Quad B and “waste” in Quad D.

Site 7:

Investigate spanning stream to eliminate bents in channel. May require a 3 span bridge.

Site 10:

It was questioned, why not steepen fill slope to avoid covering existing ditch –RMPB-RT. This was investigated but rip rap would still be required in ditch due to steep grade/topo.

Leilani presented proposed project mitigation. The offsite mitigation is from Privateer Farms.

Meeting adjourned.

Subject: Minutes from Interagency Permit 4C Review Meeting
on November 21, 2013 for R-4903 in Bladen County

Team Members:

Ronnie Smith- USACE	(by phone)
Liz Haire- USACE	(by phone)
Gary Jordan- USFWS	(absent)
Travis Wilson-NCWRC	(present)
Mason Herndon- NCDWQ	(present)
Chris Militscher-EPA	(absent)
Ron Lucas-FHWA	(present)
Chris Rivenbark-NCDOT-NES	(present)
Jay McInnis -PDEA	(present)
Tracey Pittman-DIV 6 Constr	(present)

Participants:

Galen Cail, NCDOT Hydraulics
Bill Elam, NCDOT Hydraulics
Gary Lovering, NCDOT Roadway
Susan Lancaster, NCDOT Roadway
Travis Potts, NCDOT Roadway
John Merritt, NCDOT NES
Byron Moore, NCDOT NES
Joe Bailey, NCDOT DIV 6
Jim Rerko, NCDOT- DIV 6 DEO
Andre Davenport, NCDOT Structures
Mark Staley, Roadside Environmental

GENERAL NOTES:

- Check matchlines throughout permit. Some full size sheets do not show matchline.
- Provide more detail in SMP including whether deck drains are proposed for bridge. If deck drains proposed provide stationing.
- Provide 2 yr and 10 yr discharges and velocities at outfalls at wetlands.
- Make sure throughout project any rip rap along jurisdictional streams is labeled as "Banks Only", if applicable.

Site 2:

Can fill impacts be avoided at this location? It appears that the slopes can tie into the existing slope with slight modification. Existing slope appears to be at or near 4:1.
-Roadway will investigate steepening slope enough to avoid impact. Also, there is proposed grading in this gore area. Grading plan will be coordinated between Hydraulics and Roadway. Avoid wetland impacts with proposed grading to extent practical.

Site 3:

Impacts at the outlet of the proposed culvert show rip rap in the base of the stream.
-This is not shown correctly and will be updated by Hydraulics. Should be rip rap on banks only and will be shown and labeled correctly on updated plans/permit.

Site 5:

Site is located outside of original jurisdictional determination. The USACE and NES have coordinated review.

Site 7:

Slopes thru wetland are flatter than 3:1. Investigate steepening slopes to 3:1 to minimize wetland impacts. *Roadway to investigate using 3:1 and possibly extending guardrail.*

Provide outlet velocity of proposed 18" pipe in wetland. *Hydraulics to provide info on permit.*

Site 11:

Check length of permanent impact and update summary as needed.
Hydraulics to review info on permit.

Site 12:

USACE asked whether mitigation credit will be requested at bridge re-location where existing road fill is proposed to be removed. This area is close to an existing wetland. Since the amount of potential wetland mitigation is small (0.09 ac) and the area is located in the vicinity of overhead power lines/easement, the department does not anticipate requesting credit at this location.

Meeting adjourned.



North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR LINEAR ROADWAY PROJECTS



(Version 1.2; Released July 2012)

Project/TIP No.: R-4903 (40226.1.1)

County(ies): Bladen

Page 1 of 1

General Project Information

Project No.:	R-4903 (40226.1.1)	Project Type:	Roadway Relocation	Date:	9/16/2013
NCDOT Contact:	Bill Elam	Contractor / Designer:			
Address:	1020 Birch Ridge Road Raleigh, NC 27610	Address:			
	Phone: 919-707-6718		Phone:		
	Email: belam@ncdot.gov		Email:		
City/Town:	Elizabethtown	County(ies):	Bladen		
River Basin(s):	Cape Fear	CAMA County?	No		
Primary Receiving Water:	Browns Creek	NCDWQ Stream Index No.:	18-45		
NCDWQ Surface Water Classification for Primary Receiving Water	Primary:	Class C			
	Supplemental:				
Other Stream Classification:					
303(d) Impairments:	None				
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	1.108 miles	Surrounding Land Use:	Rural farmland Some urban development
	Proposed Project		Existing Site
Project Built-Up Area (ac.)	18.52 ac.	10.16 ac.	
Typical Cross Section Description:	NC 87 Bypass will have two 12' lanes with a 4' paved shoulder. US 701 will have three 12' lanes or two 12' lanes with a 17.5 raised median and 4' paved shoulders.	NC 87 Bypass is a four lane facility with 12' lanes and 56' wide median. US 701 has two 12' lanes.	
Average Daily Traffic (veh/hr/day):	Design/Future: 2014/2034 11700/17600	Existing:	9400
General Project Narrative:	This project involves making an at grade interchange between NC 87 Bypass and US 701 and interchange. The project also replaces an existing 47' bridge with a three span 105' prestressed girder bridge over Browns Creek. Grass shoulders and the grass median will provide infiltration. The side slopes of the ditches are 4:1 or flatter for most of the ditches. Replacing the existing bridge with a larger bridge will result in lower velocities. Deck drains will be utilized at Sta. 66+64 to 66+90-L-rt and Sta. 67+46 to 67+69-L-rt. Deck drains will be 6" scuppers placed at 12' centers.		

References

09/08/99

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols
See Sheets 1-C and 1-D for Survey Control Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

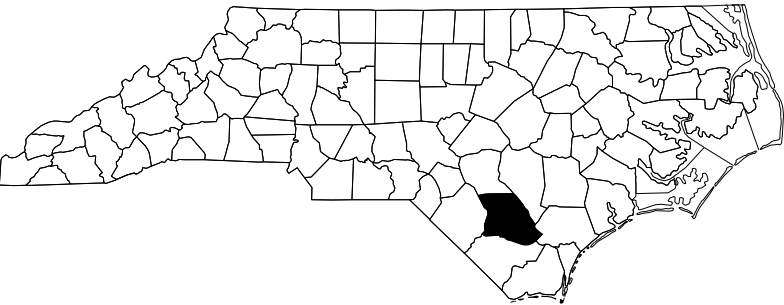
BLADEN COUNTY

LOCATION: NC 87 AT US 701 INTERSECTION

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

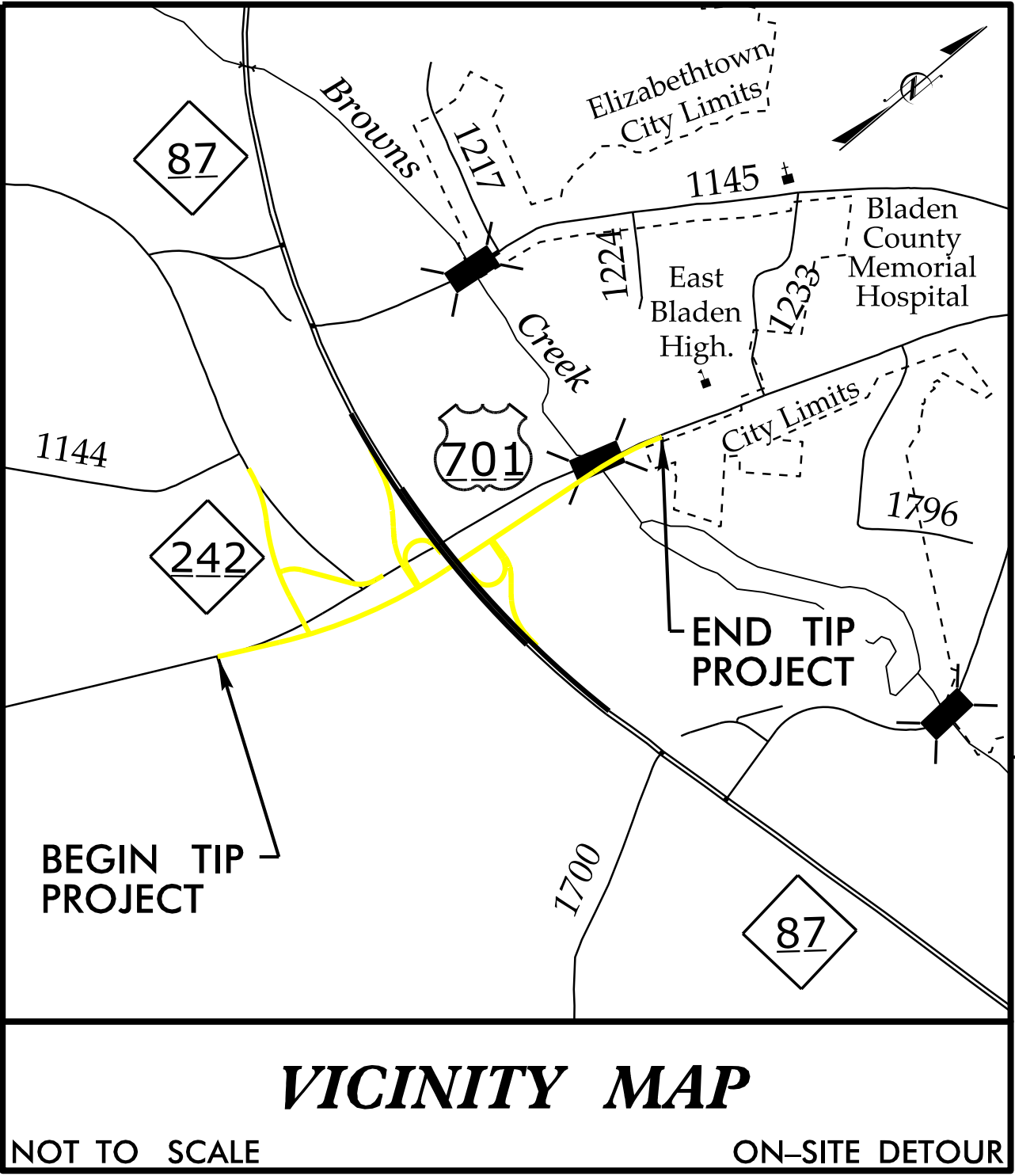
WETLAND AND SURFACE WATER IMPACTS PERMIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4903	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40226.1.1	NHF-0087(15)	P.E.	
40226.2.FS1	NHF-0087(15)	RIGHT OF WAY	
40226.2.UFS1	NHF-0087(15)	UTILITIES	

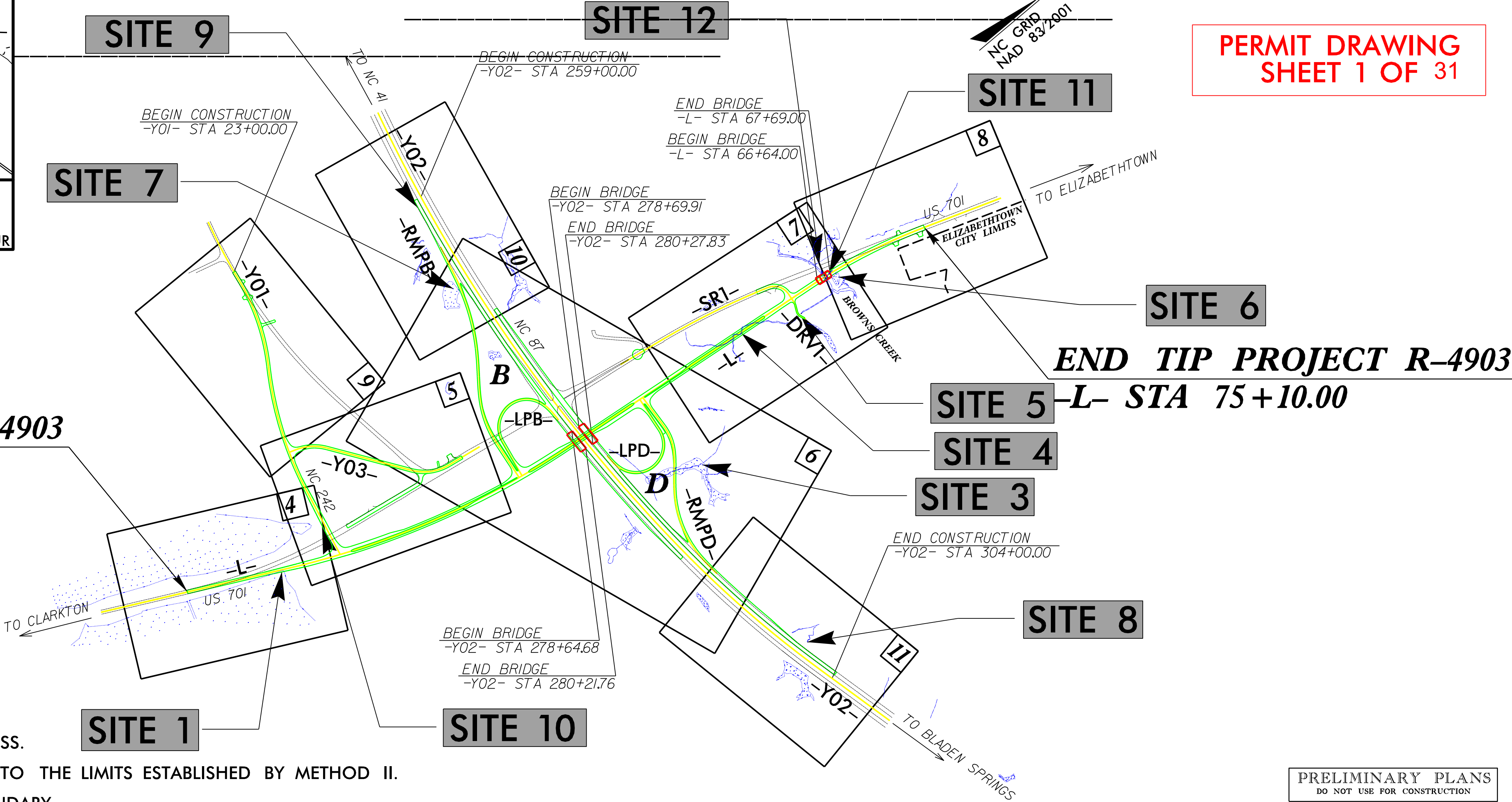


PERMIT DRAWING
SHEET 1 OF 31

TIP PROJECT: R-4903



BEGIN TIP PROJECT R-4903
-L- STA 16+60.00

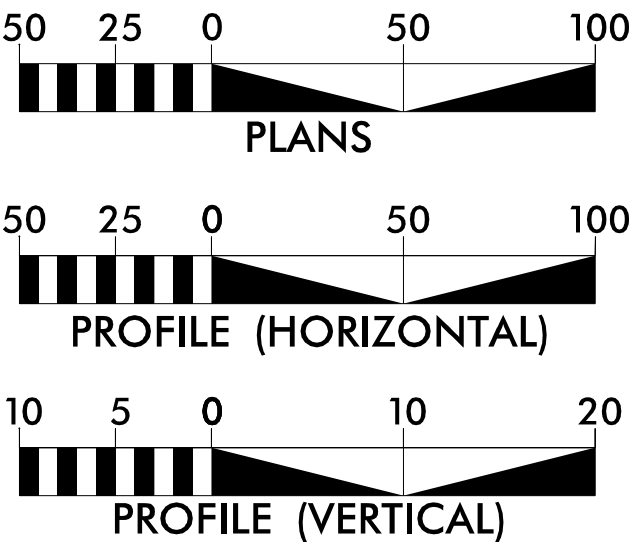


- NOTES:
1. A PORTION OF THIS PROJECT IS CONTROLLED ACCESS.
 2. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
 3. THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARY.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:

GRAPHIC SCALES



DESIGN DATA

ADT 2014 = 11,700
ADT 2034 = 17,600
K = 11 %
D = 60 %
T = 14 % *
V = 50 MPH
* TTST = 9% DUAL 5%
FUNC CLASS =
RURAL MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R-4903 = 1.088 MILES
LENGTH OF STRUCTURE TIP PROJECT R-4903 = 0.020 MILES
TOTAL LENGTH OF TIP PROJECT R-4903 = 1.108 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 30, 2013

LETTING DATE:
DECEMBER 16, 2014

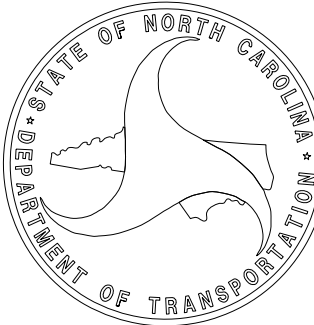
GARY LOVERING, PE
PROJECT ENGINEER

SUSAN C. LANCASTER, PE
PROJECT DESIGN ENGINEER

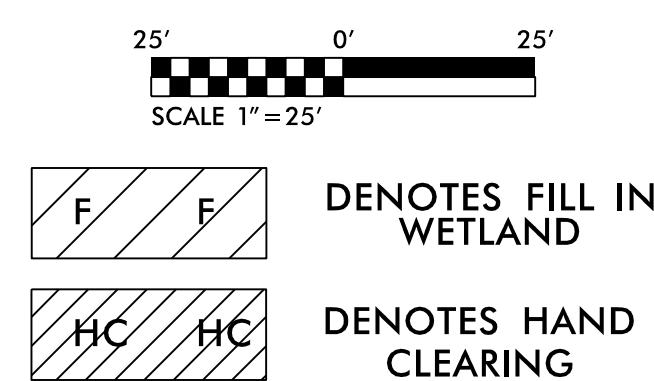
HYDRAULICS ENGINEER

SIGNATURE: _____
ROADWAY DESIGN ENGINEER

SIGNATURE: _____
P.E.



11/26/2013
amkeeter
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PERMIT DRAWING
SHEET 4 OF 31

CLASS 1
10 Tons
23 S
Geo

STA. 19+50 To
STA. 24+50 -L- Lt
Grade Out Existing Roadway
(see cross-sections)

CLASS B RIP RAP
3 Tons Rip Rap
10 Sq. Yds
Geotextile

SEE DETAIL D

CLASS B RIP RAIL
5 Tons
14 sq. yds
Geotextile

25' 0' 25' 50' 75'

SCALE 1" = 25'

A rectangular block with diagonal lines running from the top-left to the bottom-right. The letter 'F' is repeated twice within the block.

DENOTES FILL IN
WETLAND

DENOTES HAND
CLEARING

SITE 1

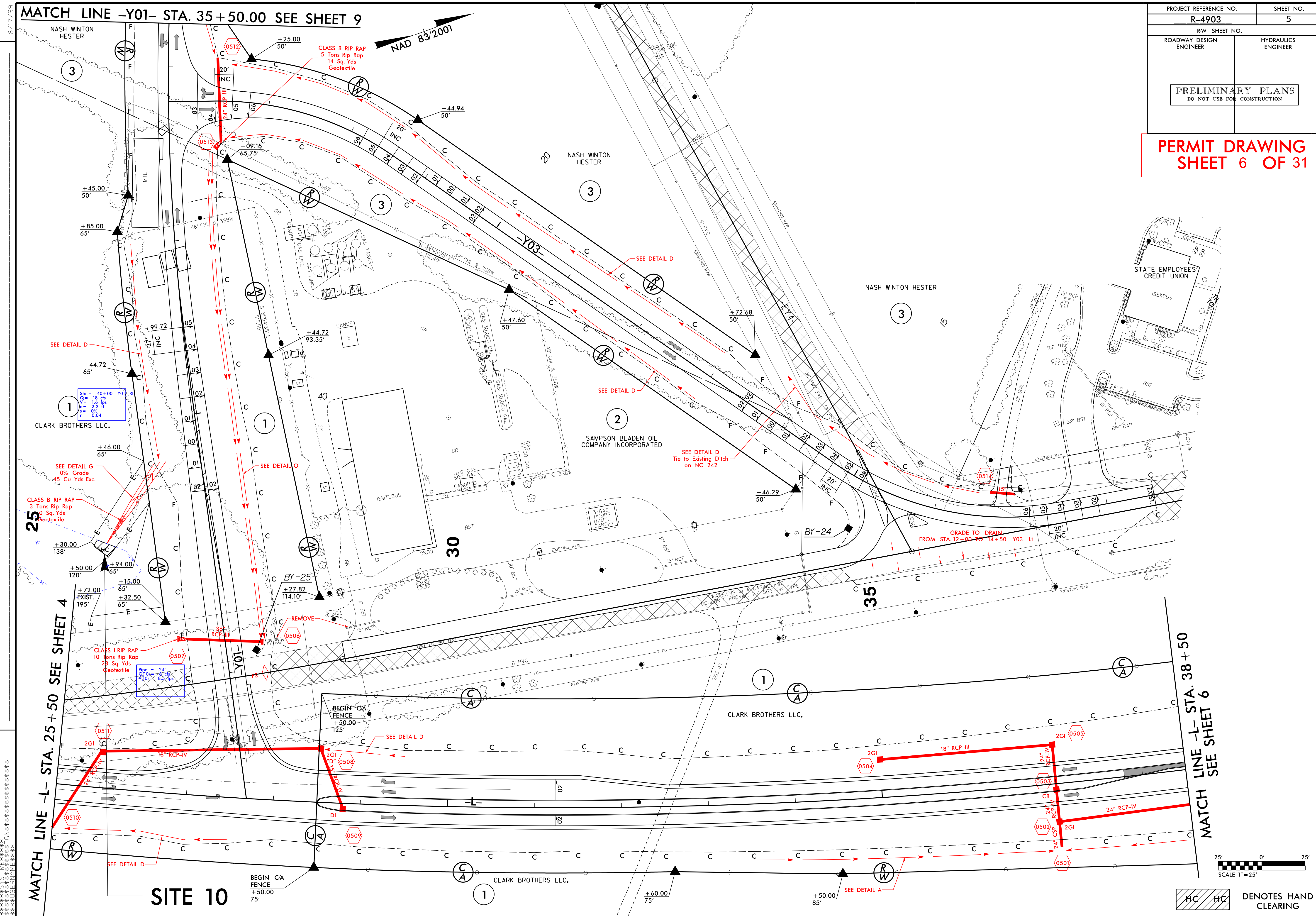
NAD 83/2001

02

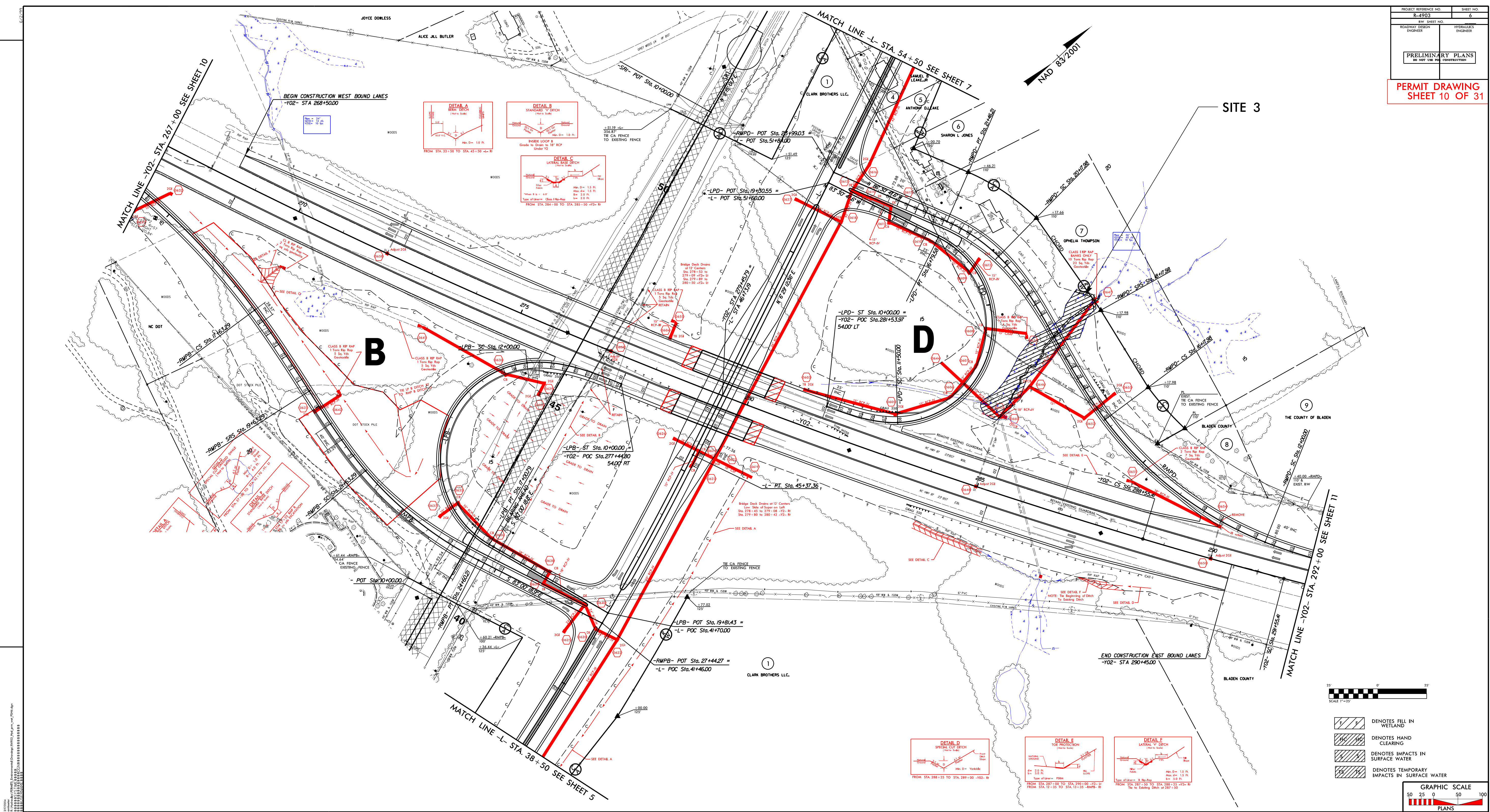
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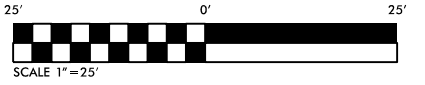
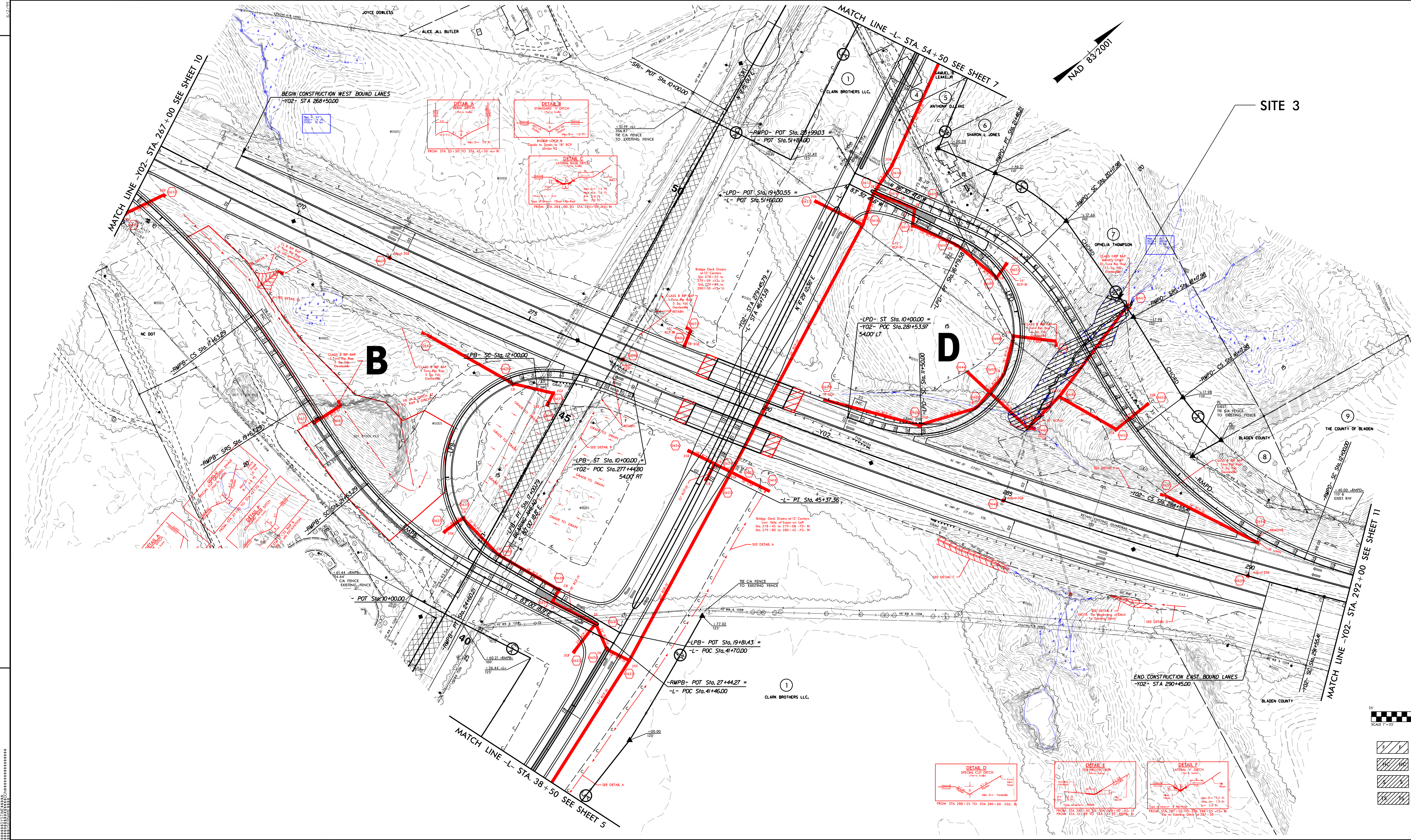
REVISIONS

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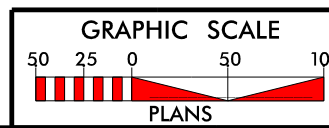








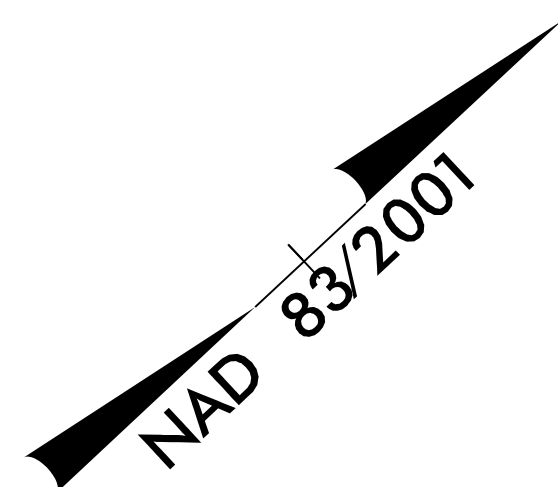
- DENOTES FILL IN WETLAND
- DENOTES HAND CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



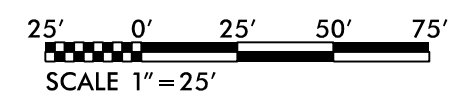
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R4903	6A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PERMIT DRAWING
SHEET 12 OF 31



SITE 3

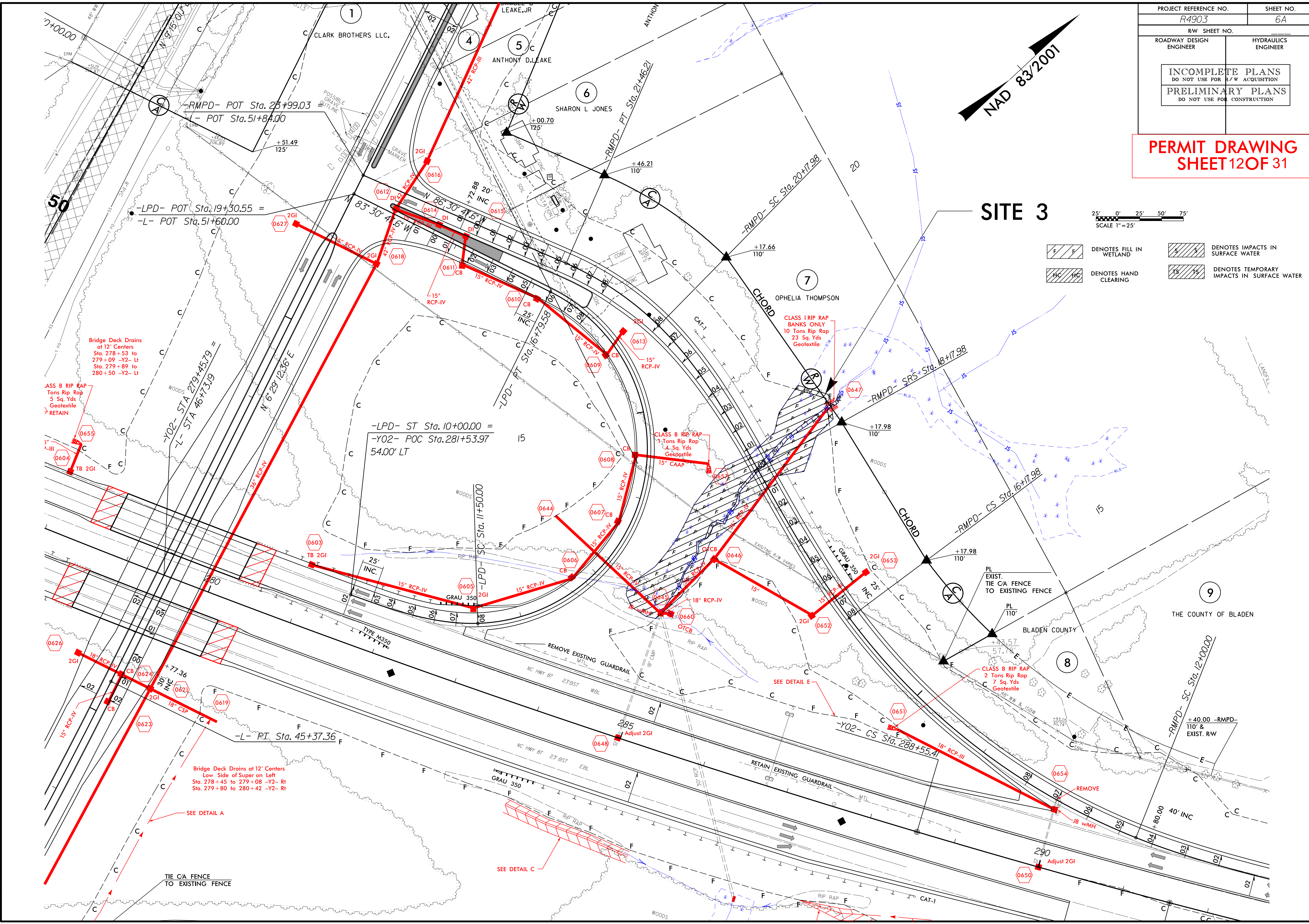


- | | | | |
|--|-------------------------|--|--|
| | DENOTES FILL IN WETLAND | | DENOTES IMPACTS IN SURFACE WATER |
| | DENOTES HAND CLEARING | | DENOTES TEMPORARY IMPACTS IN SURFACE WATER |

REVISIONS

NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	08/17/99

2172014
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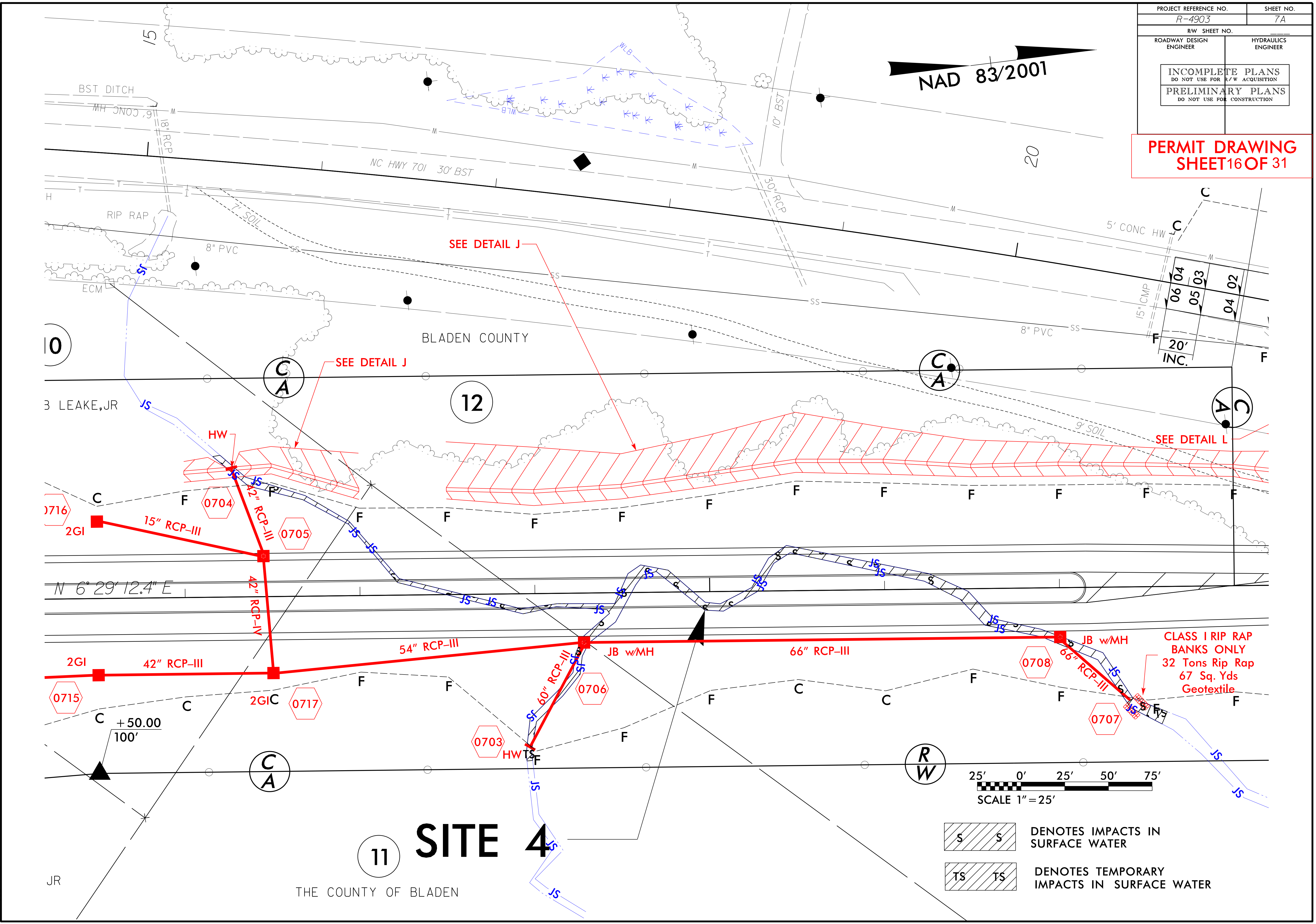


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\$\$\$\$\$ENV\$\$\$\$\$
\$\$\$\$\$WET\$\$\$\$\$
\$\$\$\$\$PSH7A\$\$\$\$\$

8/17/99

PROJECT REFERENCE NO. <i>R-4903</i>		SHEET NO. <i>7A</i>
RW SHEET NO. _____		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

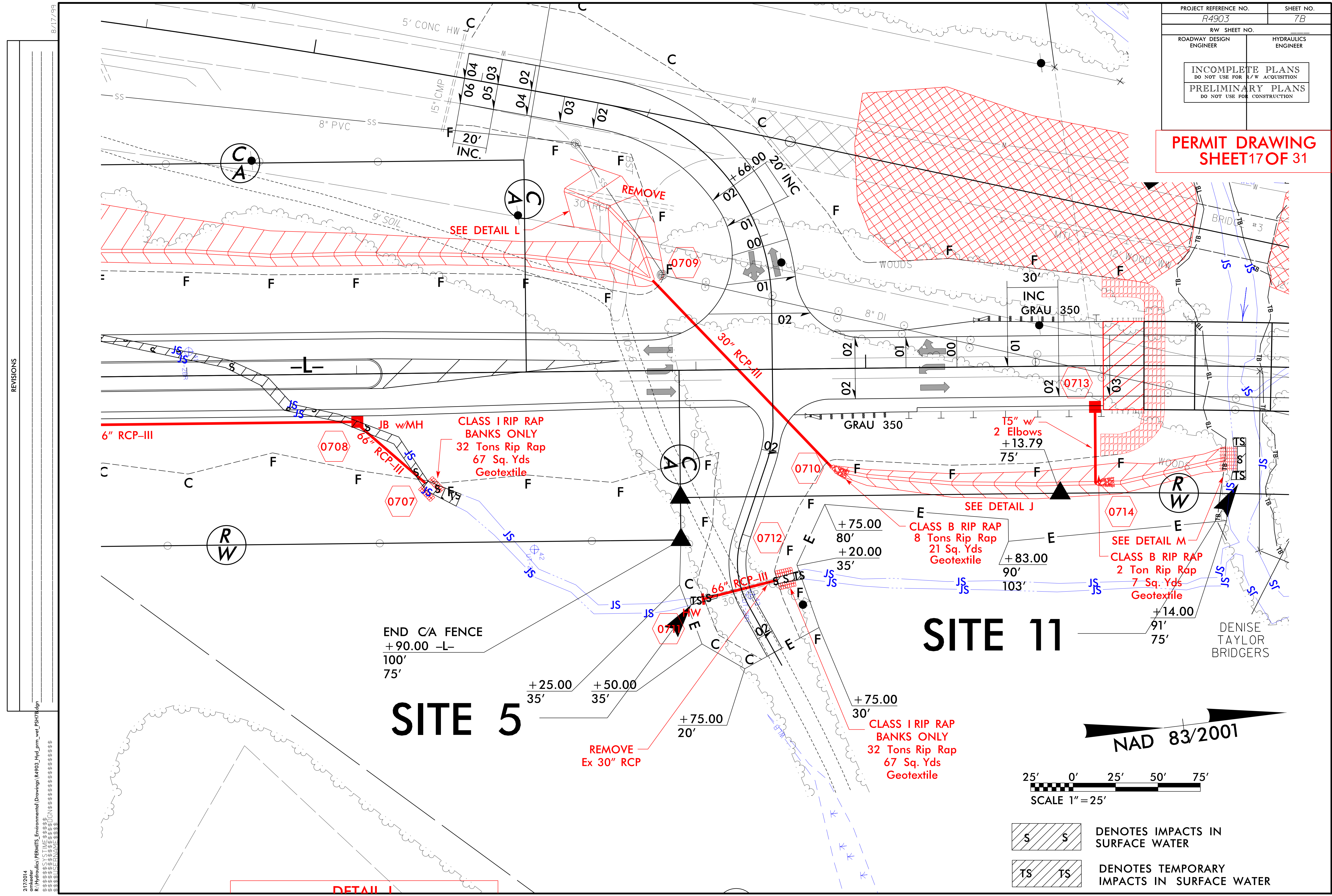
PERMIT DRAWING
SHEET 16 OF 31



11 SITE 4
THE COUNTY OF BLADEN

PROJECT REFERENCE NO.	SHEET NO.
R4903	7B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PERMIT DRAWING
SHEET 17 OF 31



8/17/99

REVISIONS

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SITE 12

PERMIT DRAWING
SHEET 18 OF 31

NAD 83/2001

50

WOODS

**GRADE EXISTING
ROADWAY
EMBANKMENT
TO EL. 60**

REMOVE EXIST.
BRIDGE

WOODS

GRADE TO DRAIN

GRADE 10

~~GRAU 350~~

24" RCP

SEE DETAIL J

- CLASS B RIP RAP
8 Tons Rip Rap
21 Sq. Yds
Geotextile

SEE DETAIL M —
— CLASS B RIP RAP
2 Ton Rip Rap
7 Sq. Yds
Geotextile

CLASS B RIP RAP
1 Tons Rip Rap
5 Sq. Yds
Geotextile

TIE TO ROADWAY
DITCH 25'

25' 0' 25' 50' 75'

SCALE 1" = 25'

SITE 6

DENOTES EXCAVATION
IN WETLAND

DENOTES HAND
CLEARING

SITE 11

DENISE
TAYLOR
BRIDGERS

SITE 6

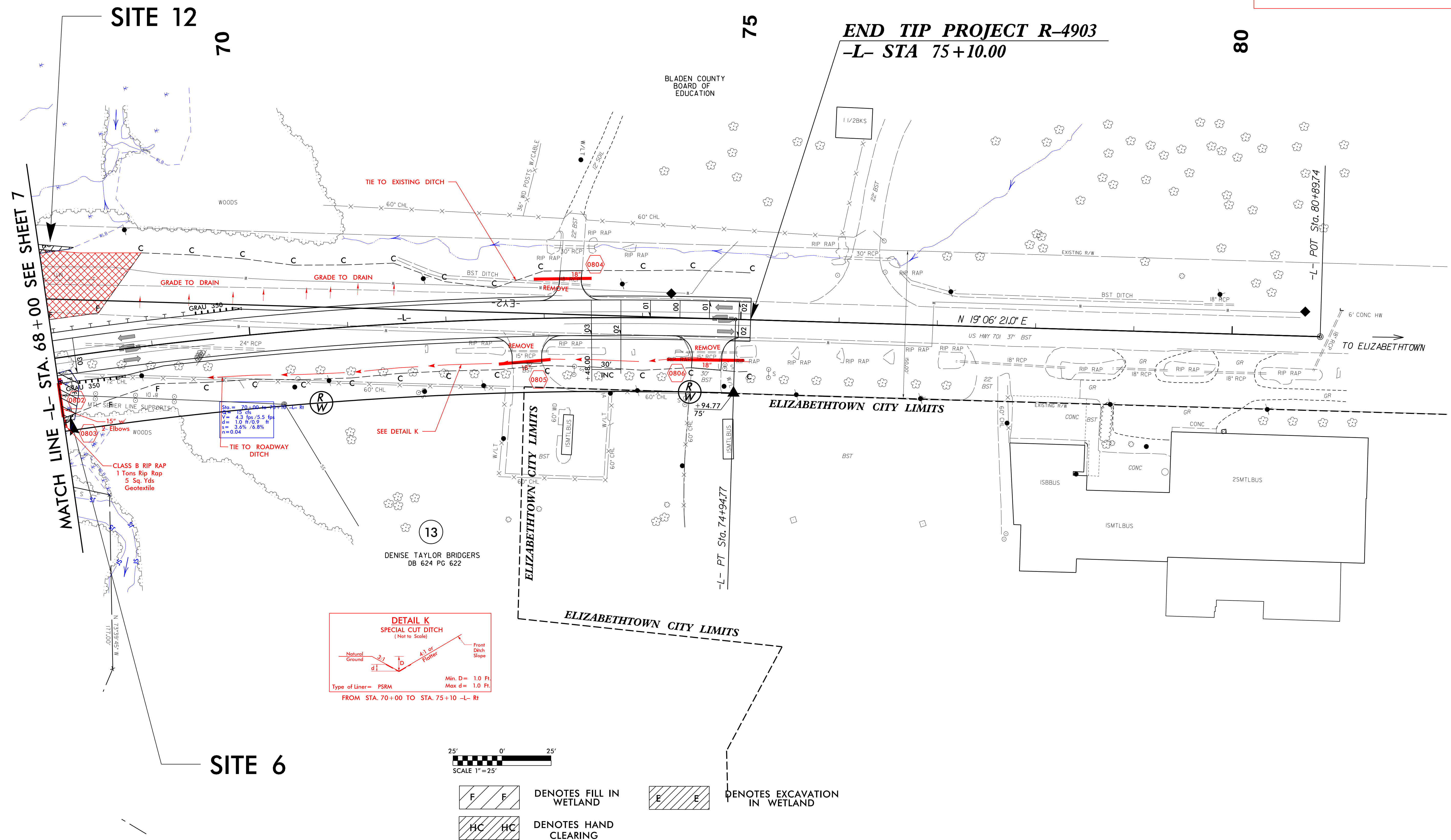
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PROJECT REFERENCE NO.	SHEET NO.
<u>R-4903</u>	<u>8</u>
RW SHEET NO. _____	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



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umkeeler
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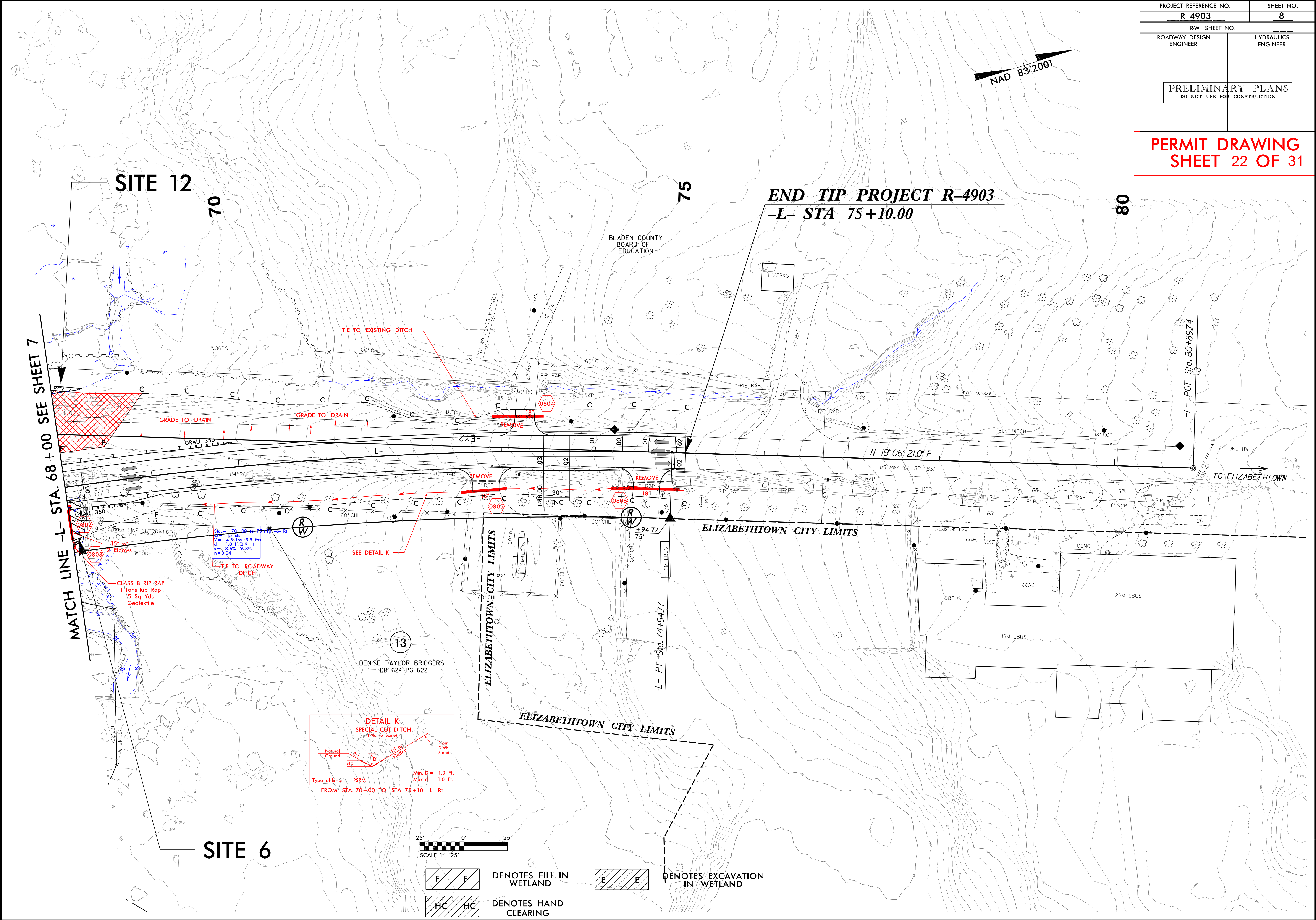
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-4903	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PERMIT DRAWING
SHEET 22 OF 31



DETAIL K
SPECIAL CUT DITCH
(Note to Sides)
Natural Ground 3:1 d
4:1 or flatter
Front Ditch Slope
Min. D = 1.0 Ft.
Max d = 1.0 Ft.
Type of Liner = PSRM
FROM STA. 70+00 TO STA. 75+10 -L- Rf

25' 0' 25'
SCALE 1"=25'

F F
HC HC

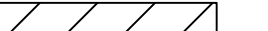
DENOTES FILL IN
WETLAND
DENOTES HAND
CLEARING

E E

DENOTES EXCAVATION
IN WETLAND



SITE 7



DETAIL N
LATERAL BASE DITCH
 (Not to Scale)

Natural Ground

3:1

3:1

1' ft.

1' ft.

Fill Slope

d

D

B

Filter Fabric

Min. D = 1.5 Ft.
 Max. d = 1.5 Ft.
 B = 4.0 Ft.
 B = 2.0 Ft.

*When B is < 6.0'

Type of Liner = B Rip-Rap

DETAIL C
LATERAL BAFFLE DITCH
(Not to Scale)

Natural Ground

3:1

d

3:1

D

B

b

1 1/2 Ft.

Filler Fabric

Fall Slope

"When B is < 6.0'

Type of Liner = Class I Rip-Rap

Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 2.0 Ft.
b= 2.0 Ft.

DETAIL E
TOE PROTECTION
 (Not to Scale)

NATURAL GROUND

2:1 OR FLATTER

FILL SLOPE

b

d

d = 2.0 Ft.
 b = 5.0 Ft.

Type of Liner = PSRM

FROM STA 12+25 TO STA 12+25.44MPR PA

2172014
 ankeeler
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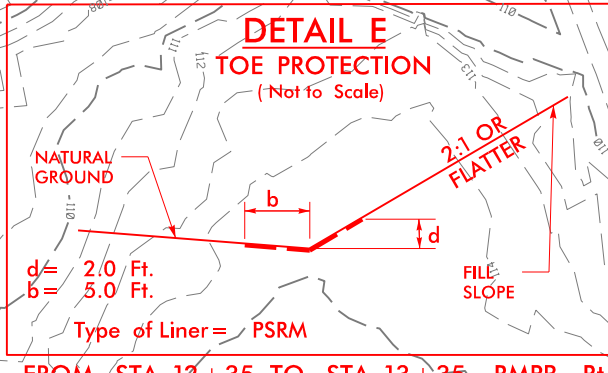
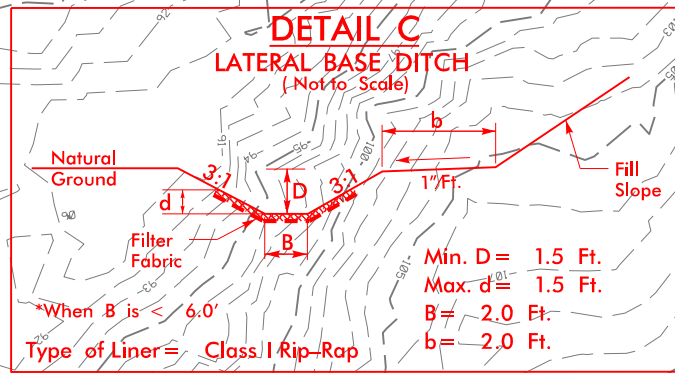
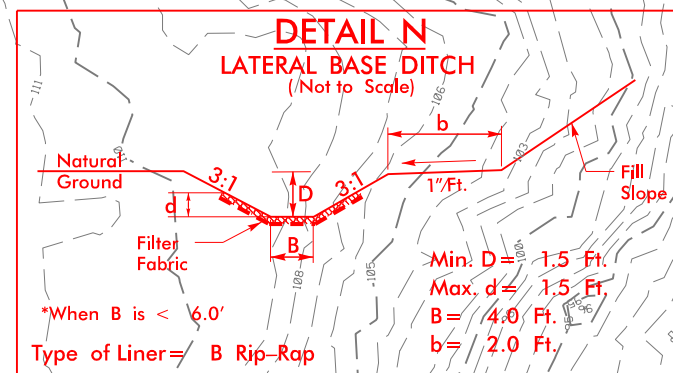
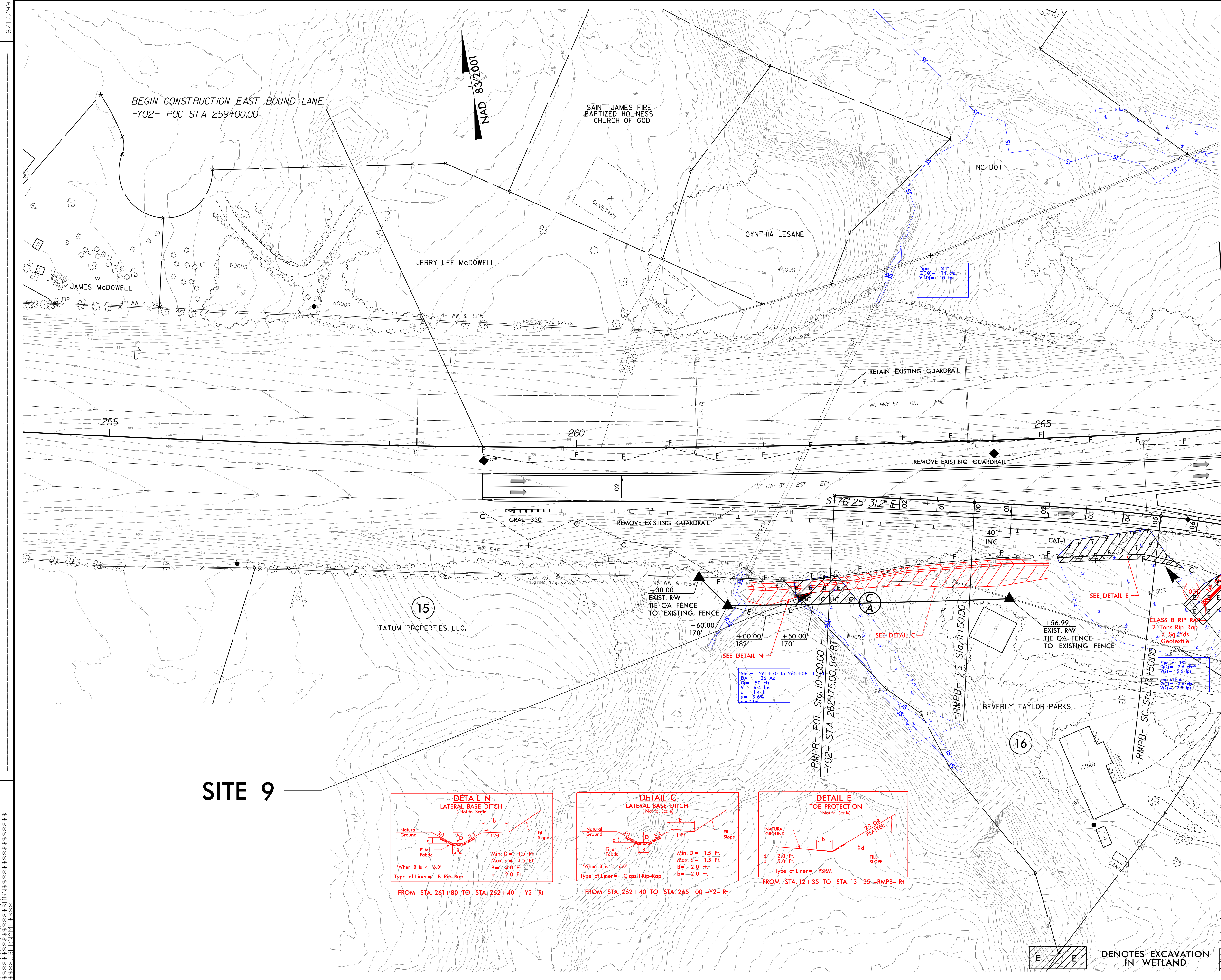
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-4903	10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PERMIT DRAWING
SHEET 24 OF 31



F	F	DENOTES FILL IN WETLAND
HC	HC	DENOTES HAND CLEARING



SITE 9

16

DENOTES FILL IN
WETLAND

DENOTES HAND
CLEARING

DENOTES EXCAVATION
IN WETLAND

25' 0' 2



SCALE 1" = 25'

REVISIONS

2/17/2014
amkeeter



PERMIT DRAWING
SHEET 27 OF 31

NAD 83/2007

~~$$\frac{-RMPD - ST Sta. 10+00.80}{-Y02 - STA 293+00.00, 54'LT}$$~~

Pipe = 24"
Q(10) = 12 cfs
v(10) = 5.8 fps

Pipe = 15"
Q(10) = 3 cfs
V(10) = 7 fps

CLASS B RIP RAP
8 Tons Rip Rap
21 Sq. Yds

EXISTING R/W VARIES
CLASS B RIP RAP
BANKS ONLY
2 Tons Rip Rap
7 Sq. Yds
Geotextile

EXISTING R/W VARIES
CLASS B RIP RAP
BANKS ONLY
2 Tons Rip Rap
7 Sq. Yds
Geotextile

THE COUNTY OF BLADEN

THE COUNTY OF BLADEN

BLADEN
COUNTY

WOODS

THE COUNTY OF BLADEN

WOODS

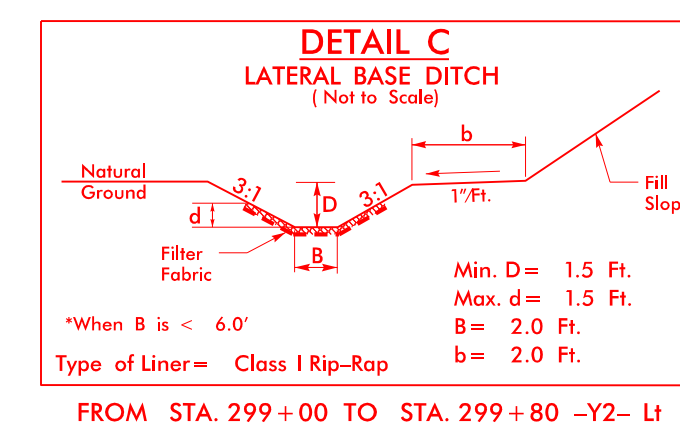
IP RAP

TO ELIZABETHTOWN

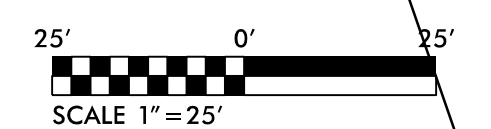
DELMAR POLLERT

GARRICK PURDIE

END CONSTRUCTION WEST BOUND LANES
-Y02- POS STA 304+00.00

DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



REVISIONS

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2017/2014
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$USERNAME$$$$$

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PERMIT DRAWING
SHEET 28 OF 31



WETLAND PERMIT IMPACT SUMMARY												
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	20+61 to 23+57-L-RT	FILL	0.11				0.04					
3	18+00-RMPD	FILL	0.32				<0.01					
	20+61 to 23+57-L-RT	36" RCP						0.02		279		
	20+61 to 23+57-L-RT	BANK STABILIZATION						<0.01	<0.01	12	10	
4	57+20 to 62+51-L-	RCP						0.06	<0.01	709	10	
		BANK STABILIZATION						<0.01	<0.01	12	10	
5	11+40-DRV1	66" RCP						<0.01	<0.01	10	8	
		BANK STABILIZATION						<0.01	<0.01	10	5	
6	67+63 to 68+83 -L-RT	FILL	0.05				0.01					
7	12+41 to 13+24-RMPB	FILL	0.05		0.03		0.02					
8	299+77 to 299+91-Y02-LT	15" RCP						<0.01		7		
		BANK STABILIZATION						<0.01	<0.01	10	10	
9	10+00-RMPB-RT	FILL	<0.01		0.02		0.02					
10	41+35 TO 41+50-Y01-RT	FILL					0.01					
			0.54		0.05		0.10	0.08	<0.01	1049	53	

SITE 2 HAS BEEN REMOVED FROM PLANS

0.03 acres of Temporary Fill in Wetlands in the Hand Clearing areas for erosion control measures.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BLADEN COUNTY
WBS - 40226.1.1 (R-4903)

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)
11	67+16 to 67+23-L-RT	BANK STABILIZATION						<0.01	<0.01	5	15	
12	67+46 TO 68+35-L-LT	FILL			0.01		0.01					
					0.01		0.01	0.00	<0.01	5	15	

GRAND TOTAL

0.54

0.06

0.11

0.08

<0.01

1054

68

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BLADEN COUNTY

WBS - 40226.1.1 (R-4903)

12345678910111213141516171819202122232425262728293031323334353637383940414243444546474849505152535455565758596061626364656667686970717273747576777879808182838485868788899091929394959697989910010110210310410510610710810911011111211311411511611711811912012112212312412512612712812913013113213313413513613713813914014114214314414514614714814915015115215315415515615715815916016116216316416516616716816917017117217317417517617717817918018118218318418518618718818919019119219319419519619719819920020120220320420520620720820921021121221321421521621721821922022122222322422522622722822923023123223323423523623723823924024124224324424524624724824925025125225325425525625725825926026126226326426526626726826927027127227327427527627727827928028128228328428528628728828929029129229329429529629729829930030130230330430530630730830931031131231331431531631731831932032132232332432532632732832933033133233333433533633733833934034134234334434534634734834935035135235335435535635735835936036136236336436536636736836937037137237337437537637737837938038138238338438538638738838939039139239339439539639739839940040140240340440540640740840941041141241341441541641741841942042142242342442542642742842943043143243343443543643743843944044144244344444544644744844945045145245345445545645745845946046146246346446546646746846947047147247347447547647747847948048148248348448548648748848949049149249349449549649749849950050150250350450550650750850951051151251351451551651751851952052152252352452552652752852953053153253353453553653753853954054154254354454554654754854955055155255355455555655755855956056156256356456556656756856957057157257357457557657757857958058158258358458558658758858959059159259359459559659759859960060160260360460560660760860961061161261361461561661761861962062162262362462562662762862963063163263363463563663763863964064164264364464564664764864965065165265365465565665765865966066166266366466566666766866967067167267367467567667767867968068168268368468568668768868969069169269369469569669769869970070170270370470570670770870971071171271371471571671771871972072172272372472572672772872973073173273373473573673773873974074174274374474574674774874975075175275375475575675775875976076176276376476576676776876977077177277377477577677777877978078178278378478578678778878979079179279379479579679779879980080180280380480580680780880981081181281381481581681781881982082182282382482582682782882983083183283383483583683783883984084184284384484584684784884985085185285385485585685785885986086186286386486586686786886987087187287387487587687787887988088188288388488588688788888989089189289389489589689789889990090190290390490590690790890991091191291391491591691791891992092192292392492592692792892993093193293393493593693793893994094194294394494594694794894995095195295395495595695795895996096196296396496596696796896997097197297397497597697797897998098198298398498598698798898999099199299399499599699799899910001001100210031004100510061007100810091010101110121013101410151016101710181019102010211022102310241025102610271028102910301031103210331034103510361037103810391040104110421043104410451046104710481049105010511052105310541055105610571058105910601061106210631064106510661067106810691070107110721073107410751076107710781079108010811082108310841085108610871088108910901091109210931094109510961097109810991100110111021103110411051106110711081109111011111112111311141115111611171118111911201121112211231124112511261127112811291130113111321133113411351136113711381139114011411142114311441145114611471148114911501151115211531154115511561157115811591160116111621163116411651166116711681169117011711172117311741175117611771178117911801181118211831184118511861187118811891190119111921193119411951196119711981199120012011202120312041205120612071208120912101211121212131214121512161217121812191220122112221223122412251226122712281229123012311232123312341235123612371238123912401241124212431244124512461247124812491250125112521253125412551256125712581259126012611262126312641265126612671268126912701271127212731274127512761277127812791280128112821283128412851286128712881289129012911292129312941295129612971298129913001

09/08/99

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols
See Sheets 1-C and 1-D for Survey Control Sheets

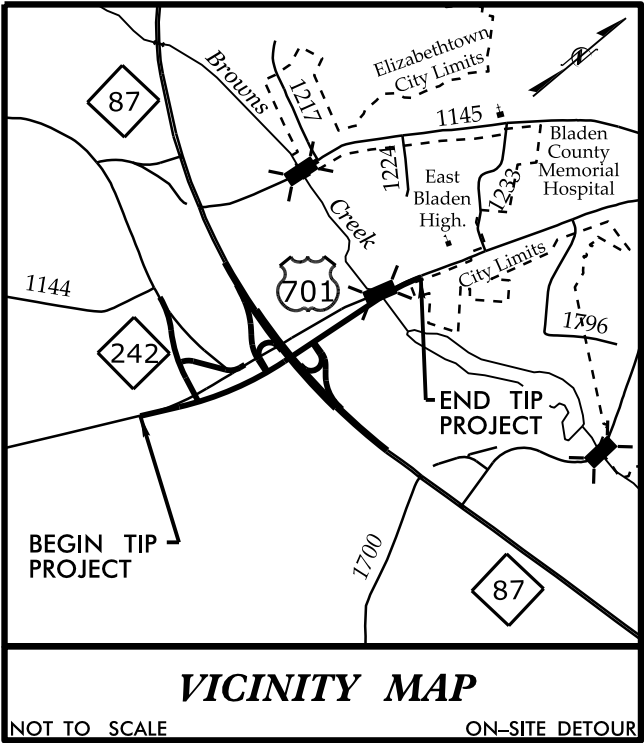
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BLADEN COUNTY

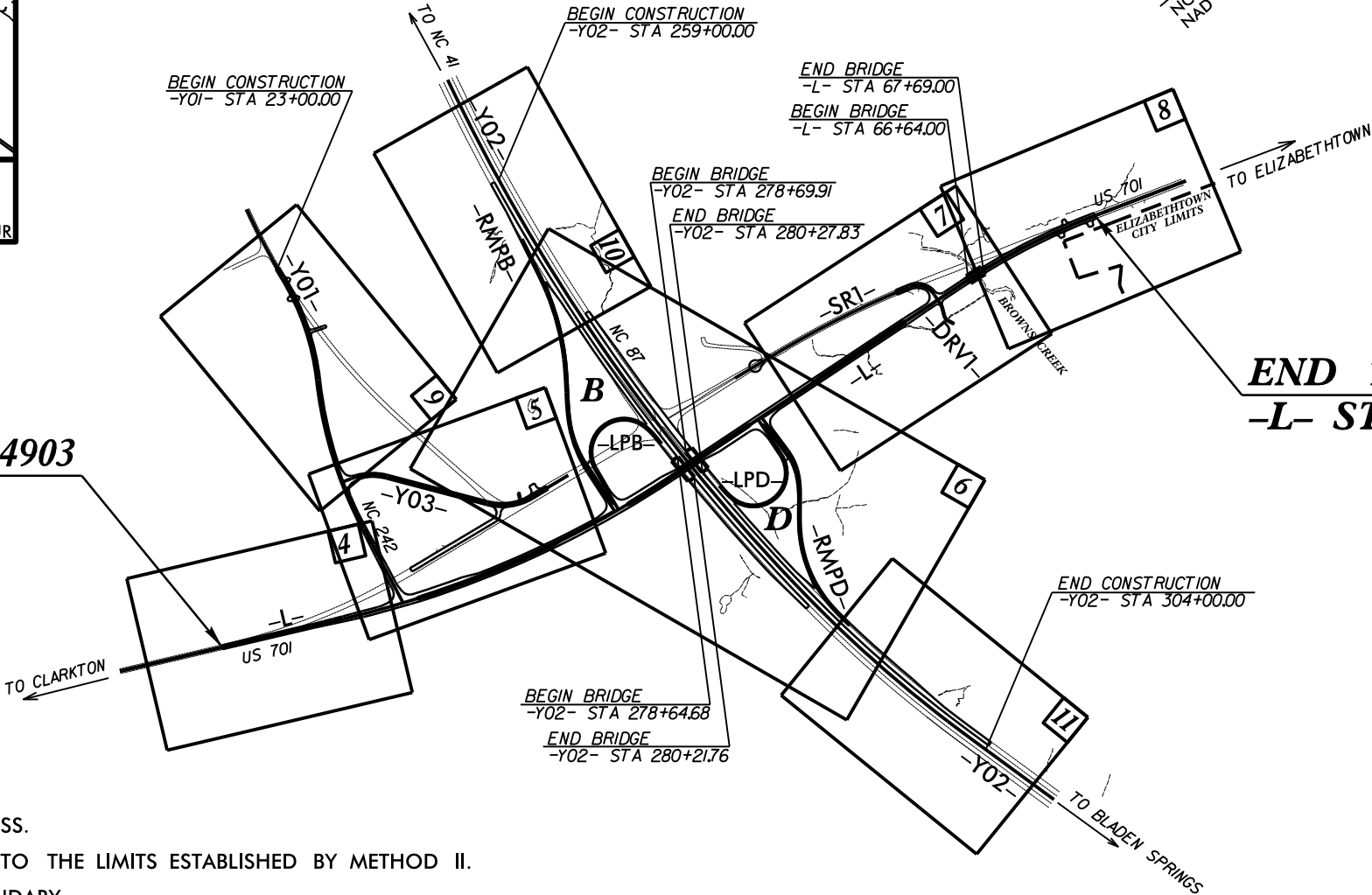
LOCATION: NC 87 AT US 701 INTERSECTION

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4903	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40226.1.1	NHF-0087(15)	P.E.	
40226.2.FS1	NHF-0087(15)	RIGHT OF WAY	
40226.2.UFS1	NHF-0087(15)	UTILITIES	



BEGIN TIP PROJECT R-4903
-L- STA 16+60.00



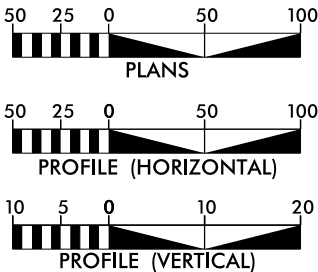
END TIP PROJECT R-4903
-L- STA 75+10.00

NOTES:

1. A PORTION OF THIS PROJECT IS CONTROLLED ACCESS.
2. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
3. THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARY.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2014 = 11,700
ADT 2034 = 17,600
K = 11 %
D = 60 %
T = 14 % *
V = 50 MPH
* TTST = 9% DUAL 5%
FUNC CLASS =
RURAL MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R-4903 = 1.088 MILES
LENGTH OF STRUCTURE TIP PROJECT R-4903 = 0.020 MILES
TOTAL LENGTH OF TIP PROJECT R-4903 = 1.108 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 30, 2013

LETTING DATE:
DECEMBER 16, 2014

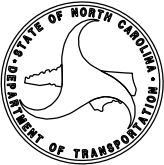
GARY LOVERING, PE
PROJECT ENGINEER

SUSAN C. LANCASTER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.
ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.



TIP PROJECT: R-4903

CONTRACT:

17-MAR-2014 11:49
R:\Roadway\Proj\R4903_Rdy.tsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

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	○ EP
Property Corner	-----x-----
Property Monument	□ ECM
Parcel/Sequence Number	123
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-----MLB-----
Proposed Wetland Boundary	-----MLB-----
Existing Endangered Animal Boundary	-----EAB-----
Existing Endangered Plant Boundary	-----EPB-----
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ?

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	-----
Switch	-----
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----C-----
Proposed Slope Stakes Fill	-----F-----
Proposed Curb Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	-----
Pavement Removal	-----
VEGETATION:	
Single Tree	-----
Single Shrub	-----
Hedge	-----
Woods Line	-----

Orchard	-----
Vineyard	-----

EXISTING STRUCTURES:

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

UTILITIES:

POWER:	
Existing Power Pole	-----
Proposed Power Pole	-----
Existing Joint Use Pole	-----
Proposed Joint Use Pole	-----
Power Manhole	-----
Power Line Tower	-----
Power Transformer	-----
U/G Power Cable Hand Hole	-----
H-Frame Pole	-----
Recorded U/G Power Line	-----P-----
Designated U/G Power Line (S.U.E.*)	-----P-----

TELEPHONE:

Existing Telephone Pole	-----
Proposed Telephone Pole	-----
Telephone Manhole	-----
Telephone Booth	-----
Telephone Pedestal	-----
Telephone Cell Tower	-----
U/G Telephone Cable Hand Hole	-----
Recorded U/G Telephone Cable	-----T-----
Designated U/G Telephone Cable (S.U.E.*)	-----T-----
Recorded U/G Telephone Conduit	-----TC-----
Designated U/G Telephone Conduit (S.U.E.*)	-----TC-----
Recorded U/G Fiber Optics Cable	-----T FO-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----T FO-----

WATER:

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

TV:

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

GAS:

Gas Valve	-----
Gas Meter	-----
Recorded U/G Gas Line	-----G-----
Designated U/G Gas Line (S.U.E.*)	-----G-----
Above Ground Gas Line	-----A/G Gas-----

SANITARY SEWER:

Sanitary Sewer Manhole	-----
Sanitary Sewer Cleanout	-----
U/G Sanitary Sewer Line	-----SS-----
Above Ground Sanitary Sewer	-----A/G Sanitary Sewer-----
Recorded SS Forced Main Line	-----FSS-----
Designated SS Forced Main Line (S.U.E.*)	-----FSS-----

MISCELLANEOUS:

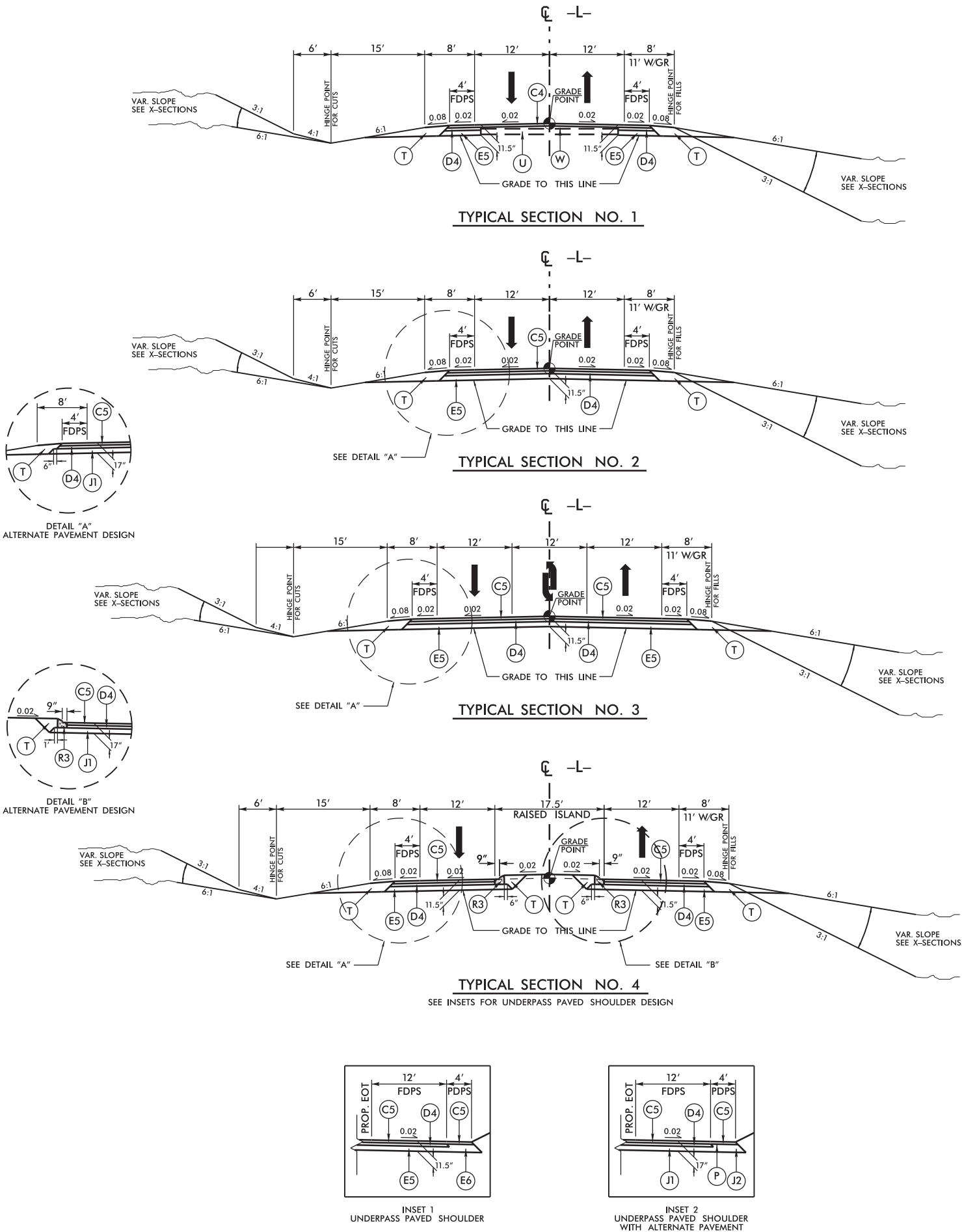
Utility Pole	-----
Utility Pole with Base	-----
Utility Located Object	-----
Utility Traffic Signal Box	-----
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	-----
Underground Storage Tank, Approx. Loc.	-----UST-----
A/G Tank; Water, Gas, Oil	-----
Geoenvironmental Boring	-----
U/G Test Hole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

6/2/99

PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO LESS THAN 1½" OR GREATER THAN 2" IN DEPTH.
C4	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C5	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C6	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1½" OR GREATER THAN 2" IN DEPTH.
C7	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C8	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 1½" IN DEPTH.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" OR GREATER THAN 4" IN DEPTH.
D4	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D5	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E3	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
E5	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E6	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 10" AGGREGATE BASE COURSE.
J2	PROP. VARIABLE DEPTH AGGREGATE BASE COURSE.
P	PRIME COAT.
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	CONCRETE EXPRESSWAY GUTTER.
R3	1'-6" CONCRETE CURB AND GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING)

NOTES: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
ALTERNATE PAVEMENT DESIGNS USED ONLY ON NEW LOCATION.

17-MAR-2014 14:55
R:\Roadway\Projects\R4903.Rdy-tp.dgn
\$\$\$\$\$INTERVIEW\$\$\$\$\$



PROJECT REFERENCE NO.	SHEET NO.
R-4903	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

USE TYPICAL SECTION NO. 1
-L- STA. 16+60.00 TO STA. 21+28.86

USE TYPICAL SECTION NO. 2
-L- STA. 21+28.86 TO STA. 22+20.00

NOTE: TRANSITION -L- FROM 24' TO 36'
-L- STA. 22+20.00 TO STA. 25+20.00

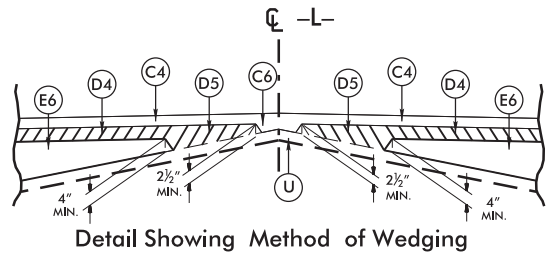
USE TYPICAL SECTION NO. 3
-L- STA. 25+20.00 TO STA. 28+50.57
-L- STA. 62+15.00 TO STA. 66+64.00 (BRIDGE)
-L- STA. 67+69.00 (BRIDGE) TO STA. 70+75.00

USE TYPICAL SECTION NO. 4
-L- STA. 28+50.57 TO STA. 62+15.00

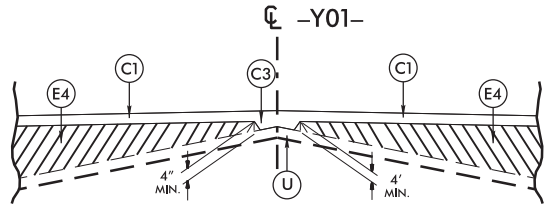
USE INSET 1 OR 2 FOR OUTSIDE SHOUDLERS:
-L- STA. 45+71.91 LT TO STA. 47+66.50 LT
-L- STA. 45+80.00 RT TO STA. 47+74.69 RT
TRANSITION FROM TYPICAL NO. 4
-L- STA. 44+90.00 LT TO STA. 45+71.91 LT
-L- STA. 44+16.38 RT TO STA. 45+80.00 RT
TRANSITION TO TYPICAL NO. 4
-L- STA. 47+66.50 LT TO STA. 49+30.89 LT
-L- STA. 47+74.69 RT TO STA. 48+60.00 RT

6/2/99

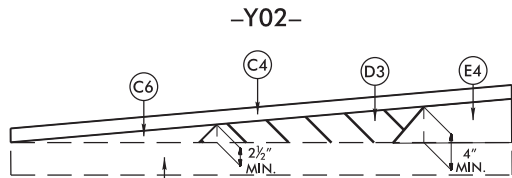
PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
C1	1.5" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
C4	1.5" S9.5C
C5	3" S9.5C
C6	VAR. S9.5C
C7	2.5" SF9.5A
C8	VAR. SF9.5A
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	4" I19.0C
D5	VAR. I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5.5" B25.0B
E4	VAR. B25.0B
E5	4.5" B25.0C
E6	VAR. B25.0C
J1	10" ABC
J2	VAR. ABC
P	PRIME COAT
R1	2'-6" C & G
R2	EXP. GUTTER
R3	1'-6" C & G
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



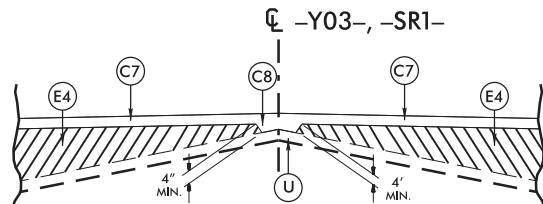
Detail Showing Method of Wedging



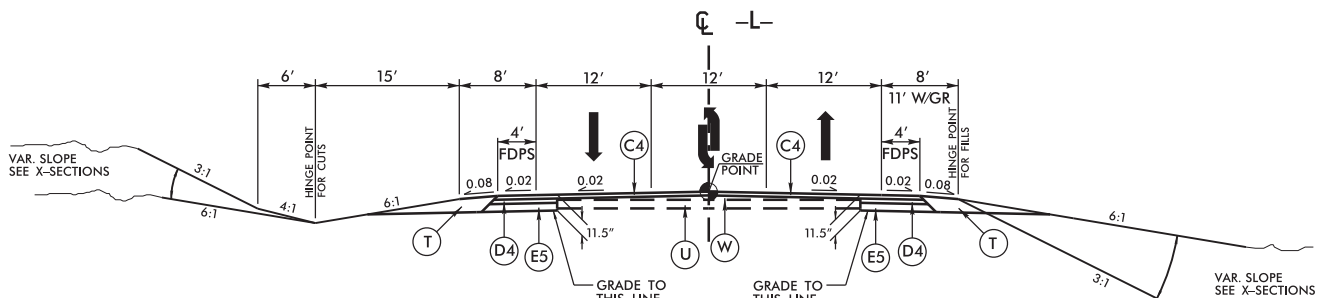
Detail Showing Method of Wedging



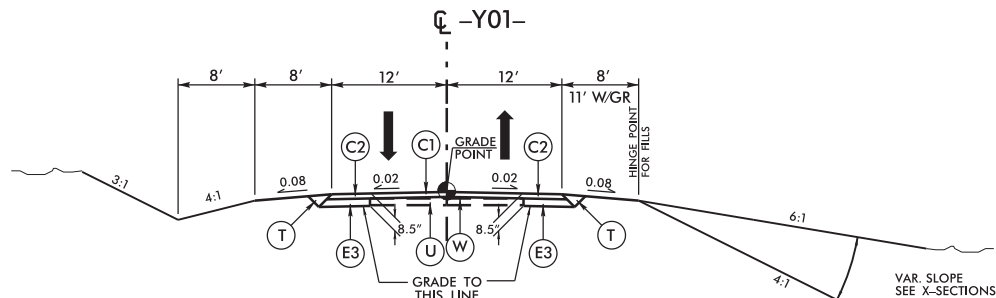
Wedging Detail For Resurfacing



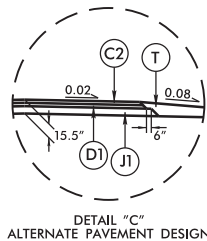
Detail Showing Method of Wedging



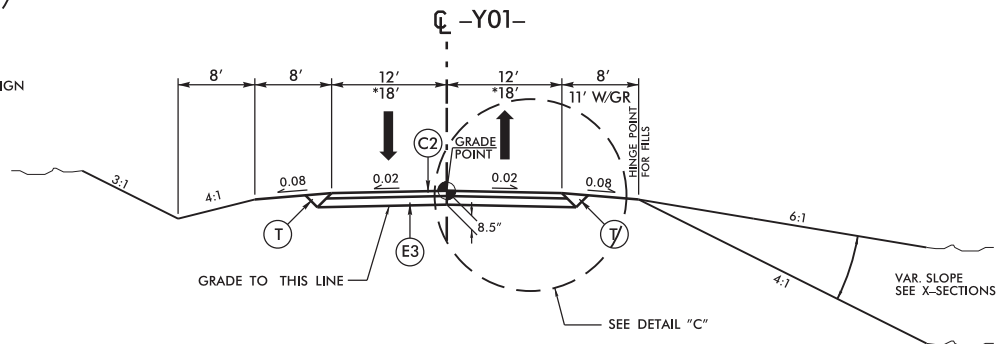
TYPICAL SECTION NO. 5



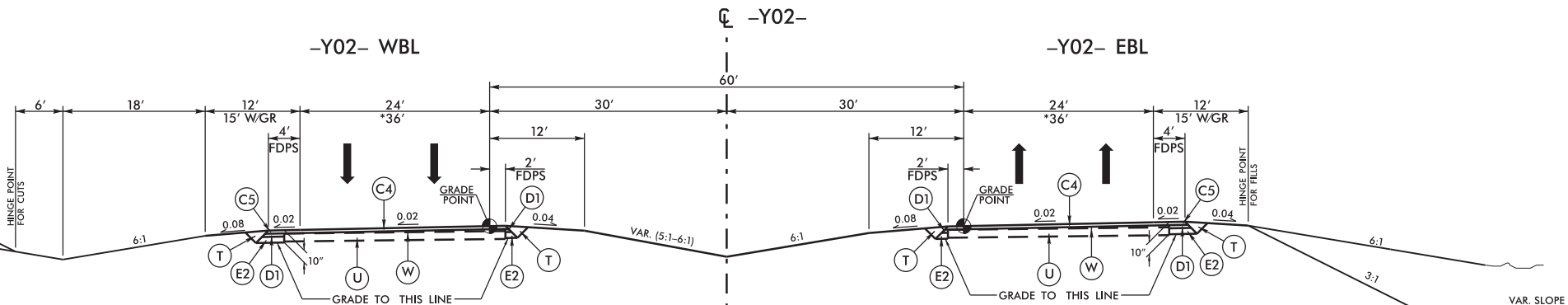
TYPICAL SECTION NO. 6



DETAIL "C" ALTERNATE PAVEMENT DESIGN



TYPICAL SECTION NO. 7



TYPICAL SECTION NO. 8

PROJECT REFERENCE NO.	SHEET NO.
R-4903	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

USE TYPICAL SECTION NO. 5
-L- STA. 70+75.00 TO STA. 75+10.00

USE TYPICAL SECTION NO. 6
-Y01- STA. 23+00.00 TO STA. 25+91.37

USE TYPICAL SECTION NO. 7
-Y01- STA. 25+91.37 TO STA. 44+12.47

* TRANSITION -Y01- FROM 12' TO 18' LT & RT
-Y01- STA. 38+45.00 TO 42+05.00

USE TYPICAL SECTION NO. 8

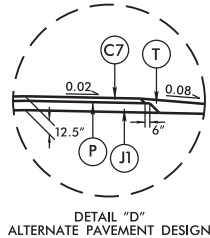
-Y02- EBL STA. 259+00.00 TO STA. 277+44.80
-Y02- EBL STA. 287+45.00 TO STA. 290+45.00
-Y02- WBL STA. 268+50.00 TO STA. 271+50.00
-Y02- WBL STA. 281+53.97 TO STA. 304+00.00
* USE 36' TOTAL TRAVEL LANE AT THESE STATIONS:
-Y02- EBL STA. 277+44.80 TO STA. 278+64.68 (BRIDGE)
-Y02- EBL STA. 280+21.76 (BRIDGE) TO STA. 287+45.00
-Y02- WBL STA. 271+50.00 TO 278+69.91 (BRIDGE)
-Y02- WBL STA. 280+27.83 (BRIDGE) TO STA. 281+53.97

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CAL SECTION NO. 9

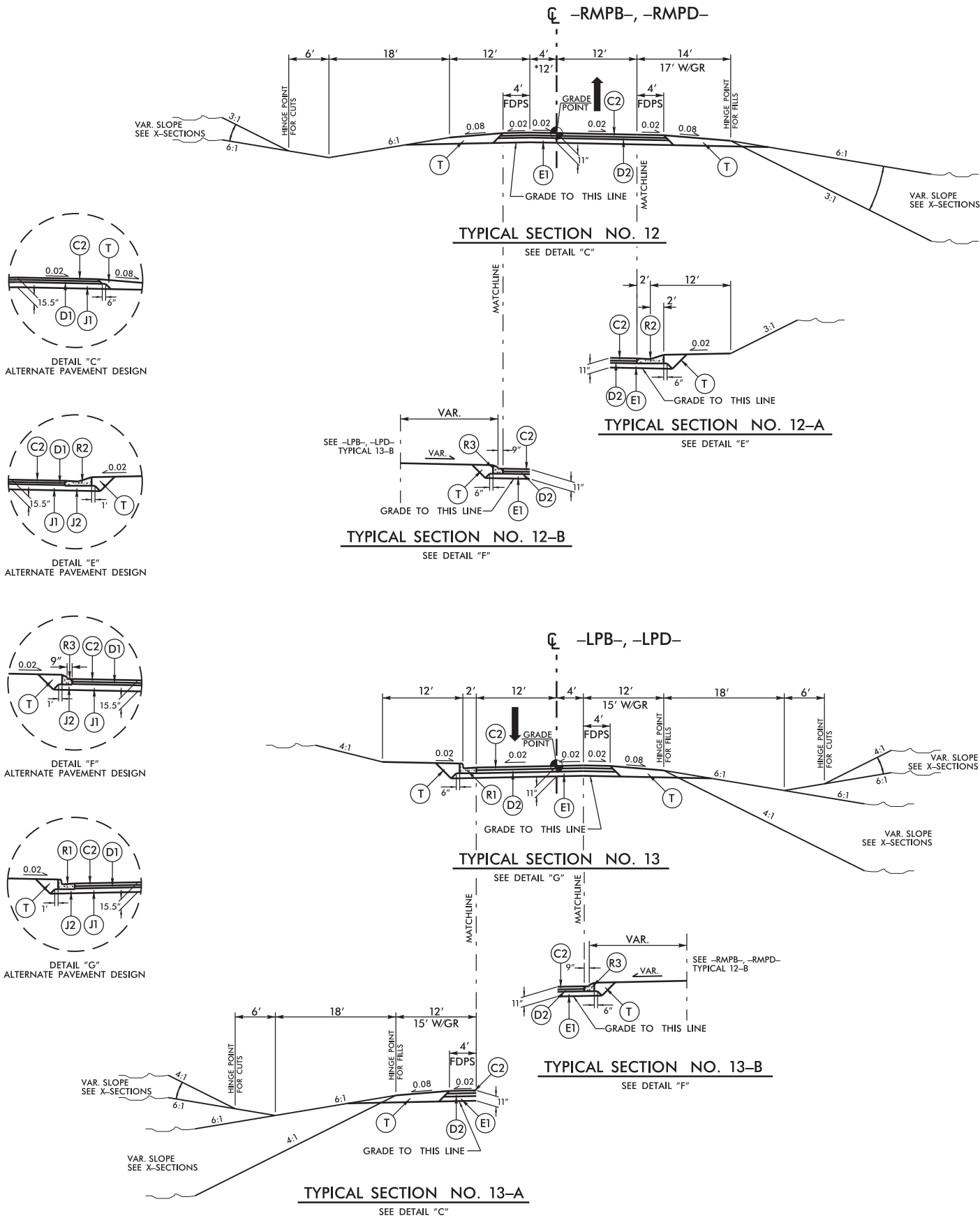
5.00 TO STA. 13 + 25.00
1.00 TO STA. 11 + 92.87
0.00 TO STA. 22 + 45.00

-SR1- CUL-DE-SAC
OVERLAY EXISTING PAVEMENT



6/2/99

PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
C1	1.5" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
C4	1.5" S9.5C
C5	3" S9.5C
C6	VAR. S9.5C
C7	2.5" SF9.5A
C8	VAR. SF9.5A
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	4" I19.0C
D5	VAR. I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5.5" B25.0B
E4	VAR. B25.0B
E5	4.5" B25.0C
E6	VAR. B25.0C
J1	10" ABC
J2	VAR. ABC
P	PRIME COAT
R1	2'-6" C & G
R2	EXP. GUTTER
R3	1'-6" C & G
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



PROJECT REFERENCE NO.	SHEET NO.
R-4903	2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

USE TYPICAL SECTION NO. 12

-RMPB- STA. 10+00.00 TO STA. 27+11.47

-RMPD- STA. 10+00.00 TO STA. 23+66.24

* TRANSITION -RMPB- LT FROM 4' TO 12'

-RMPB- STA. 21+92.25 TO 24+12.25 LT

* TRANSITION -RMPD- LT FROM 4' TO 12'

-RMPD- STA. 18+50.00 TO 20+70.00 LT

USE TYPICAL SECTION NO. 12-A

-RMPB- STA. 20+00.00 TO STA. 23+50.00 RT.

USE TYPICAL SECTION NO. 12-B

-RMPB- STA. 24+12.25 TO STA. 25+63.00 LT.

-RMPD- STA. 21+06.23 TO STA. 22+17.50 LT.

USE TYPICAL SECTION NO. 13

-LPB- STA. 10+00.00 TO STA. 19+48.68

-LPD- STA. 10+00.00 TO STA. 18+97.80

USE TYPICAL SECTION NO. 13-A

-LPB- STA. 10+00.00 TO STA. 11+62.00 LT.

-LPB- STA. 18+37.94 TO STA. 19+48.68 LT.

-LPD- STA. 10+00.00 TO STA. 11+50.00 LT.

-LPD- STA. 17+87.49 TO STA. 18+97.80 LT.

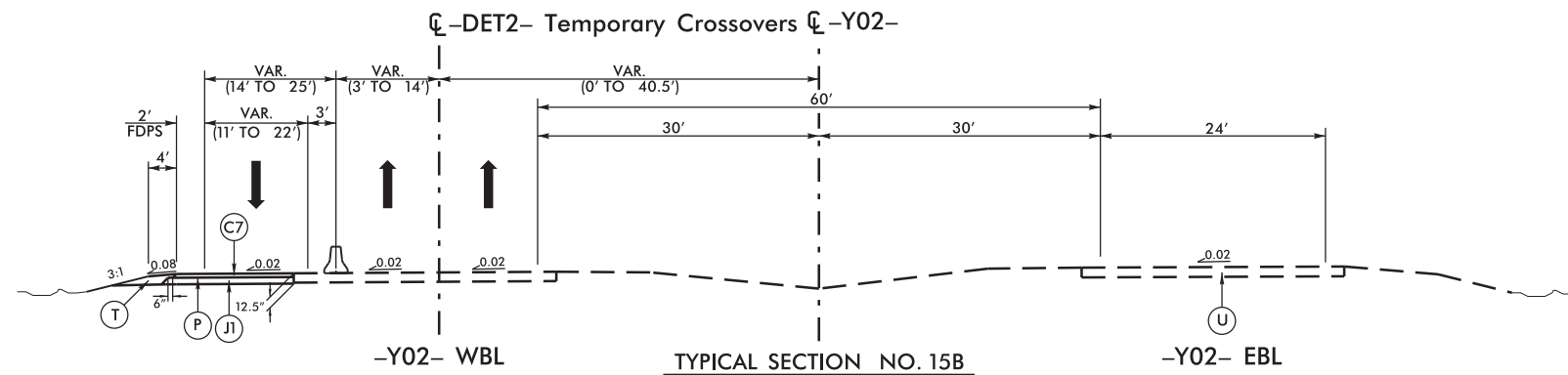
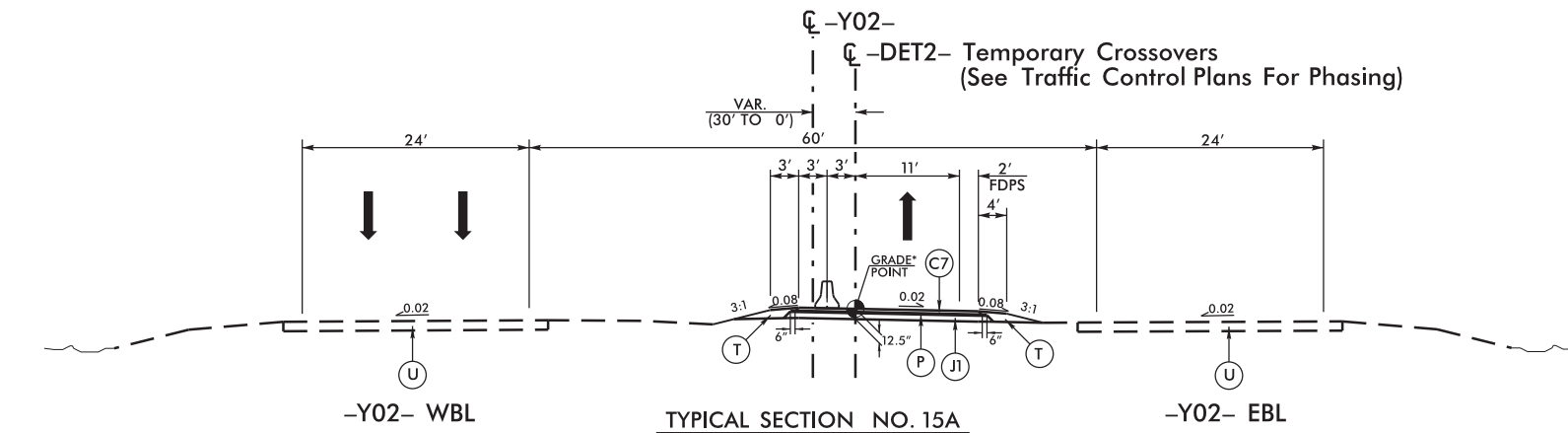
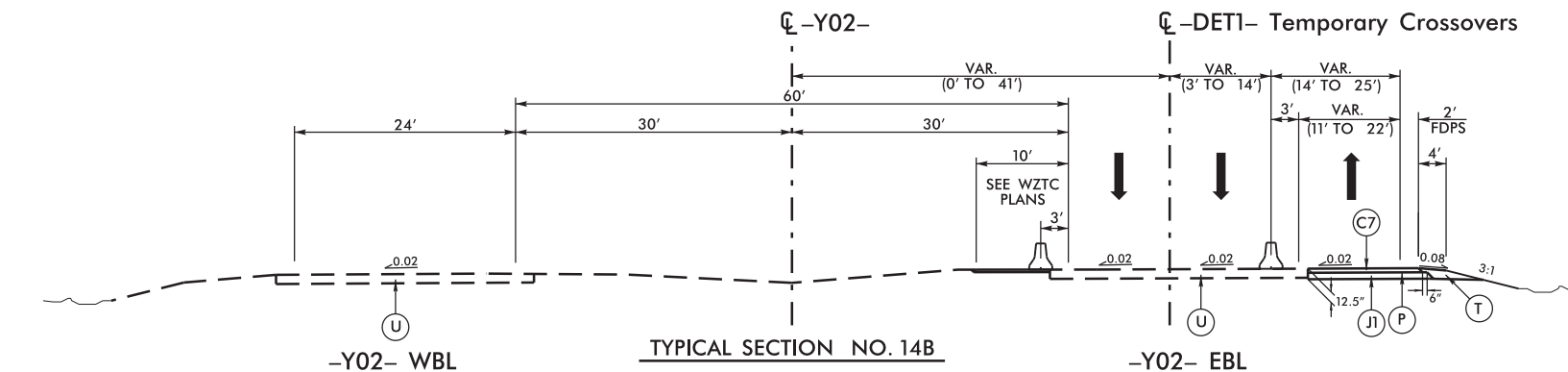
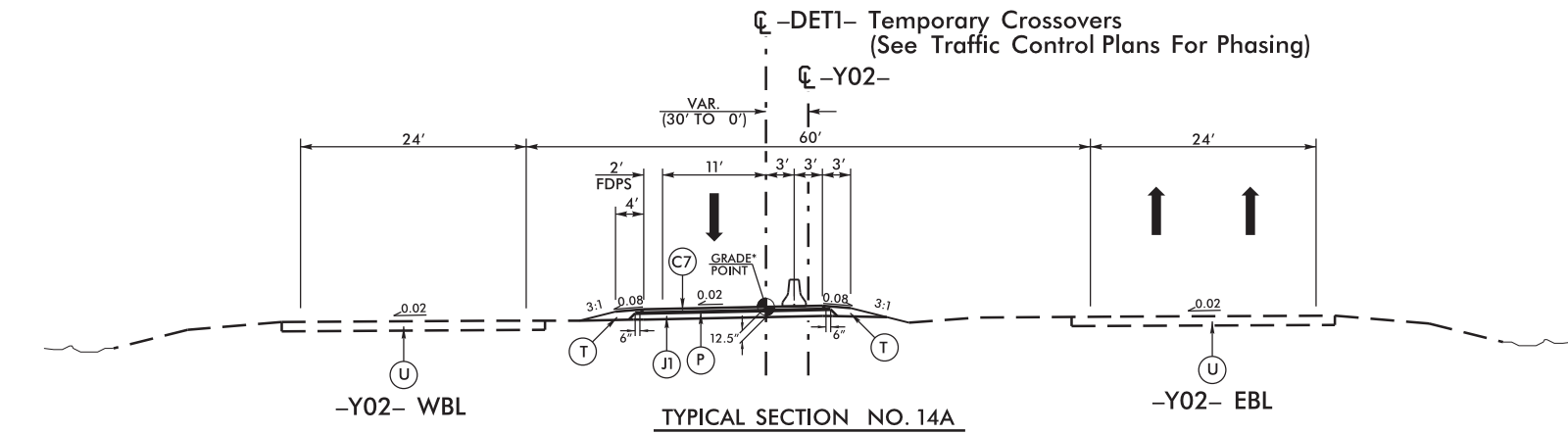
USE TYPICAL SECTION NO. 13-B

-LPB- STA. 16+51.70 TO STA. 17+99.00 RT.

-LPD- STA. 16+36.24 TO STA. 17+48.00 RT.

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\$\$\$\$\$PRNAME\$\$\$\$\$

PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
C1	1.5" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
C4	1.5" S9.5C
C5	3" S9.5C
C6	VAR. S9.5C
C7	2.5" SF9.5A
C8	VAR. SF9.5A
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	4" I19.0C
D5	VAR. I19.0C
E1	4" B25.0B
E2	4.5" B25.0B
E3	5.5" B25.0B
E4	VAR. B25.0B
E5	4.5" B25.0C
E6	VAR. B25.0C
J1	10" ABC
J2	VAR. ABC
P	PRIME COAT
R1	2'-6" C & G
R2	EXP. GUTTER
R3	1'-6" C & G
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



PROJECT REFERENCE NO.	SHEET NO.
R-4903	2-D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

USE TYPICAL SECTION NO. 14A

-DET1- STA. 10+00.00 TO STA. 14+34.61
-DET1- STA. 25+51.84 TO STA. 30+08.81

USE GRADE POINT

-DET1- STA. 10+84.08 TO 14+34.61
-DET1- STA. 25+51.84 TO 29+20.72

*MATCH EXISTING ELEVATION

-DET1- STA. 10+00.00 TO 10+84.08
-DET1- STA. 29+20.72 TO 30+08.81

NOTE: PHASE 1 DETOUR PLAN SHEETS 2-F AND 2-G.

USE TYPICAL SECTION NO. 14B

-DET1- STA. 14+34.61 TO STA. 25+51.84

NOTE: PHASE 1 DETOUR PLAN SHEETS 2-F AND 2-G.

USE TYPICAL SECTION NO. 15A

-DET2- STA. 10+00.00 TO STA. 14+78.95
-DET2- STA. 25+84.51 TO STA. 30+67.58

USE GRADE POINT

-DET2- STA. 10+81.43 TO 14+78.95
-DET2- STA. 25+84.51 TO 29+81.48

*MATCH EXISTING ELEVATION

-DET2- STA. 10+00.00 TO 10+81.43
-DET2- STA. 29+81.48 TO 30+76.90

NOTE: PHASE 2 DETOUR PLAN SHEETS 2-H AND 2-I.

USE TYPICAL SECTION NO. 15B

-DET2- STA. 14+78.95 TO STA. 22+39.01 (TIE TO BEGIN BRIDGE)
-DET2- STA. 23+96.52 (TIE TO END BRIDGE) TO STA. 25+84.51

NOTE: PHASE 2 DETOUR PLAN SHEETS 2-H AND 2-I.

DESIGN DATA -L-	
ADT 2014	= 11,700
ADT 2034	= 17,600
D	= 60%
DHV	= 10%
TTST	= 9%
DUAL	= 5%
V	= 50 mph
FUNC. CLASS	= RURAL MINOR ARTERIAL
REGIONAL TIER	



DESIGN DATA -Y02-	
ADT 2014	= 8,538
ADT 2034	= 12,883
D	= 55%
DHV	= 10%
TTST	= 6%
DUAL	= 2%
V	= 60 mph
FUNC. CLASS - RURAL MINOR ARTERIAL (STRATEGIC HIGHWAY CORRIDOR)	
MINIMUM VERTICAL CLEARANCE = 16.5'	
@ SLOPES DETERMINED BY GEOTECHNICAL ENGINEERING UNIT	

[illegible]

FUTURE WIDENING TYPICAL SECTION

FUTURE WIDENING TYPICAL SECTION

The diagram illustrates a typical cross-section for future widening of a road. It is divided into two parts by a vertical dashed line labeled "MATCHLINE NO. 1" and "MATCHLINE NO. 2".

Left Side (Matchline No. 1):

- The total width shown is 10' + 2' + 12' = 24'.
- The 10' section on the left is labeled "FUTURE BERM ELEVATION" and has a slope of 0.02'.
- The 2' section in the middle is labeled "MATCHLINE NO. 1".
- The 12' section on the right is labeled "MATCHLINE NO. 2".
- The base of the widening is 1' wide.
- The widening is labeled "R1".

Right Side (Matchline No. 2):

- The total width shown is 12' + 2' + 10' = 24'.
- The 12' section on the left is labeled "MATCHLINE NO. 1".
- The 2' section in the middle is labeled "MATCHLINE NO. 2".
- The 10' section on the right is labeled "FUTURE BERM ELEVATION" and has a slope of 0.02'.
- The base of the widening is 1' wide.
- The widening is labeled "R1".

FUTURE WIDENING TYPICAL SECTION

 PROPOSED PAVEMENT REMOVAL

BEGIN TIP PROJECT R-4903
-L- STA 16+60.00 * *

CLARK BROTHERS LLC.
DB 308 PG 791
DB 635 PG 320

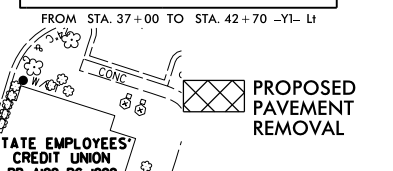
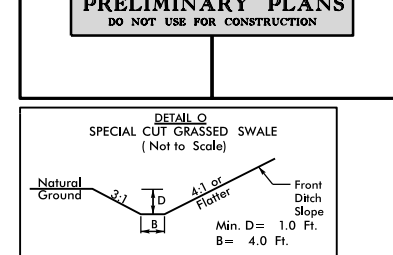
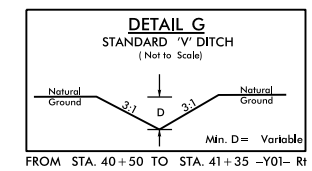
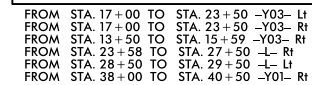
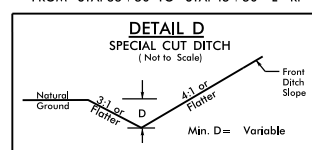
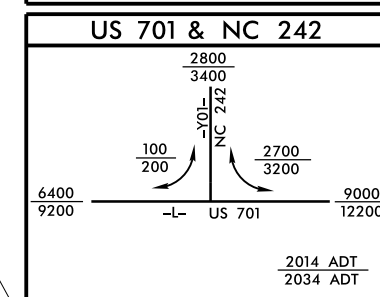
CLARK BROTHERS LLC
DB 308 PG 791
DB 635 PG 320

-L-
PI Sta 34+81.07
 $\Delta = 20^\circ 23' 30.1''$ (LT)
 $D = 0^\circ 57' 17.7''$
 $L = 2135.41'$
 $T = 1079.12'$
 $R = 6000.00'$
SE = SEE PLANS

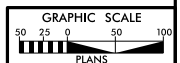
DETAIL D
SPECIAL CUT DITCH
(Not to Scale)

FROM STA. 23+58 TO STA. 27+50 -L- Rt

FOR -L- PROFILE, SEE SHEET 12



REVISIONS



NAD 83/2001

-L-

PI Sta 70+56.07
 $\Delta = 12^\circ 37' 08.6" (RT)$
 $D = 1^\circ 25' 56.6"$
 $L = 880.98'$
 $T = 442.28'$
 $R = 4,000.00'$
SE = SEE PLANS

END TIP PROJECT R-4903
[-L- STA 75+10.00

SEE SHEET 7

08

OR -L- PROFILE, SEE SHEET 14

8/17/99

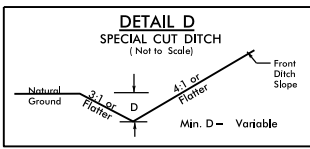
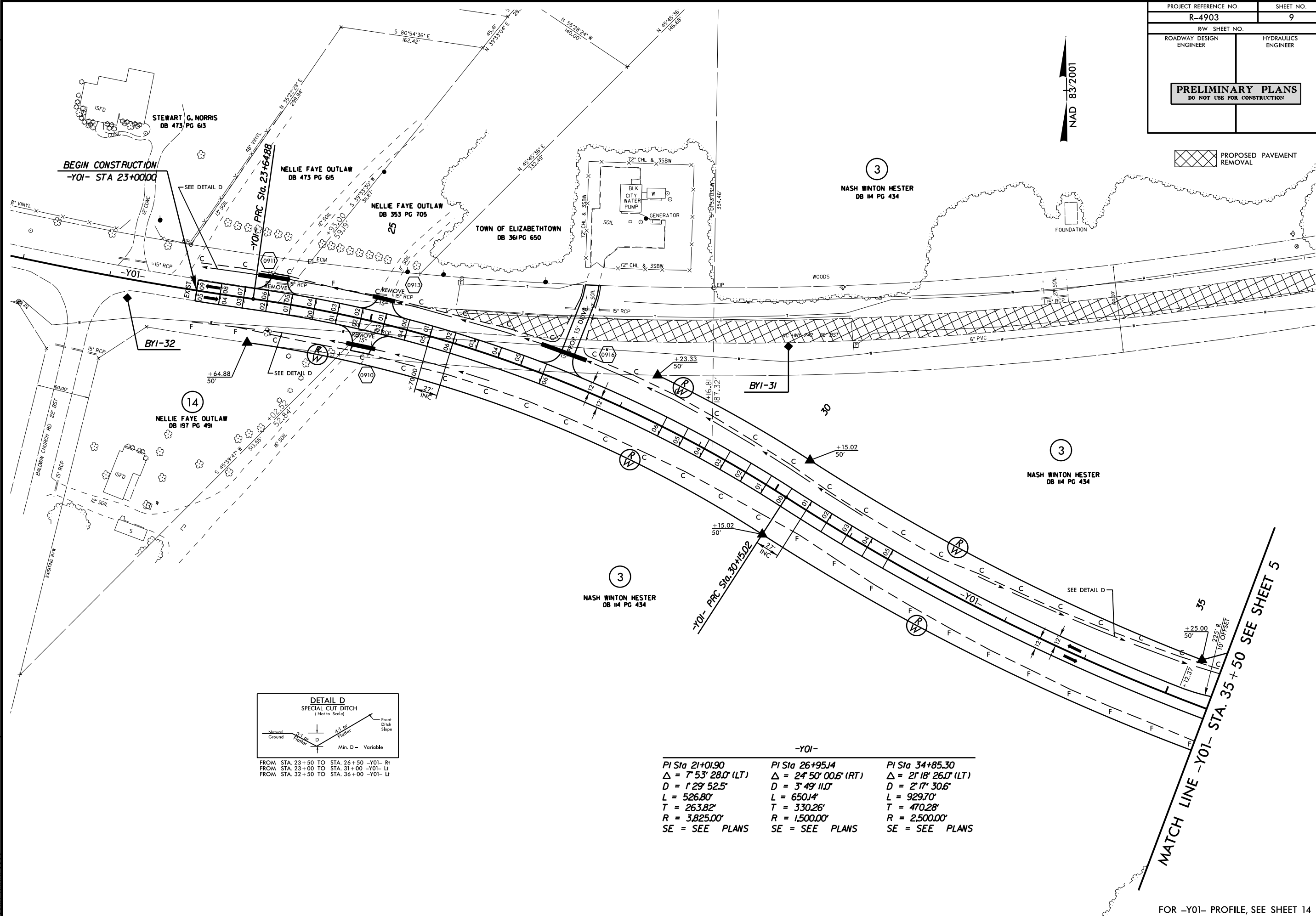
REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
R-4903	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PROPOSED PAVEMENT
REMOVAL

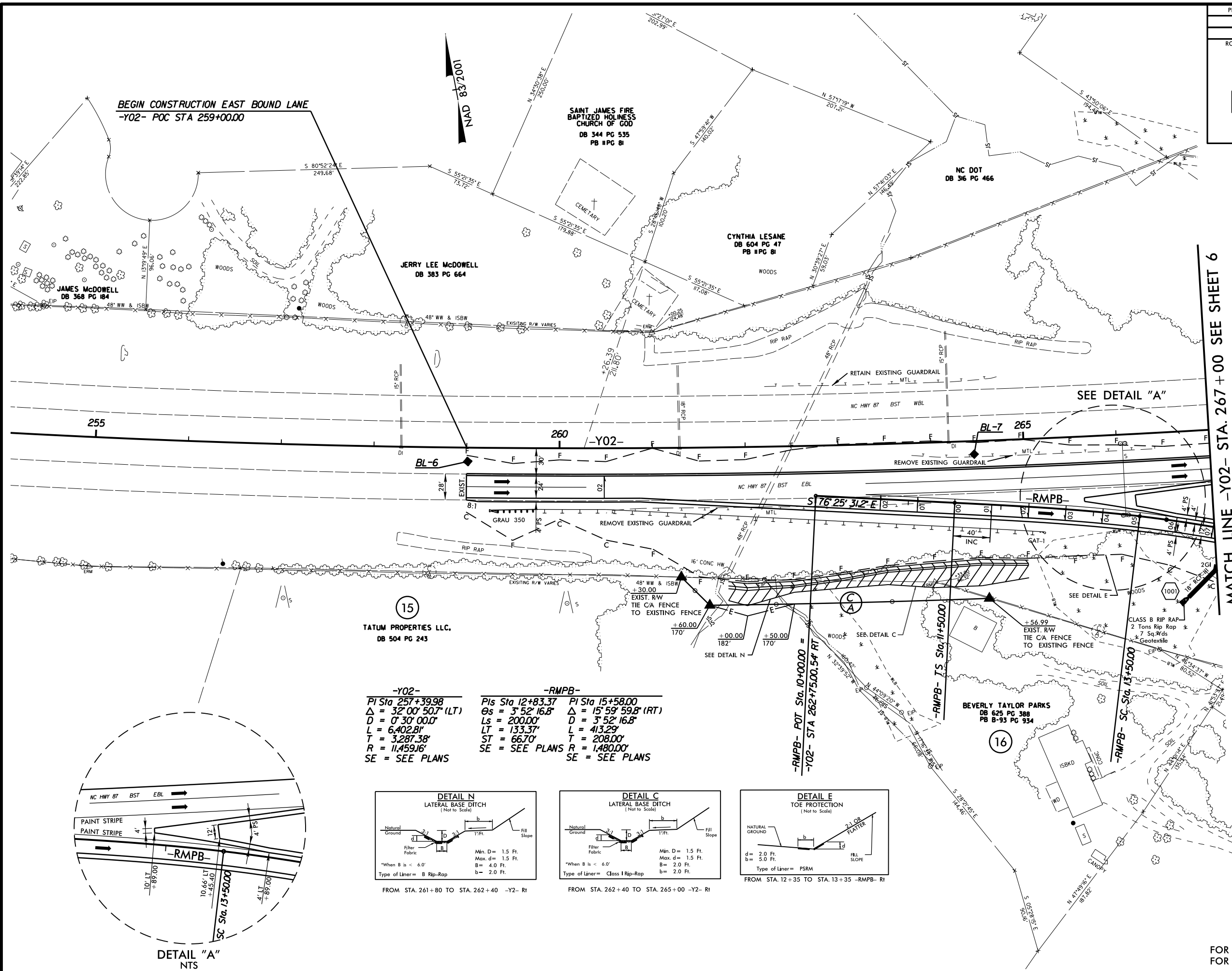
NAD 83/2001



FROM STA. 23+50 TO STA. 26+50 -Y01- Rt
FROM STA. 23+00 TO STA. 31+00 -Y01- Lt
FROM STA. 32+50 TO STA. 36+00 -Y01- Lt

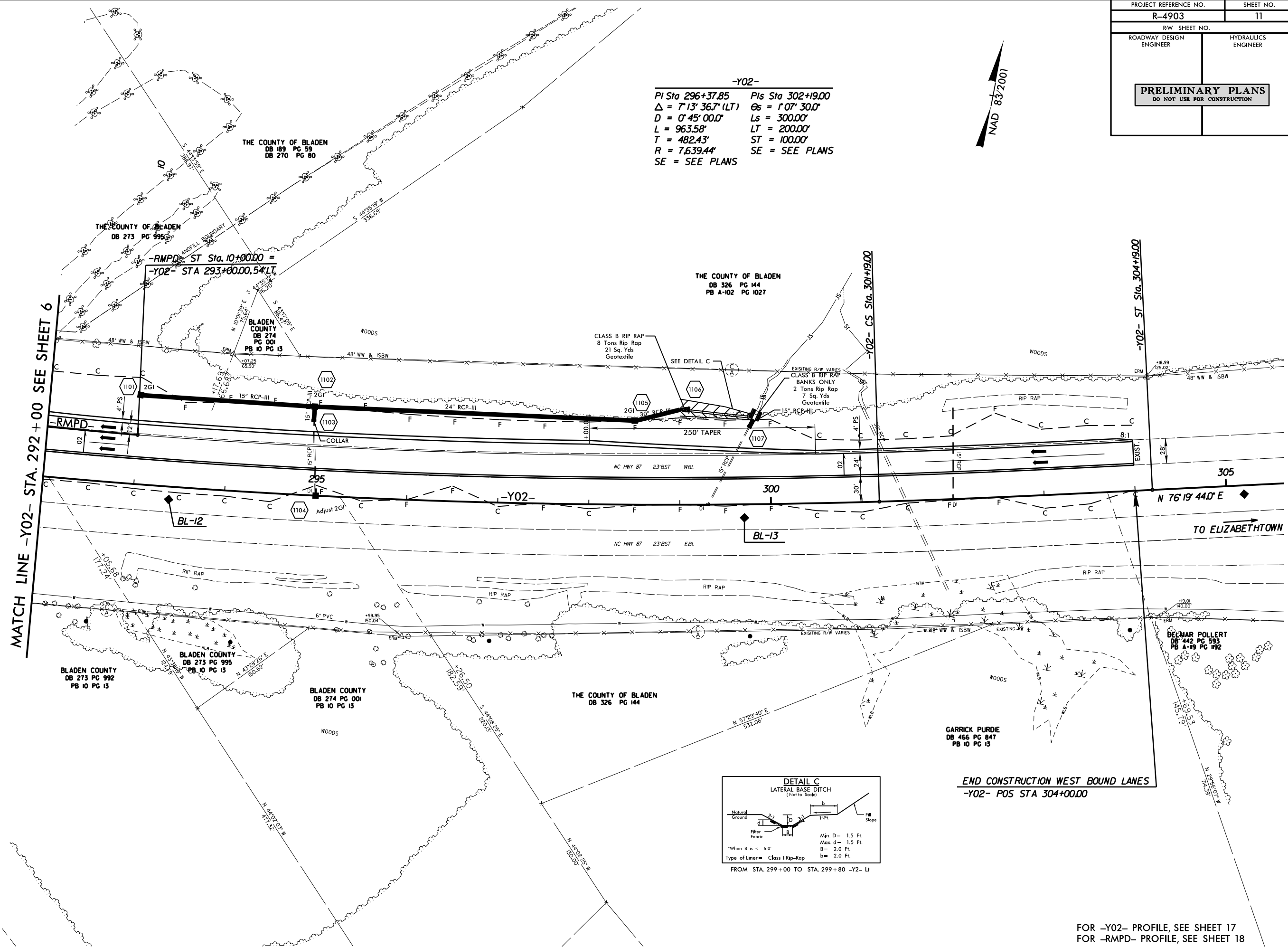
-Y01-		
PI Sta 21+01.90 $\Delta = 7^\circ 53' 28.0''$ (LT) $D = 1' 29' 52.5''$ $L = 526.80'$ $T = 263.82'$ $R = 3,825.00'$ SE = SEE PLANS	PI Sta 26+95.14 $\Delta = 24^\circ 50' 00.6''$ (RT) $D = 3' 49' 11.0''$ $L = 650.14'$ $T = 330.26'$ $R = 1,500.00'$ SE = SEE PLANS	PI Sta 34+85.30 $\Delta = 21^\circ 18' 26.0''$ (LT) $D = 2' 17' 30.6''$ $L = 929.70'$ $T = 470.28'$ $R = 2,500.00'$ SE = SEE PLANS

FOR -Y01- PROFILE, SEE SHEET 14



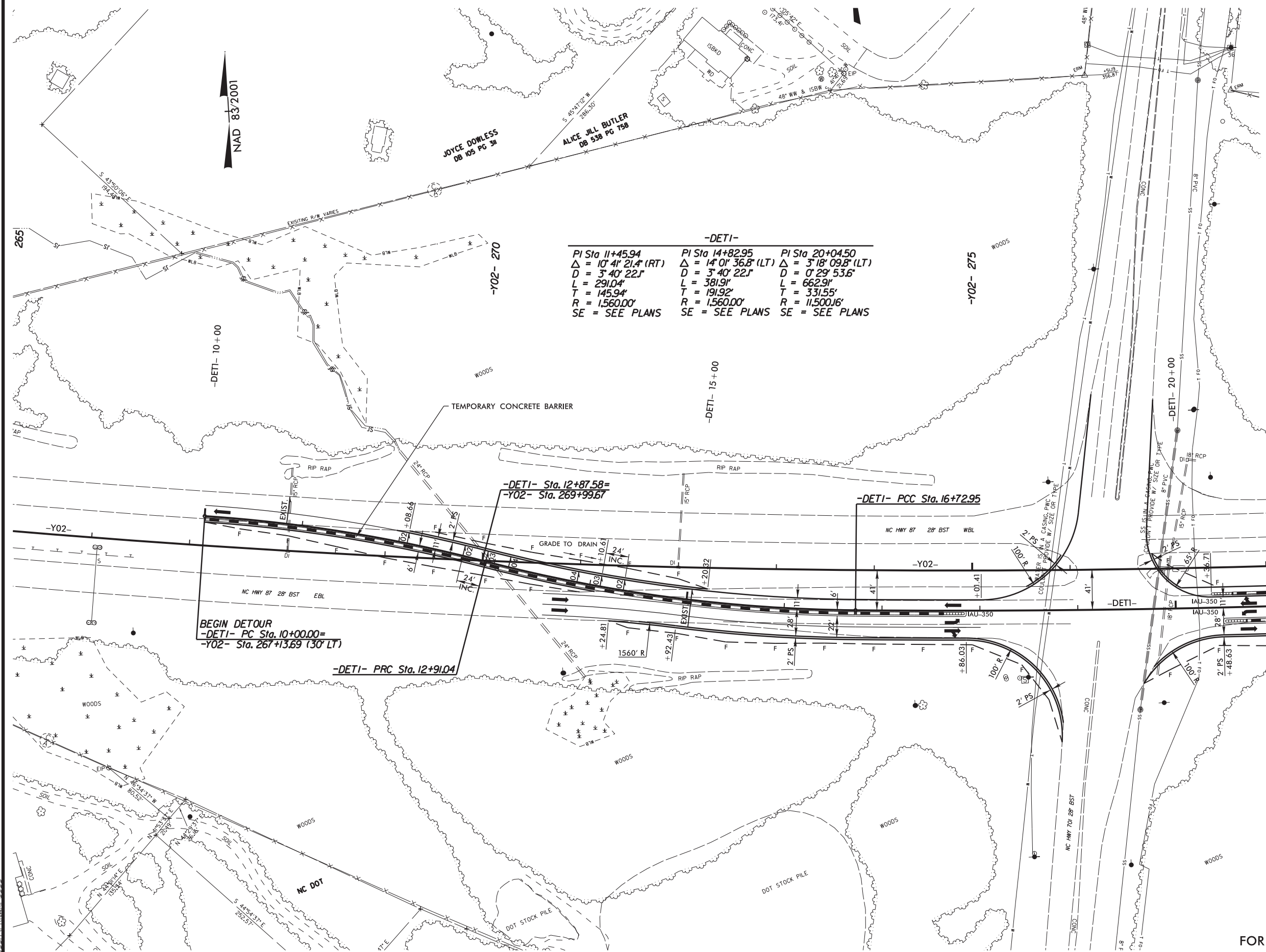
FOR -Y02- PROFILE, SEE SHEET 15
FOR -RMPB- PROFILE, SEE SHEET 18

NAD 83/2007



FOR -Y02- PROFILE, SEE SHEET 17
FOR -RMPD- PROFILE, SEE SHEET 18

PHASE I DETOUR PLAN SHEET



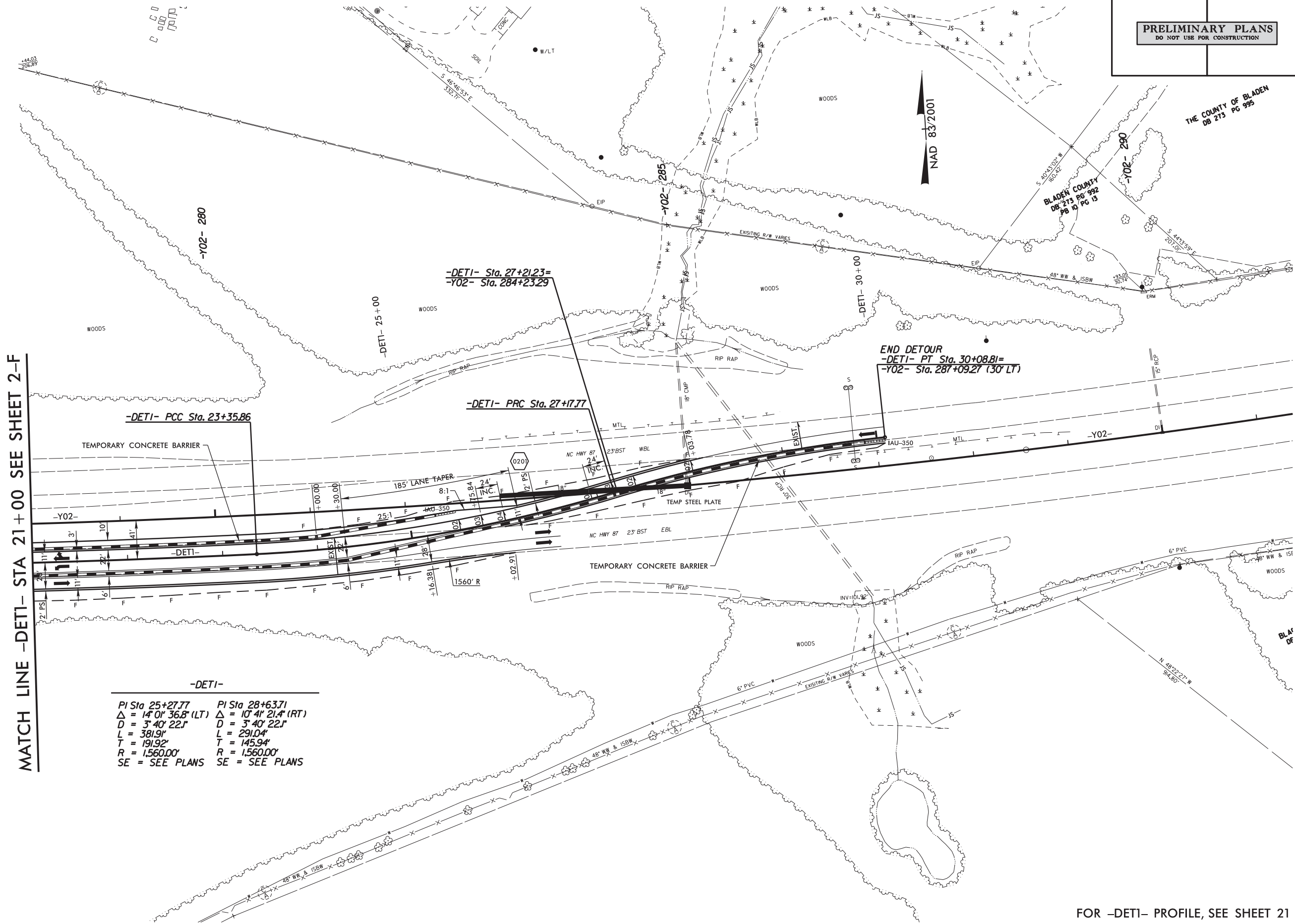
MATCH LINE -DET1- STA. 21+00 SEE SHEET 2-G

FOR -DET1- PROFILE, SEE SHEET 21

5/14/99
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PHASE I DETOUR PLAN SHEET

PROJECT REFERENCE NO.	SHEET NO.
R-4903	2-G
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



FOR -DETI- PROFILE, SEE SHEET 21

5/14/99

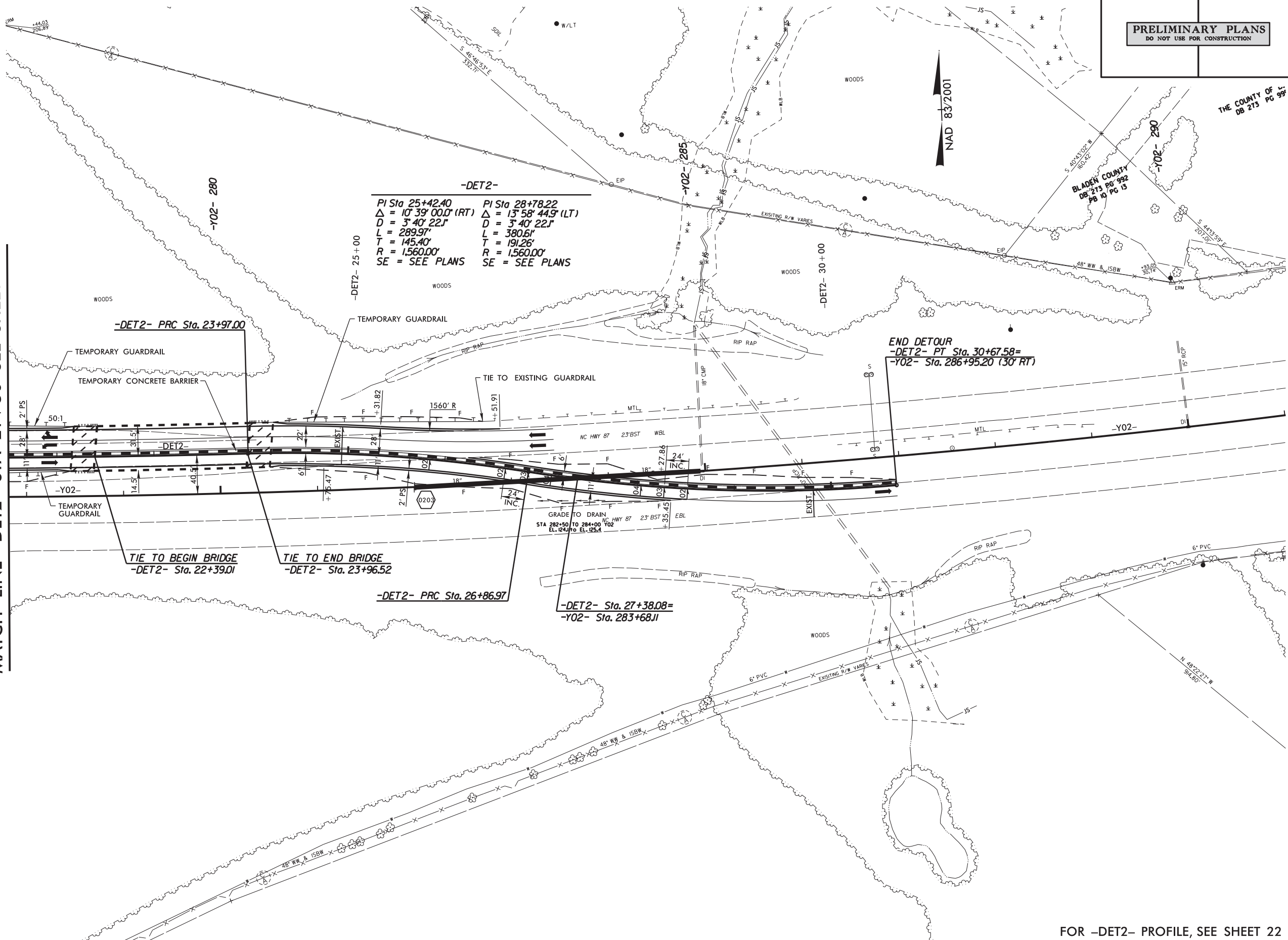
PHASE 2 DETOUR PLAN SHEET

PROJECT REFERENCE NO.	SHEET NO.
R-4903	2-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

THE COUNTY OF W. VA.
DB 273 PG 99

BLADEN COUNTY
DB 273 PG 992
PG 10 PG 15

MATCH LINE -DET2- STA 21+50 SEE SHEET 2-H



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USER NAME

FOR -DET2- PROFILE, SEE SHEET 22